

Safety System Software (S³) VERSION 3.1

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What is S³?

Safety System Software (S³) is a complete, high performance Human Machine Interface software package that is designed to work seamlessly with a variety of Safety Systems including all three generations of the Detector Electronics "Eagle" addressable systems. It allows data to be acquired from these systems for event and alarm tracking, display on custom graphics, and to be shared with other systems.

When used as an Operator Interface Station (OIS) it also allows commands to be sent to attached systems to perform a variety of functions. S^3 also provides convenient and accurate device configuration, programming and diagnostic tools.

There are no cumbersome keyboard commands for the operator to learn. The entire interface is graphic in nature. Onscreen point and click icons allow convenient navigation through the application with easy access to the various features.

The S^3 database contains all of the information needed to allow for easy and accurate configuration. All pertinent information for the device being configured including user selectable options is displayed on an easy to understand "point configuration screen". From this screen the configuration can be viewed and changes can be made as desired.

Pre-configured "Point Display Screens" present data for complex networked devices as well as conventional ones in a consolidated and easy to understand format. With Eagle Quantum Premier devices, each node on the network provides detailed status information, recent alarms and calibration records.

S³ also provides password protection for up to 64 different user accounts to keep unauthorized personnel from modifying system configurations, and thousands of user levels for accessing command and control functions.

In short, S³ collects, tracks, displays and distributes your safety system information while allowing intuitive operator input for command and control functions of these safety systems.

Features

1-4

- User friendly point and click navigation, with no special keyboard commands to learn.
- Menu driven configuration ensures easy installation or modification.
- Configuration additions or changes can be made at any time with minimal interruption to system operation.
- Alarm and calibration data available online.
- Automatic diagnostics ensures reliable system operation.
- Up to 10 simultaneous active communication ports.
- Automatic serial port configuration; baud rate, data bits, stop bits, parity.
- OPC 2.03 Data Access Server option to share data with outside systems.
- Complete logic programming and simulation environment.
- Comprehensive "event tracking" for up to 250,000 unique tags.
- Event logging to screen, disk, and printer.
- Single window view of data from a variety of sources.
- Up to 256 custom graphics with support for mid-level overviews and a custom full-system overview.
- Custom graphics can be created in a wide range of high resolution formats from XGA at the "low end" to HDTV at the high end.
- Support for true color graphics with import capability.
- "Z-Axis" linking and navigation capability in the graphics engine to better support and portray multi-level facilities like oil platforms.
- Bilingual support for online operations.
- Multi-level security for up to 64 unique accounts.
- Project based development environment for managing multiple projects.
- Printing of comprehensive project documentation.
- Integral project backup and restore utility.
- Complete configuration logging for tracking changes to setpoints, device configurations, downloads, etc.

FEATURES

Requirements

The minimum S³ workstation hardware requirements are:

Computer. The S³ software suite is designed to run on an Intel[®] based computer with at least a 800 MHz Pentium III processor, running Microsoft Windows 2000 or Windows XP Professional. Although the software can be used with Windows 95/98 and Windows N 4.0, Windows 2000 or Windows XP Professional are the preferred operating systems. As with many modern programs, the faster the machine, the better the performance.

A hard drive with at least fifty megabytes free and a CD-ROM drive is also required for installation.

Memory. S³ Safety System Software is a high performance Operator Interface System (OIS) environment and requires a minimum of 256 MB of physical memory. When custom graphics are included in a project the memory footprint grows by 1MB per screen, based on XGA screen resolution, higher resolutions require more memory. Det-Tronics typically provides a minimum of 512MB of physical RAM in its OIS installations.

Display. S³ requires thousands of colors (16 bit) and a minimum display resolution of 1024 pixels wide by 768 pixels high (XGA). Software support for touchscreens is included.

Serial Ports. S^3 is designed to utilize up to ten high speed serial ports, all running at up to 57.6 kbps simultaneously — typically this includes the two serial ports available on the motherboard of the computer, plus up to eight additional ports on an expansion card with a serial co-processor. USB to serial converters are supported.

Ethernet. S³ can communicate with some systems via a single or redundant Ethernet connection. Each network card must have a separate, fixed, TCP/IP address.

Printers. The system can utilize any properly installed printer for documentation purposes. For on-line alarm monitoring a serial printer port must be configured through the "Ports" screen, and the appropriate printer attached. S^3 is designed to work with a serial version of the Okidata ML590 four color, tractor feed, dot matrix printer.

INTRODUCTION

S³ Architecture

The S³ software suite is divided into two distinct environments, Configuration and Online Monitoring.

The Configuration environment revolves around device/database configuration, graphics generation, project management and documentation.

The Online environment involves utilizing these configurations to collect distribute and display the information to operations personnel.

These two environments are summarized below.

S³ Configuration Environment

This environment is utilized to configure the system for operation. The following primary functions are accessible:

- Configuration of communication ports which allow data to be collected from attached systems. This includes port type selection, protocol selection, and the manipulation of any adjustable parameters.
- Configuration of supported addressable field devices.
- Programming and simulation of supported logic solvers.
- Creation and editing of the second language database.
- Tag name development, alarm and event tracking configuration.
- Creation of custom graphics.
- Global operational parameter adjustments such as time & date format, touchscreen support, remote connection parameters, custom sound library management, etc.
- Project management tools to allow for multiple projects to be developed on one machine. This includes an integral project based backup and restore utility
- Security administration allowing for the creation and maintenance of user accounts.
- The ability to print selectable detailed project documentation.

SOFTWARE ARCHITECTURE

S³ Online Environment

The S³ software suite consists of a number of separate application programs that work together to collect, distribute and display data from a variety of sources.

At the center of the suite is an application program called the "Data Collector and Distributor" or "DCD" for short.

DCD

The DCD is the heart of all online operations. It handles all of the OIS communication processes including serial communications to attached

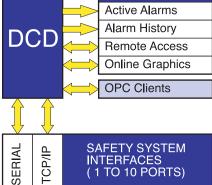
systems, TCP/IP communication with attached systems, communication with OPC clients, and peer-to-peer communications with other S³ application programs both local and remote.

The DCD can control up to ten communication ports, either individual serial ports or TCP/IP connections.

SERIAL **FCP/IP** It collects data from these ports

to update the tag database in accordance with the configurations of the individual attached systems.

Other S³ application programs query the DCD to perform their individual functions such as, updating the active alarm list, generating the alarm history and daily log, providing dynamic data for the online graphics and servicing remote access requests.



S3 Client Programs

Installation Options

1-8

There are three installation options available depending on how the workstation is to be used. They are; Operations, Development, and Demo.

Operations Installation Selection

This installation is designed for <u>full time</u> Operator Interface Station (OIS) operations where the system will be "online" around the clock and will be used by operations personnel as a window into the safety system.

If the "Operations" selection is used for installation, the system will be configured as a secure stand-alone OIS with tight security restrictions installed at the lowest levels of the operating system.



The user must be logged into the Windows-NT/2000/XP system as the "Administrator" in order to install this option.

When the "Operations" installation is used S³ takes complete control of the workstation and when "Online" access to the operating system will not be allowed. In addition, access to other application programs or Windows functions such as "CTL-ALT-DEL", "ALT-TAB", etc. will not be available.

The "Operations" installation also configures the system so that on a loss of power (or other event that causes a system restart) the OIS will automatically return to its previous state. S³ will automatically restart and if online prior to the event will return online with the last valid user logged in as the current user. If not online the station will return to the S³ Main Screen.

SOFTWARE INSTALLATION

Development & Demo Installation Selection

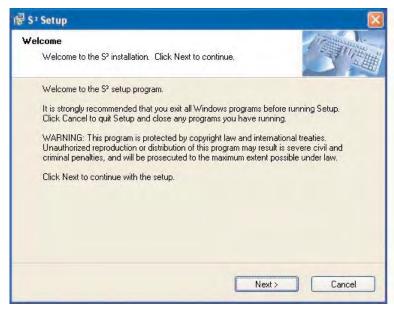
Either the "Development" or "Windows 95/98 Demo" installations do not install the low level security features of the "Operations" version. User level security is still utilized but full access to the operating system is available in a manner consistent with the given operating system.

When S³ software is ordered with the OIS computer, the software will come already loaded on the hard disk of the computer. If S³ software is ordered separately, if re-installation of the original software becomes necessary, or if a software update is to be installed, use the following procedure.

NOTE: If S³ software is currently running, return to the System Overview screen and quit S³ before installing the software.

Installation Procedure

1. Insert the S³ CD into the CD-ROM drive. Open the CD drive icon and double click on "install."

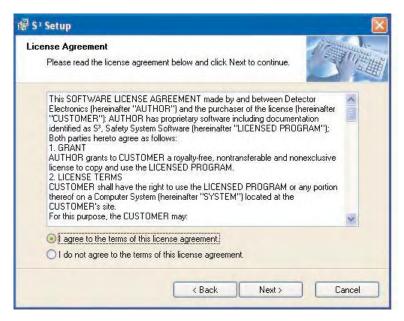


This will open the "Setup" dialog box with instructions on how to continue.

Clicking on the "Next" button will advance to the license screen.

SOFTWARE INSTALLATION

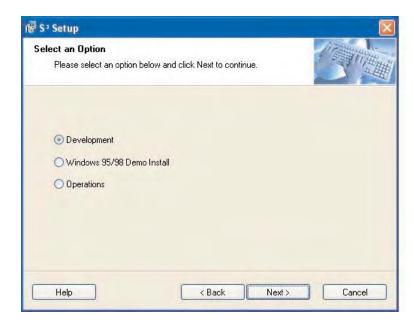
2. This step presents the Detector Electronics software license agree-



ment. Read the agreement and choose the appropriate radio button.

Use the "Next" button to continue.

3. Choose one of the three types of installation: Click the Finish button.



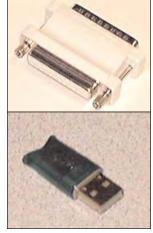
4. A final message will inform of the location of the software. Click OK. Reboot the system as required.

Hardware Keys

A hardware key which attaches to the workstation determines the options that will be enabled on the station.

The hardware keys are available in two versions; one for the standard DB-25 Parallel printer port and the other for a USB port.

This "Standard" hardware key is programmable to enable a variety of options.



The "Standard" Configuration/Runtime Key

This key will allow communication with and the configuration of Detector Electronics Corporations "Eagle" addressable Fire & Gas systems. (EAGLE2000 "E2K", Eagle Quantum "EQ", Eagle Quantum Premier "EQP")

The Configuration/Runtime key enables the following features:

The ability to utilize up to 10 serial ports to communicate with multiple Eagle systems.

The ability to configure any of the field devices and download this configuration to them.

The ability to program, simulate, monitor and document logic for the supported controllers.

The ability to look at the "real time status" of any attached Eagle field device through pre-built "point-displays".

Enables the DCD program allowing it to run.

The ability to utilize a configuration engineered with the developers key to communicate via up to 10 ports.

The ability to display dynamic data on custom graphics.

HARDWARE KEYS

INSTALLATION

The ability to log to screen, disk, and printer any configured events for any of the attached systems.

This key does not allow the development of custom graphics but does allow online operation with graphics created with a developers key.

Note A variety of options are available and when purchased will be enabled by the key. These include the following:

- Expansion of EQP network from 60 to 250 nodes.
- Enabling additional communication ports. Up to 10 total can be enabled.
- Enabling the EQP OPC Data Access Server feature imbedded in the DCD.
- Enabling Modbus RTU serial and/or Modbus TCP Ethernet ports.
- Enabling Triconex serial and/or TSAA Ethernet ports.

Developer Key

This key is typically used on Engineering development stations or Operator Interface Stations where the ability to edit the online graphics is required.

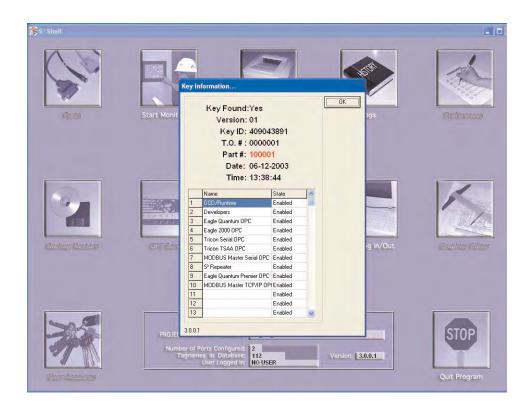
The developer key enables the following features:

All features listed for the "Standard" Configuration/Runtime key.

The ability to create or edit custom graphics.

Hardware "Key Check"

From the main screen, pressing the "K" key on the keyboard will querry the hardware key and display its configuration on screen.



HARDWARE KEYS

1-13

1-14

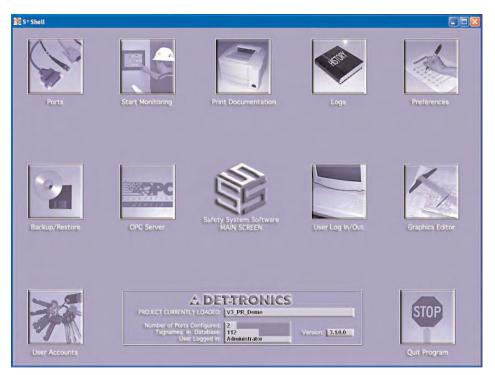
S³ CONFIGURATION



S³ Configuration

When the S^3 application program is started it will display its "MAIN SCREEN". From this screen you are able to access all of the engineering, configuration and utility programs that make up the S^3 application suite.

There are eleven buttons on this screen, each one provides access to a different area of the application suite.



Main Screen

Before any work can be done the user must "log in" to the system with a valid password utilizing the "Log In/Out" button.

The access privileges for the users account will determine what features will be available for access and the buttons for these features will then be enabled.

MAIN SCREEN

Ports

Provides access to the "Port Configuration" screen. From that screen up to ten (10) ports can be configured for access to attached systems via serial connection, or ethernet.

Start Monitoring

Launches the main online monitoring application (DCD) which starts continuous polling of all enabled ports and begins event monitoring, logging and printing. If so configured, it also displays custom graphics with dynamic data overlayed.

Print Documentation

Provides access to the project configuration documentation features of the system. Complete documentation of port, point, and event configurations for all attached devices can be selected for printing on the Windows default printer.

Logs

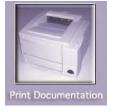
Allows access to both the configuration logs and daily log files. The configuration logs track all configuration changes made to the system while the daily logs store events monitored online and are stored by day.

Preferences

Provides access to a wide range of global preferences including the ability to select the currently active project, second language support, sound library configuration, day/date/time options, screensaver options and more.













Backups

Provides access to the project backup and restore utility. This automated utility allows a selected project to archived to or restored from floppy. Built in compression routines allow even large projects to be backed up.



Log In/Out

Provides access to the user "Log In" screen. Up to 64 unique password protected user accounts can be configured, each having different rights and privileges.



Passwords

Provides the system administrator with the tools for setting up and managing the individual user accounts. Individual users with valid accounts may also change their password from this utility.

Graphic Editor

Launches the S³ graphic editor which is used to develop up to 256 custom graphics per project. The editor is a complete object based graphic development environment with easy to use "tag based" dynamic objects.



Graphics Edito

OPC Server

Allows the user to browse the tag name database and view the OPC properties of tags, to activate or deactivate either individual tags or groups of tags, and to document (print) the server configuration.

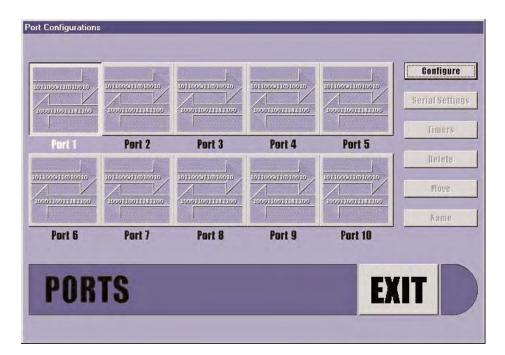
MAIN SCREEN

Basic Port Configuration

Clicking on the "Ports" button from the S³ Navigation screen of the S³ software brings up the Port Configurations dialog box:

 S^3 offers ten ports, each of which can be configured to a specific type of system or device.

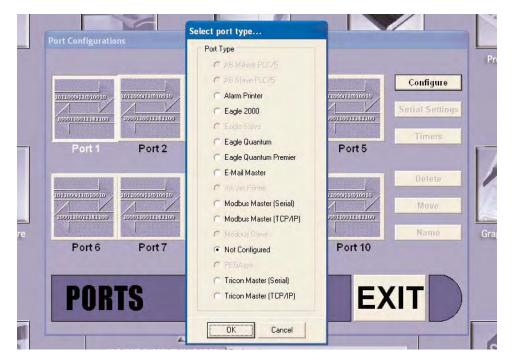
By default, when the Port Configurations dialog box first appears, Port 1 is selected.



Choosing the "Configure" button from the "Port Configurations" dialog box, the "Select port type" dialog box appears.

BASIC PORT CONFIGURATION

The available choices are based on the S^3 hardware key plugged into the computer. Only supported systems or devices are darkened.



"Not Configured" is the default selection, simply select the radio button for the type of port to be created and click OK. This will take you to the main configuration screen for the selected port type. Clicking on Cancel will return to the Port Configurations dialog box without any change.

Refer to the appropriate section of this manual for details on specific port type configurations.

From the main configuration screen for the selected port type, choose "Exit" to return to the Port Configuration screen.

New port types are constantly under development. Information on new port type support and the latest information on S³ updates can be obtained through the Detector Electronics website at www.detronics.com.

BASIC PORT CONFIGURATION

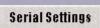
2-5

	191911001111100				Serial Setting
Eagle Premier Port 1 FG-CTRL-001	Port 2	Port 3	Port 4	Port 5	Timers
			10110521101010		Delete Move
Port 6	Port 7	Port 8	Port 9	Port 10	Name

Once the port type has been selected, the button face will change to match the selection. In addition, six buttons on the right hand side of the window will be enabled. These buttons allow various parameters to be adjusted for any configured port.

Configure

Configuration of the device(s) attached to a port, data table reads, etc. are accessed by double-clicking on the port button, or selecting the "Configure" button.



Physical serial port configuration parameters like baud rate, the number of data bits, etc. can be accessed using the "Serial Settings" button. This will open a dialog box allowing the adjustment of the port parameters.

You can manually set the port parameters from the pull-down menus.

Selecting the "Auto Check" button will cause the software to cycle through all combinations until it can connect. It will then display the successful settings.

Baud Rate:	57,600	•
Date Bits:	8	•
Parity:	None	•
Stop Bits:	1	•

BASIC PORT CONFIGURATION

Timers

The "Timers" button will open a dialog box allowing the "Polling" and "Watchdog" timers for the port to be set. There are also checkboxes to enable each of these

timers.

The Polling Timer determines how quickly the port will poll the attached slave.

The Watchdog Timer determines how long to wait for a response from the slave before logging a watchdog fault. A sound can be tied to this fault from a pulldown menu.

Polling Timer	Watchdog Timer
300	5000
(300-10000)	(5000-20000)
🔽 Enable	🔽 Enable
	Sound
	None
Enter time	es in milliseconds



The "Delete" button allows the removal of a port from the system configuration. Port deletions are <u>final</u>, there is no "undo", use with care.



The "Move" button allows a fully configured port to be relocated to a different port while preserving its configuration.

NOTE

Moving a port will have no impact on the graphics since the dynamic and TAG objects are based on the tag name not the port.

The "Name" button allows a name to be associated with a port. This name will then show up in the printed documentation for the port. It has no other purpose except for the printed documentation.

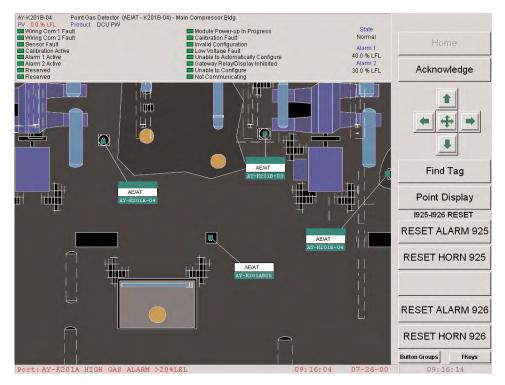
BASIC PORT CONFIGURATION



Start Monitoring

The "Start Monitoring" button launches the DCD entering the "Online Mode." Online mode, provides the operator with continuously updated information about the attached systems and this data may be displayed on custom graphics typically depicting the facility.

The main window of the Online application is divided into four areas. Running across the top is the "Mini Point Display" which provides



details on points selected in the graphic window. Running down the right side is the Navigation & Control area with buttons for moving around the graphics and initiating commands to the system. Filling the large center portion of the display is the Main Graphic Area showing the custom graphic. At the bottom of the screen is a "one-line" event display showing the most recent event. In the lower right corner is the clock.

ONLINE OVERVIEW

On the right side of the screen a series of navigation and command buttons will be shown, which are configured in the graphic editor. These are the Home, Acknowledge, Find Tag, Point Display, Button Groups, and Fkeys. Above the Home command button the name of the active screen is displayed as a label. Below the Point Display button the name of the active group of user-defined buttons is displayed.

Takes the user directly to the screen defined as the "Home screen" in the graphic editor.



Silences audible alarms and causes TAG objects to go from a flashing "new alarm" state to a steady

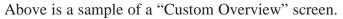
"acknowledged alarm" color, as defined in the graphic editor.



The arrow keys allow navigation between the different custom graphic screens. Green arrows indicate a screen exists in the direction of the arrow. Selecting the arrow will cause the display to scroll in the arrows direction, to the next screen. A gray arrow indicates

there is no screen in that direction. The "arrow cross" in the center zooms out to the main overview display.







NAVIGATION

The three buttons on the right side of the arrow cross are for "Z-Axis" navigation, moving up or down when 3-D links are established. The bottom button with the green circle will zoom out to the Mid-Level overview if one exists.



Above is a sample "Mid-Level Overview" screen.

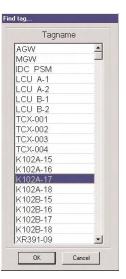
Find Tag

Is used to find the location of a particular tag on the custom graphics.

This method of navigation is used when an operator knows the tagname of a device and wants to quickly find out its status.

The "Find Tag" button opens a dialog box which displays the tagname database. The tagnames are displayed in alphabetical order.

Selecting a tag name from the scrolling list and clicking the "OK" button or double-clicking on a tag name will cause S³ to display the nearest graphic screen that has a TAG object for that tagname.



POINT DISPLAY

Point Display

Shows the user detailed information about a selected TAG object. Each type of device, digital inputs, ana-

log inputs, fire detectors, gas detectors etc. have a different type of point display, tailored to the amount and type of data available for that specific device.

ALAB	M HISTORY		4	ALOG INPUT TRA
ALARM-1 09:00:14 06/06/2000	Alarm 2	100.0		
ALARM-2 09:09:56 06/06/2000	Alarm 2	90.0		
ALARM-3 08:20:34 07/11/2000	Alarm 2	70.0		
ALARM-4 12:16:46 07/11/2000	Alarm 2	60.0		
ALARM-5 12:26:31 07/11/2000	Alarm 2	50.0	/	
ALARM-6 12:57:19 07/14/2000	Alarm 2	40.0		
ALARM-7 11:38:01 07/26/2000	Alarm 2	30.0	\vee	
ALARM-8 11:38:14 07/26/2000	Alarm 1	20.0		
RECORD TIME DATE	ТҮРЕ	0.0	5 20 25 30 Jarm 1:50.0 % L	35 40 45 50 55 FL Alarm 2:20.0 % LF
FION: Port 2 Node 5	DEVICE	TYPE:Comb Gas	TA	G:<2:5>
Wiring Com 1 Fault	Modui	Le Power-up In Pro	oaress	Reset Output
	Calil			
	Calil Inva			
	Calik Inva Low Digit			
	Calih Inva Low Digi Gatew			
	Calil Inva Low Digit Gatew Unab			
	Calil Inva Low Digit Gatew Unab			
	Calik Inva Low ' Gate Unab Not o		e Inhibited	CALIBRATION TRE
Wiring Com 2 Fault Sensor Fault Calibration Active Alarm 1 Active Alarm 2 Active Digital Input 2 Active Dutput Relay Active	Calib Inva: Low V Digit Gater Unab: Not C		e Inhibited	
Wiring Com 2 Fault Sensor Fault Calibration Active Alarm 1 Active Alarm 2 Active Digital Input 2 Active Dutput Relay Active CALIBRATIO	Calil Inva: Dowi Digit Gater Unab: Not o N HISTORY 0.00%	bration Fault Lid Configuration Voltage Fault Cal Input 1 Active Way Relay/Display Le to Configure Communicating	e Inhibited	
Wiring Com 2 Fault Sensor Fault Salibration Active Alarm 1 Active Alarm 2 Active Digital Input 2 Active Dutput Relay Active CALIBRATIO BASE 00:00:00 00/00/0000 0.0%	Calil Inva: Low " Gate Unab: Not o NHISTORY 0.0%	bration Fault Lid Configuration Voltage Fault Lal Input 1 Active Way Relay/Display Le to Configure Communicating	e Inhibited	
<pre>#iring Com 2 Fault Sensor Fault Calibration Active Alarm 1 Active Digital Input 2 Active Calibratio BASE 00:00:00 00/00/0000 0.0% CAL-2 00:00:00 00/00/0000 0.0%</pre>	Calil Inva Gater Unab Not C N HISTORY 0.0% 0.0%	bration Fault Lid Configuration Voltage Fault Cal Input 1 Active Way Relay/Display Le to Configure Communicating	e Inhibited	
<pre>#iring Com 2 Fault Sensor Fault Calibration Active Alarm 1 Active Alarm 2 Active Digital Input 2 Active CALIBRATIO EASE 00:00:00 00/00/0000 0.0% CAL-2 00:00:00 00/00/0000 0.0% CAL-3 00:00:00 00/00/0000 0.0%</pre>	Calil Inva Low 1 Digi Gater Unab Not 0 NHISTORY 0.0% 0.0% 0.0%	bration Fault Lid Configuration Voltage Fault Lal Input 1 Active Way Relay/Display Le to Configure Communicating	e Inhibited	
giring Com 2 Fault Sensor Fault Calibration Active Alarm 1 Active Alarm 2 Active Digital Input 2 Active Dutput Relay Active CALIBRATIO BASE 00:00:00 00/00/0000 0.0% CAL-2 00:00:00 00/00/0000 0.0% CAL-4 00:00:00 00/00/0000 0.0%	Calil Inva Digit Gater Unab Not o NHISTORY 0.0% 0.0% 0.0% 0.0%	pration Fault Lid Configuration Voltage Fault cal Input 1 Active Way Relay/Display Le to Configure Communicating	e Inhibited	
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<pre>#iring Com 2 Fault Sensor Fault Calibration Active Alarm 1 Active Digital Input 2 Active Dutput Relay Active CALIBRATIO BASE 00:00:00 00/00/0000 0.0% CAL-2 00:00:00 00/00/0000 0.0% CAL-3 00:00:00 00/00/0000 0.0% CAL-3 00:00:00 00/00/0000 0.0% CAL-6 00:00:00 00/00/0000 0.0%</pre>	Calil Inva Gater Unab Not C N HISTORY 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	pration Fault Lid Configuration Voltage Fault cal Input 1 Active Way Relay/Display Le to Configure Communicating	e Inhibited	

The sample point display above is for an addressable combustible gas detector.

Button Groups

Displays a list of defined button groups so the user can select and display the group. Each button group has up to five buttons that can be used to change screens, send commands to attached systems, etc. The user can only select button groups that are "enabled" for the current graphic screen. Button groups are defined in

the graphic editor.

FKeys

Displays the "Function Key List" available online for faster execution of functions.

The program functions with assigned Fkeys include the Acknowledge, Alarm History, Log in/out, Port Diagnostics, Calibration Log Reporter, and Quit Online Operations.

ONLINE FKEY FEATURES

Acknowledge (F3): Silences audible alarms, causes all TAG objects in a "New Alarm" state on the graphics to go to their "Acknowledged Alarm" state, and can also be configured to activate a user programmed button.

Active Alarms (F5): Opens the "Active Alarms" screen any "out of tolerance" conditions. Using the buttons at the bottom of the screen, these conditions can be sorted by communication port or viewed all together.

In the example below there are two active

ports, Port 1 configured for Triconex system and Port 3 configured for a Quantum system. On the right side of the screen are a number of selfexplanatory buttons for navigating the list, none are shown hilighted due to the shortness of the list in the example.

There is a counter at the top right indicating the current number of active

ACTIVE ALARMS B Page 1 Tricon V9 Quantum Acknowledge Exit Common

alarms. In the lower right there is a page indicator and buttons for Acknowledging alarms or exiting the display.

ONLINE FKEY FEATURES



2	
3 Acknow	ledge
4	
5 Active A	Alarms
6 Alarm H	listory
7	
8 Login/L	ogout User
9	
10	
11 Port D	iagnostics
12 Calibra	ation Log Reporter
13	
14	
15 Quit O	nline Operations

Function Key List...

Alarm History (F6): Opens the "Alarm History" screen and displays the current days log. This daily log shows date and time stamped events for a 24 hour period.

It has two main areas, the historical display in the center and the navigation buttons running down the right side of the screen. In addition to viewing the current days log, the user can use the "Select Log" button to choose a log from another day.

The date of the log being displayed is shown at the top right of the display.

01510343/F 2-HEN Rooft 322 ION SHOKE DETECTOR FAULT 1013007 07-28-00 01510345/F 4-HEN Rooft 327 ION SHOKE DETECTOR FAULT 1013007 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 ION SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 ION SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 ION SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 ION SHOKE DETECTOR 10130107 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 ION SHOKE DETECTOR 10130107 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 ION SHOKE DETECTOR 10130107 07-28-00 07-28-00 01510346/F LAWNERY ROOT 325 INT ROUELE 1013010 07-28-00 Top Page 015101007 07-28-00 07-28-00 Page Up 3161015027 Alarm 1 Active 10130110 07-28-00 Page Up 3161015027 Alarm 1 Active 10130120 07-28-00 Page Down 31730160035 Alarm 1 Active Normal 1013133 07-28-00 Page Down 3161045027 Alarm 1 Active Normal 110403 07-28-00 Last Page <tr< th=""><th></th><th>Exit</th></tr<>		Exit
01510345/7 4-MEN ROOM 327 IGM SHOKE DETECTOR FAULT 10150247 07-28-00 CURRENTIDE 01510347/7 MECH/JANTOR ROOM 326 IGN SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510347/7 LAWNERY ROOM 329 IGN SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510347/7 LAWNERY ROOM 329 IGN SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510353/7 BD FLOOR WEST CORFIDOR 315 IN SHOKE DETECTOR FAULT 10130107 07-28-00 07-28-00 01510353/7 SHD FLOOR WEST CORFIDOR VISUAL ALARN FAULT 10130107 07-28-00 07-28-00 0510142/7 SHD FLOOR WEST CORFIDOR VISUAL ALARN FAULT 10130107 07-28-00 Top Page 05101027 Alarm 1 Active 1013010 07-28-00 Page Up 05101027 Alarm 1 Active 1013010 07-28-00 Page Up 05101027 Alarm 1 Active 10130120 07-28-00 Page Up 05101027 Alarm 1 Active 10130131 07-28-00 Page Up 05101027 Alarm 1 Active 10130120 07-28-00 Page Down 0173 01600355 Alarm 1 Active 10130133 07-28-00 Page Down 0173 01600355 Alarm 1 Active 10133133 07-28-00 Page Down		Acknowledge
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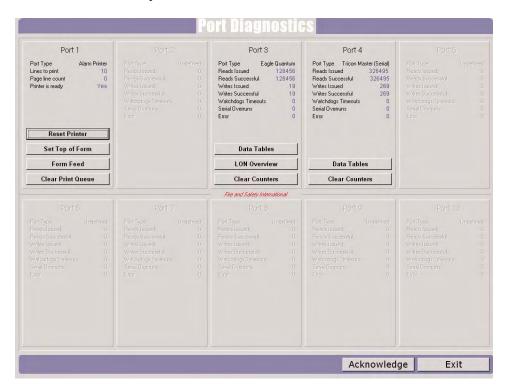
An acknowledge button is provided to acknowledge alarms without leaving the Alarm History screen.

Log in/out (F8): Up to 64 unique users can be configured, each having their own access privileges. This Fkey allows the current user to "log out", or a new user to "log in" to the system. This action will be recorded in the Alarm History.

PORT DIAGNOSTICS

Port Diagnostics (F11): Opens the "Port Diagnostics" screen which displays the status of all ten communication ports.

Dynamic counters display information on data reads issued and successful, writes issued and successful, and failures in communication between S^3 and the attached systems.



Each port type has buttons for accessing applicable features. These include a way display the ports data tables, a LON Overview for Eagle type ports and a way to clear the counters.

The "Printer" port type allows for printer control and maintenance. A "soft reset" of the printer can be performed as well as setting the top of form and initiating form feeds. In addition the printer event queue can be cleared.

Data Tables: The data tables show users the current information about addresses and bits being read from attached systems. stored in specific serial tables of a port.

3376 0000	lddress	1	Dat	a	16	Dec	Address	1	Data	16	Dec	Address	1	Data	i .	16	Dec
3376 0000	13074	0000	0000	0000	0000	0	43116	0000	0000 0000	0000	0	43159	0000	0000 C	000	0000	0
3077 0000 0000 0000 0000 000 0 43119 0000 0000 0000 0 43162 0000 0000 0000 000 0 0 3078 0000 0000 0000 0000 0 43120 0000 0000 0000 0 43164 0000 0000 0000 000 0 0 3078 0000 0000 0000 0000 0 43121 0000 0000 0000 0 43165 0000 0000 0000 000 0 0 3080 0000 0000 0000 000 0 43123 0000 0000 000 0 43166 0000 0000 000 0 0 3081 0000 0000 000 0 43125 0000 0000 000 0 43166 0000 0000 000 0 0 3082 0000 0000 000 0 43127 0000 0000 000 0 43186 0000 0000 000 0 0 3084 0000 0000 000 0 43127 0000 0000 000 0 43171 0000 0000 000 0 0 3171 0000 0000 000 0 0 3171 0000 000 000 0 0 3171 0000 000 000 0 0 3171 0000 000 000 0 0 3171 0000 0000 000 0 0 3171 0000 0000 000 0 0 3171 0000 0000 000 0 0 3171 0000 0000 000 0 0 0 3171 0000 0000 000 0 0 3171 0000 0	43075	0000	0000	0000	0000	0	43117	0000	0000 0000	0000	0	43160	0000	0000 C	000	0000	0
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33800 0000	13078	0000	0000	0000	0000	0	43120	0000	0000 0000	0000	0	43163	0000	0000 C	000	0000	0
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Table 1 Table 2 Table 3 Table 4 Acknowledge												_	-				
	Table 1	Tat	ole 2	Т	able 3	3	Table 4								Ac	know	ledge

This feature is typically used by maintenance personnel to determine if the selected port is reading the correct addresses and to do detailed troubleshooting.

Some port types allow for the configuration and polling of multiple data tables. All configured data tables are available for viewing by pressing the appropriate button at the lower left of the screen.

An "Acknowledge" button is provided to allow alarms and events to be acknowledged without leaving the data table screen.

LON OVERVIEW

ONLINE

LON Overview: Is a specialized diagnostic screen which displays a schematic representation of the addressable Eagle Quantum Premier, Eagle Quantum or EAGLE2000 loop.

	AGW	LCU_A-1	LCU_A-2	LCU B-1	LCU_B-2		VAS_IDC_2		VAS_IDC_4		AY-K201A-0
1	2	5	6	7	8	85	86	137	138	9	10
7-K205A-01	AY-K201B-04	AY-K201B-03	AY-K201B-02	AY-K201B-01	AY-K201A-04	AY-K201A-03	AY-K201A-02	AY-K201A-01	AY-K205B-06	AY-K205A-06	AY-K201B-C
22	21	20	19	18	17	16	15	14	13	12	11
7-K205A-02	AY-K205A-03	AY-K205A-04	AY-K205B-01	AY-K205B-02	AY-K205B-03	AY-K205B-04	AY-XR931-01	AY-XR931-02	AY-XR931-03	AY-XR931-04	AY-XR931-0
23	24	25	33	34	35	36	37	38	39	40	41
			AY-K205AB01								
53	52	51	50	49	48	47	46	45	44	43	42
201AB-10	K201AB-11			K205AB-11	K205AB-12	K205AB-13	K205AB-14	K205AB-15		XR391-09	XR391-10
65	66	67	68	69	70	71	72	73	74	75	76
-K102AB03			AY-U96624AB				HS-U966-05		HS-U966-03		HS-U966-C
99	98	97	87	84	83	82	81	80	79	78	77
			AY-K102A-03						AY-K102B-03		
100	101	102	103	104	105	106	107	108	109	110	111
K102B-15	K102A-18	K102A-17	K102A-16				AY-K102B-10	AY-K102A-12	AY-K102A-11	AY-K102A-10	
133	132	131	130	129	118	117	116	115	114	113	112
K102B-16	K102B-17	K102B-18	AY-U96625AB							XL-U96603AA	
134	135	136	139	157	158	159	160	194	195	196	197
			XL-U96605CA								
209	208	207	206	205	204	203	202	201	200	199	198
L-U96601B		UA-U96603B								XL-U96617AA	
210	211	212	213	214	215	216	217	218	219	220	221
			UA-U96609B								
233	232	231	230	229	228	227	226	225	224	223	222
233	232	231	230	229		227	226	225	224	223	
233	232	231	230	229	228	227	225	225	224	223	
233	232	231	230	229	228	224	226	225	224	223	
233	232	231	230	229	228	224	226	225	224	-	
233	232	231	230	229	228	227	225	225	224	-	
			230 230 230 230 230 230 230 230 230 230				228				Acknowledg

Each device on the loop is represented by a rectangle containing the device tag and other information. The color of the rectangle represents the current status of the device.



Double clicking on the rectangle representing a particular point will display the "Point Display" for that unit. From the "Point Display" all of the available status and diagnostic details on a nodes can be viewed.

ONLINE

Additional viewing options that can display more information are accessed through a group of buttons in the lower right of the display.



State: The State button will display current condition of each device on the LON. There are five possible states, Normal, Fault, Alarm, New Fault, or New Alarm. Each state is represented by the color of the rectangle representing the device.

Direction: The "Direction display mode" is a troubleshooting tool designed to simplify finding LON based problems. In order to provide full value, the display must first be properly configured. The configuration involves reconciling the differences between the physical and logical addresses of the nodes.

Displays the devices color coded by the direction of the last received transmission. If a devices last message arrived from the left side of the LON its rectangle will be green, if from the right side it will be red.

In a properly operating LON there is no pattern to the colors and the device rectangles will appear to randomly change color. If there is a problem with the LON all devices on one side of the problem will be red and on the other side will be green. The transition point is where the problem is.

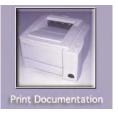
Display Type: It displays devices by devices name.

Acknowledge: It silences an activated alarm while being in the LON overview screen.

Exit: Takes the user out of the LON overview screen.

Acknowledge: Silences an activated alarm from the Port Diagnostics screen.

PRINT DOCUMENTATION 4-1



Print Documentation

Using the Windows default local or network printer, S³ can be print comprehensive documentation of port, point, and event configurations for all attached devices.

Selecting the "Print Documentation" button from the main screen will open a dialog box which allows the user to configure which portions of the documentation to print.

Common Settings	Port (Name)		
Tagnames (All)	Port 1 (Tricon V9)		
🖵 User Module Strings	F Port 2		
🖵 User Miscellaneous Strings	F Port 3 (Quantum)		
Miscellaneous Preferences	Fort 4		
User Configurations	F Port 5		
🗖 Sounds	Port 6		
OPC Server Configuration	F Port 7		
	E Port 8		
	F Port 9		
	Fort 10		
	CPC Properties		
Select All	Unselect All		
Caution: Depending on your co number of pages printed could	onfiguration and selections, the be 1 to 50,000.		

Choices are made using check boxes for both the type of documentation and the ports to be included. Using the select all button will provide total documentation of the system configuration. This could easily reach into hundreds of pages of printed documentation depending on the number of ports configured and their point configurations.

Tagnames

This selection prints a list of all tagnames used in the system.

User Module Strings

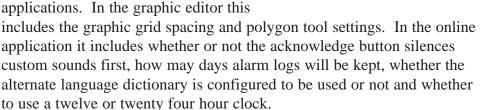
This selection prints the factory default and user configured "event descriptions" associated with the individual points.

User Miscellaneous Strings

This selection prints the factory default and user configured substitutes for the descriptions of buttons and text used by the system in the "Online" mode. Examples of miscellaneous strings include the navigation button descriptions, function key list.and user configured buttons.

Miscellaneous Preferences

This selection prints certain configuration parameters in the graphic editor and online applications. In the graphic editor this



User Configuration

 S^3 supports up to sixty four (64) unique user accounts, this selection prints all user account information except passwords. This includes whether or not the user can access the configuration programs, initiate send commands to attached devices, access port diagnostics and quit online operations.

Sounds

This selection prints a list of the custom sound library. Up to 64 custom sounds can be recorded and used by the system.

OPC Server Configuration

Prints a list of "Active" tags available to OPC Clients.

GGU	Documentation to Print
	Common Settings
	🖵 Tagnames (All)
	🖵 User Module Strings
	🖵 User Miscellaneous Strings
	F Miscellaneous Preferences
	User Configurations
	🗖 Sounds
	OPC Server Configuration
	Select A
	Caution: Depending on you number of pages printed co

DOCUMENTATION SELECTION



Port 1 - 10

 S^3 supports up to ten ports. Each port can be physical serial port or an Ethernet connection.

Note: A single Ethernet card can support multiple ports!

In the example to the left, ports one and three are configured and therefore selectable. The unconfigured ports are grayed out.

Each selected port will have its documentation printed.

Port documentation includes all aspects of the configuration including the communication parameters and any configured points, events, alarms, setpoints, custom event names, etc. Each configured point has one

page of printed configuration data.

Once all of the selections for the documentation and ports to print have been made, select the "OK" button to access the "Print Setup" dialog box for the Windows-NT/2000/XP default printer and continue the printing process. Once the print configuration is set, selecting OK will display the "Print Setup" dialog box for the Windows-NT/2000/XP default printer.

In the example below an HP LaserJet 5000 network printer is the Windows-NT/2000/XP default.

Printer	1		
Name:	HP LaserJet 5000 N PS		Properties
Status:	Default printer; Ready		
Туре:	HP LaserJet 5000 Series PS		
Where:	216-118-22-61		
Comment:			
Paper		Orientation	
Size:	11x17 💌		C Portrait
<u>S</u> ource:	Tray 4	A	• L <u>a</u> ndscape

Depending on the default printer in your installation the dialog box and choices available will vary.

Note: The Okidata event and alarm printer specified for use with S³ can be configured as the Windows-NT/2000/XP default printer and used for documentation. However, due to the volume of paper and printer speed it is not recommended.

LOGS



Logs

 S^3 maintains three different types of logs, disk, configuration and calibration. All can be viewed and printed from this utility.

Selecting the "Logs" button will display the "Select Log Type" window to choose which type of logs are to be accessed.

Select log type		
DCD DISK LOG	CONFIGURATION	CALIBRATION LOG

DCD Disk Log's are a chronological list of alarms and events that have occured during a 24 hour period while the DCD was online. Each log runs from midnight to midnight and each days log is stored by date.

Configuration logs track all configuration changes made to the system including point creation and deletion, setpoint changes, etc.

Calibration logs are the collation of data from querries of the distributed calibration histories of field devices on the network. The user determines what port, what type of device, a time frame and S^3 will retrieve the data from the field devices and put it into a report.

You can view and print the daily disk or configuration log, or any previous logs from this utility.

SELECT LOG TYPE

Configuration Logs

Below is a sample configuration log. Running down the right hand side is the log name (which is the date), navigation buttons, a button to select a different log for viewing, the page indicator for the currently viewed log, a print button and an exit button.

		CURRENT LOG
8:48:18	10-06-00 S ³ Configuration Program started.	
5:46:41	10-06-00 S ^a Configuration Program started.	10-06-00
15:46:45	10-06-00 Administrator Logged In	10-00-00
15:48:16	10-06-00 Port: 2 Point: 59 << <ash-510>>></ash-510>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	
5:48:30	10-06-00 Port: 2 Point: 58 <<<&SH-509>>>	1
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	The Party
5:48:40	10-06-00 Port: 2 Point: 57 <<<&ASH-508>>>	Top Page
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	
5:48:50	10-06-00 Port: 2 Point: 56 << <ash-507>>></ash-507>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	Page Up
15:48:50	10-06-00 Port: 2 Point: 56 << <ash-507>>></ash-507>	Hage up
	Tagname was: ASH-507 now is: ASH-507A.	
15:49:13	10-06-00 Port: 2 Point: 81 <<<0SH-501>>>	
	Alarm 1 was: 50.0 now is: 55.0 to.	Page Down
15:49:18	10-06-00 Port: 2 Point: 82 <<<0SH-502>>>	
	Alarm 1 was: 50.0 now is: 55.0 to.	
5:49:22	10-06-00 Port: 2 Point: 83 <<<0SH-503>>>	
	Alarm 1 was: 50.0 now is: 55.0 to.	Last Page
5:50:45	10-06-00 Port: 2 Point: 1 << <mngatewayl1>>></mngatewayl1>	
	Relay 1 start address was: 0 now is: 9.	
5:50:45	10-06-00 Port: 2 Point: 1 << <mngatewayl1>>></mngatewayl1>	
	Relay 1 end address was: O now is: 14.	
15:50:52	10-06-00 Port: 2 Point: 1 << <mngatewayl1>>></mngatewayl1>	Select Log
	Configuration written to gateway	
15:51:16	10-06-00 Port: 2 Point: 56 <<<&SH-507A>>>	
	Configuration written to gateway	Dono
15:51:16	10-06-00 Port: 2 Point: 57 <<<&SH-508>>>	Page
	Configuration written to gateway	
5:51:17	10-06-00 Port: 2 Point: 58 << <ash-509>>></ash-509>	
	Configuration written to gateway	
15:51:17	10-06-00 Port: 2 Point: 59 << <ash-510>>></ash-510>	
	Configuration written to gateway	Print
15:51:36	10-06-00 Port: 2 Point: 81 <<<0SH-501>>>	1 THE
	Configuration written to gateway	
5:51:37	10-06-00 Port: 2 Point: 82 <<<0SH-502>>>	ſ
		Exit

The purpose for the configuration log is to provide an audit trail for safety related changes to the system. By examining the configuration log you can tell if tagnames were changed, if alarm setpoints were changed in the detector configurations, if these changes were downloaded to the system or not.

The log is formatted in three columns, the first contains the time, the second the date and the third a description of the change.

The change column may use two lines to log the change. In these cases the first line contains the port number, point number, and tag name. The second line contains the description of the change.

Note: The configuration log tracks changes related to operation and safety only. Changes to graphics are not logged.

CONFIGURATION LOG

Alarm Logs

Below is a sample alarm log. Running down the right hand side is the log name (which is the date), navigation buttons, a button to select a different log for viewing, the page indicator for the currently viewed log, a print button and an exit button.

01510347/F MKCM/JANITOG BOOM 8/8 TOM SMOKE DETECTOR FAULT 1015017 07-28-00 07-28-00 01510346/F LANDRY ROOM 325 TOM SMOKE DETECTOR FAULT 10150107 07-28-00 07-28-00 0150353/F 30F FLOOK WEST CORFIDOR 315 TANLAL CALL POINT F 10130107 07-28-00 07-28-00 0150353/F 30F FLOOK WEST CORFIDOR 315 TAN SMOKE DETECTOR 10130107 07-28-00 07-28-00 0510353/F 30F FLOOK WEST CORFIDOR 315 TAN SMOKE DETECTOR 10130107 07-28-00 07-28-00 051105 PEORATY FANEL FRE-MLARK 10130107 07-28-00 07-28-00 05110 COLLAR STORFEDOR VISUAL ALARK FAULT 1013010 07-28-00 07-28-00 05110 COLLAR STORFEDOR VISUAL ALARK 1013010 07-28-00 07-28-00 05110 COLLAR STORFEDOR VISUAL ALARK 1013010 07-28-00 Page Up 0510 COLLAR STORFEDOR FAULT 1013010 07-28-00 Page Up 0510 COLLAR STALE & Active 10130130 07-28-00 Page Down 0510 COLLAR STALE STALE & MAXIVE 10130130 07-28-00 Page Down 0510 COLLAR STALE STALE & MAXIVE 10130130 07-28-00 Last Page 0510 CALLAR STALE STALE & MAXIVE 10130130 07-28-00 <	01510343/F 2-MEN ROOM 322 ION SHOKE DETECTOR FA 01510345/F 4-MEN ROOM 327 ION SHOKE DETECTOR FA		07-28-00	
0.510046/F_LNUMPY ROOM 323 LON SNOKE DETECTOR FAULT 10.10017 07-28-00 07-28-00 0.510051/F 38D FLOOR WEST CORFIDOR 315 MANUAL CALL POINT F 10.50107 07-28-00 07-28-00 0.510052/F 38D FLOOR WEST CORFIDOR 315 MANUAL CALL POINT F 10.50107 07-28-00 07-28-00 0.511052/F 38D FLOOR WEST CORFIDOR SIS MARE PAULT 10.50107 07-28-00 07-28-00 0.511052/F 38D FLOOR WEST CORFIDOR VISUAL ALARY FAULT 10.30107 07-28-00 Top Page 0.51105 FLOARYS FAREL TROUBLE 10.5010 07-28-00 Top Page 0.51102 Lohnowledge 10.5010 07-28-00 Page Up 0.51010 LOZZ Alarm 2 Active 10.30120 07-28-00 Page Up 0.51010 LOZZ Alarm 1 Active 10.30120 07-28-00 Page Up 0.51010 LOZZ Alarm 1 Active 10.30130 07-28-00 Page Up 0.51010 LOZZ Alarm 1 Active 10.30130 07-28-00 Page Up 0.51010 LOZZ Alarm 1 Active 10.30130 07-28-00 Page Down 0.51010 LOZZ Alarm 1 Active 10.30130 07-28-00 Page Down 0.51010 LOZZ Alarm 1 Active 10.30130 07-28-00 Page Down 0.51010 LOZZ Al				CURRENT LOG
01510351/F SRD FLOOR WEST CORFIDER 315 ION SHORE DETECTOR 10,50:07 07-28-00 70VAD313/F SRD FLOOR WEST CORFIDER VISUAL ALARN FAULT 10:30:07 07-28-00 51:47> KIDDE PECASYS PAREL TROUBLE 10:30:07 07-28-00 51:47> KIDDE PECASYS PAREL TROUBLE 10:30:07 07-28-00 31:5 LCUL ACKNOWLEDGE 10:50:10 07-28-00 31:5 LCUL ACKNOWLEDGE 10:50:10 07-28-00 31:61 016L0227 Alarm 1 Active 10:30:13 07-28-00 31:61 016L0227 Alarm 1 Active 10:30:15 07-28-00 31:73 016L0353 Alarm 2 Active 10:30:15 07-28-00 31:73 016L0553 Alarm 2 Active 10:30:15 07-28-00 31:73 016L0553 Alarm 2 Active 10:30:15 07-28-00 31:1 Gateway Fault Eslay Active 10:30:15 07-28-00 31:1 Gateway Fault Eslay Active 10:30:15 07-28-00 31:1 Gateway Fault Eslay Active 10:30:13 07-28-00 31:1 Gateway Fault Eslay Active 10:30:33 07-28-00 31:1 Gateway Fault Eslay Active 10:33:33 07-28-00 31:1 Gateway Fault Eslay Active 10:33:33 07-28-00 31:1 Gateway Fault Eslay Active 10:33:33 07-28-00 31:1 Gateway Fault Eslay Active Normal 11:04:03 07-28-00 01:1 Gateway Fault Eslay Active Normal 11:04:03 07-28-00 01				07 00 00
01510351/F SRD FLOOR WEST CORFIDER 315 ION SHORE DETECTOR 10,50:07 07-28-00 70VAD313/F SRD FLOOR WEST CORFIDER VISUAL ALARN FAULT 10:30:07 07-28-00 51:47> KIDDE PECASYS PAREL TROUBLE 10:30:07 07-28-00 51:47> KIDDE PECASYS PAREL TROUBLE 10:30:07 07-28-00 31:5 LCUL Acknowledge 10:30:10 07-28-00 31:5 LCUL Acknowledge 10:30:10 07-28-00 31:6 10:10:227 Alarm 1 Active 10:30:50 07-28-00 31:6 10:10:227 Alarm 1 Active 10:30:50 07-28-00 31:7 LCUE Acknowledge 10:30:10 07-28-00 31:7 LCUE Acknowledge 10:30:13 07-28-00 31:7 LCUE Acknowledge 07-28-00 31:7 10:02:55 Alarm 2 Active 10:30:54 07-28-00 31:7 10:02:55 Alarm 2 Active 10:30:54 07-28-00 31:7 10:02:55 Alarm 2 Active 10:30:54 07-28-00 31:1 Gateway Fault Felay Active 10:30:54 07-28-00 31:1 Gateway Fault Felay Active 10:30:53 07-28-00 31:1 Gateway Fault Felay Active 10:33:33 07-28-00 31:1 Gateway Fault Felay Active Normal 11:04:03 07-28-00 01:1 Monitoring Stopped 11:09:19 07-28-00 01:1 Monitoring Stopped 11:09:19 07-28-00 01:1 Monitoring Stopped 11:09:			07-28-00	U/-728-UU
70YA0313/F SRD FLOOR WERT CORRIGOR VIEWLI. ALARM FAULT 10130107 07-28-00 Scil-475 KIDDE PECAMYS PANEL TPRIME 10130107 07-28-00 Scil-475 KIDDE PECAMYS PANEL TPRIME 10130107 07-28-00 Scil-475 KIDDE PECAMYS PANEL TPRE-ALARM 10130107 07-28-00 Top Page Scil-475 KIDDE PECAMYS PANEL TPRE-ALARM 10130107 07-28-00 Page Up Scil-475 KIDDE PECAMYS PANEL TRE-ALARM 10130100 07-28-00 Page Up Scil-475 KIDDE PECAMYS FANEL 10130120 07-28-00 Page Up Scil-40 Sciloz7 Alarm 1 Active 10130120 07-28-00 Page Up Scil-40 Sciloz7 Sensor Fault 10130120 07-28-00 Page Down Scil-40 Sciloz7 Sensor Fault 10130154 07-28-00 Page Down Scil-40 Sciloz7 Sensor Fault 1013122 07-28-00 Page Down Scil-40 Sciloz7 Sensor Fault Normal 10133133 07-28-00 Last Page Scil-40 Sciloz27 Alarm 1 Active 10133126 07-28-00 Last Page Scil-40 Sciloz27 Alarm 1 Active Normal 11:04103 07-28-00 Select Log Scil-40 Sciloz27 Alarm 1 Active Normal 11:04103 07-28-00 <td></td> <td></td> <td></td> <td></td>				
45:147> KIDDE PEGASYS PANEL TROUBLE 10:30:07 07-28-00 Top Page 45:146> KIDDE PEGASYS PANEL REALARM 10:30:07 07-28-00 Top Page 315 LCU1 Adhrevledge 10:30:17 07-28-00 Page Up 315 LCU1 Adhrevledge 10:30:10 07-28-00 Page Up 316 LCU1 Adhrevledge 10:30:10 07-28-00 Page Up 316 LCU1 Adhrevledge 10:30:18 07-28-00 Page Up 316 LCU1 Adhrevledge 10:30:18 07-28-00 Page Up 316 LCU1 Adhrevledge 10:30:18 07-28-00 Page Up 316 101L0227 Sensor Fault 10:30:19 07-28-00 Page Up 3173 010L0553 Alarus 1 Active 10:30:19 07-28-00 Page Down 3173 010L0257 Alarus 1 Active 10:30:19 07-28-00 Last Page 311 Gateway LCM Fault Normal 10:33:30 07-28-00 Last Page 311 Gateway LCM Fault Normal 11:04:03 07-28-00 Last Page 311 Gateway LCM Fault Normal 11:04:03 07-28-00 Select Log 316 101CL0227 Alarus 1 Active Normal 11:04:03 07-28-00 Select Log 3173 01CL0353 Al				
c5:145> KIDE FEGANYS PANE PET-LARM 10:30:07 07-28-00 Top Page c5:145> KIDE FEGANYS PANELALARM 10:30:07 07-28-00 Page 3:7 LC01 Acknewledge 10:30:10 07-28-00 Page 3:7 LC02 Acknewledge 10:30:10 07-28-00 Page Up 3:61 01:00:27 Alarm 1 Active 10:30:10 07-28-00 Page Up 3:61 01:00:27 Sensor Fault 10:30:54 07-28-00 Page Up 3:73 01:00:353 Alarm 1 Active 10:30:54 07-28-00 Page Down 3:73 01:00:353 Alarm 1 Active 10:30:54 07-28-00 Page Down 3:73 01:00:353 Sensor Fault 10:31:20 07-28-00 Page Down 3:11 Gateway Fault Ealay Active 10:33:36 07-28-00 Last Page 3:11 Gateway Fault Eley Active 10:33:36 07-28-00 Last Page 3:11 Gateway Fault Eley Active 10:33:36 07-28-00 Select Log 3:16 10:00:27 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:16 10:00:27 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:70 10:	<5:147> KIDDE PEGASYS PANEL TROUBLE			-
<5:1439				Tax Daws
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3:61 01012.0227 Alarma 2 Active 10130120 07-28-00 Page Up 3:61 01012.0227 Alarma 1 Active 10130120 07-28-00 3:73 01012.0327 Alarma 1 Active 10130120 07-28-00 3:73 01012.0327 Alarma 1 Active 10130124 07-28-00 3:73 01012.0353 Alarma 1 Active 10130134 07-28-00 3:73 01012.0353 Alarma 1 Active 10133133 07-28-00 3:11 Gateway Fault Relay Active Normal 10133133 07-28-00 Last Page 3:11 Gateway LON Fault Normal 110:4313 07-28-00 Last Page 3:12 Gateway LON Fault Normal 11:04:03 07-28-00 Select Log 3:61 01012.027 Alarn 2 Active Normal 11:04:03 07-28-00 Select Log 3:61 01012.027 Alarn 2 Active Normal 11:04:03 07-28-00 Select Log 3:73 0102.027 Alarn 2 Active Normal 11:04:03 07-28-00 Select Log 3:1				
3:61 016L0227 Alares 1 Active 10:30:20 07-28-00 Page Down 3:61 016L0237 Alares 1 Active 10:30:54 07-28-00 Page Down 3:73 016L0353 Alares 1 Active 10:30:54 07-28-00 Page Down 3:73 016L0353 Alares 1 Active 10:30:54 07-28-00 Page Down 3:73 016L0353 Alares 1 Active 10:30:54 07-28-00 Page Down 3:73 016L0353 Alares 2 Active 10:33:33 07-28-00 Isstep active Page Down 3:16 acteway Fault 10:33:36 07-28-00 Isstep active Isstep ac				Page Un
3:73 01010353 Alarre 1 Active 10:30154 07-28-00 Page Down 3:73 01020154 07-28-00 10:31122 07-28-00 Page Down 3:1 Gateway Fault Felay Active 10:33143 07-28-00 Last Page 3:1 Gateway Fault Felay Active 10:33:36 07-28-00 Last Page 3:1 Gateway CAN Fault 10:33:36 07-28-00 Last Page 3:1 Gateway CAN Fault 10:33:36 07-28-00 Last Page 3:61 010102627 Alart N Normal 11:04:03 07-28-00 3:61 01010227 Alart N Active Normal 11:04:03 07-28-00 3:61 01010227 Alart N Active Normal 11:04:03 07-28-00 3:73 01010353 Alart N Active Normal 11:04:03 07-28-00 3:16 Gateway Fault Eelay Active Normal 11:04:03 07-28-00 Select Log 3:1 Gateway Fault Eelay Active Normal 11:04:03 07-28-00 12 3:1 Gateway Fault Eelay Acti				, age op
173 016L0353 Alarm 3 Active 10:30:54 07-28-00 Page Down 173 016L0353 Sensor Fault 10:31:22 07-28-00 Image 2000 311 Gateway LON Fault Normal 10:33:33 07-28-00 Last Page 311 Gateway LON Fault Normal 10:33:33 07-28-00 Last Page 311 Gateway LON Fault Normal 10:33:33 07-28-00 Last Page 311 Gateway LON Fault Normal 11:04:03 07-28-00 Last Page 316 016L0227 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:61 016L0227 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:73 016L0353 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:73 016L0353 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:1 Gateway Fault Felay Active Normal 11:04:05 07-28-00 Page 3:1 Gateway Fault Felay Active Normal 11:04:05 07-28-00 Page 3:1 Gateway CON Fault Normal 11:04:05 07-28-00 Page 3:1 Gateway CON Fault Normal 11:04:05 07-28-00 Page 3:1 Gateway LON Fault 11:04:05 07-28-00				
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3:1 Gateway LON Fault Normal 10:33:33 07-28-00 Last Page 3:1 Gateway Fault Belay Active 10:33:36 07-28-00 Last Page 3:1 Gateway Fault Belay Active 10:33:36 07-28-00 Select Log 3:61 01cl0:27 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:61 01cl0:27 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:73 01cl0:353 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:73 01cl0:353 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:73 01cl0:353 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:1 Gateway Fault Belay Active Normal 11:04:03 07-28-00 Select Log 3:1 Gateway Fault Belay Active Normal 11:04:05 07-28-00 Page 3:1 Gateway Fault Belay Active Normal 11:04:05 07-28-00 Page 3:1 Gateway CAF Fault Normal 11:04:05 07-28-00 Page 3:1 Gateway CAF Fault Normal 11:04:05 07-28-00 Page 3:1 Gateway CAF Fault 11:08:09 07-28-00 12 0nline Monitoring Stopped 11:04:30 07-28-00 12 0nline Monitoring Stopped 11:08:19 07-28-00 12 0nline Monitoring Stopp				
311 Gateway Fault Relay Active 10:33:36 07-28-00 Last Page 311 Gateway LON Fault 10:33:36 07-28-00 07-28-00 3610 1010237 Alarm 1 Active Normal 11:04:03 07-28-00 3:610 1010237 Alarm 2 Active Normal 11:04:03 07-28-00 3:73 1010035 Alarm 1 Active Normal 11:04:03 07-28-00 3:73 1010035 Alarm 2 Active Normal 11:04:03 07-28-00 3:73 1010035 Alarm 2 Active Normal 11:04:03 07-28-00 3:73 1010035 Alarm 2 Active Normal 11:04:03 07-28-00 3:13 Gateway Fault Relay Active Normal 11:04:03 07-28-00 3:14 Gateway LON Fault Normal 11:04:03 07-28-00 3:1 Gateway LON Fault Normal 11:04:03 07-28-00 3:1 Gateway LON Fault Normal 11:04:09 07-28-00 3:1 Gateway LON Fault 11:04:09 07-28-00 3:1 Gateway LON Fault 11:04:09 07-28-00 1:1 Gateway LON Fault 11:04:09 07-28-00 0nline Monitoring Stopped 11:04:30 07-28-00 0nline Monitoring Stopped 11:08:19 07-28-00 0nline Monitoring Stopped 11:08:19 07-28-00				-
11 Oktobary LAN Fault 10133130 07-28-00 316 Oktobary LAN Fault 10133130 07-28-00 316 OltL0227 Alarm 1 Active Normal 1104103 07-28-00 316 OltL0227 Alarm 1 Active Normal 1104103 07-28-00 316 OltL0227 Alarm 1 Active Normal 1104103 07-28-00 317 OltL0353 Alarm 1 Active Normal 1104103 07-28-00 317 OltL0353 Alarm 2 Active Normal 1104105 07-28-00 311 Gateway LON Fault 1104109 07-28-00 0011ne Monitoring Stopped 11:04:09 07-28-00 011ine Konitoring Stopped 11:04:30 07-28-00 011ine Konitoring Stopped 11:08:19 07-28-00 011ine Konitoring Stopped 11:08:19 07-28-00				Last Deve
3:61 01:01:0237 Sensor Fault Normal 11:04:03 07-28-00 3:61 01:01:0227 Alarm 1 Active Normal 11:04:03 07-28-00 3:61 01:01:0237 Alarm 1 Active Normal 11:04:03 07-28-00 3:73 01:01:0237 Alarm 1 Active Normal 11:04:03 07-28-00 3:73 01:01:035 Alarm 1 Active Normal 11:04:03 07-28-00 3:73 01:01:055 Alarm Active Normal 11:04:05 07-28-00 3:1 Gateway Fault Fall Normal 11:04:05 07-28-00 3:1 Gateway Fault Normal 11:04:05 07-28-00 3:1 Gateway Fault Normal 11:04:05 07-28-00 3:1 Gateway Fault Normal 11:04:05 07-28-00 3:1 Gateway LON Fault 11:04:05 07-28-00 12 0:1:0 0:1:06:19 07-28-00 12 0:1:0 0:1:08:19 07-28-00 12 0:1:0 0:1:08:19 07-28-00 12 0:1:0 0:1:08:19 07-28-00 12				Last Page
8:61 010L0227 Alarm 1 Active Normal 11:04:03 07-28-00 Select Log 3:61 010L0227 Alarm 2 Active Normal 11:04:03 07-28-00 Select Log 3:73 010L0353 Alarm 2 Active Normal 11:04:03 07-28-00 Select Log 3:73 010L0553 Alarm 2 Active Normal 11:04:03 07-28-00 Select Log 3:73 010L0553 Alarm 2 Active Normal 11:04:05 07-28-00 Select Log 3:13 Gateway Fault Relay Active Normal 11:04:05 07-28-00 Select Log Select Log 3:1 Gateway Fault Relay Active 11:04:09 07-28-00 12 Select Log 3:1 Gateway Fault Relay Active 11:04:09 07-28-00 12 12 0mline Monitoring Stopped 11:04:30 07-28-00 12 12 12 0mline Monitoring Started 11:08:19 07-28-00 12 12				-
Normal Normal Normal 07-28-00 Select Log 3:73 016/0353 Alarm Active Normal 11:04:03 07-28-00 3:73 016/0353 Alarm Active Normal 11:04:03 07-28-00 3:14 Gateway Fault Relay Active Normal 11:04:05 07-28-00 3:14 Gateway Fault Relay Active Normal 11:04:05 07-28-00 3:14 Gateway Fault Relay Active 11:04:05 07-28-00 Page 3:14 Gateway Fault Relay Active 11:04:05 07-28-00 12 3:14 Gateway CAN Fault 11:04:05 07-28-00 12 0nline Mointoring Stopped 11:04:09 07-28-00 12 0nline Mointoring Started 11:08:19 07-28-00 12				
3:73 010L0333 Alarm 1 Active Normal 11:04:03 07-28-00 3:73 010L0383 Alarm 2 Active Normal 11:04:03 07-28-00 3:73 010L0383 Alarm 2 Active Normal 11:04:03 07-28-00 3:1 Gateway Fault Belay Active Normal 11:04:05 07-28-00 3:1 Gateway LON Fault Normal 11:04:09 07-28-00 3:1 Gateway CAN Fault 11:04:09 07-28-00 0nline Monitoring Stopped 11:04:30 07-28-00 0nline Monitoring Started 11:08:19 07-28-00				2.
3:73 010L03S3 Alarm 2 Active Normal 11:04:03 07-28-00 3:1 Gateway Fault Felay Active Normal 11:04:05 07-28-00 3:1 Gateway LON Fault Normal 11:04:05 07-28-00 3:1 Gateway Constraint 11:04:05 07-28-00 3:1 Gateway Constraint 11:04:09 07-28-00 3:1 Gateway Constraint 11:04:09 07-28-00 3:1 Gateway Constraint 11:04:09 07-28-00 0:11:08:19 07-28-00 12 0:11:08:19 07-28-00 12 0:11:08:19 07-28-00 12				Select Log
S:1 Gateway Fault Relay Active Normal 11:04:05 07-28-00 Page S:1 Gateway LCN Fault Normal 11:04:05 07-28-00 Page S:1 Gateway LCN Fault Normal 11:04:05 07-28-00 Page S:1 Gateway LCN Fault 11:04:09 07-28-00 12 Online Monitoring Stopped 11:04:30 07-28-00 12 Multining Started 11:08:19 07-28-00 12				
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3:1 Gateway Fault Relay Active 11:04:09 07-28-00 12 3:1 Gateway LOW Fault 11:04:09 07-28-00 12 0nline Monitoring Stopped 11:04:30 07-28-00 12 Maininistrator Logged In 11:08:19 07-28-00 12				Dono
3:1 Gateway LON Pault 11:04:09 07-28-00 12 Online Monitoring Stopped 11:04:30 07-28-00 12 Online Monitoring Started 11:08:19 07-28-00 12 Administrator Logged In 11:08:19 07-28-00 12				Paye
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Administrator Logged In 11:08:19 07-28-00				
				10
Print	Administrator Logged In	11:08:19	07-28-00	
				Print
Exit				Evit

The purpose for the alarm log is to allow a provide a chronological history of events related to the system. These recorded "events".can indicate alarms, diagnostic information, or just out of tolerance conditions as defined by the user.

During the detailed port configuration process events are configured and their destinations determined. One of these destinations is the daily log.

Events can appear in any of four colors, red, green, blue, and white.

Note: Events configured as "white" that also go to the alarm printer will print in "black".

The log is formatted in four columns, the first contains the event name, the second a return to "Normal" indicator, the time and date are displayed in columns three and four.

ALARM HISTORY

LOGS

With either the Configuration or Alarm log, you can choose to open, view and print previous logs by using the "Select Log" button.

UUI	NFIGURATION LOGS	
08:48:18	10-06-00 S ³ Configuration Program started.	CURRENT LOG
15:46:41	10-06-00 S ^a Configuration Program started.	10.00.00
15:46:45	10-06-00 Administrator Logged In	10-06-00
15:48:16	10-06-00 Port: 2 Point: 59 <<<&SH-510>>>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	
15:48:30	10-06-00 Port: 2 Point: 58 <<<&SH-509>>>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	
15:48:40	10-06-00 Port: 2 Point: 57 <<<&SH-508>>>	Top Page
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	
15:48:50	10-06-00 Port: 2 Point: 56 <<<&SH-507>>>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	The second se
15:48:50	10-06-00 Port: 2 Point: 56 <<<&SH-507>>>	Page Up
	Tagname was: ASH-507 now is: ASH-507A.	
15:49:13	10-06-00 Port: 2 Point: 81 <<<0SH-501>>>	
	Alarm 1 was: 50.0 now is: 55.0 to.	Page Down
15:49:18	10-06-00 Port: 2 Point: 82 <<<0SH-502>>>	Fage Down
	Alarm 1 was: 50.0 now is: 55.0 to.	
15:49:22	10-06-00 Port: 2 Point: 83 <<<0SH-503>>>	
	Alarm 1 was: 50.0 now is: 55.0 to.	Last Page
15:50:45	10-06-00 Port: 2 Point: 1 << <mngatewayl1>>></mngatewayl1>	
	Relay 1 start address was: 0 now is: 9.	
15:50:45	10-06-00 Port: 2 Point: 1 << <mngatewayl1>>></mngatewayl1>	
	Relay 1 end address was: 0 now is: 14.	
15:50:52	10-06-00 Port: 2 Point: 1 << <mngatewayl1>>></mngatewayl1>	Select Log
	Configuration written to gateway	
15:51:16	10-06-00 Port: 2 Point: 56 << <ash-507a>>></ash-507a>	
	Configuration written to gateway	Page
15:51:16	10-06-00 Port: 2 Point: 57 << <ash-508>>></ash-508>	rayo
	Configuration written to gateway	
15:51:17	10-06-00 Port: 2 Point: 58 <<<&SH-509>>>	
	Configuration written to gateway	and the second s
15:51:17	10-06-00 Port: 2 Point: 59 <<<&SH-510>>>	
	Configuration written to gateway	Print
15:51:36	10-06-00 Port: 2 Point: 81 <<<0SH-501>>>	
	Configuration written to gateway	
15:51:37	10-06-00 Port: 2 Point: 82 <<<0SH-502>>>	
		Exit

S

This will display a standard Windows-NT/2000/XP file navigation dialog box showing the content of the configuration or alarm log sub-directory, which ever is applicable.

The logs are listed in chronological order, with the date as their name.

Select the date of interest and OK to open the log for viewing and / or printing.

The "Print" button will display

the standard Windows-NT/2000/XP printer dialog box for the default printer.

10-05 10-06 10-07	6-00 7-00		
10-07	-00		

Calibration Logs

Below is a sample calibration log. The calibration log reporter is a configurable database querry tool designed to allow a user to quickly determine if periodic calibration of field devices is being conducted.

Tagname	Device Type	Detect	Days	Date/Time
DH-FD-024	TIR ×3301	Fire	343	Tuesday, March 23, 2004, 12:52:09
DH-GD-011	Digital Communication Unit (DCU)	Explosive	7	Tuesday, February 22, 2005, 12:33:20
DH-GD-012	Digital Communication Unit (DCU)	Explosive	2147483647	Tuesday, March 1, 2005, 10:00:40
DH-GD-016	Eclipse PIR	Explosive	554	Monday, August 25, 2003, 13:41:56
DH-IRO-033	Digital Communication Unit (DCU)	Explosive	365	Monday, March 1, 2004. 10:00:40

The log displays the Tagname, Device Type, Detector type, Days since the last calibration and the Date/Time of the last calibration. If the device has never been calibrated, the Date/Time will show the time the calibration log reporter was accessed and the "Days" field will have the maximum integer value of 2147483647.

Whenever a calibration log is collected from a field device, online or in configuration, it is stored in a database. This database is currently viewable only on the computer were the database file is located.

It is viewable from the "Logs" button on the main screen, the DCD and Online Graphics.

If viewed from the "Logs" button a choice of project/database is available. If via the DCD it is the current active project. If via Online Graphics it is the current active project.

If Online Graphics is not on the computer running the DCD, i.e. a remote operator station accessing data via a network, viewing is disabled.

Printing is supported to any "windows" configured printer.

Calibration Logs

Calibration Log Reporter Options

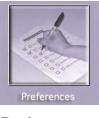
The options button opens the "Filter Options.." dialog box allowing for the S³ database querry to be configured. This allows the user to configure a report that provides just the specific information required.

The top section, labeled "Ports" provides check boxes for the ten potential ports. "All" is the default, deselecting it will hilite all available ports for which logs exist.

	F Port 1		F Port 5		
etector Types					
Eagle 2000			Eagle Qu	antum	
Explos	ive:	PW Heavy	Est		Г Оxygen
F H2S	F	PW Total	E Un		F Pointwatch
F 612	F	PW Benzene			
F C0	F	PW Low Sens			
F NHS	Γ	Other	Eagle Qu	antum Prer	nier
F \$02			🔽 Exp	olosive	₩ ×3301
F HCL			F. Un		厂 ×5200
F HCN			🔽 Eci	ipse	₩2200
Tosic 🖂			E Ba	lgen	Ve800
Г Окудет			E Po	ntwatch	F X3302

Eagle devices (2000, Quantum, Premier) store their calibration histories in local non-volatile memory. Whenever S³ accesses this data it stores it in a database thus creating a "Log" linked to the port of origin. This happens whenever a point display is accessed, from the configuration environment, or by the DCD when running. In the example above, log information for Explosive, Eclipse and X3301 detectors exist in the database and a calibration report can be created for this information.

PREFERENCES



Preferences

The preferences button provides access to a variety of project management and global attributes and settings. They are accessed from a dialog box called "S³ Preferences". Arranged down the left side are eleven categories, starting with "Project". Once the project is selected, the other ten categories apply only to that project.

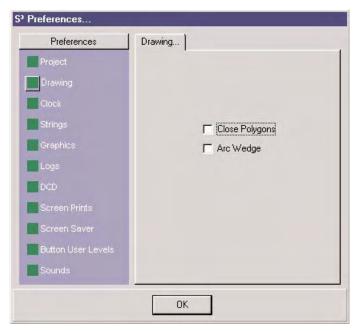
Preferences	Project
Project	Project: Remote Access
Drawing	
Clock	Delete
Strings	Duplicate
Graphics	
Logs	New
DCD	Rename
Screen Prints	Select
Screen Saver	
Button User Levels	
Sounds	

Project: Shown above, the project category allows for the top level selection and manipulation of the project to be worked on. The currently active project is displayed at the top right, in this example "Remote Access".

Multiple projects can be in development on the same machine and this tab provides resources for deleting projects, duplicating projects, creating new projects, renaming existing projects, and selecting an existing project.

PROJECT TAB

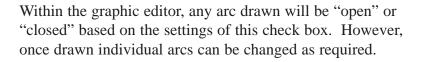
Drawing: The drawing tab allows for the setting of the default operation of two drawing tools in the graphic editor. The "Polygon" and "Arc" tools.

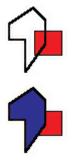


Close Polygons: By default, this check box is de-selected. This means that when a polygon is drawn in the graphic editor, when finished it has no fill color or pattern. If selected, the finished polygon will become a solid object with adjustable fill color and pattern attributes.

Within the graphic editor, any polygons drawn will be "open" or "closed" based on the settings of this check box. However, once drawn individual polygons can be changed as required.

Arc Wedge: By default, this check box is de-selected. This means that when an arc is drawn in the graphic editor, when finished it has no fill color or pattern. If selected, the finished arc will become a solid object (wedge) with adjustable fill color and pattern attributes.









DRAWING TAB

PREFERENCES

Clock: The purpose of the clock tab is to accommodate the two different methods for displaying the time and date around the world.

Time: A radio button is provided to choose between a twelve hour clock with AM and PM suffix or a 24 hour clock.

Preferences	Clock
Project	
Drawing	
Clock	
Strings	C 12 hour clock (AM/PM)
Graphics	24 hour clock
Logs	Day/Month/Year
DCD	
Screen Prints	
Screen Saver	
Button User Levels	
Sounds	

Date: A check box is provided to format the date using the "Day/Month/Year" method. The default is "Month/Day/Year".

These time and date settings apply to all logs and printouts created by S³.

Strings: The "Strings tab" provides access to a very powerful feature, the Second Language Dictionary (SLD). The SLD is used to provide second language support to the "Online" aspects of the systems operation.

Preferences	Strings
Project	
Drawing	
Clock	Detector LON Modules
Strings	Detector Point to Point Modules
Graphics	
Logs	Common Buttons
DCD	
Screen Prints	Miscellaneous
Screen Saver	
Button User Levels	
Sounds	

The four databases in the SLD are accessed through the buttons on the preferences dialog box. Each database provides the factory default, in English, with a field to substitute a second language equivalent.

Detector LON Modules: Supports all Detector Electronics Corporation EAGLE2000TM, Eagle Quantum and Eagle Quantum Premier devices.

Detector Point to Point Modules: Supports a variety of commonly used Detector Electronics Corporation conventional gas detectors and optical flame detectors.

Common Buttons: Substitutes for all operator interface buttons found in the online application of S^3 .

Miscellaneous: Substitutes for a variety of text descriptions found throughout the S^3 online application.

Examples: Below is an example of EAGLE2000/Eagle Quantum SLD configuration.

On the right hand side of the dialog box are a series of buttons for the different products.

Upper Transceiver Fault Falla del Puerto LON Superior	Factory User Eagle 2000
Lower Transceiver Fault Falla del Puerto LON Inferior	Gateway
Gateway Fault Falla Gateway	Digital Communication Module
Relau 1 Active	Relay Node
Relay 1 Active Relé 1 Activado	
Relay 2 Active Relé 2 Activado	Eagle Quantum
, Relau 3 Active	Main Gateway (Status 1)
Relé 3 Activado	
, Relay 4 Active	Main Gateway (Status 2)
Relé 4 Activado	Signal Audible Module (SAM)
Fault Relay Active	
Falla de Relé Activado	Agent Release Module (ARM)
LON Master	Logic Controller (Status 1)
LON Principal	
LON Fault	Logic Controller (Status 2)
Falla LON	Initiating Device Circuit (IDC)
Invalid Configuration Configuración Inválida	
	EQ2200 UV Detector
Net Test Fault	Disk Commission Unit (DCU)
Falla de Extensor de Red	Digital Communication Unit (DCU)
Slave PLC Status Estado de PLC Esclavo	EQ2200 UV/IR Detector
Gateway Relay/Display Inhibited Relé de Gateway/Pantalla Inhibida	Auxiliary Gateway
	Power Monitor
Unable to Configure	
Configuración Permitida	Digital Communication Unit Special (DCUS)
Not Communicating Sin Comunicación	

In this example, the EAGLE2000 Gateway is selected. That causes a list of the available events for that device that can be configured for tracking. The English factory default description is displayed above a field where you can enter a substitute description. In this example it is a Spanish description but it could be any Roman character language.

Note: Cyrillic font support is included for Russian speaking countries.

Once the appropriate substitute descriptions have been entered, selecting the "Save" button will record the new descriptions.

The descriptions entered in the SLD's will be made available for use when points are configured in the "Ports" configuration area.

SLD descriptions for the user interface buttons used by the online application are presented in the "Factory Name" column of the "User Button Names..." dialog box.

Substitutes are entered in the "User Name" column. In the example below the configuration is incomplete, some buttons do not yet have a substitute string.

Factory Name	User Name	^
Acknowledge	Reconocimiento	-
Alarm History	Alarmas	
Bottom	Anteriores	
Button Groups	Grupos	
Calibration Log Reporter		
Cancel	Cancelar	
Common	Común	
Execute	Ejecutar	
Exit	Salida	
Find Tag	Tag Localizado	
FKeys	Funciones	
Goto	lr a	
Help		
Home	Inicio	
Last Page	Última página	
Login/Logout User	Contraseña de Usuario	
OK	OK	
Page	Página	-
	string is longer than the factory tly display. Verify the strings are e'' program is running.	

If left blank, these buttons will have no name when online.

STRINGS

"Miscellaneous Strings" are pieces of descriptive text used in a variety of online locations like dialog boxes, window names and data entry fields.

Substitutes are entered in the "User Name" column.

Like the user buttons, all fields must be filled out or "blank spaces" will appear at these locations when online.

Factory	User Name	-
Active Alarms:	Alarmas Activadas:	
Alarm	Alarma	
Alarm 1	Alarma 1	
Alarm 2	Alarma 2	
Alarm Count:	Conteo de Alarmas:	
ALARM HISTORY	ALARMAS	
ALARM VIEWER	CHEQUEO DE ALARMAS	
Button Group Names	Botón para Grupo de Nombre:	
Common	Común	
Confirm button selection?	Confirmar selección	
Enter password	Contraseña de entrada	
Fault	Falla	
Find tag	Encontrar Tag	
Function Key List	Funciones	
Left	Izquierda	
Logout	Salida de Usuario	
New Alarm	Alarma nueva	
New Fault	Falla nueva	-
	tring is longer than the factory ly display. Verify the strings are " program is running.	

When translating button names or miscellaneous strings into other languages the text may be too long for the button or space causing problems.

Take care to test thoroughly to ensure a "proper fit" for substitute strings.

STRINGS

Graphics: This category pertains to the operation of the "Online" application. This application displays custom graphics with an overlay of dynamic information from various attached systems. This is the main operational mode used by plant operators and other personnel monitoring the safety systems.

There are four global attributes that are configured by check box selections in the Miscellaneous portion of the dialog box and two other settings pertaining to the online color selections.

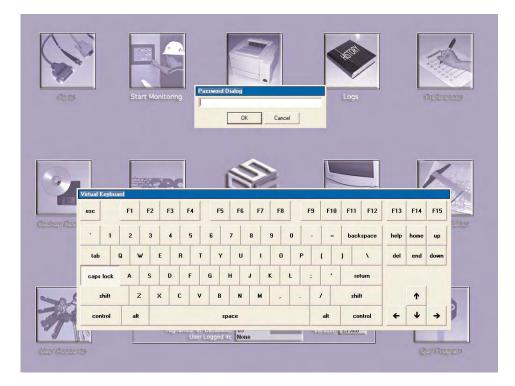
Preferences	Graphics
Project	– Miscellaneous
Drawing	Use "User" strings
Clock	Use "Cyrillic" font
	🔲 Use "Virtual" keyboard
User Strings	Use Custom Overview
Graphics	Marcal Objects Even Converse
Logs	Visual Object Error Settings
	Use settings Edit
DCD	
Screen Prints	Color Depth
Screen Saver	
Succircutor	- Screen Resolution
Button User Levels	1024×768 Select
Sounds	1

User Strings: When this check box is selected, the Online application will substitute the factory defaults for button descriptions, miscellaneous text, and device alarm and event data with user configured Second Language Dictionary (SLD) data.

To revert back to the English factory default values, stop the online application and de-select this checkbox. This provides an easy means of switching back and forth between the defaults and SLD.

Cyrillic Font: S³ supports the use of Cyrillic in the SLD for both display and printing purposes when used with the recommended alarm printer.

Virtual Keyboard: When this option is selected S^3 provides an onscreen keyboard whenever data entry is required, such as for user login, password entry, etc.



This is primarily to provide user input on systems equipped with a touchscreen as the operators primary interface.

Custom Overview: When this option is selected a custom full-screen overview is substituted for the automatically generated scaled composite of custom screens. This custom overview must be created in the graphic editor and can be generated using the editors tools, from imported graphics, or a combination of the two.

Visual Object Error Settings: This checkbox selection enables an online feature that changes the color of any dynamic objects that are tied to data

- Visual Object Error	Settings
🔽 Use settings	Edit

that has been flagged as invalid by S^3 . For example, if a port is

"unloaded" for diagnostic or configuration work, all of the data for that port would be unavailable to the Online Graphics application.

With this feature enabled, when viewing the online graphics any dynamic objects tied to data on the unloaded port would change to the selected color making it clear that the data is invalid.

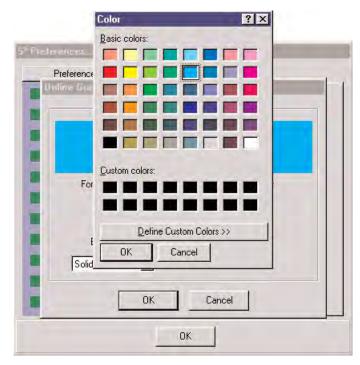
To change the "error" color select the "Edit" button and S^3 will display the color selection dialog box. The default error colors will initially be

Foreground C	olor	Background Color	
Brush Style			
Solid	<u> </u>	🗖 Opaque	

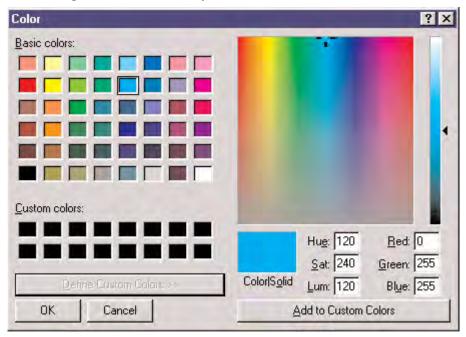
selected with Aqua for the foreground, Magenta for the background, and a solid brush. To change these selections click on the sample block for the color to be changed and a color picker will be displayed.

6-11

Choose from any of the 48 standard color definitions displayed, or from the 16 custom colors.



Select the "Define Custom Colors" button to display an expanded color picker dialog box that allows any desired color to be added to the



"Custom Colors" selections. Up to 16 can be configured.

PREFERENCES

Screen Resolution: The selected screen resolution for the custom graph-

ics on the active project is displayed and a "Select" button to open the "Resolution Selector" dialog box where the screen resolution can be set.



Resolution Selector...

Changing the resolution of a project containing graphics may cause an automatic adjustment to objects.

Create/verify a backup copy of the project exists before changing the resolution.

After a resolution change check all graphic pages.

- 2048	3 X 1536
- 1920	 X 1536 X 1440 X 1200 X 1080 X 1080 X 1392 X 1344 X 1050 X 1020 X 1024 X 1000 X 1050 X 105
- 1920) X 1200
- 1920) X 1080
- 1856	5 X 1392
- 1792	X 1344
- 1680) X 1050
- 1600) X 1200
- 1600) X 1024
- 2048 - 1920 - 1920 - 1920 - 1920 - 1856 - 1792 - 1680 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1280 - 1280) X 1000
- 1600) X 900
- 1400) X 1050
- 1280	X 1024
- 1280) X 960
- 1280) X 800
- 1280) X 768
- 1152	X 864
- 1024	X 768
Project Resolution: Screen Resolution:	
ОК	Cancel

Resolution Selector: This dialog box has an adjustable slider where the screen resolution for the online custom graphics can be set for the project.

At the bottom of the dialog box the project resolution is displayed along with the screen resolution of the computer S³ is currently running on.

In some cases, the graphic development may be done on a computer with a different resolution than the "target" machine for the project.

The minimum resolution is XGA or 1024 X 768 pixels. All online graphics will be in fixed windows with this resolution. At XGA resolution the task bar must be configured to "Auto Hide" or buttons in certain areas of the configuration environment will be hidden.

Note: The list of supported resolutions to the left may have grown since this issue of the manual as PC vendors are constently adding support for additional screen sizes.

Color Depth Settings: There are three choices for the displayed color depth, 16, 24 and 32. This corresponds to the maximum number of colors used by the operating system and the computers video card to display



the graphics by the "Online Graphics" application program.

16 bit = 65,636 colors 24 bit = 16, 777, 216 colors 32 bit = True color

16 bit is the default and minimum requirement.

Logs: This tab allows the setting of the log retention time. This adjustment determines how long the system will keep daily log files.

Preferences	Logs
Project	
Drawing	
Clock	
Strings	
Graphics	Retain alarm logs for 0 days.
Logs	
DCD	
Screen Prints	
Screen Saver	
Button User Levels	
Sounds	

When set to zero (the default) all files will be kept and the user must ensure the hard disk does not fill up. If a number is entered in the field, the system will save that number of log files and then delete the oldest when that number is exceeded. **DCD:** The Data Collector and Distributor application program has five configurable parameters that can be used to modify its behavior.

Preferences	Data Collector & Distributor
Project Drawing Clock Strings Graphics Logs DCD Screen Prints Screen Saver Button User Levels Sounds	Settings Track sounds for clients only Silence Sound First Online Graphics Launch Online Graphics only Launch Online Graphics when started Host Address: 0.000 Edit

Settings: There are two settings relating to how sounds are handled.

The first one, "Track sounds for clients only" is used in configurations

where the local machines DCD is unattended and is used primarily to send data to other S^3 client machines. In this situation the configured sounds play and are acknowledged by the remote clients and the local machine does not play sounds.

U	
Data Collector & Distributor	
Settings	
Track sounds for clients only	
🔲 Silence Sound First	

The second setting, "Silence Sound First" configures the DCD to silence

DCD

the active sound(s) prior to any additional functions that may be configured to be executed when the "Acknowledge" button is activated.

Both settings can be used concurrently.

Data Collector & Distributor
Settings
Track sounds for clients only
Silence Sound First

Online Graphics: There are three selections that pertain to Online Graphics.

The first, "Launch Online Graphics when started" automatically starts the "Online Graphic" application program when the "Online" button is cho-

Preferences	Data Collector & Distributor
Project	Settings
Drawing	Track sounds for clients only
Clock	Silence Sound First
Strings	- Online Graphics
Graphics	Launch Online Graphics only
Logs	✓ Launch Online Graphics when started
DCD	Host Address: 0.0.0.0
Screen Prints	Edit
Screen Saver	
Button User Levels	
Sounds	

sen from the S3 main screen. If this checkbox is not selected, activating the "Online" button will start the DCD only. The Online Graphics application can then be started from a button on the DCD.

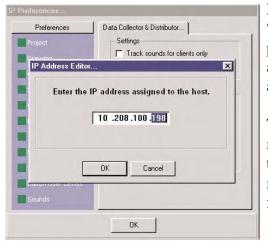
Remote Access: S^3 supports remote access via TCP/IP connections. The connections should be high speed (10 Mbps or faster) for optimum performance. In a remote access configuration, the DCD of one S^3 workstation attached to the safety systems allows multiple S^3 remote access clients to access its information.

To configure an S³ workstation for remote access select "Launch Online Graphics only."

In this configuration when the "Online" button is selected from the S^3 main screen, the local DCD will not start but the Online Graphics application will. Once it starts it will connect to a specified remote DCD for its data.

	Graphics ch Online Graphics only
🗖 Lauri	oh Online Graphics when started
Host	Address: 0.0.0.0
	Edit

The remote DCD must be on the same TCP/IP network and is specified by entering the appropriate "Host Address" address.



Host Address: Selecting the "Edit Host Address" button displays the IP Address Editor allowing the proper Host address to be set.

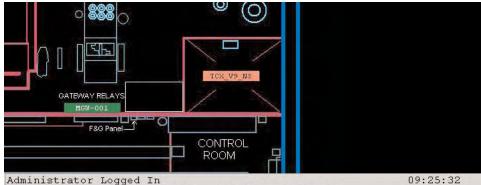
This feature allows a local machine which is connected to the safety systems to send information to other S^3 clients in the facility or elsewhere.

DCD - REMOTE ACCESS

Screen Prints: S3 supports capturing and printing full color screens from the Online Graphics application.

note
1
1

Capture Enabled: When screen capture is enabled, S³ will intercept the "Print Screen" key from the keyboard, capture the displayed dynamic graphic with all displayed data. In addition at the bottom of the captured



Project Name: Remote Access Host Name: fsi_lt 09:29:34 11-14-01

image, S^3 will insert the active users name, the project name, the host S^3 machines name, and the time and date. The actual file name will be a random number and the file will be stored in the "Screen Prints" subdirectory of the DEC folder.

6-18

Screen Printing: In addition to capturing screens S^3 they can be sent to either a local or remote printer for output.

Local Printing: With "Local" selected as the destination, the screen will print on the default Windows printer.

Preferences	Screen Prints
	- Screen Capturing / Printing
Drawing	Capture Enabled
Clock	Printing Enabled
	Destination
	G Local C Remote
Logs	Host Address: 0.0.0.0
DCD	Edit
Screen Prints	
Screen Saver	
Button User Levels	

Remote Printing: If "Remote" is selected as the destination, a "Host Address" for another S³ workstation that is running either a DCD or Online Graphics must be specified by its TCP/IP address.



Specifying a Printer: Clicking the "Edit" button will allow the TCP/IP address to be entered.

Enter the IF	o address	of the S ³	print server
ſ	192.168	.1.1	

SCREEN PRINTS

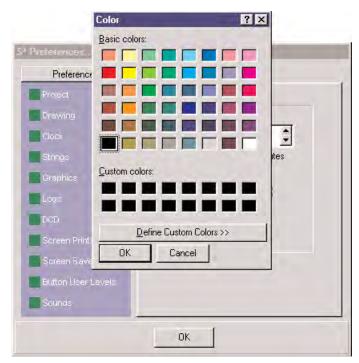
Screen Saver: S3 provides a screen saver feature that will display the current time on a black background after a user configurable time period has elapsed without any activity.

There is also a "Touchscreen" check-box to allow the user to exit the screen saver by touching anywhere on the screen, without causing any screen navigation response.

The color of the displayed time can be changed by clicking on the "Color" button. This will open

Preferences	Screen Saver
Project	
Drawing	Screen Saver
Clock	I Enable ☐ Touchscreen 15 🝨
Strings	Minutes
Graphics	
Logs	23:13:44
DCD	
Screen Prints	Color
Screen Saver	
Button User Levels	
Sounds	
	ОК

the standard "color picker" dialog box that allows the selection of any of



the 48 pre-set colors. Custom colors can also be defined and added to the 16 color custom color pallet.

SCREEN SAVER

Button User Levels: This feature allows the Online Graphic and DCD application program user interface buttons to be assigned a "User Level" for security or operational control purposes.

	Location : Button Name	User Level 🔺
Prefetences	Active Alarms : Acknowledge	0
Preferences	DCD : Acknowledge	0
	Disk Log Viewer : Acknowledge	0
Project	MM Point Display : Acknowledge	0
Drawing	Online Graphics : Acknowledge	0
Charle	Online Graphics : Calibration Log Reporter	0
Clock	Online Graphics : Home	0
Strings	Online Graphics : Point Display	0
Graphics	Port Diagnostics : Acknowledge	0
	Quantum LON Overview : Acknowledge	0
Logs	Quantum LON Overview : Relay Override	0
DCD		0
Screen Prints		0
		0
Screen Saver		0
Button User Levels		0
Sounds		0
oounus		0
		0
		0
		0 👻

The default value is "0" and has a range of 0-65535. The user level is set in the "Passwords" configuration section of S^3 .

If the user logged in has a user level greater than or equal to the setting of the button, the button will be available. Otherwise, it will be grayed out.

BUTTON USER LEVELS

Sounds: The sounds tab allow access to the custom sounds database and integrated sound editor.

	Delete
2 3 Sector 6 gas leak	122 State 123
3 Sector 6 gas leak	
	Edit
4	
5	
6	
7	Exit
8	E AIL
9 :	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21 22	

Selecting the "Edit" button will open the "Sound Editor" dialog box.

 S^3 supports up to sixty four sounds that can be attached to events in the system. One sound, "Warning," is included with S^3 the other sixty three slots can be used to build a project specific sound library.

To access the editor, select a sound database slot, numbered 1 through 64 on the left side of the "Sound Names" scrolling list, and then select the "Edit" button.

This will launch the "Sound Editor".

SOUNDS

The sound editor makes use of the standard Windows based sound card and microphone to allow for the recording and playback of custom sounds.

Custom sounds are limited to a maximum recording time of five seconds.

This is to accommodate the fact that more than one sound may be in the queue at any given time.

The recording time is displayed in the horizontal bar graph at the top of the dialog box.

Use the "Record" button to begin recording. The horizontal bargraph will display the elapsed time. Press the "Stop" button to end the recording. Use the "Play" button to play back the recorded sound.

1	Seconds	5
	• = •	
	I Stop I Play Record	
	Name	
F	Sector 6 gas leak	

Sounds from this library are then attached to events in the system during point configuration in the "Ports" area of the system.

IGW-001	LC-001A	LC-001B	IDC-001	SAM-001	ARM-001	UVIR-001	DO	CU-00	1		12>				
1	5	6	. 7	8	9	10		11		-	12				
Alarm E	ditor					-			_				_		
		P = P	rinter D =	Daily Log	File W = E	vent Window	AC	= A	ito	Clea	P				
Enable N	lame						E	D	W	AC So	und		Active		Normal
	Wiring Com 1	. Fault					5	4	4		one	+	Red	+	Green
	Wiring Com 2	Fault					2	4	4		one	*	Red	*	Green
1	Input 1 Oper	U.				-	4	2	7		one	•	Red	•	Green
	Input 2 Oper						4	9	7		one	•	Red	•	Green
R	Input 1 Acti	ve						•	4		one	*	Red	+	Green
v	Input 2 Acti	ve					P	•	4		one	*	Red	*	Green
	Switch 1 Sta	itus						4	7		one	*	Red	*	Green
		Without Lo					1 -	-	_	- 5			-	-	-

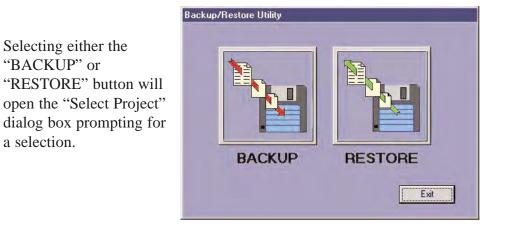
During online operation, when sounds are played the acknowledge button found on the point displays and online graphic pages are used to silence them.

SOUNDS



Backups

This button provides access to S^{3} 's built in project Backup and Restore utilities. These utilities allow whole projects to be archived or restored for backup purposes or to be moved to another workstation.



Select the appropriate project from the scrolling list and the select "OK" to begin the process.

CWN	<u> </u>
Project One	
Mendoza	
Tula	
Conoco West Natuna	а
Nohoch A	
EPC-22 AB-1	-

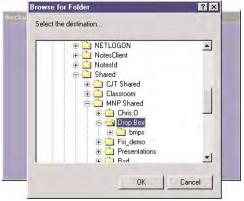
BACKUP & RESTORE UTILITIES

Backup: Once the project is selected a dialog box will be displayed allowing you to browse the file system and select a destination for the backup.

This can be on local hard drives, a network drive, or the local floppy disk drive.

Desktop		
Hy Compute		
⊞ 😑 (C:) ⊞ 😑 (D:)		
) (E:		
🕀 🧟 (G:) 🗐 Network Ne	alabberhood	
My Briefcas		

Procedure for backing up to a Network Drive: Once the destination is



chosen for backup, the system will display the "Backup File List" dialog box which displays the files to backup and the status of the procedure.

The dialog box is formatted with two columns, the left one containing the file name, the right one displaying the status of the file.

When the "Continue" button is selected S^3 will begin the backup process by compressing all of the files to reduce disk space requirements. This highly efficient compression algorithm allows even large projects with dozens of custom graphic pages to be backed up to a single 1.4MB floppy disk.

Filename	State	
Sounds\1.wav	In Queue	
Graphics\SColor.tcl	In Queue	
Graphics\P9.src	In Queue	
Graphics\P9.fgc	In Queue	
Graphics\P9.drc	In Queue	
Graphics\P9.bgc	In Queue	
Graphics\P8.src	In Queue	
Graphics\P8.fgc	In Queue	
Graphics\P8.drc	In Queue	
Graphics\P8.bgc	In Queue	
Graphics\P7.src	In Queue	
Graphics\P7.fgc	In Queue	
Graphics\P7.drc	In Queue	
Graphics\P7.bgc	In Queue	
Graphics\P6.src	In Queue	
Graphics\P6.fgc	In Queue	
Graphics\P6.drc	In Queue	
Graphics\P6.bgc	In Queue	-

PROJECT BACKUPS

After the files have been compressed they will be copied to the destination volume, the status will indicate "Backup Completed Select Done" and the "Done" button will hilight.

Clicking on the "Done" button will return you to the Backup/Restore main dialog box.

Filename	State	-
Prefs.prf	Copied	
Port 1\P1.otp	Copied	
Port 1\P1.inp	Copied	
Port 1\P1.def	Copied	
Port 1\P1.chs	Copied	
Port 1\P1 OutTags.tgs	Copied	
Port 1\P1 InTags.tgs	Copied	
Port 3\P3P5.nvv	Copied	
Port 3\P3P5.lio	Copied	
Port 3\P3P5.lgc	Copied	
Port 3\P3.otp	Copied	
Port 3\P3.inp	Copied	
Port 3\P3.def	Copied	
Port 3\P3 OutTags.tgs	Copied	
Port 3\P3 InTags.tgs	Copied	
UD ata.opt	Copied	
Tags.tag	Copied	
OPCPoss.opc	Copied	•

Backing up to Floppy Disk: If the "A" drive was selected as the desti-

nation, S³ will prompt you to confirm that the drive is removable and whether it should be erased before copying the project onto it.

In some cases, it may be desirable to backup more than one project to the floppy disk(s) in which case select "No" to the prompt. Backup / Restore Utility

In most cases, the disk should be erased and this is the default choice. Select "Yes" and the program will prompt you for a formatted disk to be inserted into "A" drive.

Once the disk is in place, choose the desired file option, either "Single" or "Multiple". The default is "Single" and will combine all of the compressed project files into a single project backup file and copy it to the selected destination. This option is significantly faster when backing up

Filename		State	
Prefs.prf		Compressed	
Port 1\P1.otp		Compressed	
Port 1\P1.inp		Compressed	
Port 1\P1.def		Compressed	
Port 1\P1.chs		Compressed	
Port 1\P1 OutTags F	ile Option	H	
Port 1\P1 InTags.t		þ	
Port 3\P3P5.nvv	File(s)	j þ	
Port 3\P3P5.lio		, H	
Port 3\P3P5.lgc	se single s malaple	, h	
Port 3\P3.otp		þ	
Port 3\P3.inp	OK Cance	1 1	
Port 3\P3.def		· þ	
Port 3\P3 OutTags .rg	5	compressed	
Port 3\P3 InTags.tgs		Compressed	
UD ata.opt		Compressed	
Tags.tag		Compressed	
OPCPoss.opc		Compressed	•

to a floppy disk. The "Multiple Files" option is available when access to the individual files might be preferred.

Once the file option selection is made select the "Continue" button and the utility will copy the files to the floppy. If the project is too large to be backed up to a single floppy, the program will prompt you for additional disks as required.

PROJECT BACKUPS

When all files have been successfully backed up, the "Cancel" button will change to a "Done" button which when selected will exit the backup utility.

Filename	Joined	*
Graphics\A1.bgc	Joined	
Prefs.prf	Joined	
Port 1\P1.otp	Joined	
Port 1\P1.inp	Joined	
Port 1\P1.def	Joined	
Port 1\P1.chs	Joined	
Port 1\P1 OutTags.tgs	Joined	
Port 1\P1 InTags.tgs	Joined	
Port 3\P3P5.nvv	Joined	
Port 3\P3P5.lio	Joined	
Port 3\P3P5.lgc	Joined	
Port 3\P3.otp	Joined	
Port 3\P3.inp	Joined	
Port 3\P3.def	Joined	
Port 3\P3 OutTags.tgs	Joined	
Port 3\P3 InTags.tgs	Joined	
UD ata.opt	Joined	
Tags.tag	Joined	-

Restore: To restore an archived project from either a floppy disk or network, select the "Restore" button from the Backup/Restore Utility dialog box.

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Once the "Restore" button is selected the "Restore Selection" dialog box is displayed.



	e selection	
	store the files to	
pro	ject or an existi	ng project?
	Existing	New
-	Cancel	
	Lancel	<u> </u>

Select either "Existing" or "New" to begin the process.

If "New" is selected a dialog box prompting the entry of the project name is displayed.

CWN	<u>^</u>
Project One	
Mendoza	
Tula	
Conoco West Natuna	
Nohoch A	
EPC-22 AB-1	-

If "Existing" is chosen the "Select Project" dialog box is displayed. Select the appropriate project from the scrolling list and the select "OK" to begin the process.

RESTORING A PROJECT

Once the project to be restored has been chosen and the "OK" button selected file system browser dialog box is displayed prompting for the selection of the project source.

When the source has been chosen select the "Continue" button to begin the restoration procedure.

Project name: Remote Access

Filename

As files are restored they will show up in the "Filename" column of the dialog box with their status displayed to the right.

C:\FSI\Remote Access\Graphics\P6.bgc	Copied
C:\FSI\Remote Access\Graphics\P6.drc	Copied
C:\FSI\Remote Access\Graphics\P6.fgc	Copied
C:\FSI\Remote Access\Graphics\P6.src	Copied
C:\FSI\Remote Access\Graphics\P7.bgc	Copied
C:\FSI\Remote Access\Graphics\P7.drc	Copied
C:\FSI\Remote Access\Graphics\P7.fgc	Copied
C:\FSI\Remote Access\Graphics\P7.src	Copied
C:\FSI\Remote Access\Graphics\P8.bgc	Copied
C:\FSI\Remote Access\Graphics\P8.drc	Copied
C:\FSI\Remote Access\Graphics\P8.fgc	Copied
C:\FSI\Remote Access\Graphics\P8.src	Copied
C:\FSI\Remote Access\Graphics\P9.bgc	Copied
C:\FSI\Remote Access\Graphics\P9.drc	Copied
C:\FSI\Remote Access\Graphics\P9.fgc	Copied
C:\FSI\Remote Access\Graphics\P9.src	Copied
C:\FSI\Remote Access\Graphics\SColor.tcl	Copied
C:\FSI\Remote Access\Sounds\1.wav	Copied
Status: Insert next disk and select "Continue" or sel	
Continue Cancel	Da

When the process is complete, the "Done" button will hilight. Select "Done" to exit the restoration utility.



State

×

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BACKUPS

OPC SERVER



OPC Server

 S^3 is designed to simply and efficiently "integrate" data from a variety of multi-vendor safety solutions into a common Operator Interface Station (OIS) where it can be viewed, tracked, and presented to the operator.

We have chosen "OPC" as the mechanism for sharing this concentrated safety system data with other systems throughout the facility.

Traditionally, each software or application developer was required to write a custom interface, or server/driver, to exchange data with hardware field devices. OPC eliminates this requirement by defining a common, high performance interface that permits this work to be done once, and then easily reused by HMI, SCADA, Control and custom applications.

What is OPC? OPC (OLE for Process Control) is an industry standard created with the collaboration of a number a leading worldwide automation and hardware software suppliers working in cooperation with Microsoft.

The organization that manages this standard is the OPC Foundation. The Foundation has over 220 members from around the world, including nearly all of the world's major providers of control systems, instrumentation, and process control systems.



OPC Defined: OPC is based on Microsoft's OLE (now Active X), COM (Component Object Model) and DCOM (Distributed Component Object Model) technologies. It consists of a standard set of interfaces, properties, and methods for use in process-control and manufacturing-automation applications.

The Active X/COM technologies define how individual software components can interact and share data. OPC provides a common interface for communicating with diverse process-control devices, regardless of the controlling software or devices in the process.

OPC DEFINITION

OPC in S³: The OPC option for S^3 is one of the easiest ways to provide safety system data from many sources to the distributed control system or other OPC compliant system.

With the OPC option S^3 becomes a "Version 2.03 Data Access Server" to make available, under user configuration, any information being tracked by the S^3 event handling database.

The S^3 server setup is a model of simplicity. The user is presented with a tag list showing all of the points being tracked by the system and the user can then choose what to "activate" for OPC clients to access. Using this simple tag based method it is possible to share complex data knowing little more that the tag name. OPC clients don't need to know anything about the port type, serial or ethernet settings, memory register locations, addresses, or any of a number of technical details, just the tag name.

OPC Server configuration

To configure OPC data points, select the OPC Server button from the S³ Main Screen.



This will display the OPC Server Configuration dialog

box which lists all of the tags available for activation by the server.

Ports 0	PC Server Configurat	tion							Preferences
	Tagname	/ Туре	Port	Point	1/0	Channel	State		
	AA-007-7	DCIO Output	2	5	1/0	7	Inactive	100	
	AA-007-7 AA-007-8	DCIO Output	2	5	1	8	Inactive	2	
	Ack	EQP Controller Input	2	1	1	2	Inactive		
	Cancel	EQP Controller Input	2	1	1	6	Inactive		
	DH-CTR-001	EQP Controller	2	1		255	Inactive		
	DH-DI-010	Initiating Device Circuit (IDC)	2	10	1	255	Inactive		-
	DH-DI-010A	IDC Input	2	10	1	1	Inactive	-	
0	DH-DI-010B	IDC Input	2	10	1	2	Inactive		
9	DH-D0-014	Signal Audible Module (SAM)	2	14		255	Inactive		1000
	DH-D0-014A	SAM Output	2	14	1	200	Inactive		
THE R. LEWIS CO.	DH-DO-014B	SAM Output	2	14	1	2	Inactive		- 1963
Concession in the local division of the loca	DH-D0-0148 DH-D0-015		2	14		255	Inactive		a second a des
	DH-D0-032	Agent Release Module (ARM)	2	32		255	Inactive		
ckup/Restore	DH-D0-032A	Signal Audible Module (SAM) SAM Output	2	32	1	200	Inactive		aphics Edit
ckup/ nestone	DH-D0-0328		2	32	1	2	Inactive		aprilea Eur
Contraction of the	DH-D0-0328 DH-D0-034	SAM Output	2	32	1	255	Inactive		
	DH-D0-034A	Signal Audible Module (SAM)	2	34		255	Inactive		
	DH-D0-0348	SAM Output	2	34	1	2	Inactive		
	DH-FD-013	SAM Output UV/IR Detector (EQ2200)	2	34 13	1	255	Inactive	120	
25	Print	Properties Activate		cs	1	DK	Cancel		STOP

OPC SERVER CONFIGURATION

OPC SERVER

The available tags shown, were created during the port configuration process. When a Modbus, Triconex, Eagle or other device is configured it is added to the S^3 tag name database. All of the points in this tag name database are automatically set up by S^3 for use by the OPC server. This greatly simplifies OPC tag management.

The OPC Server Configuration dialog box displays the tagname, type and origin information along with its OPC status, either Active or Inactive.

Tagname	/ Type	Port	Point	1/0	Channel	State	
AA-007-7	DCIO Output	2	5	1	7	Inactive	~
AA-007-8	DCIO Output	2	5	1	8	Inactive	
Ack	EQP Controller Input	2	1	1	2	Inactive	
Cancel	EQP Controller Input	2	1	1	6	Inactive	Ŧ
DH-CTR-001	EQP Controller	2	1	4	255	Inactive	
DH-DI-010	Initiating Device Circuit (IDC)	2	10	1	255	Inactive	
DH-DI-010A	IDC Input	2	10	1	1	Inactive	
DH-DI-010B	IDC Input	2	10	1	2	Inactive	
DH-DO-014	Signal Audible Module (SAM)	2	14	1	255	Inactive	
DH-DO-014A	SAM Output	2	14	1	1	Inactive	
DH-DO-014B	SAM Output	2	14	1	2	Inactive	
DH-DO-015	Agent Release Module (ARM)	2	15	1	255	Inactive	
DH-DO-032	Signal Audible Module (SAM)	2	32	1	255	Inactive	
DH-DO-032A	SAM Output	2 2	32	1	1	Inactive	
DH-DO-032B	SAM Output	2	32	1	2	Inactive	
DH-DO-034	Signal Audible Module (SAM)	2	34	1	255	Inactive	
DH-DO-034A	SAM Output	2	34	1	1	Inactive	
DH-DO-034B	SAM Output	2	34	1	2	Inactive	
DH-FD-013	UV/IR Detector (EQ2200)	2	13	1	255	Inactive	V

To make a tagname available to OPC Clients, select the tagname and click on the "Activate" button.

In the example above, an Eagle Quantum UV/IR Optical fire detector is selected. Its tagname is "K201AB-10", it originates at S³ port 3 point 65, is an "I" (input), and has an OPC State of "Active".

This is a "top level" view of the devices and their status. In the above example this single point "K201AB-10" actually is a compound point with a variety of subordinate data available to the OPC client.

To view this data, select the "Properties" button.

OPC Property Viewer: The properties button at the bottom of the OPC Server Configuration dialog box will open the "OPC Property Viewer" and display the properties for the selected point.

The individual property extension, description and variant type are displayed.

These properties were configured automatically by S^3 for inclusion by the OPC server when the point was created within the Port Configuration process.

In the above example, because it was an intelligent addressable device, it has a great deal of data indexed to it.

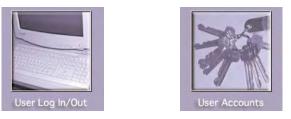
Simple analog or discrete values will have far less available data.

NOTE:

OPC Clients: In order for OPC clients to be able to connect to the S³ OPC Server, S³ must have been installed on the client machine.

OPC PROPERTY VIEWER

SECURITY



User Log In/Out and User Accounts

These buttons are part of the S^3 security system. The "Log In/Out" button is used to log in or change users, the "Passwords" button allows the system administrator to create or modify user accounts.

 S^3 supports up to sixty three unique user accounts, each capable of having a different password and access privileges. These user accounts are controlled by the S^3 system administrator.

Selecting either the log in or passwords button will display the user selection screen.

Administrator	
	Exit

In the sample above two users are configured, the Administrator and an Operator account.

The administrator account is automatically created by the system and cannot be deleted.

SECURITY BASICS

SECURITY

The person logged in as the Administrator is the only one who can create, modify or delete user accounts. In addition, the Administrator may also change the configuration and password for his/her own account.

The default password for the Administrator is "DEC"

CAUTION: If the Administrator changes his/her password and loses it, there is no way to restore the account.

To set up or modify user account parameters, click on the button blank or user to be edited. This will open the "User settings..." dialog box.

Configure system enabled C Guit "Online" operations enabled P "Port Diagnostics" viewing enabled Restricted Access enabled User Level 65535 0-65535			Continue sistem enabled
Guit "Online" operations enabled			
 "Port Diagnostics" viewing enabled Restricted Access enabled 			
User Level 65535 0 - 65535			F Restricted Access enabled
User Level 65535 0 - 65535			The second second second
			User Level 65535 0 - 65535
	l	New	Select Delete
New Select Delete	[Passwe	ord Change Name

Five buttons allow for selecting, creating, renaming and deleting user accounts, one button is for entering or changing an accounts password.

Above the buttons are four check boxes and a "User Level" field that determine the rights the user is allocated. These rights include the user level and whether or not the he/she is able to access diagnostics or configuration utilities and a "restricted access" mode for viewing but not changing configuration data.

USER BASICS

Creating User Accounts: To create a new user, select the "New" button from the "User Settings" dialog box. The user selection screen will appear

Select any blank button to be configured as a new user.

Administrator	
<u>5</u>	
	Exit

This will display a dialog box for entering the new users name. Enter the name of the new user.

User:	Administrator
Enter user	
Operat	or
	OK Cancel
Passw	ord Change Name

Enter the name of the new user, in our example above "Operator" was chosen.

CREATING A NEW USER

9-4

SECURITY

After entering the new users name, select "OK" to accept the name and display the "User settings..." dialog box.

Configure system enabled Configure system enabled Configure system enabled Configure system enabled Configure system enabled Configure system enabled Configure system enabled	User:	Administrator
Port Diagnostics'' viewing enabled		Configure system enabled
		🔽 Quit "Online" operations enabled
F Restricted Access enabled		Port Diagnostics" viewing enabled
		F Restricted Access enabled
IL AND DEPART		
User Level 65535 0 - 65535		User Level 65635 0 - 65535
	Nev	
	Passw	ord Change Name

There are four check boxes and one field that are used to configure the users account.

User Level: A user level between 0 and 65535 is used to determine what a user can do. Each command or button which a user can interact with in S^3 has a user level assigned to it. The higher the number, the higher the "privileges" for that user. A user level of "0" would allow "browsing" only with no command capability.

Configure system enabled: When selected, this option allows the user access to the engineering and configuration aspects of the S^3 software suite. This includes the ability to make, move, configure and delete ports. The ability to create or modify points like fire detectors, gas detectors, analog transmitters, digital inputs, etc. attached to one or more of the available ports.

Quit "Online" operations enabled: When selected, the user is able to quit online operations and return to the S^3 main screen for access to the various engineering and maintenance utilities.

CREATING A NEW USER

SECURITY

Port Diagnostics viewing enabled: When selected, when online the user can access the port diagnostics screen (F11). This screen allows the user to view details about the operation of all active communication ports, whether serial or ethernet. This would typically be used by a technician responsible for troubleshooting connectivity between the S3 station and any attached systems.

Restricted Access enabled: This feature applies only to Det-Tronics Eagle Quantum Premier systems and is intended to give limited access of the EQP port configurations for viewing and documentation purposes.

User accounts can be created with only the "restricted access" checkbox selected, or combined with the other checkboxes; configure system, quit online, port diagnostics.

User:	EQP View Only	
	🔽 Configure system enable	d
	🔽 Quit "Online" operations	enabled
	F "Port Diagnostics" viewi	ng enabled
	Restricted Access enabl	led
	User Level 0	0 - 65535
Nev	Select	Delete
Passw	brd	Change Name

When a user account is created using only the restricted access checkbox, the user can log in and view the configuration and calibration logs as well as configure and initiate the print-out of system documentation but cannot access any other S^3 features.

CREATING A NEW USER

If "restricted access" is combined with "configure system" the user can also create project backups using the "Backup/Restore" utiliity and view the LON configuration of an EQP port but cannot edit or view the LON devices details.

User settings	
User:	EQP View Only
	Configure system enabled
	Quit "Online" operations enabled
	F "Port Diagnostics" viewing enabled
	Restricted Access enabled
	User Level 0 0 - 65535
New	v Select Delete
Passw	ord Change Name
	ОК

If combined with "Quit Online operations" a restricted access user could log in while the graphics environment was online, be able to navigate the graphics and be able to quit the graphics environment returning to the configuration environment and the view and document the project as described above but not be able to make changes or return online.

CREATING A NEW USER

SECURITY

Password: After the selection of the options assigned to the user, a user password must be created. This password is used to log on to the system at startup or when online during shift changes etc.

Enter password:
Verify password:
••••••
OK Cancel

Select the "Password" pushbutton to access the "Password" dialog box. The password must first be entered into the "Enter password:" field and then again into the "Verify password:" field to validate the entry.

Note: Only the Administrator may change passwords!

If a password is lost it cannot be retrieved and the user account must be deleted and then recreated as a new user.

Change Name: This button allows a users login name to be changed without effecting the account configuration. For instance "Operator" could be changed to "John Doe" while retaining the password and privileges previously configured.

SECURITY

CREATING A NEW USER

GRAPHIC EDITOR

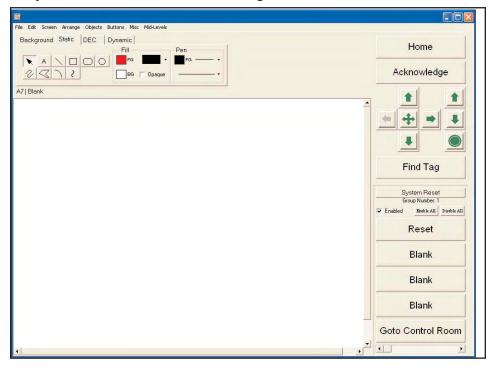


Graphic Editor

The graphic editor allows for the creation, programming, and maintenance of up to 256 custom graphic screens overlayed with dynamic data from any attached port.

These screens are then compiled and used by the "Online" application to present the data to the operators.

The layout of the graphic editor simulates the "Online" environment so that you have a better idea of how things will look when finished.



The drawing environment is divided into four main areas. The top area holds drawing tools and access to the layer tabs. The top right area has the navigation buttons and the lower right area has the user defined buttons. The fourth area is the drawing area, a rectangle in the center of the screen whose size will vary based on the selected project resolution. In addition there are pull down menu selections for additional features.

GRAPHIC EDITOR INTRODUCTION

Drawing Layers: The S³ drawing environment utilizes layers to keep like data constructs separated. There are four layers in the environment.

File Edit Screen Arra	ange Objects	Buttons Misc Mid-Levels
Background Stati	C DEC	Dynamic
Bitmap	Edit	
Enabled	Import	
	Delete	BG C Opaque

The layers are accessed by "Tabs" at the top left of the screen. In the sample above, you can see the four tabs; Background, Static, F.S.I. and Dynamic. The Background layer is currently selected.

Each layer has a different set of tools and provides a unique capability for the drawing environment. The use of each layer is described below.

Background Layer: The background constitutes the lowest layer of the drawing environment. Objects built on all other layers will be "on top" of the background layer. The background layer is typically used to pro-

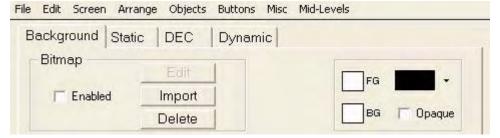


vide a consistent color, patterned or photographic background upon which to draw objects in higher layers.

BACKGROUND LAYER

GRAPHIC EDITOR

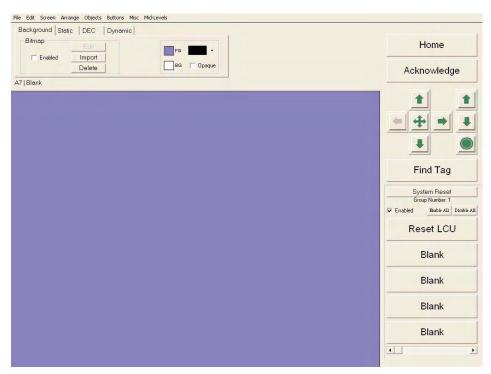
The default background is a plain white with no pattern. To change the background color or pattern, select the FG or BG box.



The FG (Foreground) and BG (Background) selection box will open a color pallet for selecting different colors. There are 48 solid colors available on the "Color" pallet with the ability to add an additional 16 custom colors using the "Define Custom Colors" feature.

In the sample to the right, an intermediate blue is selected (Row 3, Column 6). When the desired color has been picked, selecting the "OK" button will change the entire drawing area of the background layer to that color.





A pattern can be applied using the selected foreground color by clicking on the "pattern pull down menu" to the right of the FG selection square.

Background Stat	c DEC Dynamic	
Bitmap	Edit	FG -
Enabled	Import	
	Delete	BG BG e
7 Blank		

In the sample above, a diagonal pattern has been applied to the background of the drawing area.

The BG square allows for the selection of a background color when used in conjunction with a pattern selected from the pattern pulldown menu and with the "Solid" checkbox selected.

Bitmap	Edit		FG	<i>IIII.</i> •
F Enabled	Import	4	_	
	Delete		BG	✓ Opaque
Blank				
DIGIN				

In the sample above, a yellow BG was selected and the "Opaque" check box is enabled. This yields a diagonal pattern with the FG color over the BG color.

Importing Graphic Files: The background layer can also be used to display a photo or drawing developed in another application. For instance, a plot plan of the facility taken from AutoCad and converted to a bitmap. This can save time in graphic development but trades off the ability to easily edit the background later.

Background Static DEC Dynami	c	
Bitmap	FG T	Home
Enabled Import Delete	BG C Opaque	Acknowledg

To place a bitmap file, select the "Import" button in the "Bitmap" area of the background tab.

This will display a dialog box allowing navigation to the graphic file to be imported. File types supported for importing include; bitmaps (.bmp), Windows Meta-File (.wmf), and Enhanced Meta-File (.emf) and standard JPEG (.jpg).

Look in:) S3 Demo Graphics new	▼ ← ⊡ ☆ 	Picture:
A1 A2 A3 A4 B1 B2	84 DD C1 DC C2 DC C4 DC C5 DC C6 DC	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	(None)
File name:		Open	
	Bitmaps (*.bmp)	Cancel	
Files of type:			

Regardless of the original file type, the import function converts it into a bitmap (.bmp).

Once the file is selected the "Paste/Import Background..." dialog box

displays the available preprocessing options for bitmap imports.

There are two main option areas associated with bitmap importing. The "Sizing" area determines what kind of scaling or cropping will be applied to the bitmap.

Sizing		Options
Unmodified	C Crop	Invert Black/White
* Shink	C Flow	Fill Destination First
* Expand		

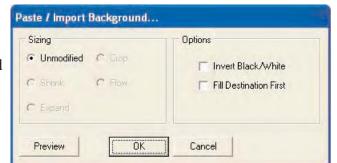
The "Options" area can invert black and white pixels and / or fill the destination screens with a color (as selected in the FG & BG squares) prior to importing the bitmap.

Sizing options: Each graphic screen is 800 pixels wide by 600 pixels

high. If the bitmap to be imported is not the same size, you can apply several different options to it as it is being imported.

Unmodified: If the graphic is exactly 800 x 600, the import dialog box will open with the "Unmodified" radio button selected.

This option is usually applicable when the graphic to be imported has been pre-processed in another application like Photoshop or Paint.

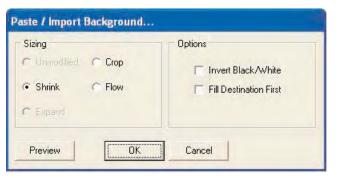


If the graphic to be

imported is larger than 800 x 600 then when the import dialog box opens the "Shrink", "Crop" and "Flow" graphic import modifier radio buttons will be enabled for selection.

Shrink: When the graphic to be imported is larger than standard, the Shrink option is automatically selected. This will scale the graphic to fit inside the standard graphic window (800 x 600).

Crop: This option is available when the graphic to be imported is larger than the standard graphic window (800 x 600). When selected, using the upper left pixel of the graphic to be imported as a reference, every-



Paste / Import	Background	
Sizing C Unmodified C Shrink C Expand	✤ Crop ← Flow	Options Invert Black/White Fill Destination First
Preview	OK	Cancel

thing beyond 800 pixels in width and 600 pixels in height will be deleted.

Flow: This option is available when the graphic to be imported is larger than the standard graphic window (800 x 600).

Sizing	Options
Crop	Invert Black/White
Shrink 💽 Flow	Fill Destination First
* Expand	

When selected, the graphic to be imported will be divided into a series of standard graphic windows that encompass the entire graphic. A preview button is provided that shows how the graphic will be divided. If the graphic being imported is not evenly divisible by 800 x 600, the remainder will be filled with white.



If the graphic to be imported has a particular background color, the "Fill Destination First" checkbox in conjunction with the FG color selection box can be used to fill the remainder with a selected color.

BACKGROUND LAYER

Static Layer: The "Static Layer" provides a selection of drawing tools for the creation of graphics that do not change. For instance, the outlines of buildings or machinery representing the facility or areas within it.

There are eight graphic creation tools and a pointer. In addition to these tools there are modifiers for lines, colors and patterns.

File Edit Screen Arrange Ol	bjects Buttons Misc Mid-Levels
Background Static DE	EC Dynamic
	Fill Pen
X A \ D C	
227	BG C Opaque

Text tool: The text tool allows descriptive text to be added to the graphic screen. The alignment, angle, color and fill pattern for the "text object" can be adjusted in the dialog box.

File Pen A DO File File File File File File A DO File File File File File File File File A DO File File File File<	
Empty	Vertical Alignment Top Center Bottom Single line only Word Wrep Strikeout Underline Font
Horizontal Alignment C Left C Center C Right Rotation	Okay

Selecting the text tool will open the "Text Editor" dialog box. Within this dialog box text is entered and formatted. Formatting options include text alignment, rotation, font selection and sizing, and special formatting like underline and strikeout.

STATIC LAYER - TEXT TOOL

Text Object Creation Example:

When a new text object is being created, the text editor dialog box opens and displays the default text "empty". You then enter the desired text and apply the desired formatting options.

Vertical Alignm Top C Center Bottom

Above, the "empty" text has been replaced with our example"PP-NA-1". This text can then be modified. Next, the "Font" button is selected allowing the font type and size to be changed.

ext Editor	Eont: Arial	Font style: Regular	<u>Size:</u>	
Ρ	Arial Tarial Black Tarial Narrow Tarial N	Regular Regular Italic Bold Bold Italic		ncel
		Sample Receipt: Western	E	l Wrap sout ríine nt
- Horizontal	Alignment	_		

For our example, Arial Regular in a 48 point size is selected. Other font styles such as Italic, Bold and Bold Italic could also have been selected at this point.

NOTE: Since this is a "Text Object" and not a bitmap, any of these modifiers can be changed later; "Right-click" on the text object to access the editor.

STATIC LAYER - TEXT TOOL

After the font size and style are selected a rotation will be applied by selecting the Rotation button and selecting the angle.

_		Text Rotater	
	Text Editor	The text is totaled 315 degrees.	lignment r n
			ord Wrap tikeout tiderline Font
	Horizontal Al	315 	Dkay
Ŧ		Rotated text is supported for single lines only.	

The text angle is adjusted by selecting one of the defaults, located at the compass cardinal points, or be manually entering the angle.

NOTE: Rotated text is supported for single lines only.

Once the angle is selected, the Okay button will close the dialog boxes

taking you back to the main screen of the graphic editor, with the new text object in place.

The color of the text object can be changed from the main window by selecting the object and the FG or



STATIC LAYER - TEXT TOOL

GRAPHIC EDITOR

BGbox. This will open the color pallet from which any of 48 default colors can be assigned. The "FG" box in the "Fill" selection area just to the right of the tool selection buttons is used to change the color of the actual text in the text object (PP-NA-1 in this example).



The "BG" box used in conjunction with the "Opaque" checkbox allows changing the color of background of the text object but not the text.

FG

When the "Opaque" checkbox is selected the background of the text object will be what ever color is selected in the "BG" box.

In the example to the right, the background of the text object has been set to Opaque and White.

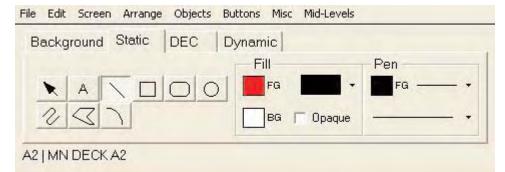
This is useful when text is placed over a visually complicated object that in some cases can make text more difficult to read.

In addition, 16 custom colors can be

et

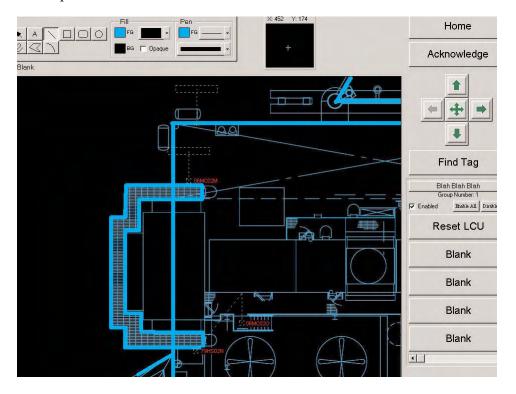
created for use in the project. These are created by selecting the "Define Custom Colors" button which displays a standard color selection wheel.

STATIC LAYER - TEXT TOOL



Line tool: The line tool allows "straight lines" of various widths and colors to be created. These can be used to draw facility layouts or other static representations to help the operators better understand the system.

The example below is from an offshore platform project and the line tool was used in conjunction with other static tools to build a representation of the platform.



Changing the thickness or type of line is done using the pull-down menus in the "Pen" section to the right of the tools. The line color is set using the "FG" box in the "Fill" section to the right of the tools.

STATIC LAYER - LINE TOOL

GRAPHIC EDITOR

Pen Fa The "Pen" area to the right of the static tool buttons contains three modifiers for lines. A selection box and two pull down menus.

The "FG" box allows the line color to be chosen.

A variety of different "line types" and sizes can be selected from the appropriate pull down menu.

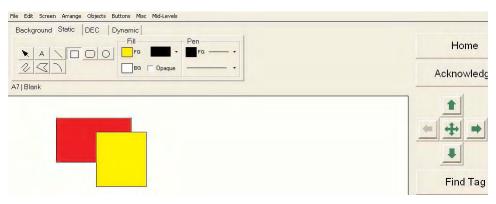


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As with other "objects" on

the static layer, these color, type and thickness attributes can be changed later as required.

Rectangle tool: This tool allows squares and rectangles to be created in the development of custom graphics.



To create a rectangle, select the tool, position the mouse pointer at the location in the drawing window where the rectangle will begin, click and drag the mouse to create a rectangle in the desired size.

The location of the rectangle in the drawing window can be changed by clicking and dragging. The size and aspect ratio can also be changed. To do so, click on the rectangle to select it and then click and drag on one of the "selection handles" until the desired size is reached.

Once created the "Fill" and "Pen" modifiers can be used to change the rectangles color, pattern and line thickness.

STATIC LAYER - LINE & RECTANGLE TOOL

10-14GRAPHIC EDITOR

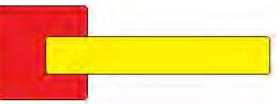
Rounded rectangle tool: This tool allows squares and rectangles with rounded corners to be created in the development of custom graphics. To create a rounded rectangle, select the tool, position the mouse pointer

1	uttons Misc Mid-Levels
	Fill Pen Fg +
227	BG 🗆 Opaque
A2 MN DECK A2	

at the location in the drawing window where the rounded rectangle will begin, click and drag the mouse to create a rectangle in the desired size.

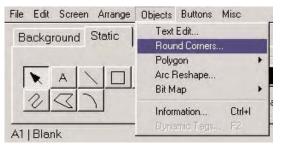
The location of the rounded rectangle in the drawing window can be changed by clicking and dragging. The size and aspect ratio can also be

changed. To do so, click on the rectangle to select it and then click and drag on one of the "selection handles" until the desired size is reached.



Once created the "Fill" and "Pen" modifiers can be used to change the rectangles color, pattern and line thickness.

In addition, the radius of the rounded corners can be adjusted by selecting "Round Corners..." from the Objects menu.

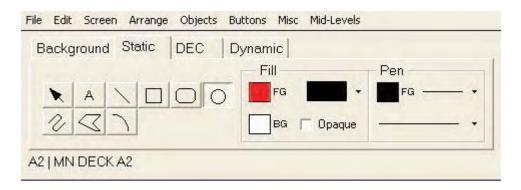


This will open a dialog box allowing the radius (in pixels) of the rectangle corners to be entered.



STATIC LAYER - ROUNDED RECTANGLE TOOL

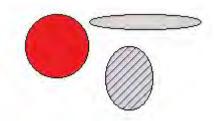
Circle tool: This tool allows circles to be created in the development of custom graphics.



To create a circle, select the tool, position the mouse pointer at the location in the drawing window where the circle will begin, click and drag the mouse to create a circle in the desired size.

The location of the circle in the drawing window can be changed by

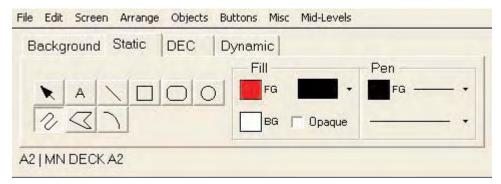
clicking and dragging. The size and aspect ratio can also be changed. To do so, click on the rectangle to select it and then click and drag on one of the "selection handles" until the desired size is reached.



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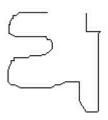
Once created the "Fill" and "Pen" modifiers can be used to change the circle color, pattern and line thickness.

Freehand line tool: This tool allows custom shapes, either filled or open, to be created in the development of custom graphics.



To create a freehand object, select the tool, position the mouse pointer at

the location in the drawing window where the object will begin, click and drag the mouse to create to create a custom "freehand" object. The object may be "open" as shown in the example to the right, or closed, where a fill pattern and color is applied to the inside area of the object.



A closed freehand object is created by first making the object as an outline and then modifying its parameters. To do so, select the object by



clicking on its outline, then from the "Objects" menu select "Polygon" and "Closed".

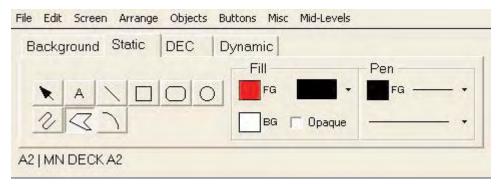
This will fill the interior area of the freehand object with the color and pattern preferences currently selected in the "Fill" and "Pen" areas. These can be easily changed by selecting different choices.



STATIC LAYER • FREEHAND LINE TOOL

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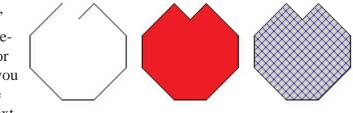
Polygon tool: This tool allows the creation of polygons, either filled or open, in the development of custom graphics. A polygon is a flat, or



plane closed figure made up of at least 3 lines. Triangles, rectangles, octagons, and all other flat figures that have 3 or more sides are polygons.

To create a polygon object, select the tool, position the mouse pointer at the location in the drawing window where the object will begin, click the mouse to create the first point of the polygon and then drag the mouse to

the location of the next "break-point" and click. This creates another anchor point and allows you to then change the direction of the next



line. Continue this process until the polygon is complete and on the last point double-click to finish the object.

In the examples above, the left-most polygon is an "open polygon" and the other two are "closed polygons". Closed polygons can be assigned an

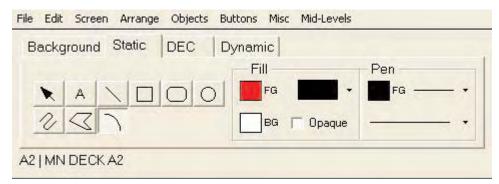
interior color and pattern. To "close" a polygon, select the completed "open polygon" object by clicking on its outline, then from the "Objects" menu select "Polygon" and "Closed". This will fill the interior area of the polygon object with the color and pat-

Objects	Buttons	Misc M	id-Le	vels	
0.5057.5					
Polyg	on		•	Opened	1
Arc R	eshape			Closed	-
Bit Ma	P		•	Rotate	
		Ctrl+I P2	-	Edit	
	Text I Round Polyg Arc Ri Bit Ma Inform	Text Edit Round Corners. Polygon Arc Reshape Bit Map Information	Text Edit Round Corners Polygon Arc Reshape Bit Map	Text Edit Round Corners Polygon + Arc Reshape Bit Map + Information Ctrl+I	Round Corners Opened Polygon Opened Arc Reshape Closed Bit Map Rotate Information Ctrl+I

tern preferences currently selected in the "Fill" and "Pen" areas. These can be easily changed by selecting different choices.

STATIC LAYER • POLYGON TOOL

Arc tool: When a segment of a circle is required this tool allows either open or filled arcs to be created.



Creating an arc is a two step procedure. First, select the "Arc" tool, as show above, then click and drag from upper-left to lower-right to create the arc editing box, as shown to the right. The arc editing box will always initially consist of a 270° arc starting at 90° and continuing through 360°.



Objects Buttons Misc Mid-Le Second, select "Arc Reshape" from the "Objects" menu. This will open the "Arc Editor" dialog box. This dialog box, shown below, depicts the current arc along with its starting and ending angles.

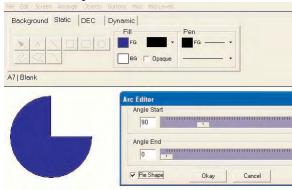
> There is also a "Pie Shape" check box. When selected, this causes the area inside of the arc to

take on the currently selected Fill and Pen attributes. The sample below shows the arc with pie shape fill enabled and the start and end changed.

Background Static DEC	Dynamic
	Fill Pen
X A N D O C	
221	BG C Opaque
7 Blank	
A	rc Editor
A	rc Editor
	Angle Start
	Angle Start 45 Angle End
	Angle Start 45 Angle End

STATIC LAYER • ARC TOOL

In the example below, the initial arc has not been changed but the "Pie

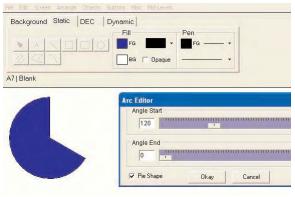


Shape" check box is selected, causing the arc to become "filled".

10-19

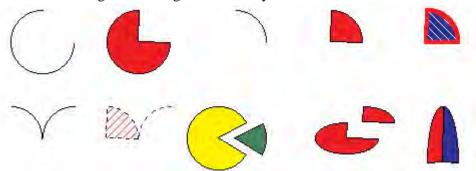
Note that even though the results of arc editing are shown as adjustments are being made, the arc being edited doesn't change until the "Okay" button is select-

ed in the Arc Editor dialog box. "Cancel" on the other hand, leaves the original arcs attributes unchanged and it returns to its configuration before the Arc Editor was opened.



Entering a new number in either or both fields will change the arc shape. The new shape is displayed graphically as numbers are entered or the sliders are adjusted. In the example to the left, the angle start and end have changed and the arc has been reshaped.

Once the arc is of the desired size and shape, it's pen and fill attributes can be modified to suit. The aspect ratio (height to width ratio) of arcs, like rectangles, circles, polygons, and other objects can be changed by simply selecting the completed arc and resizing it by dragging one of the selection rectangles defining the boundary of the arc. Above are a vari-



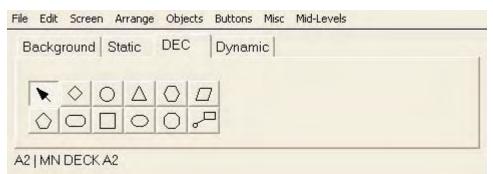
ety of arc samples demonstrating what can be done by manipulating the pen, fill, angle attributes, and aspect ratio.

STATIC LAYER • ARC TOOL

GRAPHIC EDITOR

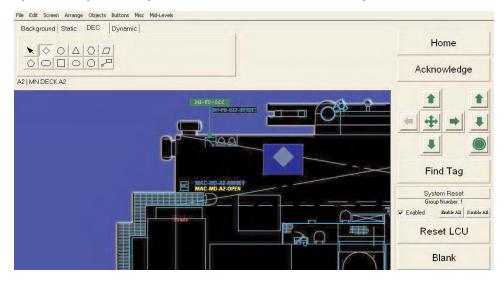
DEC Layer: This layer of the S^3 drawing environment allows for the selection, configuration and placement of symbols on the drawing that represent the status of certain field devices.

These symbols can be configured to change color combinations depending on the "State" of the field device.



Eleven symbol shapes are provided so that different types of devices can be represented by different symbols if desired. For example, a diamond for fire detectors, a circle for gas detectors, a triangle for manual call points, etc.

Select the desired symbol and then "click" on the desired destination location for the symbol within the graphic window. Once placed, the symbol may be freely moved with either the arrow keys or mouse.



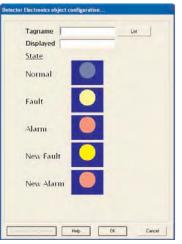
In the sample above, the "diamond" symbol shape was selected and placed on the graphic. The next step is to "link" the symbol to the field device database and set its color attributes.

DEC LAYER

DEC Object Configuration: Double-click on the placed symbol to open the "Detector Electronics object configuration" dialog box.

This dialog box presents a "Tagname" field for creating linkage between the symbol and the field device database and it also provides controls for setting the color combinations that will represent the various "states" of the linked field device.

If the desired tagname is known for the field device to be linked, it can be entered directly into the "tagname" field at the top of the dialog box.



TAC VIEWER

If the exact tagname is not known, select the "Find" button to the right of the tagname field to open the "Tag Viewer".

The "Tag Viewer" dialog box contains a scrolling list of all of the field devices in the database as well as a "filter" field to help locate the desired tag.

Once the desired tagname is located, select it and choose "OK" or double-click on the

tagname. This will make the selection and dismiss the tag viewer dialog box, returning the object configuration dialog box where the selected tagname is now displayed.

DEC Object Visible Attribute Selection: The foreground color, background color, foreground pattern and background pattern can each be individually selected for the symbol and its surrounding background.

In addition the color text displaying the tagname and its background color can also be adjusted.

All of these settings are done via simple "point-and-click" selections within the objects "state color selection" dialog box. To access these settings, double-click on the symbol next to the state being edited.

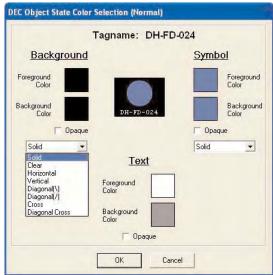
Tagname	Туре	Port	Point	VO	
DH-DO-015	Agent Release Module (ARM)	1	15	1	10
DH-DO-032	Signal Audible Module (SAM)		32		
DH-DO-032A	SAM Output				
DH-DO-032B	SAM Output		32		
DH-DO-034	Signal Audible Module (SAM)				
DH-DO-034A	SAM Output		34		
DH-DO-034B	SAM Output		34		
DH-FD-013	UV/IR Detector (EQ2200)				
DH+FD-022	UV Detector (EQ2200)		22		
DH4FD-024	TIR X3301	1	24	T.	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)				
DH-GD-016	Eclipse PIR		16		
DH-10-007	8 Channel DC VO (EQ3700)				
DH-IRO-033	Digital Communication Unit (DCU)				
DI-TCX-001	Generic Digital				
	FILTER			OK	CANCEL

GRAPHIC EDITOR

In the example below, the "Normal State" is being edited. In the center of the dialog box is a representation of the symbol utilizing the currently selected colors and patterns.

Symbol Background: On the left side of the dialog box are selections for the foreground and background colors of the "background" of the symbol. This is the square area surrounding the actual symbol.

Below this are an "Opaque" check box and a pull down menu for the pattern of the background. The "Opaque" checkbox works in conjunction with the selected pattern. It applies the selected background color to the background of a pattern. If no pattern is selected, it has no meaning. By default, "opaque" is deselected.



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Symbol: On the right side are similar selections for the fore-

ground color, background color and the pattern of the symbol itself.

Text: The foreground and background colors of the text displaying the tagname of the symbol can be changed as required. The foreground color controls the actual text color, the background color controls a rectangle surrounding the tagname. This can be used to make the tagname easier to read when its symbol is over complex graphics.

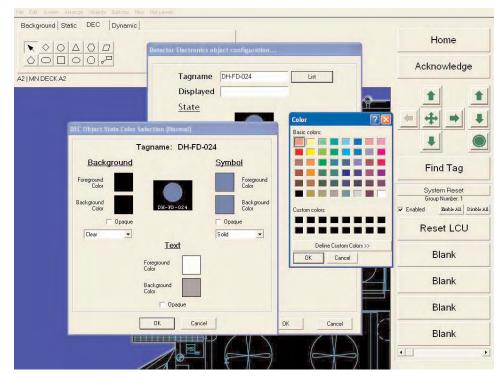
With text, the "Opaque" check box must be selected to enable the background color.

Color Selections: All foreground and background color selections are made using S3's standard color selection dialog box. This dialog box provides 48 predefined "standard colors" along with the ability to create up to 16 custom colors.

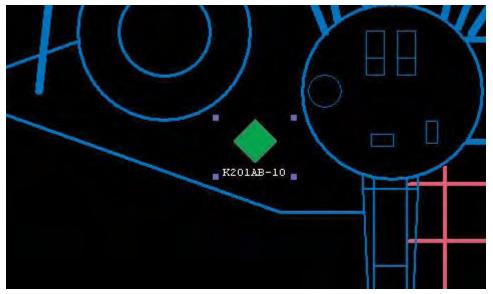
The "Define Custom Colors" button will expand the dialog box to allow selection of any desired color.



In the example below, all three of the editing dialog boxes for the "Normal State" of a symbol are shown.



Below is an example of a "completed" symbol, with all color and pattern attributes selected, placed on a graphic screen.



Once the desired color and pattern selections are made for a symbol, it may be easily duplicated with either the "Duplicate" command under the

DEC LAYER

"Edit" menu. Once duplicated simply double click on the new symbol and change the tagname selection. You may also cut/copy and paste a symbol from one location or screen to another.

Callout Symbol: Of the eleven symbols available, ten are simple one piece geometric shapes. One however, is a "two-piece" symbol called a

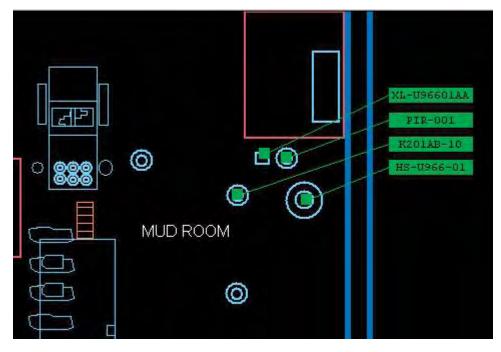
"Call-out". It consists of a rectangle containing the tag name and a small pointer connected by an elastic line that can be moved away from the tagname to indicate device location.



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Call-outs are typically useful when a large number of field devices are in close proximity to each other on the graphics, as in the sample below.



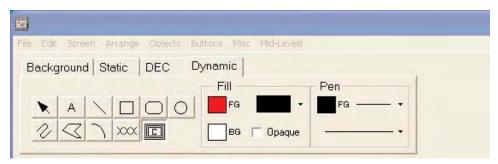
DEC LAYER

GRAPHIC EDITOR

Dynamic Layer: The "Dynamic Layer" provides a selection of drawing tools for the creation of graphics that can be linked to the tagname database and the status of devices connected to the system can then influence the look, size and position of dynamic objects on the screen.

For instance, the "Sensor Fault" status bit of a gas detector can cause a descriptive text string to appear on screen next to its DEC tag object, or a valve position switch tied to an input can cause a polygon shaped like a valve to change color.

There are the same eight graphic creation tools and a pointer as found on the Static Layer editor plus two additional ones, the "Dynamic Text" tool and the "Complex Object" tool. In addition to these tools there are the standard S³ modifiers for lines, colors and patterns.



The creation of objects and setting of their color, pattern, line attributes and position is identical to that described for the Static Layer using the following tools:

> Text Tool Line Tool Rectangle Tool Rounded Rectangle Tool Circle/Ellipse Tool Freehand Tool Polygon Tool Arc Tool

For detailed instructions on the use of these tools to create objects refer back to the Static Layer portion of this chapter.

Dynamic Object Linking & Attribute Choices: Once a dynamic object has been created and placed in its initial position on the screen it can then be linked to the tagname database and configured to perform certain object specific dynamic changes.

DYNAMIC LAYER

Function	Tagname	Edit
T Attributes		Edit
🔲 Display Button Gr	oup	Edit
Hide/Show		Edit
Percent Fill		Edit
Text Attributes		Edit
Two State		Edit
└── Value Text		Edit
	ок	Change Tagname

Double clicking on a dynamic object that has been created will open the "Dynamic Object Functions..." dialog box which presents the options that are available for the selected object and allowing it/them to be configured.

Note: In the example above all functions are shown for clarity even though no single dynamic object type has access to all functions.

Most dynamic objects will be configured to utilize a single function from those available for the selected type, some types can utilize more than one function concurrently. The chart below shows function availability by dynamic objects type:

DYNAMIC OBJECT MODIFIERS	Text	Line	Rectangle	Rounded Rectangle	Oval	Freehand	Polygon	Arc	Value Text
Attributes		Х	Х	Х	Х	Х	Х	Х	
Display Button Group	Х	Х	Х	Х	Х	Х	Х	Х	Х
Hide/Show	Х	Х	Х	Х	Х	Х	Х	Х	Х
Percent Fill			Х	Х	Х	Х	Х		
Text Attributes	Х								
Two State	Х	Х	Х	Х	Х	Х	Х	Х	
Value Text									Х

DYNAMIC LAYER

Function Overview: Following is a brief overview of each available dynamic function along with an example of how the function might commonly be applied.

Attributes: Attributes include the size, shape, location, fill color, pattern, line thickness and pen color of a dynamic object. Any or all of these parameters can be changed in response to changes in data coming from the linked tag.

An example would be to change the color of a dynamic object from green to yellow when the status the device it is linked to in the tagname database changed from "Normal" to "Fault".

Display Button Group: This function is designed to allow clicking on an area of the graphic screen to call up a specific set of user configured buttons.

For example, the polygon tool could be used to outline a pump created on the static layer and then when the user clicked on the pump, the button set for the pump controls would be called up allowing the pump to be started or stopped.

This function is "exclusive" meaning that it cannot be used in conjunction with any other functions.

Hide/Show: This function can be used alone or in combination with other functions depending on the object type and desired effect. As the name implies, it will either "hide" or "show" the object based on a change in data from the linked tag.

For example, the polygon tool could be used to outline the area around some "value text" in red when the associated tag went into the alarm state. In the normal state the polygon would be hidden.

Percent Fill: Causes an object to "fill" with a user selectable color based on the analog value of the linked tagname.

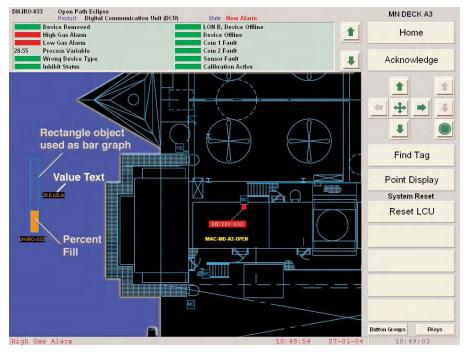
Used primarily to show things like the level in a storage tank or to create bargraph type displays.

Text Attributes: Allows text to be configured to change any and all of its attributes, <u>including</u> the text itself, based on changes in the linked tagname. For instance, text could be configured to say "OK" and be green when the tag was normal and then change to say "NEW ALARM" in red following the state of the linked tag.

Two State: Causes an object to "blink" between two different sets of attributes based on satisfying a logical condition established during the objects configuration.

Typically used to hilite a condition or bring attention to an area of the graphic display.

Value Text: Displays the analog process variable of a linked tagname onscreen. The value can be configured to display with or without a decimal point and with or without the engineering units.



The value will update in sync with the polling of the port associated with the linked tagname.

The text used to display the value can be configured to change any and all of its attributes, based on changes in the linked tagname. For instance, the font, font size, color and background could all be configured to change in 10% increments as the process variable changed.

Other than the fact that the actual value cannot be edited, and the ability to select whether or not to display the engineering units and decimal point for the value, configuration of "Value Text" is identical to standard "Dynamic Text" as described in the following pages.

DYNAMIC LAYER

DYNAMIC TEXT CONFIGURATIONS

There are four functions available that can be applied to text. They can be used in the following combinations.

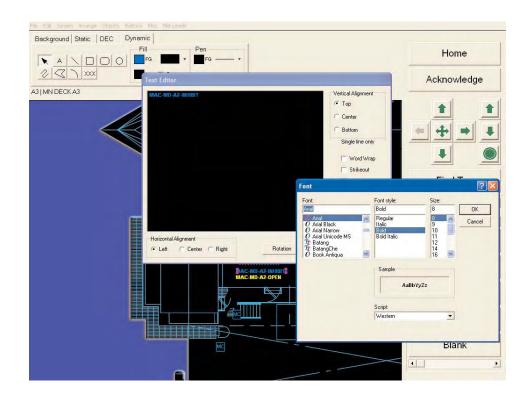
Display Button Group: If selected, this function is exclusive and the other options will no longer be available.

Hide/Show: This function can be used in combination with either **"Text Attributes"** or the **"Two State"** functions.

The "Hide/Show" function takes precedence over either of the other two functions it can be used with and will always be evaluated first.

DYNAMIC OBJECT
MODIFIERSImage: Comparison of the sector o

Create Dynamic Text: Before configuring any functions, a "Dynamic Text" object must be created. Follow the same procedure described earlier in this chapter for text creation on the "Static Layer". Shown below is the text object being created for this example.



DYNAMIC LAYER

Configuring the "Display Button Group" function for Dynamic Text:

Tagname

Using the "Dynamic Text" tool create a piece of text with the desired message and place it as required on the graphic.

Dynamic Object Functions...

Display Button Group

Function

T Attributes

Hide/Show

Percent Fill

Two State

Value Text

Text Attributes

Double-click on the text object to open the "Dynamic Object Functions..." dialog box which shows the available functions for the object type.

The four available functions for text are shown for selection via "checkbox" on the

left side of the dialog box. Checking the "Display Button Group" box will open the "Button Group Select" dialog box which has a pop-up

menu in the middle which will display a list of all configured button groups.

Select the desired button group and then the "OK" button to complete the configuration process.

In this example the button group "System Reset" was selected and since the "Display Button Group" function is exclusive, all other selections are now grayed out.

The tagname for the selected button group is displayed to the right of the selected function.

To change the selected tagname, use the "Edit" button to the right of the selection to re-enter the "Button Group Select" dialog box.



Edit

Edit

Edit

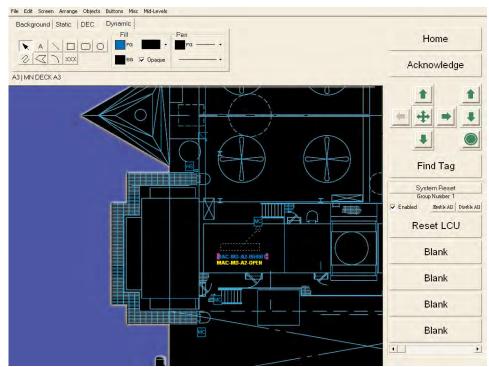
Edit

Edit

Function	Tagname	Edit
Attributes		Edit
Display Button Group	System Reset	Edit
F Hide/Show		Edit
Percent Fil		Edit
🗖 Text Attributes		Edit
🗖 Two State		Edit
T Value Text		Edit

1 : System Reset

Configuring the "Hide/Show" function for Dynamic Text: Using the "Dynamic Text" tool create a piece of text with the desired message and place it as required on the graphic.



Double-click on the text object to open the "Dynamic Object Functions..." dialog box which shows the available functions for the object type.

The four available functions for text are shown for selection via "checkbox" on the left side of the dialog box.

Checking the "Hide/Show" selection will open the database "Tag Viewer" dialog box to

Function	Tagname	Edit
Attributes		
Display Button Grou	p	Edit
Hide/Show		Edit
Percent Fill		Ejdit
Text Attributes		Edit
Two State		Edit
T Value Text		Edit
Two State		Edit

allow for the selection of a tagname to link to the text and be used to trigger the "Hide/Show" function.

DYNAMIC LAYER - TEXT

The "Tag Viewer" dialog box displays a scrolling list of tagnames in the database, regardless of their point of origin. Browse the database to locate the desired tagname. Information on the type of device, its port and point identification, and I/O type are shown.

Tagname	/ Туре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13	1	~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	1	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	4	
DH-GD-016	Eclipse PIR	1	16	1	Ŧ
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	1	
DH-IRO-033	Digital Communication Unit (DCU)	1	33		
DI-TCX-001	Generic Digital	1	1	1	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	4	
Extra	EQP Controller Input	1	1	-1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	>
	FILTER			ок	CANCEL

To more easily locate the desired tagname in a large database a "Filter" feature is provided. Place the cursor in the data entry field in the lower

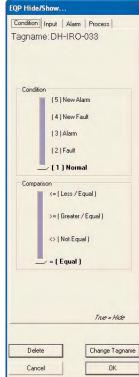
left of the dialog box and begin typing the tagname. The list will dynamically sort allowing the desired tagname to be quickly located.

Once the tagname is selected, the "OK" button will close the Tag Viewer and open the "Hide/Show..." dialog box.

The dialog box shows the selected tagname below four selectable tabs: Condition, Input, Alarm and Process.

The "Hide/Show" feature can be configured to work from any one of these tabs.

The tab that is active (on top) when the "OK" button is selected will be the configuration used to control the "Hide/Show" feature.



Hide/Show - Condition Tab: This tab allows a configuration where the "State" of the tagname will Hide or Show the selected piece of dynamic text.

There are two "sliders" that are used to set up a logical comparison between the "state" of the tagname as chosen with the top slider, and the comparison option selected with the bottom slider.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

This means that when the condition selected meets the comparison selected the text will be hidden.

In the example to the right, the condition slider is in the "Normal" position and the comparison slider is in the "Equal" position.

With these selections, the dynamic text will be hidden when the tagname DH-IRO-033 is in the "Normal" state and the text will be shown when the tag state is any other condition; fault, alarm, new fault, new alarm.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

P Hide/Show	
ondition Input Ala	rm Process
agname:DH-IR	0-033
Condition	
(5)New	Alarm
(4)New	Fault
(3) Alam	n
(2)Fault	
(1) No	
Comparison	
<= (Less	/Equal)
) (Card	
>= (creat	er / Equal)
<> (Not E	qual)
= (Equa	n
/ - (L qua	
	True = Hide
	i rue = Hide
Delete	Change Tagnam
Cancel	OK

GRAPHIC EDITOR

Hide/Show - Input Tab: This tab allows a configuration where any one of the status or diagnostic "inputs" of the tagname will Hide or Show the

selected piece of dynamic text. A check box is provided to "Invert" the logical state of the selected input if necessary.

10-36

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

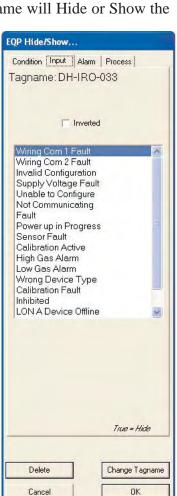
This means that when the condition selected meets the comparison selected the text will be hidden.

In the example to the right, the input "Wiring Com 1 Fault" is selected.

With this selection, the dynamic text will be hidden when the tagname DH-IRO-033 has a Com.1 wiring fault and the text will be shown when the wiring fault is gone.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.



Hide/Show - Alarm Tab: This tab allows a configuration where the "Alarm State" of the tagname will Hide or Show the selected piece of dynamic text.

Configuration involves a condition setting and an input selection. The condition is set using a three position slider and the input is selected from a scrolling list. When the selected input meets the selected condition the hide/show event occurs.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

This means that when the condition selected is true for the selected input, the text is hidden.

In the example to the right, the condition slider is in the "Normal" position and the input selected is "Wiring Com 1 Fault".

With these selections, the dynamic text will be hidden when the "Wiring Com 1 Fault" input of tagname DH-IRO-033 is in the "Normal" state. The text will be shown when its state is either "New Alarm" or "Alarm".

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

Fagname: DH-IRO-033
Fagname: DH-IRO-033
Condition
New Alarm
Alarm
Normal
Wiring Com 1 Fault Wiring Com 2 Fault Invalid Configuration Supply Voltage Fault Unable to Configure Not Communicating Fault Power up in Progress Sensor Fault Calibration Active High Gas Alarm Low Gas Alarm Wrong Device Type Calibration Fault Inhibited LON A Device Offline
Delete Change Tagname
Cancel OK

Hide/Show - Process Tab: This tab allows a configuration where the value of the tagnames process variable is used to Hide or Show the selected piece of dynamic text.

Configuration involves a "Value" setting and a "Comparison" setting.

10-38

The "Value" is entered into a field, in engineering units and the "Comparison" is selected using a four position slider.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

This means that when the "True/False" evaluation of the process variable value against the entered value and comparison is true, the selected text will be hidden.

In the example to the right, the value is "15" and the comparison slider is in the ">= greater than or equal to" position.

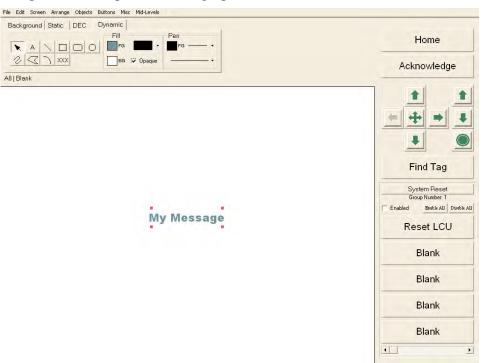
With these selections, the dynamic text will be hidden when the process variable for tagname DH-IRO-033 is greater than or equal to "15" and the text will be shown when the value is less than "15"

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

	Input Alarm Process	
Fagnam	e:DH-IRO-033	
V	/alue: 15	
	d.	
Compari		
	<= (Less / Equal)	
-	- >= (Greater / Equal)	
	<> (Not Equal)	
	= (Equal)	
	True = Hide	
	7705 - 7705	
Delete	e Change Tagr	nam
D DIOIL		- Sint

Configuring the "Text Attributes" function for Dynamic Text: Using the "Dynamic Text" tool create a piece of text with the desired message and place it as required on the graphic.



Double-click on the text object to open the "Dynamic Object Functions..." dialog box which shows the available functions for the object type.

The four available functions for text are shown for selection via "checkbox" on the left side of the dialog box.

Checking the "Text Attributes" selection will open the database "Tag Viewer" dialog box to allow for the

Function	Tagname	Edit
F Attributes		
🔲 Display Button Gr	oup	Edit
Hide/Show		Edit
🏳 Percent Fill		Edit
Text Attributes		Edit
🔽 Two State		Edit
T Value Text		Edit

selection of a tagname to link to the text and be used to trigger the "Hide/Show" function.

DYNAMIC LAYER - TEXT

The "Tag Viewer" dialog box displays a scrolling list of tagnames in the database, regardless of their point of origin. Browse the database to locate the desired tagname. Information on the type of device, its port and point identification, and I/O type are shown.

Tagname	∧ Туре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13		~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	1	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	4	
DH-GD-016	Eclipse PIR	1	16	1	=
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	1	
DH-IRO-033	Digital Communication Unit (DCU)	1	33		
DI-TCX-001	Generic Digital	1	1	1	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	- I	
Extra	EQP Controller Input	1	1	-1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	>
	FILTER			OK	CANCEL

To more easily locate the desired tagname in a large database a "Filter"

feature is provided. Place the cursor in the data entry field in the lower left of the dialog box and begin typing the tagname. The list will dynamically sort allowing the desired tagname to be quickly located.

Once the tagname is selected, the "OK" button will close the Tag Viewer and open the "Text Attributes..." dialog box.

The dialog box shows the selected tagname below four selectable tabs: Condition, Input, Alarm and Process.

The "Text Attributes" feature can be configured to work from any one of these tabs.

The tab that is active (on top) when the "OK" button is selected will be the configuration used to control the "Text Attributes" feature.

] Input Alarm Process me:DH-IRO-033
N	ew Alarm
	Set Display
N	ew Fault
	Set Display
A	larm
	Set Display
- F.	ault
	Set Display
N	ormal
	Set Display
_	sk Size Track Position

Text Attributes - Condition Tab: This tab allows a configuration where each "State" of the tagname will have a set of text attributes applied to the selected piece of dynamic text.

The five potential states of an object are shown, each having a "Set" and "Display" button.

These will be used in conjunction with the normal text editing tools to assign and test the configuration.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.

The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.

The "Cancel" button aborts the configuration.

The "OK" button accepts the configuration and closes the dialog box.

EQP Text Attributes
Condition Input Alarm Process
Tagname: DH-IRO-033
New Alarm
Set Display
New Fault
Set Display
Alarm
Set Display
Fault
Set Display
Normal
Set Display
Track Size Track Position
Delete Change Tagname
Cancel OK

In the example below, the text object "My Message" has been configured to the desired font, font size and color for the "Normal" condition.

Selecting the "Set" button in the "Normal" condition area assigns these attributes to the text for this condition.

File Edit Screen Arränge Objects Buttons Misc Mid-Levels	EQP Text Attributes
Background Static DEC Dynamic Fill Fill Fill Fill Fill Fill Fill Fill	Condition Input Alarm Process Tagname: DH-IRO-033 New Alarm Set Display
My Message	New Fault Set Display Alarm Set Set Display Fault Set Display Cancel

The "attribute set" being currently shown on the "My Message" text object is designated by a small arrow pointing at the "Set" and "Display" buttons in the "Normal" configuration area.

Use the standard text editing tools, such as the color pallet, to change the look of the text object for each of the five different conditions.

In the example to the right a different color has been applied to the "My Message" text object.

Once the text object has the desired look, select the "Set"

Condition Input Alarm Process Tagname: DH-IRO-033 New Alarm Set Display New Fault Set Display Set Display Fault Define Custom Colors >> Set Display Cancel OK Norma Set Display **My Message**

button for the condition (or conditions) which this attribute set will apply.

GRAPHIC EDITOR

The "Text Edit" item in the "Objects" menu can be used to access the font attributes.

Background Static	Arc Reshape Bit Map Polygon Pen
AND	Round Corners FG -
48 Blank	Change Tags F3 Dynamic Tags F2 Information Ctrl+I

10-43

In the example below, the "My Message" text object has been modified by applying a different font size and an italic style.

Background Static DEC Dynamic				EQP Text Attribute	10 D
Fill Fill	Pen FG			Condition Input A Tagname: DH-II New Alarm	
] Blank				Set	Display
Text Editor				New Fault	
		a. 0	Vertical Alignment	Set	Display
	My Messa	ge	C Top Center C Bottom	Alarm Set	Display
	Font		Single line only	Fault	P.I.I.
			ize: 22 OK	Set	Display ←
	Arial Black		8 Cancel 22 Cancel 24 Cancel 26 Cancel 28 Cancel	Normal Set	Display
Horizontal Alig C Left	🖉 Bookman Old Style 💌	Sample AaBbY			
		Script: Western	·		
				Track Size	Track Position
				Delete	Change Tagname
				Cancel	OK

Once the desired attribute set has been configured, click on the "Set" button for the condition(s) it will apply to.

In the example to the right, the "Set" button for the "Alarm" condition has been selected, and the attribute set has been recorded.

The arrow to the right of the buttons in the "Alarm" condition area indicates that the currently displayed attributes for "My Message" are for the "Alarm" condition.



Condition Input	Alarm Process
Tagname: DH-	
-	
New Alarm	
Set	Display
New Fault	
Set	Display
Alarm	
Set	Display ←
Fault	
Set	Display

GRAPHIC EDITOR

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

10-44

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

Once attribute sets have been assigned for each of the five potential states of the tagname, test them by sequencing through the "Display" buttons. This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

Condition Input Alarm Process Tagname: DH-IRO-033
New Alarm
Set Display
New Fault
Set Display
Alarm
Set Display
Fault
Set Display
Normal
Set Display
Track Size Track Position
Delete Change Tagname
Cancel OK

EOP Text Attributes...

This will close the "Text Attributes" dialog

box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Text Attributes" will now be filled and the tag-

name will be listed in the appropriate column.

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Text Attributes function.

Function	Tagname	Edit
T Attributes		
🗖 Display Button Group		Edit
Hide/Show		Edit
Percent Fill		Edit
Text Attributes	DH-IRO-033	Edit
Two State		Edit
Value Text		Edit
	OK	Change Tagname

Text Attributes - Input Tab: This tab allows a configuration where the "On/Off" state change in the selected status or diagnostic "input" of the tagname will change the attribute set of a selected piece of dynamic text.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list. Configuration involves selecting the desired input from the list and then setting the attribute set for the on and off states.

Use the standard text editing tools to select the font, font size, font style, color etc. for each state using the "Set" buttons to save the settings.

Test the configuration using the "Display" buttons to toggle the On/Off state.

In the example to the right, the input "Fault" is selected. The text attribute sets have been configured so that the dynamic text will say "OK" in green when the "Fault" input for tagname DH-IRO-033 is OFF and the text will say "Fault" in yellow when it is ON.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog

box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

EQP Text Attributes...

0n

Off

Condition Input Alarm Process

Display

Display

Track Position

Change Tagname

DK

Tagname: DH-IRO-033

Set

Set

Wiring Com 1 Fault

Wiring Com 2 Fault Invalid Configuration Supply Voltage Fault

Unable to Configure Not Communicating

Power up in Progress Sensor Fault

Wrong Device Type Calibration Fault

Calibration Active

High Gas Alarm Low Gas Alarm

Fault

Inhibited LON A Device Offline

Track Size

Delete

Cancel

Text Attributes - Alarm Tab: This tab allows a configuration where the state change in the selected status or diagnostic "input" of the tagname will change the attribute set of a selected piece of dynamic text.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list. Configuration involves selecting the desired input from the list and then setting the attribute set for each of the three states.

Use the standard text editing tools to select the font, font size, font style, color etc. for each state using the "Set" buttons to save the settings.

Test the configuration using the "Display" buttons to toggle the On/Off state.

In the example to the right, the input "High Gas Alarm" is selected and the text attribute sets have been configured so that the dynamic text will have a unique message for each of the three states.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog

box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

agr	New/		-IRO-033	
	New	۵larm –		
		-ium		
	_	Set	Display	
	Alarm	i.		
	E	Set	Display	
	Norm	al		
		Set	Display	
Sup Uni	alid Co oply V able to t Comi	om 2 F onfigu 'oltage o Cont	ration e Fault figure	
Sup Uni Not Fau Pov Sei	alid Co oply V able to t Comi ult wer up nsor F	om 2 F onfigu o Cont o Cont munic o in Pri ault	Fault ration e Fault figure ating ogress	
Sup Uni Fau Pov Sei Cal	alid Co oply V able to t Com ult wer up nsor F libratic <mark>(h Gas</mark>	om 2 F onfigu o Cont o Cont munic o in Pri ault on Act	Fault ration e Fault figure ating ogress ive n	
Sup Uni Fau Pov Sei Cal Lov Wri	alid Co oply V able to t Comr ult wer up nsor F libratic th Gas v Gas ong D	om 2 F onfigu oltage o Cont munic o in Pre ault on Act Alarr Alarr evice	Fault ration e Fault figure aating ogress ive n n Type	
Sup Uni Fau Pov Ser Cal Lov Wn Cal	alid Co oply V able to t Comr ult wer up nsor F libratic <mark>th Gas</mark> v Gas	om 2 F onfigu oltage o Cont munic o in Pre ault on Act Alarr Alarr evice	Fault ration e Fault figure aating ogress ive n n Type	

Text Attributes - Process Tab: This tab allows a configuration where the value of the tagnames process variable is used to change the attribute set of the selected piece of dynamic text.

EQP Text Attributes Condition Input Alarm Process Tagname: DH-IRO-033 Units LELm	Configuration consists of utilizing a slider to control how many "attribute sets" to use. Up to ten can be configured with default values set in 10% increments from 0-100%.		
- 100.0 Set Display - 90.0 Set Display - 80.0 Set Display - 70.0 Set Display - 60.0 Set Display - 60.0 Set Display - 40.0 Set Display - 30.0 Set Display - 30.0 Set Display - 10.0 Set Display 0.0 Set Display	edits to these setpoin units. The units of below the tagname dialog box.	ult values and any user ints are in engineering measure are shown in the "Text Attributes" s can be changed to any EQP Text Attributes Condition Input Alarm Process Tagname: DH-IRO-033 Units LELm - 10000 Set Display	
Track Size Track Position	ute set" can be uti- lized for each of	- 90.0 Set Display - 80.0 Set Display - 70.0 Set Display	
Delete Change Tagname	these six setpoints. The example shows the default	- 70.0 Set Display - 60.0 Set Display - 50.0 Set Display	
Cancel		- 40.0 Set Display - 30.0 Set Display	
setpoints which are in 10%		- 20.0 Set Display - 10.0 Set Display	
To assign an attribute set to point, use the standard text modify the dynamic text to tion and then select the app ton.	t editing tools to the desired condi-	0.0 Set Display	
Use the "Display" buttons ration.	to test the configu-	Track Size Track Position Delete Cancel OK	

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The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

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- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

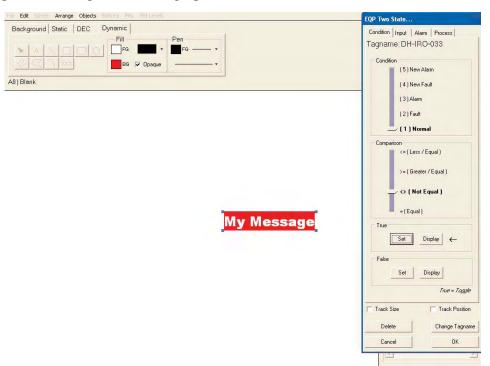
	- 50.0	Set	Display
	- 40.0	Set	Display
	- 30.0	Set	Display
	- 20.0	Set	Display
1	- 10.0	Set	Display
	0.0	Set	Display
F	Track Size		Track Positi
	Track Size Delete		Track Positi

Once attribute sets have been assigned for each of the five potential states of the tagname, test them by sequencing through the "Display" buttons. This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

This will close the
"Text Attributes" dia-
log box and take you
back to the "Dynamic
Object Functions"
dialog box. Here the
checkbox for "Text
Attributes" will now
be filled and the tag-
name will be listed in
the appropriate col-
umn.

Attributes Display Button Group Hide/Show	Edit Edit
T Hide/Show	Edit
	Edit
Percent Fill	Edit
Text Attributes DH-IRO-033	Edit
T Two State	Edit
Value Text	Edit

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Text Attributes function.



Double-click on the text object to open the "Dynamic Object Functions..." dialog box which shows the available functions for the object type.

The four available functions for text are shown for selection via "checkboxes" on the left side of the dialog box.

Checking the "Two State" selection will open the database "Tag Viewer" dialog box to allow for the

Function	Tagname	Edit
F Attributes		
🗖 Display Button G	roup	Edit
Hide/Show		Edit
F Percent Fill		Edit
Text Attributes		Edit
🔲 Two State		Edit
🗂 Value Text		Edit
	ОК	Change Tagnam

selection of a tagname to link to the text and be used to trigger the "Two State" function.

DYNAMIC LAYER - TEXT

The "Tag Viewer" dialog box displays a scrolling list of tagnames in the database, regardless of their point of origin. Browse the database to locate the desired tagname. Information on the type of device, its port and point identification, and I/O type are shown.

Tagname	/ Туре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13	1	~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	1	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	4	
DH-GD-016	Eclipse PIR	1	16	1	=
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	1	
DH-IRO-033	Digital Communication Unit (DCU)	1	33		
DI-TCX-001	Generic Digital	1	1	I	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	1	
Extra	EQP Controller Input	1	1	1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	~
	FILTER		-	OK	CANCEL

To more easily locate the desired tagname in a large database a "Filter" feature is provided. Place the cursor in the data entry field in the lower left of the dialog box and begin typing the tagname. The list will dynamically sort allowing the desired tagname to be quickly located.

Once the tagname is selected, the "OK" button will close the Tag Viewer and open the "Two State..." dialog box.

The dialog box shows the selected tagname below four selectable tabs: Condition, Input, Alarm and Process.

The "Two State" feature can be configured to work from any one of these tabs.

The tab that is active (on top) when the "OK" button is selected will be the configuration used to control the "Text Attributes" feature.

EQP Two	State	
	A CONTRACTOR OF A	larm Process
Tagnar	me:DH-IF	RO-033
Condi		41
	(5)Nev	
	(4)Nev	
	(3)Alan	
	(2)Faul	
	Ē∕[1]No	ormal
Comp		:/Egual)
	(= (200	ov Equal)
	>= (Grei	ater / Equal)
	→ (No	t Equal)
	= (Equa	<u>n</u>
True		
	Set	Display ←
False		
	Set	Display
		True = Toggale
Track	Size	Track Position
Del	ete	Change Tagname
Car	icel	OK

Dynamic Text: Two State - Condition Tab: This tab allows a configuration where the "State" of the tagname will cause the dynamic text to flash between its True and False attribute sets.

There are two "sliders" that are used to set up a logical comparison between the "state" of the tagname as chosen with the top slider, and the comparison option selected with the bottom slider.

On the lower right side of the dialog box there is a small legend that says "True = Toggle".

This means that when the condition selected meets the comparison selected the text will be toggle between its True and False attributes.

In the example to the right, the condition slider is in the "Normal" position and the comparison slider is in the "<>Not Equal" position.



In the example to the left, the "My Message" text object was con-

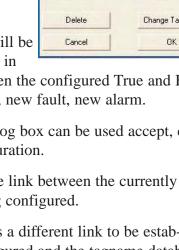
figured to be red text on a white background when False and white text on a red background when True.

With these selections, the dynamic text will be steady when the tagname DH-IRO-033 is in

the "Normal" state and will toggle between the configured True and False states in any other condition; fault, alarm, new fault, new alarm.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.



	CUP Two state	
	Condition Input	Alarm Process
	Tagname:DH-	IRO-033
	Condition	
	(5)Ne	ew Alarm
	(4)Ne	ew Fault
	(3)Al	arm
	(2)Fa	ult
		lormal
	Comparison	
	<=(Le	ss / Equal)
	>= (Gr	eater / Equal)
r		lot Equal)
	= (Equ	ial)
	True	
	Set	Display ←
	False	
	Set	Display
		True = Toggile
	Track Size	Track Position
	Delete	Change Tagname
	Cancel	OK

Once attribute sets have been assigned for two states of the selected condition for the tagname, test them with the "Display" buttons.

This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

This will close the "Two State" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Two State" will now be filled and the tagname will be listed in the appropriate column.

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Function	Tagname	Edit
Attributes		Edit
🗖 Display Button Grou		Edit
Hide/Show		Edit
Percent Fil		Edit
Text Attributes		Edit
🔽 Two State	DH-IRO-033	Edit
🗖 Value Text		Edit
	OK	Change Tagname

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

Dynamic Text: Two State - Input Tab: This tab allows a configuration where the "On/Off" state change in the selected status or diagnostic "input" of the tagname will cause the dynamic text to flash between its True and False attribute sets.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list.

Configuration involves selecting the desired input from the list and then setting the attribute set for the on and off states.

Use the standard text editing tools to select the font, font size, font style, color etc. for each state using the "Set" buttons to save the settings.

Test the configuration using the "Display" buttons to toggle the On/Off state.

In the example to the right, the input "Wiring Com 1 Fault" is selected.

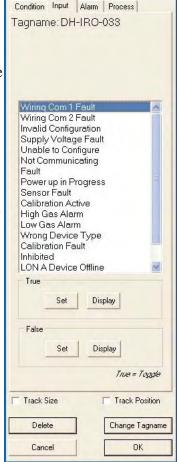
The text attribute sets have been configured so that the dynamic text will say "Com 1" in green for the "False" state and "Fault" in orange for the "True" state.

The effect is that green text saying "Com 1" will be visible normally and then when the input is true and the text will alternate or appear to flash between "Com 1" in green and "Fault" in orange thus highliting the problem.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be estab-



EQP Two State...

lished between the object being configured and the tagname database.

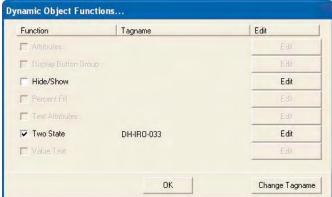
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

Once attribute sets have been assigned for two states of the input selected for the tagname, test them with the "Display" buttons.

This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.



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Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

DYNAMIC LAYER - TEXT

Dynamic Text: Two State - Alarm Tab: This tab allows a configuration where the state change in the selected status or diagnostic "input" of the tagname will change the attribute set of a selected piece of dynamic text.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list.

Configuration involves selecting the desired input from the list, using the slider control to select the condition to compare the input against and then setting the text attribute set (font, color, etc.) for each of the two states.

Use the standard text editing tools to select the font, font size, font style, color etc. for each state using the "Set" buttons to save the settings.

Test the configuration using the "Display" buttons to toggle the On/Off state.

In the example to the right, the input "Wiring Com 1 Fault" is selected.

The text attribute sets have been configured so that the dynamic text will say "Com 1" in green for the "False" state and "Fault" in orange for the "True" state.

The effect is that green text saying "Com 1" will be visible normally and then when the

input is true and the text will alternate or appear to flash between "Com 1" in green and "Fault" in orange thus highliting the problem.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be estab-

Condition Input Alarm Process

EQP Two State...

	_	Nor	mal		
	Com 1 I				
	Com 2 Configu				
	/Voltag				
	e to Con ommunic				
Fault	mmunit	Jaur	'y		
	up in Pr	rogr	ess		1
	r Fault ation Act	tive			
	àas Alar				
	as Alarn 1 Device		ne		
			NO		
	ation Fa	ult			-
Inhibite					
Inhibite	ed				
Inhibite LON A	ed Device		line		
Inhibite LON A	ed			ay	8
Inhibite LON A	ed Device		line	ay	8
Inhibite LON A True	ed Device		line		
Inhibite LON A True	ed Device Set		line Displ	ay	
Inhibite LON A True	ed Device Set		line Displ	ay	n = Toyan
Inhibite LON A True	ed Device Set Set		line Displ	ау Тлле	r = Tayar k Positio
Inhibite LON A True False	ed Device Set Set		Displ Displ	ay <i>True</i> Trac	
Inhibite LON A True False Track S	ed Device Set Set		Displ Displ	ay <i>True</i> Trac	k Positio

lished between the object being configured and the tagname database.

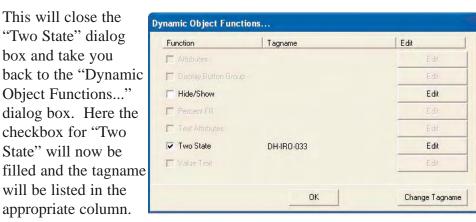
• The "Cancel" button aborts the configuration.

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• The "OK" button accepts the configuration and closes the dialog box.

Once attribute sets have been assigned for two states of the selected condition for the tagname, test them with the "Display" buttons.

This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.



Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

DYNAMIC LAYER - TEXT

Dynamic Text: Two State - Process Tab: This tab allows a configuration where the value of the tagnames process variable is used to flash the selected piece of dynamic text.

Configuration involves a "Value" setting and a "Comparison" setting.

The "Value" is entered into a field, in engi-EQP Two State... neering units and the "Comparison" is select-Condition Input Alarm Process ed using a four position slider. Tagname: DH-IRO-033 On the lower right side of the dialog box there is a small legend that says "True = Toggle". Value: 40 0.00 - 50.00 LELm This means that when the "True/False" evaluation of the process variable value against the Comparison entered value and comparison is true, the <= (Less / Equal) selected text will be flash between its True >= (Greater / Equal and False attribute sets. <> (Not Equal) In the example to the right, the value is "40" = (Equal) and the comparison slider is in the ">= greater than or equal to" position. True With these selections, the dynamic text will Display be flash when the process variable for tag-Set name DH-IRO-033 is greater than or equal to False "40" and the text will be solid, with the Display Set "False" attribute set, when the value is less True = Toggle Track Size Track Position The four buttons at the bottom of the dialog Change Tagname Delete box can be used accept, cancel or modify the selection and/or configuration. Cancel OK

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.

than "40"

• The "OK" button accepts the configuration and closes the dialog box.

Once attribute sets have been assigned for two states of the selected condition for the tagname, test them with the "Display" buttons.

This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

This will close the "Two State" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Two State" will now be filled and the tagname will be listed in the appropriate column.

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Function	Tagname	Edit
Attributes		Edit
🗖 Display Button Gro		Edit
Hide/Show		Edit
Percent Fill		Edit
Text Attributes		Edit
🔽 Two State	DH-IRO-033	Edit
🔽 Value Text		Edit
	ок	Change Tagnam

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

DYNAMIC LAYER - TEXT

There are seven graphic primitives; line, rectangle, rounded rectangle, oval, freehand object, polygon and arc. The creation of these objects are covered in detail earlier in this chapter under the "Static Layer" descriptions.

While these object types on the "Dynamic Layer" are identical in their creation and visual properties, they can be configured to utilize one or more functions to dynamically alter their appearance, based on field device changes.

DYNAMIC OBJECT MODIFIERS	Text	Line	Rectangle	Rounded Rectangle	Oval	Freehand	Polygon	Arc	Value Text
Attributes		Х	Х	Х	Х	Х	Х	Х	
Display Button Group	Х	Х	Х	Х	Х	Х	Х	Х	Х
Hide/Show	Х	Х	Х	Х	Х	Х	Х	Х	Х
Percent Fill			Х	Х	Х	Х	Х		
Text Attributes	Х								
Two State	Х	Х	Х	Х	Х	Х	Х	Х	
Value Text									Х

The chart above lists the objects and their potential modifiers. All of these objects share the same available modifiers which in S³ are called "Dynamic Object Functions" except the line and arc which do not permit configuration of the "Percent Fill" function.

Due to their similarity the "Rectangle" will be used as the example to describe the configuration for all seven of the "graphic primitive" object types. The description and methods used for the "Rectangle" object apply equally to the other six object types.

NOTE

Display Button Group: If selected, this function is exclusive and the other options will no longer be available.

Hide/Show: This function can be used in combination with either *"Attributes"* or the *"Two State"* functions.

Create Dynamic Object: Before configuring any functions, a dynamic object must be created. Follow the same procedure described earlier in this chapter for object creation on the "Static Layer".

In the example to the right, a rectangle was created using the appropriate tool and its color, line type and other visual attributes were then set.

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Double-clicking on the "rectangle" object will open the "Dynamic Object Functions..." dialog box which shows the available functions for the object type.

File Edit Screen Arrange Objects Butt	ons Misc Mid-Levels
Background Static DEC Dyn	Fill Pen Fill FG FG
A8 Blank	

The available functions for dynamic objects are shown for selection via "checkboxes" on the left side of the dialog box.

Function	Tagname	Edit
		Edit
🗖 Display Button Gr	pup	Edit
Hide/Show		Edit
F Percent Fill		Edit
Text Attributes		Edit
Two State		Edit
🗖 Value Text		Edit

Selecting any of the available choices except "Display Button Group" will open the "Tag Viewer" for linking to the database.

Display Button Group function: The "Display Button Group" choice is unique and will open the open the "Button Group Select" dialog box which has a pop-up menu in the middle which will display a list of all configured button groups enabled for the current graphic screen.

Select the desired button group and then the "OK" button to complete the configuration process. In this example the button group "System Reset" was selected and since the "Display Button Group"



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function is exclusive, all other selections are now grayed out.

The tagname for the selected button group is displayed to the right of the selected function.

To change the selected tagname, use the

Function	Tagname	Edit
F Attributes		Edit
Display Button Group	System Reset	Edit
F Hide/Show		Edit
Percent Fill		Edit
Text Attributes		Edit
🔽 Two State		Edil
Malue Text		Edit
	ок	Change Tagnam

"Edit" button to the right of the selection to re-enter the "Button Group Select" dialog box.

Function	
T Display Button Group	
Hide/Show	
🗁 Percent Fill	
Text Athibutes	
🗂 Two State	
🗖 Value Text	

Database Linking of Dynamic Objects: The following functions require linking the dynamic object to a tagname in the S³ database to function; *Attributes, Hide/Show, Percent Fill, Two State.*

Selecting any of these functions will open the "Tag Viewer".

The "Tag Viewer" dialog box displays a scrolling list of tagnames in the database, regardless of their point of origin. Browse the database to locate the desired tagname. Information on the type of device, its port

and point identification, and I/O type are shown.

Tagname	/ Туре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13	1	~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	ý.	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	1	
DH-GD-016	Eclipse PIR	1	16	1	1
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	1	
DH-IRO-033	Digital Communication Unit (DCU)	1	33		
DI-TCX-001	Generic Digital	1	1	1	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	1	
Extra	EQP Controller Input	1	1	1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	*
	FILTER			ок	CANCEL

To more easily locate the desired tagname in a large database a "Filter" feature is provided. Place the cursor in the data entry field in the lower left of the dialog box and begin typing the tagname. The list will dynamically sort allowing the desired tagname to be quickly located.

Tagname	/ Түре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13	1	~
DH-FD-022	UV Detector (EQ2200)	1	22	I	
DH-FD-024	TIR X3301	1	24	İ	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	4	
DH-GD-016	Eclipse PIR	1	16	1	=
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	Ĩ	
DH-IRO-033	Digital Communication Unit (DCU)	1	33	ļ	
DI-TCX-001	Generic Digital	1	1	1	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	Ĵ.	
Extra	EQP Controller Input	1	1	1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	~
	FILTER			OK	CANCEL

Once the tagname is selected, the "OK" button will close the Tag Viewer and open the appropriate dialog box for configur-

ing the selected function; "Attributes, Hide/Show, Percent Fill or Two State".

In this case the "Attribute" feature has been selected and it can be configured to work from any of four selectable tabs; Condition, Input, Alarm and Process.

The tab that is active (on top) when the "OK" button is selected will be the configuration used to control the dynamic object.

Graphic Primitives - Attributes Condition Tab: This tab allows the dynamic object to be configured to have up to five different looks corresponding to the five potential states of an object; Normal, Fault, Alarm, New Fault, New Alarm.

The five potential states of an object are shown, each having a "Set" and "Display" button.

1		New Alarm	
Set Display Alarm Set Display ← Fault Set Display Normal Set Display		Set	Display
Alam Set Display ← Fault Set Display Normal Set Display		New Fault	
Set Display Fault Set Display Normal Set Display Track Size Track Position		Set	Display
Fault Set Display Normal Set Display		Alarm	
Set Display Normal Set Display		Set	Display ←
Normal Set Display		Fault	
Set Display		Set	Display
Track Size		Normal	
1		Set	Display
1		rack Size	☐ Track Position
Delete Change Terman	TI	ruon, oneo	j Hudit i Gomori
		Delete Cancel	Change Tagnam

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These will be used in conjunction with the normal object editing tools to assign and test the configuration.

Attribute assignments: Using the editing tools available for the graphic primitive being configured, adjust its size, shape, color, position etc. to match a desired standard for the "Normal" condition and then select the "Set" button to save this "Attribute Set".

Repeat this procedure for every other condition.

Note: A single "attribute set" can be used multiple times. For instance, an object can be configured to look exactly the same for Normal, Fault, Alarm and New Fault but different for the New Alarm condition. Simply configure the object and select the "Set" button for each state using that attribute set.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

Once an attribute set has been assigned for each condition using the "Set" buttons, use

the "Display" buttons to test the configuration and ensure the desired results are achieved.

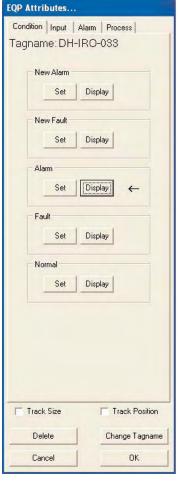
The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.

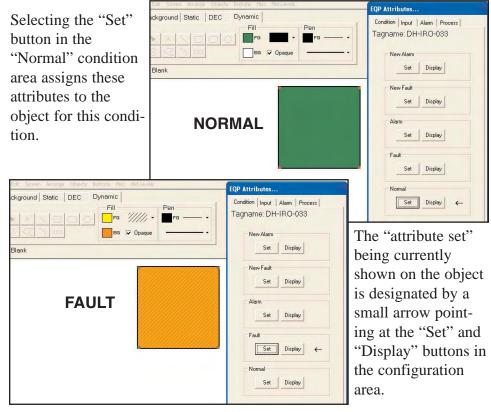
The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.

The "Cancel" button aborts the configuration.

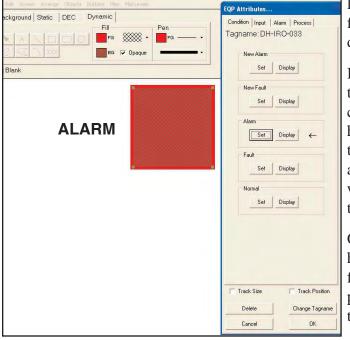
The "OK" button accepts the configuration and closes the dialog box.



In the examples below, a "rectangle object" has been configured to the desired height, width, pen size, color and pattern for different conditions.



Use the standard line editing tools, such as the color pallet, to change the



look of the object for each of the five different conditions.

In the examples on this page different colors and patterns have been applied to the object and these attribute sets saved with the "Set" button for each.

Once attribute sets have been assigned for each of the five potential states of the tagname, test

DYNAMIC LAYER - GRAPHIC PRIMITIVES

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them by sequencing through the "Display" buttons. This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

This will close the "Attributes" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Attributes" will be filled and the tagname shown in the appropriate column.

Function	Tagname	Edit
Attributes	DH-IRO-033	Edit
🗖 Display Button Gro		Edit
Hide/Show		Edit
Percent Fill		Edit
Text Attributes		Edit
Two State		Edit
🔽 Value Text		Edit
	OK	Change Tagnam

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Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Attributes" function. **Graphic Primitives - Attributes Input Tab:** This tab allows a configuration where the "<u>On/Off" state change</u> in the selected status or diagnostic "input" of the tagname will change the attribute set of a dynamic object.

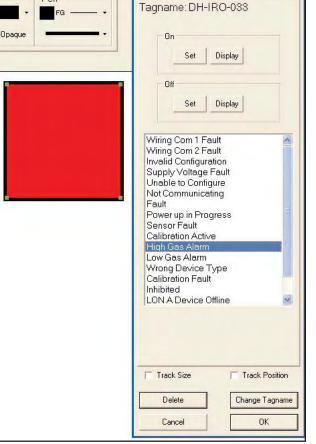
Pen

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list. Configuration involves selecting the desired input from the list and then setting the attribute set for the on and off states.

Use the standard object editing tools to select the attribute set for each state using the "Set" buttons to save the settings.

Test the configuration using the "Display" buttons to toggle the On/Off state.

In the example to the right, the input "High Gas Alarm" is selected. The objects attribute sets



EQP Attributes...

Condition Input Alarm Process

have been configured so that the object will be green when the "High Gas Alarm" input for tagname DH-IRO-033 is OFF and red when it is ON.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box and take you back to the "Dynamic Object Functions..." dialog box.

Here the checkbox for "Attributes" will be filled and the tagname shown in the appropriate column.

Attributes DH-IRO-033	Edit Edit
	Edil
Hide/Show	
	Edit
Percent Fill	Edit
Test Attributes	Edit
Two State	Edit
T Value Text	Edit

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Attributes" function. **Graphic Primitives - Attributes Alarm Tab:** This tab allows a configuration where the <u>alarm state change</u> in the selected status or diagnostic "input" of the tagname will change the attribute set of a dynamic object.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list. Configuration involves selecting the desired input from the list and then setting the attribute set for each of the three states.

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Use the standard object editing tools to select the attribute set for each of the three states using the "Set" buttons to save the settings.

Test the configuration using the "Display" buttons to toggle the three states.

In the example to the right, the input "High Gas Alarm" is selected

NU-LOVOIS	EQP Attributes
Pen FG Opaque	Condition Input Alarm Process Tagname:DH-IRO-033
	Alarm Set Display
	Normal Set Display
	Wiring Com 1 Fault Wiring Com 2 Fault Invalid Configuration Supply Voltage Fault Unable to Configure Nat Communicating Fault Power up in Progress Sensor Fault Calibration Active High Gas Alarm Low Gas Alarm Wrong Device Type Calibration Fault Inhibited LON A Device Offline
	Track Size Track Position
	Delete Change Tagname
	Cancel

and the objects attribute sets have been configured so that the it will be green when "Normal", bright red in "New Alarm" and dark red in the acknowledged "Alarm" state.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

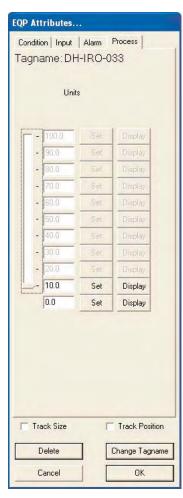
The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box and take you back to the "Dynamic Object Functions..." dialog box.

Here the checkbox for "Attributes" will be filled and the tagname shown in the appropriate column.

✓ Attributes DH-IR0-033 ☐ Display Button Group	Edit
🔽 Display Button Group	E AU
Hide/Show	Edit
🗖 Percent Fill	Edit
Text Athibutes	Edit
Two State	Edit
🗖 Value Text	Edit

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Attributes" function. **Graphic Primitives - Attributes Process Tab:** This tab allows a configuration where the value of the tagnames process variable is used to change the attribute set of the selected dynamic object.



Configuration consists of utilizing a slider to control how many "attribute sets" to use. Up to ten can be configured with default values set in 10% increments from 0-100%.

Note: Both the default values and any user edits to these setpoints are in engineering units. The units of measure are shown below the tagname in the "Attributes..." dialog box.

These default values can be changed to any

In the sample to the right, the slider control has been positioned to give six changes in the dynamic object.

desired value.

A different "attribute set" can be utilized for each of these six setpoints.

The example shows the default setpoints which are in 10% increments.

To assign an attribute set to a particular setpoint, use the standard object editing tools to modify the dynamic object to the desired condition and then select the appropriate "Set" button.

Use the "Display" buttons to test the configuration.

-	100.0	Set	Display
-	90.0 80.0	Set.	Display
-	70.0	Set	Display
_	60.0	Set	Display
-	50.0	Set	Display
-	40.0	Set	Display
-	30.0	Set	Display
-	20.0	Set	Display
-	10.0	Set	Display
	0.0	Set	Display

Cancel

OK

GRAPHIC EDITOR

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

	-	70,0	Set	Display	
-		60.0	Set	Display	
	-	50.0	Set	Display	
	-	40.0	Set	Display	
	-	30.0	Set	Display	
	-	20.0	Set	Display	
	-	10.0	Set	Display	
		0.0	Set	Display	
		10.0			
E	Tre	ock Size		Track Position	1
-					

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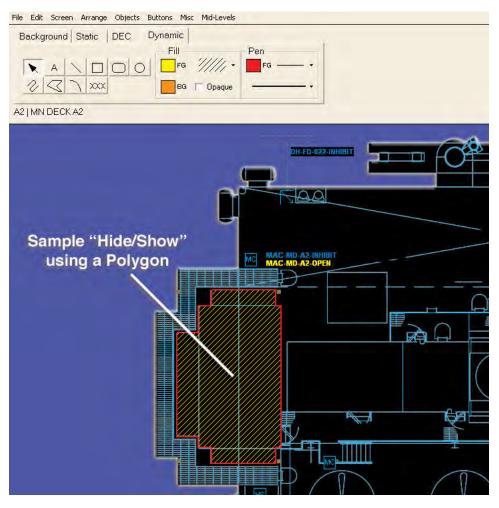
Once attribute sets have been assigned for each of the six potential states of the tagname, test them by sequencing through the "Display" buttons. This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

This will close the "Attributes" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Attributes" will now be filled and the tagname will be listed in the appropriate column.

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Attributes function and takes precedence over the other functions it can be used with and will always be evaluated first.

Configuring the "Hide/Show" function for Graphic Primitives:

Using the appropriate tool create a dynamic object such as a line, rectangle, rounded rectangle, freehand object, polygon or arc and place it as required on the graphic.



In the example above, a polygon was created outlining an area of the drawing and configured to have a thick red border with a yellow diagonal pattern.

The object will normally be hidden and the "Hide/Show" function will be used to show this object, hilighting the area, under user configured conditions.

Although the above example utilizes a polygon, any of the seven graphic primitive types can be used with the hide/show function.

Double-click on the dynamic object to open the "Dynamic Object

Functions..." dialog box which shows the available functions for the object type.

The five available functions for graphic primitives are shown for selection via "checkbox" on the left side of the dialog box.

Function	Tagname	Edit
		Edit
🖵 Display Button Gi	oup	Edit
Hide/Show		Edit
F Percent Fill		Edit
Text Attributes		Edit
📕 Two State		Edit
➡ Value Text		Edit
	ОК	Change Tagnam

Checking the "Hide/Show" selection will open the database "Tag Viewer" dialog box to allow for the selection of a tagname to link to the object and be used to trigger the "Hide/Show" function. The "Tag Viewer" dialog box displays a scrolling list of tagnames in the database, regardless of their point of origin. Browse the database to locate the desired tagname. Information on the type of device, its port and point identification, and I/O type are shown.

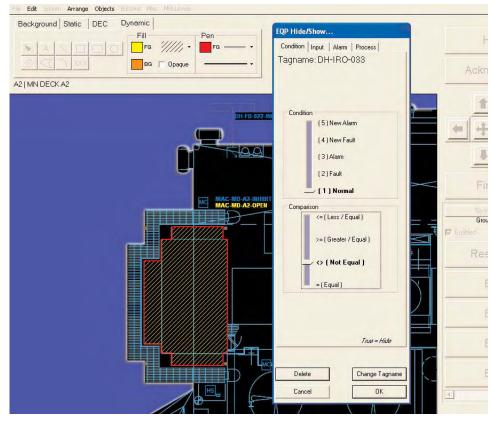
Tagname	/ Туре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13		~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	1	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	4	
DH-GD-016	Eclipse PIR	1	16	1	1
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	Ĩ	
DH-IRO-033	Digital Communication Unit (DCU)	1	33		
DI-TCX-001	Generic Digital	1	1	l	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	4	
Extra	EQP Controller Input	1	1	1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	~
	FILTER			OK	CANCEL

To more easily locate the desired tagname in a large database a "Filter" feature is provided. Place the cursor in the data entry field in the lower left of the dialog box and begin typing the tagname. The list will dynamically sort allowing the desired tagname to be quickly located.

Once the tagname is selected, the "OK" button will close the Tag Viewer

and open the "Hide/Show ... " dialog box.

The dialog box shows the selected tagname below four selectable tabs: Condition, Input, Alarm and Process.



The "Hide/Show" feature can be configured to work from any one of these tabs.

The tab that is active (on top) when the "OK" button is selected will be the configuration used to control the "Hide/Show" feature.

Graphic Primitives: Hide/Show - Condition Tab: This tab allows a configuration where the "State" of the tagname will Hide or Show the selected dynamic object.

There are two "sliders" that are used to set up a logical comparison between the "state" of the tagname as chosen with the top slider, and the comparison option selected with the bottom slider.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

This means that when the condition selected meets the comparison selected the object will be hidden.

In the example to the right, the condition slider is in the "Normal" position and the comparison slider is in the "Equal" position.

With these selections, the dynamic object will be hidden when the tagname DH-IRO-033 is in the "Normal" state and the object will be shown when the tag state is any other condition; fault, alarm, new fault, new alarm.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

DYNAMIC LAYER - GRAPHIC PRIMITIVES

EQP Hide/Show
Condition Input Alarm Process
Tagname:DH-IRO-033
Condition
(5) New Alarm
(4)New Fault
(3) Alarm
(2)Fault
(1) Normal
Comparison
<= (Less / Equal)
>= (Greater / Equal)
<> (Not Equal)
= (Equal)
True = Hide
Delete Change Tagname
Cancel

Graphic Primitives: Hide/Show - Input Tab: This tab allows a configuration where any one of the status or diagnostic "inputs" of the tagname will Hide or Show the selected dynamic object. A check box is provided to "Invert" the logical state of the selected input if necessary.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

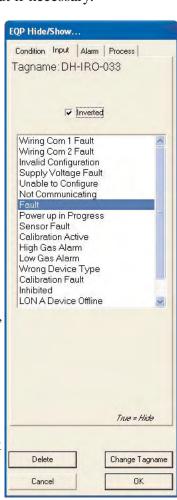
This means that when the condition selected meets the comparison selected the object will be hidden.

In the example to the right, the "Inverted" checkbox is checked and the input "Fault" has been selected.

With these selections the object will be shown when the tagname DH-IRO-033 has a "Fault" and the object will be hidden when the "Fault" is gone.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.



Graphic Primitives: Hide/Show - Alarm Tab: This tab allows a configuration where the "Alarm State" of the tagname will Hide or Show the selected dynamic object.

Configuration involves a condition setting and an input selection. The condition is set using a three position slider and the input is selected from a scrolling list. When the selected input meets the selected condition the hide/show event occurs.

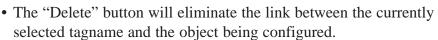
On the lower right side of the dialog box there is a small legend that says "True = Hide".

This means that when the condition selected is true for the selected input, the dynamic object is hidden.

In the example to the right, the condition slider is in the "Normal" position and the input selected is "Wiring Com 1 Fault".

With these selections, the dynamic object will be hidden when the "Wiring Com 1 Fault" input of tagname DH-IRO-033 is in the "Normal" state. The object will be shown when its state is either "New Alarm" or "Alarm".

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.



- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

: This tab allows a c me will Hide or Sho	
EQP Hide/Show	
Condition Input Alarm Process Tagname: DH-IRO-033	
Condition New Alarm	
Alarm	
Normal	
Wiring Com 1 Fault Wiring Com 2 Fault Invalid Configuration Supply Voltage Fault Unable to Configure Not Communicating Fault Power up in Progress Sensor Fault Calibration Active High Gas Alarm Low Gas Alarm Wrong Device Type Calibration Fault Inhibited LON A Device Offline	(K)
 	Hide
Delete Change T	agname
Cancel	

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Graphic Primitives: Hide/Show - Process Tab: This tab allows a configuration where the value of the tagnames process variable is used to Hide or Show the selected dynamic object.

Configuration involves a "Value" setting and a "Comparison" setting.

The "Value" is entered into a field, in engineering units and the "Comparison" is selected using a four position slider.

On the lower right side of the dialog box there is a small legend that says "True = Hide".

This means that when the "True/False" evaluation of the process variable value against the entered value and comparison is true, the selected object will be hidden.

In the example to the right, the value is "15" and the comparison slider is in the ">= greater than or equal to" position.

With these selections, the dynamic object will be hidden when the process variable for tagname DH-IRO-033 is greater than or equal to "15" and the object will be shown when the value is less than "15"

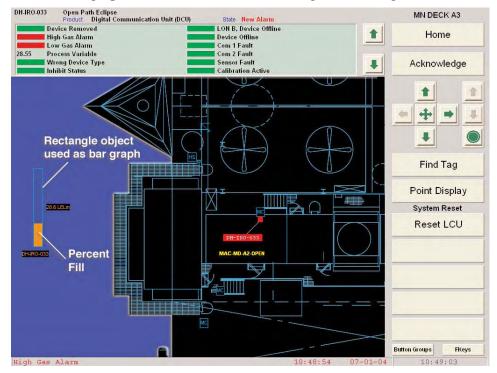
The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

Condition Input	Alarm Process
agname:DH	I-IRO-033
Value:	15
Comparison	
<=[Less / Equal)
	Greater / Equal)
	Not Equal)
<	Not Equal (
=(E	qual)
	True = Hide
Delete	Change Tagnam
and a set of the	ОК

Graphic Primitives: Percent Fill The "Percent Fill" function can be applied to Rectangle, Rounded Rectangle, Oval, Freehand and Polygon dynamic object types. The function will "fill" the object based on the analog value of the process variable for the tagname linked to the object. The color, pattern and direction of fill can be user configured.

Typical uses for this function would be to create a bar graph or to show the level in a tank. In the example below, a rectangle is being used to create a bar graph which is linked to the analog value of a gas detector.



In this example the height of the bargraph is proportional to the analog value of the process variable which is shown as value text to the right of the bargraph and in the "mini point display" at the top of the screen.

To configure the percent fill function use the appropriate tool to create a dynamic object on the screen, then double click on the object to open the "Dynamic Object Functions..." dialog box.

Function	Tagname	Edit
		Edit
🔽 Display Button Gi	oup	Edit
Hide/Show		Edit
F Percent Fill		Edit
Text Attributes		Edit
🖵 Two State		Edit
➡ Value Text		Edit
	OK	Change Tagname

The five available functions for graphic primitives are shown for selection via "checkbox" on the left side of the dialog box.

Checking the "Percent Fill" selection will open the database "Tag Viewer" dialog box to allow for the selection of a tagname to link to the object and be used to feed data to the "Percent Fill" function.

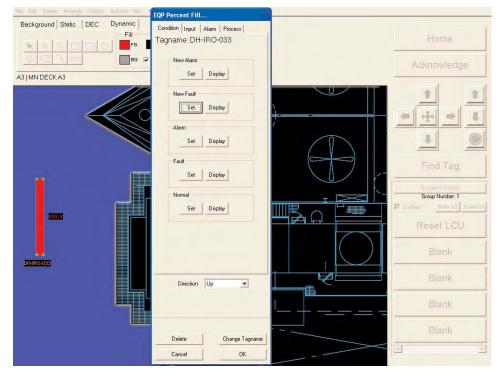
The "Tag Viewer" dialog box displays a scrolling list of tagnames in the database, regardless of their point of origin. Browse the database to locate the desired tagname. Information on the type of device, its port and point identification, and I/O type are shown.

Tagname	/ Type	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13	1	~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	ġ.	
DH-GD-011	Digital Communication Unit (DCU)	1	11	11	
DH-GD-012	Digital Communication Unit (DCU)	1	12	4	
DH-GD-016	Eclipse PIR	1	16	1	1
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	1	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	1	
DH-IRO-033	Digital Communication Unit (DCU)	1	33	1	
DI-TCX-001	Generic Digital	1	1	1	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	- A	
Extra	EQP Controller Input	1	1	1	
Fire Alarm	EQP Controller Output	1	1		
H-C7	Graphic Screen	11	39	SCN	>
	FILTER			ок с	ANCEL

To more easily locate the desired tagname in a large database a "Filter" feature is provided. Place the cursor in the data entry field in the lower left of the dialog box and begin typing the tagname. The list will dynamically sort allowing the desired tagname to be quickly located.

Once the tagname is selected, the "OK" button will close the Tag Viewer and open the "Percent Fill..." dialog box.

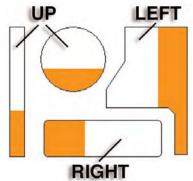
The dialog box shows the selected tagname below four selectable tabs: Condition, Input, Alarm and Process.



The "Percent Fill" feature can be configured to work from any one of these tabs.

Toward the bottom of the dialog box on each tab is a "Direction" pop-up menu. This is used to control the direction of the "Percent Fill" function.

Their are four choices; Down, Left, Right and Up. The selection determines from which direction the fill function occurs.





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In the four examples to the left, each object is shown 40% filled. The rectangle and circle are filling "Up", the rounded rectangle is filling to the "Right" and the polygon is filling to the "Left".

The tab that is active (on top) when the "OK" button is selected will be the configuration used to control the "Percent Fill" feature.

Graphic Primitives: Percent Fill - Condition Tab:

Allows for the configuration of a dynamic object that will "Fill" in a user configurable direction, based on the process variable of a selected tagname and have the filled area of the object change its visible attributes based on the state of the selected tagname.

The percent fill is automatically tied to the analog value and the visible attributes of the fill area is user configurable for each of the five potential states of the selected tagname.

Configuration: Using the normal object editing tools configure the dynamic object to the desired attribute set (color, pattern, line weight etc.) for each state and then use the "Set" buttons to save these configurations.

After each of the five states have been configured, the "Display" buttons can be used to test the configuration. As mentioned earlier, the "Direction" selection determines if the "Fill" will grow up, down, left or right.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

Condition Input Alam Process Tagname: DH-IRO-033	EQP Percent Fill
New Alarm Set Display New Fault Set Display Alarm Set Display Fault Set Display Fault Set Display Normal Set Display Direction Up	Condition Input Alarm Process
Set Display New Fault Set Set Display Alarm Set Set Display Fault Set Set Display Normal Set Display Set	Tagname: DH-IRO-033
New Fault Set Display Alarm Set Display Fault Set Display Normal Set Display Direction Up	New Alarm
Set Display Alarm Set Display Fault Set Display Normal Set Display Direction Up	Set Display
Alarm Set Display Fault Set Display Normal Set Display	New Fault
Set Display Fault Set Display Normal Set Display	Set Display
Fault Set Display Normal Set Display	Alarm
Set Display Normal Set Display Direction Up	Set Display
Normal Set Display Direction Up	Fault
Set Display	Set Display
Direction Up	Normal
	Set Display
Delete Change Tagname	Direction Up
	Delete Change Tagname
Cancel OK	Cancel OK

• The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.

- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box taking you back to the "Dynamic Object Functions..." dialog box.

Here the checkbox for "Percent Fill" will now be filled and the tagname will be listed in the appropriate column. Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Percent Fill" function and takes precedence over the other functions it can be used with and will always be evaluated first.

Graphic Primitives: Percent Fill - Input Tab:

Allows for the configuration of a dynamic object that will "Fill" in a user configurable direction, based on the process variable of a selected tagname and have the filled area of the object change its visible attributes based on the state of an input from the selected tagname.

The percent fill is automatically tied to the analog value and the visible attributes of the fill area is user configurable for both the "ON" and "OFF" states of the selected input.

Configuration: Using the normal object editing tools configure the dynamic object to the desired attribute set (color, pattern, line weight etc.) for each state and then use the "Set" buttons to save these configurations.

After both the "ON" and "OFF" states have been configured, the "Display" buttons can be used to test the configuration. As mentioned earlier, the "Direction" selection determines if the "Fill" will grow up, down, left or right.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- EQP Percent Fill... Condition Input Alarm Process Tagname: DH-IRO-033 On Set Display Off Set Display Wiring Com 1 Fault Wiring Com 2 Fault Invalid Configuration Supply Voltage Fault Unable to Configure Not Communicating Fault Power up in Progress Sensor Fault Calibration Active High Gas Aları Low Gas Alarm Wrong Device Type **Calibration Fault** Inhibited LON A Device Offline Direction Up -Delete Change Tagname Cancel **DK**
- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box taking you back to the "Dynamic Object Functions..." dialog box.

Here the checkbox for "Percent Fill" will now be filled and the tagname will be listed in the appropriate column. Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Percent Fill" function and takes precedence over the other functions it can be used with and will always be evaluated first.

Graphic Primitives: Percent Fill - Alarm Tab:

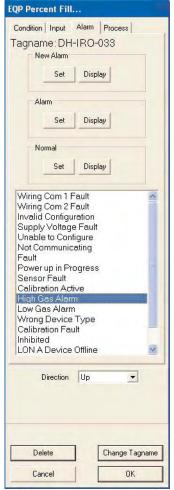
Allows for the configuration of a dynamic object that will "Fill" in a user configurable direction, based on the process variable of a selected tagname and have the filled area of the object change its visible attributes based on the three alarm states of the selected tagname.

The percent fill is automatically tied to the analog value and the visible attributes of the fill area is user configurable for the "Normal", "New Alarm" and "Alarm" states of the selected tagname.

Configuration: Using the normal object editing tools configure the dynamic object to the desired attribute set (color, pattern, line weight etc.) for each state and then use the "Set" buttons to save these configurations.

After the three states have been configured, the "Display" buttons can be used to test the configuration. The "Direction" selection sets the "Fill" to grow up, down, left or right.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.



- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box taking you back to the "Dynamic Object Functions..." dialog box.

Here the checkbox for "Percent Fill" will now be filled and the tagname will be listed in the appropriate column. Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Percent Fill" function and takes precedence over the other functions it can be used with and will always be evaluated first.

Graphic Primitives: Percent Fill - Process Tab:

Allows for the configuration of a dynamic object that will "Fill" in a user configurable direction, based on the Process Variable (PV) of a selected tagname and have the filled area of the object change its visible attributes based on up to 10 configurable breakpoints in the PV.

Both the percent fill and fill area are automatically tied to the analog value. Up to 10 breakpoints can be configured with each capable of having its own display attributes.

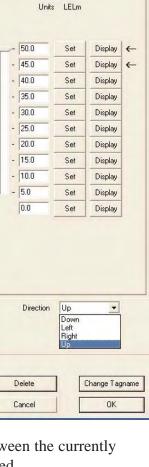
Configuration: Using the normal object editing tools configure the dynamic object to the desired attribute set (color, pattern, line weight etc.) for each state and then use the "Set" buttons to save these configurations.

After the desired number of breakpoints have been configured, the "Display" buttons can be used to test the configuration. The "Direction" selection sets the "Fill" to grow up, down, left or right.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box taking you back to the "Dynamic Object Functions..." dialog box.

Here the checkbox for "Percent Fill" will now be filled and the tagname will be listed in the appropriate column. Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the "Percent Fill" function and takes precedence over the other functions it can be used with and will always be evaluated first.



EQP Percent Fill...

Condition Input Alarm Process

Tagname: DH-IRO-033

Graphic Primitives: Two State - The "Two State" function can be applied to Rectangle, Rounded Rectangle, Oval, Freehand and Polygon dynamic object types. The function will "flash" between two user configured sets of graphic attributes based on the state of the linked tagname.

This function is typically used to draw attention to an area of the graphic page with a flashing object.

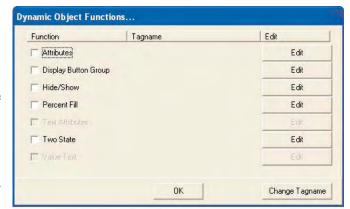
Configuring the "Two State" function for Graphic Primitives:

Using the appropriate tool create a dynamic object and place it as required on the graphic.

Double-click on the object to open the "Dynamic Object Functions..." dialog box which shows the available functions for the object type.

10-86

The five available functions for dynamic objects are shown



for selection via "checkboxes" on the left side of the dialog box.

Checking the "Two State" selection will open the database "Tag Viewer" dialog box to allow for the selection of a tagname to link to the object and be used to trigger the "Two State" function.

Tagname	/ Туре	Port	Point	1/0	
DH-FD-013	UV/IR Detector (EQ2200)	1	13	1	~
DH-FD-022	UV Detector (EQ2200)	1	22	1	
DH-FD-024	TIR X3301	1	24	ġ.	
DH-GD-011	Digital Communication Unit (DCU)	1	11	1	
DH-GD-012	Digital Communication Unit (DCU)	1	12	- Al-	
DH-GD-016	Eclipse PIR	1	16	1	
DH-10-007	8 Channel DC I/O (EQ3700)	1	5	11	
DH-IPM-023	Intelligent Protection Module (EQ	1	23	1	
DH-IRO-033	Digital Communication Unit (DCU)	1	33	1	
DI-TCX-001	Generic Digital	1	1	1	
Dynamic Tests	Graphic Screen	11	7	SCN	
Enter	EQP Controller Input	1	1	1	
ESD_TMR	Triconex Main Chassis	1	5001	4	
Extra	EQP Controller Input	1	1	1	
Fire Alarm	EQP Controller Output	1	1	1	
H-C7	Graphic Screen	11	39	SCN	~
	FILTER			OK	CANCEL

GRAPHIC EDITOR

The dialog box shows the selected tagname below four selectable tabs: Condition, Input, Alarm and Process.

The "Two State" feature can be configured to work from any one of these tabs.

Condition | Input | Alarm | Process | Tagname: DH-IRO-033

10-8

Graphic Primitives: Two State - Condition Tab: This tab allows a configuration where the "State" of the tagname will cause the dynamic object to flash between its True and False attribute sets.

There are two "sliders" that are used to set up a logical comparison between the "state" of the tagname as chosen with the top slider, and the comparison option selected with the bottom slider.

On the lower right side of the dialog box there is a small legend that says "True = Toggle".

This means that when the condition selected meets the comparison selected the object will be toggle (flash) between its True and False attributes.

In the example to the right, the condition slider is in the "Normal" position and the comparison slider is in the "<>Not Equal" position.



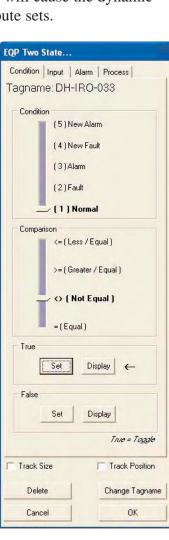
In the example to the left, the actuator portion of the valve symbol created from a polygon object was configured to be green when in the "OFF" or "False" state and

yellow with diagonal stripes when in the "ON" or True state.

With these selections, the dynamic object will

be steady when the tagname DH-IRO-033 is in the "Normal" state and will toggle (flash) between the configured True and False states in any other condition; fault, alarm, new fault, new alarm.

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.



GRAPHIC EDITOR

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

10-88

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

Comparison	
<=	(Less / Equal)
>=	(Greater / Equal)
_	(Not Equal)
=(Equal)
True	
Set	Display ←
False	
Set	Display
	True = Toggile
Track Size	Track Position
Delete	Change Tagname
Cancel	ОК

This will close the "Two State" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Two State" will now be filled and the tagname will be listed in the appropriate column.

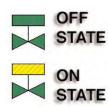
Tagname	Edit
	Edit
	Edit
	Edit
	Edit
DH-IR0-033	Edit
	Edit

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function. **Graphic Primitives: Two State - Input Tab:** This tab allows a configuration where the "On/Off" state change in the selected status or diagnostic "input" of the tagname will cause the dynamic object to flash between its True and False attribute sets.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list.

Configuration involves selecting the desired input from the list and then setting the attribute set for the on and off states.

In the example to the right, the input "Inhibited" is selected. Use the standard



object editing tools to select the size, color, pattern, line weight and color of the object for each state and then use the "Set" buttons to save the settings. Test the config-

uration using the "Display" buttons to toggle the On/Off state.

In this example the valve will be all green when the "Inhibited" input is Off (False) and will flash between the settings for the On and Off states when the "Inhibited" input is On (True). Tagname: DH-IRO-033 Wiring Com 1 Fault Wiring Com 2 Fault Invalid Configuration Supply Voltage Fault Unable to Configure Not Communicating Fault Power up in Progress Sensor Fault Calibration Active High Gas Alarm Low Gas Alarm Wrong Device Type **Calibration Fault** Inhibited LON A Device Offline True Display Set False Set Display True = Toggle Track Size Track Position Delete Change Tagname пк Cancel

Condition Input Alarm Process

10-89

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

This will close the "Two State" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Two

State" will now be filled and the tagname will be listed in the appropriate column.

10-90

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

Function	Tagname	Edit
F Attributes		
🗖 Display Button Gro		Edit
Hide/Show		Edit
Percent Fill		Edit
🔽 Text Attributes		Edit
🔽 Two State	DH-IRO-033	Edit
Malue Text		Edit
	ок	Change Tagname

Graphic Primitives: Two State - Alarm Tab: This tab allows a configuration where the "On/Off" state change in the selected status or diagnostic "input" of the tagname will cause the dynamic object to flash between its True and False attribute sets.

The list box shows the available inputs that pertain to the linked tagname. Different devices may have a different list.

Configuration involves selecting the desired input from the list, using the slider control to select the condition to compare the input against and then setting the objects visible attribute set for each of the two states.



Use the standard object editing tools to select the size, color, pattern, line weight and color of the object for each state and then use the "Set" buttons to save these

settings. Test the configuration using the "Display" buttons to toggle the On/Off state.

In the example to the right, the input "Device Removed" is selected. In this example, the effect is that when the input condition occurs, the valve actuator will "flash" between the solid green "Off" state and the yellow "On" state thus highliting the problem.

The flashing will stop when the operator acknowledges the event causing the inputs state to change to "Alarm" or "Normal".

Below these settings are two check boxes, one called "Track Size" the other "Track Position" which when selected allow these attributes to be dynamically changed based on the state of the object.

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

• The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.



- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.

Once attribute sets have been assigned for two states of the selected condition for the tagname, test them with the "Display" buttons.

This will show the applied attribute sets for each state. If satisfied, finalize the configuration by choosing the "OK" button in the bottom right area of the dialog box.

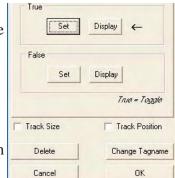
This will close the "Two State" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Two

State" will now be filled and the tagname will be listed in the appropriate column.

10-92

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

Function	Tagname	Edit
F Attributes		
🗖 Display Button Gro		Edit
Hide/Show		Edit
Percent Fill		Edit
🗖 Text Attributes		Edit
🔽 Two State	DH-IR0-033	Edit
➡ Value Text		Edit
	ок	Change Tagnam



Graphic Primitives: Two State - Process Tab: This tab allows a configuration where the value of the tagnames process variable is used to

cause the selected dynamic object to flash between its True and False attribute sets.

Configuration involves a "Value" setting and a "Comparison" setting.

The "Value" is entered into a field, in engineering units and the "Comparison" is selected using a four position slider.

On the lower right side of the dialog box there is a small legend that says "True = Toggle".

This means that when the "True/False" evaluation of the process variable value against the entered value and comparison is true, the selected object will flash between its True and False attribute sets.

In the example to the right, the value is "40" and the comparison slider is in the ">= greater than or equal to" position.

With these selections, the dynamic object will flash when the process variable for tagname DH-IRO-033 is greater than or equal to "40" and the object will be solid, with the "False" attribute set, when the value is less than "40"

QP Two State	u Barril
Condition Input	Shawley and a
Fagname:DH-I	IRO-033
Value: 4	0
0.00-	50.00LELm
Comparison	
,	ss / Equal)
	ireater / Equal]
O (Ne	ot Equal)
C) [NC	A Equal)
= (Equ	ial)
True	
Set	Display
False	
Set	Display
	True = Toggale
Track Size	Track Position
Delete	Change Tagnar
Cancel	OK

The four buttons at the bottom of the dialog box can be used accept, cancel or modify the selection and/or configuration.

- The "Delete" button will eliminate the link between the currently selected tagname and the object being configured.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.
- The "Cancel" button aborts the configuration.
- The "OK" button accepts the configuration and closes the dialog box.
- The "Change Tagname" button allows a different link to be established between the object being configured and the tagname database.

DYNAMIC LAYER - GRAPHIC PRIMITIVES

This will close the "Two State" dialog box and take you back to the "Dynamic Object Functions..." dialog box. Here the checkbox for "Two

State" will now be filled and the tagname will be listed in the appropriate column.

Also note that the "Hide/Show" function is still available for configuration. It can be used in conjunction with the Two State function.

Function	Tagname	Edit
F Attributes		
🗖 Display Button Gro		Edit
Hide/Show		Edit
Percent Fill		Edit
Text Attributes		Edit
🔽 Two State	DH-IR0-033	Edit
➡ Value Text		Edit
	ок	Change Tagname

Complex Object Tool: This tool provides for the selection and configuration of the many dynamic complex objects available on the dynamic

Background Static DE	C Dynamic	
	Fill	Pen
X A \ D C) () 📕 FG 📕	• FG •
2 C) XXX C	BG C Opaqu	.e

These objects are for the display of mostly analog data in the form of conventional instruments like LED's, and various forms of meters.

Once the complex object is selected and placed on the graphic it configured with attributes like the graphic primitives described earlier.

layer.

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쏬	24.8	E	7	

10-95

Function	Tagname	Edit
Attributes		Edit
Display Button Group		Edit
Hide/Show		Edit
Percent Fill		Edit
Text Attributes		Edit
Two State		Edit
Value Text		Edit
Show Point Display		Edit
	ок	Change Tagname

DYNAMIC LAYER - COMPLEX OBJECT

Complex Object Tool: "Right clicking" on the complex object will allow access to the "extended editor". From this dialog box the complex objects internal parameters can be modified.

File Edit Screen Arrange Objects	s Buttons Misc Mid-Levels		
Background Static DEC	Dynamic		
		Pen Fg •	
2 C) XXX []	Complex Object Extende	ed Editor	
A1 MN DECK A1	Arc Radius	60	
	Arc Range Degrees	90	
	Arc Start Degrees	180	
	Border Style	Lowered	
	Hub Color	Black	
	Hub Size	14	(S)
	Label 1 Align Horizontal	Center	
	Label 1 Align Vertical	Center	
	Label 1 Offset X	-15	
75 ¹⁰⁰ 50 V	Label 1 Offset Y	-35	(a)
s'	Label 1 Text		-
25	Label 2 Align Horizontal	Center	
0	Label 2 Align Vertical	Center	
	Label 2 Offset X	-15	
	Label 2 Offset Y	-20	
	Label 2 Text		
	Pointer Color	Black	
	OK	Cancel	
4			

Each object has different parameters based on its function but in general the text color, axis labels, pointer and/or text colors and other items can be modified.

The size of many of these complex objects can easily be changed by simply selecting the object and clicking and dragging on one of the objects selection handles until it reaches the desired size.

The working components of the object will scale accordingly.

DYNAMIC LAYER - COMPLEX OBJECT



Custom Overview: In certain cases, the automatically generated composite overview created by S^3 does not present the desired format and a custom overview is required.

S³ supports the creation and use of a full screen custom overview complete with dynamic objects and links to lower level graphic screens.

In the examples on this page, a digital photo created in another program was imported into S³ to serve as a background layer in the projects cus-



tom overview. In the example above, dynamic polygons were created to outline different areas of the platform and then linked to the appropriate "mid-level overview". A "virtual annunciator" was also created using the same technique. Any alarms in these areas then highlite the problem area and clicking on them navigates to the appropriate linked screen, allowing the operator to quickly navigate to problem areas.

CUSTOM OVERVIEW

Custom Overview: A custom overview is a full screen (1024 x 768 pixel) graphic with no visible on-screen buttons or navigation tools. It is

created in the "Custom Overview Editor" which is accessed from the "Screens" menu in the graphic editor.

11-2

The environment of the editor is very similar to the standard screen graphic editor but with scroll bars added to the graphic window to

File Edit	Screen	Arrange	Objects	Button	is Misc	Mid-Levels
Backgr		Grid On Settings	Ctr		umic Fill	
2	Name Alarm) I/Fault Col	ors		FG	-
	Goto. Arrar			•	BG	C Opaque
A1 MN	Expo Impo				-	
	Custo	om Overvie	BW	1		

accommodate its "full screen" size and a "View" button to display and test the custom overview in a full screen mode.

The custom overview is "multi-layered" having three independent layers; Background, Static and Dynamic. These layers function identically to their counterpart layers on the standard graphic screens (see Chapter 10).



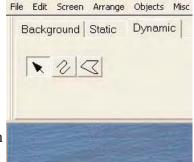
The Background layer can contain an imported bitmap graphic, the static layer contains the tools for creating object based graphics, and the Dynamic layer allows objects to be created that are linked to "Tags" in the database.

Layer Summary: The background and static layers function identically to their counterparts in the standard graphic development environment but allow you to work with the larger 1024×768 pixel format provided for the custom overview as opposed to the standard 800 x 600 pixel format. The purpose of these layers are to allow the creation of the desired graphic representation. Refer to Chapter 10 of this manual for instructions on background and static layer usage and tools.

Dynamic Layer: The Dynamic Layer provides tools for creating "invisible" boundaries around areas of the graphics on the layers below that can then be "linked" to the "state" of other graphic screens or mid-level

overviews. When the "linked" screen changes state the dynamic object representing the screen will change according to it's configured graphic attributes.

The "Polygon" and "Freehand" drawing tools are provided to create "linkable" graphic objects that will typically highlite an area of the custom graphic.



11-3

Dynamic Element Graphic Attributes: On the right side of the Custom

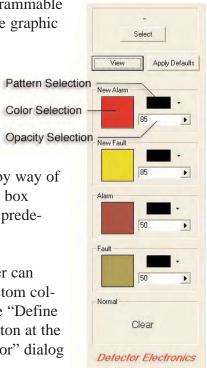
Overview editor in place of the user programmable buttons are graphic controls for setting the graphic attributes of created dynamic elements.

A separate color pattern and opacity can be assigned to each dynamic object for each of its five potential states; Normal, Fault, Alarm, New Fault, and New Alarm.

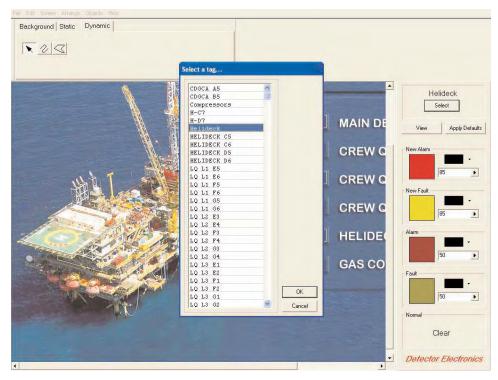


Color selection is by way of the standard dialog box which provides 48 predefined basic colors.

In addition, the user can define up to 16 custom colors by selecting the "Define Custom Color" button at the bottom of the "Color" dialog box.



Use either the "Freehand Tool" or "Polygon Tool" to create an outline around the area desired to indicate the status of a linked screen. Then choose the "Select" button from the top right of the editing screen to display to available screens which can be linked to the selected dynamic object.

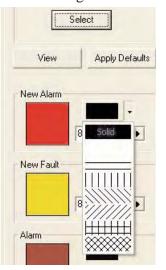


Once linked, the link will be displayed above the "Select" button.

Setting Dynamic Object Graphic Attributes: Select a dynamic object, its link will be displayed above the "Select" button. On the right side of

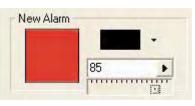
the screen are five "State boxes" showing the current graphic attributes for the selected dynamic object. If changes are desired, click on the appropriate "State box" and modify the attributes as necessary.

Pattern: To the right, the "New Alarm" pattern selection "pull down" menu shows the various selections available for the state. In this case the "Solid" pattern is selected which as the name implies renders a solid color. A standard mix of vertical, horizontal, diagonal and hatch patterns are available.



Opacity: This attribute allows the background layers to show through the object in inverse proportion to the opacity setting. At 100% opacity

the selected color and pattern completely obscure the lower layers and as the opacity decreases more of the background becomes visible "through" the object. This gives the ability to "color" an area while still being able to see a selectable amount of detail.

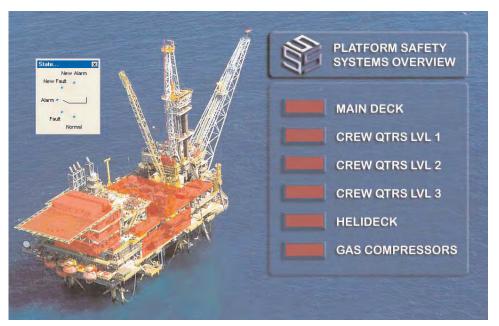


Adjusting the opacity of a selected object is accomplished by entering a



value from 0-100% in the numeric field or by using the slider. In the sample to the left, 25%, 50%, 75% and 100% opacity have been applied to yellow circles with a solid pattern.

Viewing Dynamic Object Graphic Attributes: Once the desired attributes have been modified they can be tested using the "View" button. This will show the Custom Overview graphic "full screen" and provide a selector switch to change the "virtual state" of all dynamic objects simultaneously. This will allow you to dynamically view how the objects will look in each state. Clicking the "close box" on the "View dialog box" will return to the Custom Overview editor.

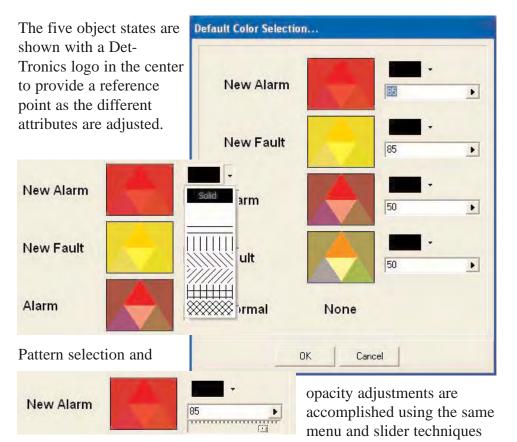


CUSTOM OVERVIEW

Setting Dynamic Defaults: Because of the need to set the color, pattern and opacity for <u>each</u> of the five states for <u>every</u> dynamic object, a means was provided to set defaults for these parameters that could be applied individually or globally.

Background Static Dynami	Show Color Palette Show Mouse Location	
N.0	Tagname Validation	
× <u> </u>	Dynamic Defaults	
	✓ Show Tool Page	

Selecting "Dynamic Defaults..." from the "Misc." menu will display the "Default Color Selection..." dialog box used to create a default setting for color, pattern and opacity that can be easily applied to objects on the dynamic layer of the Custom Graphic Editor.



used in the custom overview editor and described earlier.

Apply Defaults: Once the color, pattern and opacity levels have been set for each of the five states the "OK" button saves the default settings and closes the "Default Color Selection..." dialog box. To utilize these default values, simply select a dynamic object and click on the



11-7

"Apply Defaults" button on the upper right area of the screen. In the above example, a polygon linked to the Helideck is selected.

View Custom Overview: Once the background, static and dynamic layers have been configured and the links and colors have been selected the "View" button will display the Custom Overview in a full screen mode. In this preview mode, a rotary selector switch is provided to allow each of the five states to be viewed with their selected attributes.



Above is the custom overview with the state selector in the "Normal" position and shows how the overview will look with no alarms present in the system.



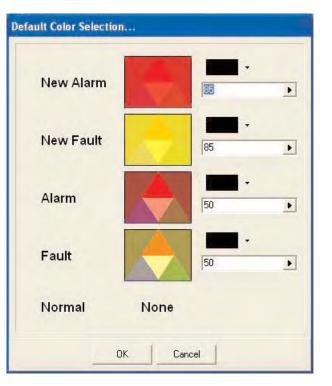
Above is the custom overview with the state selector in the "Fault" position and shows how the overview will look with a fault in each programmed area present in the system.

The polygons outlining the various areas of the platform along with the rectangles on the "virtual annunciator" have taken on the values entered in the color selections. In this case, a solid yellow with a 50% opacity.

11-8

In this case providing a yellow highlite along with the ability to see some detail of the platform below the outlined area.

Changing the position of





the rotary selector to each of the other positions then displays the overview with its dynamic objects showing their color, pattern and opaci-

ty settings.



CUSTOM OVERVIEW

11-10 GRAPHIC EDITOR



Above shows the "Alarm" state, below shows the "New Fault" state. Above, the state selector is in the "New Alarm" position and the dynamic objects reflect that state.

After previewing the Custom Overview, clicking on the "Close Box" of the "State..." selector switch dialog box will close the preview and return to the Custom Overview editor.

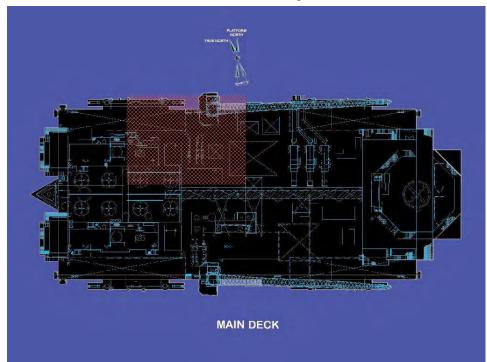
To return to the main graphic editor, select "Save" or "Quit" from the "File" menu. If "Quit" is selected and changes have been made in the Custom

File E	dit Screen	Arrange	Objects	Misc
Save	0	Itrl+S	Dynami	ic
Page Print	Setup	Itrl+P		Fill
Quit		trl+Q		BG T Opaq

Overview a "confirmation" dialog box will appear to ensure changes are not inadvertently lost.



Mid-Level Overviews: In the Custom Overview example above, an area of the platform called "Main Deck" is in alarm. Clicking on either the polygon outlining the main deck, or the rectangle on the "virtual annunciator" will take the user to the Main Deck "Mid-Level Overview" where the trouble is shown and used to further navigate to the source screen.



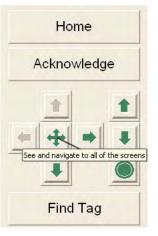
MID-LEVEL OVERVIEWS

Mid-Level Overviews: S³ automatically creates a total overview that is

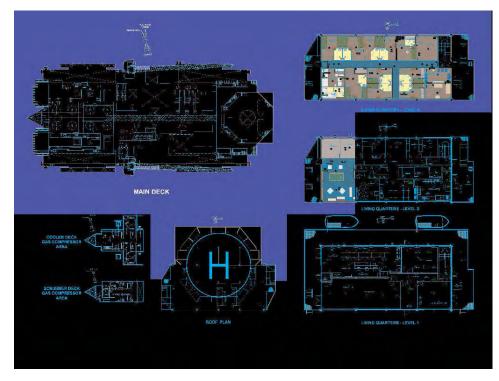
a composite of all of the low level graphic screens in the project. This overview is accessible from the "cross" navigation button in both the graphic editor and online graphics environments.

This composite, scales all of the low level screens and any blank screens between them into a single 1024 x 768 pixel graphic representing the system.

From this "Total Overview" any low level screens with alarm or fault conditions will highlite in accordance with their settings.



In many cases, the size, geography or construction of the facility my make this type of overview less than ideal. In the offshore platform example project below, multiple areas and levels are represented by 45 low level screens. A composite of this many screens causes a very large loss of detail making it difficult to determine where the problem is.



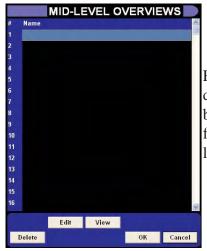
To overcome this issue, S³ supports the creation of "Mid-Level Overviews" which are a group of low level screens, typically arranged to form a good "pictorial image" of an area..

Mid-Level Overview Creation: In the

graphic editor, from the "Mid-Levels" menu select "Edit..." to access the Mid-Level Overview management dialog box.



11-13



From there levels can be edited, viewed or deleted. If no Mid-Level Overviews have been created, the dialog box will show the first 16 empty slots with the first one highlighted.

Selecting the "Edit" button will open the Mid-Level Overview Group Creation screen. This screen is divided horizontally with the top section, labeled "Group" and the bottom "Screen.

								GROUP
~								2
	No.	-		-			10	
	NAME			V	EW		ок	CANCEL
MN DECK A1	NAME	MN DECK C1	MN DECK D1	LQ L3 E1	LQ L3 F1	LQ L3 G1	2	CANCEL
		MN DECK C1	MN DECK D1			LQ L3 G1	2	
MN DECK A1	MN DECK B1		MN DECK D2	LQ L3 E1	LQ L3 F1		2	

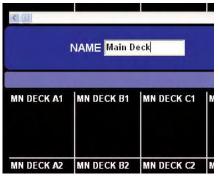
First, enter a "Name" for the Mid-Level Overview being created. This becomes a "Tag Name" in the database and will be used for linking.

In the example below, the name "Main Deck" has been entered to be the

tagname for this Mid-Level Overview screen.

11-14

Creating the Mid-Level Overview (MLO) is accomplished by clicking and dragging all of the screens from the lower area that will make up the MLO into the top section and arranging them in the proper order to create the desired effect.



In the sample project used for this example there are 45 screens to choose

					MN D	ECK A1 MN DEC	K B1
		H-C7	H-D7		LQ		
SDGCA AB	SDGCA BE	HELIDECK C6	HELIDECK D6	LQ L1 E6	LQ L1 F6	LQ L1 GB	
		C5	HELIDECK D5		LQ L1 FS	LQ L1 G5	
MN DECK A4	MN DECK B4	MN DECK C4	MN DECK D4	LQ (.2 E4	LQ L2 F4	LQ L2 G4	
MN DECK A3	MN DECK B3	MN DECK C3	MN DECK D3	LQ L2 E3	LQ L2 F3	LQ L2 G3	
MN DECK A2	MN DECK B2	MN DECK C2	MN DECK D2	LQ L3 E2	LQ L3 F2	LQ L3 G2	
MN DECK A1	MN DECK B1	MN DECK C1	MN DECK D1	LQ L3 E1	LQ L3 F1	LQ L3 GT	

both a name and graphic grid coordinate. When the names were created for the low level screens care was taken to make the name descriptive of the area of the facility. This makes it easier to pick which screens will

from. Each screen has

be included	in the	Mid-l	Level
<u> </u>			
Overview.			

For the MLO being created for this example, all of the screens with the "MN DECK" designation will be used to create a group. This includes screens A1, A2, A3, A4, B1 thru B4, C1 thru C4 and D1 thru D4.

As these screens are copied from the screens section to the group section the MLO is taking shape.

MN DECK A2	MN DECK B2	MN DEC	(C2		
	NAME Main D	eck			/IEW
MN DECK A1	MN DECK B1	MN DECK C1	MN DECK D1	LQ L3 E1	LQ L3 F1
MN DECK A2	MN DECK B2	MN DECK C2	MN DECK D2	LQ L3 E2	LQ L3 F2
MN DECK A3	MN DECK B3	MN DECK C3	MN DECK D3	LQ L2 E3	LQ L2 F3

IN DECK C1 MN DECK D1

The "construction" of the MLO can be viewed at any time by selecting

the "View" button. This will create an image of the MLO based on the screens that have been grouped. Below is an example of the partially completed MLO. The program will automatically "pad" the image with "black space" to ensure that the MLO has the proper aspect ratio when displayed at its full resolution of 1024 pixels wide by 768 pixels tall.



When all 16 screens for the main deck have been arranged, select the view button to see the completed MLO.

3
OK CANCEL
SCREENS

MID-LEVEL OVERVIEWS



Note that in the "View mode" a rotary state selector is provided to preview the graphics in each of their five potential states; closing this window will close the preview window and return to the editor.





In the editor, select the "Exit" button to return to the Mid-Level Overview management dialog box.

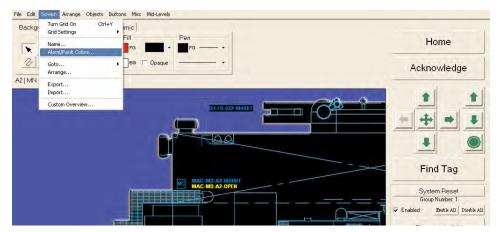
Notice that the first position is now filled with the "Main Deck" MLO.

The "Edit" button can be used to re-enter the editor and make changes to the MLO.

The "View" button goes directly to the full screen preview of the MLO, as in the graphic at the top of the page.

MID-LEVEL OVERVIEWS

The color, pattern and opacity of the screens making up the Mid-Level Overview are set "per screen" from within the main graphic editor.



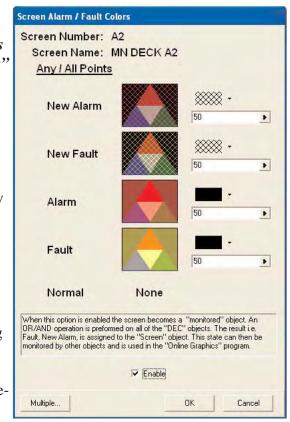
Select "Alarm/Fault Colors..." from the "Screens" menu to access the

"Screen Alarm / Fault Colors" dialog box. At the top, the "Screen Number" and "Screen Name" identify the screen that the selections will apply to.

Note: Once set the selections will only work if the "Enable" checkbox is selected at the bottom center of the dialog box.

Once you have one screen working the way you want, this set of attributes can easily be quickly and easily be applied to any number of screens. To do so, select the "Multiple" button at the bottom left of the dialog box.

This will open a screen listing all of the graphic screens and allowing individual or global selections to apply the parameters to.



MID-LEVEL OVERVIEWS

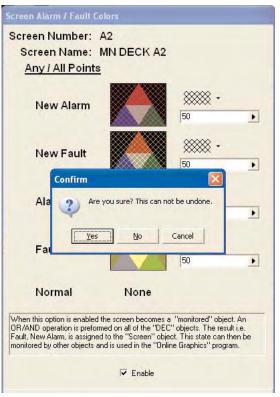
Copying Screen Color Attributes: Selecting the "Multiple" button on the "Screen Alarm / Fault Colors" dialog box will open a display which graphically shows all of the 250 graphic screens, both configured and blank.

MN DECK A1	MN DECK B1	MN DECK C1	MN DECK D1	LQ L3E1	LQ L3 F1	LQ L3 G1	
MN DECK A2	MN DECK B2	MN DECK C2	MN DECK D2	LQ L3 E2	LQ L3 F2	LQ L3 G2	
MN DECK	MN DECK B3	MN DECK C3	MN DECK D3	LQ L2 E3	LQ L2 F3	LQ L2 G3	
MN DECK A4	MN DECK B4	MN DECK C4	MN DECK D4	LQ L2 E4	LQ L2 F4	LQ L2 G4	
CDGCA AS	CDGCA B5	HELIDECK C5	HELIDECK D5	LQ L1 E5	LQ L1 F5	LQ L1 G5	
SDGCA A6	SDGCA BE	HELIDECK C6	HELIDECK	LQ L1 E6	LQ 11 F6	LQ L1 G6	

Clicking on a screen name will highlite its rectangle in red showing that it has been selected to receive the attributes configured on the "Screen

Alarm / Fault Colors" dialog box.

Once the selections are made and the "OK" button is clicked a "Confirmation" dialog box appears to allow cancellation or final acceptance of the color attribute assignments.



EAGLE QUANTUM PREMIER 13-1



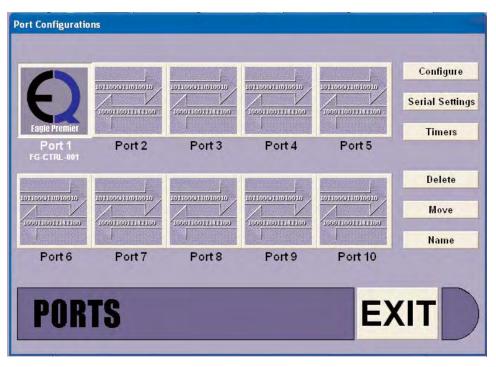
EAGLE QUANTUM PREMIER CONFIGURATION

One of the supported communication port types is for the Detector Electronics Corporation "Eagle Quantum Premier" fire & gas system.

System configuration consists of three major phases.

- Identifying all of the devices on the network.
- Configuring the operating parameters of each of these devices.
- Downloading the configuration data over the network to the devices.

Prior to configuration, ensure communication with the Eagle Quantum Premier controller is established. Reference the "Ports" (Section 2) area of this users guide on establishing serial communications.



Enter the Eagle Quantum Premier configuration screen by either doubleclicking on the port button or by selecting the port and then choosing "Configure" from the buttons on the right of the Ports screen.

CONFIGURATION

EAGLE QUANTUM PREMIER 13-2

Eagle Quantum Premier Configuration Screen: The main configuration screen is divided into two functional areas. The top area, which has a schematic representation of the Local Operating Network (LONTM) on which all of the field devices reside and the lower area which contains context sensitive buttons for accessing features and performing functions.

QI								
-								
								1
0								
Devices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device		Exit

On a new loop, as represented in the sample above, the LON schematic has a single device, the controller, shown at the upper left corner and addressed as "Node 1". This node is automatically placed on the LON because without it no further configuration or monitoring can take place.

Button Bar Overview: There are two button bars located at the bottom of the screen, the "Command Bar" and the "Configuration Bar". The

Command Bar is used to	Devices Found	Get Revision	Globals	Point Display	Reset Module
create, query or directly	Download	Get RTC	LON Diagnostic	Point Address	Set RTC
manipulate LON devices.	Edit	Get Voltages	Outputs	Print	Upload

The Configuration Bar is used to create, duplicate or delete devices and to reconcile their physical and logical LON addresses.

	Paste	Display Type	Arrange
		Find	Сору
E		New Device	Delete

The functionality of each button is described on the following pages.

Command Bar: The command bar has fifteen buttons, most of which initiate a command to a field device to perform a certain function, return a value, or feed "real-time" information to S^3 to be displayed.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

The command issued is specific to the node selected in the upper section. In some cases, multiple nodes may be selected using either the shift-click or drag methods and the command can be sent to all applicable nodes in the selected set.

To initiate a command using the command bar, select either a single node or a group of nodes, then click on the desired command button. In most cases a progress monitor will appear and display text messages tracking the execution of the command.

Command Definitions

Devices Found: This command actively queries the controller for information on any devices it is in communication with.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

The controller returns this information to S³ which displays a table listing

the devices, by node number (address on the LON) along with the device type and the firmware revision number of each device.

The "Devices Found" dialog box also provides a "Print" button which can be used to output a hardcopy of the current LON configuration, both hardware and firmware.

#	Tagname Miscellaneous Text	Device Type	Neuron Firmware ID	-
5	FGID-005 8 Channel DCIO Module	8 DC 1/0	DCI 0.09	
6				
7				
8				
9				
10	IDC-010 2 Channel Supervised Input	IDC	IDC 1.08	
11	H2S-011 H2S Toxic Gas Detector	DCU Univ_A	DCU 3.51	
12	EXE-012 IR Hydrocarbon Detector	Pointwatch	DCU 3.51	
13	UVIR-013 UV/IR Optical Flame Detector	UV/IR	UIR 1.02	
14	SAM-014 2 Chl. Signal Audible Module	SAM	SAM 1.04	

Get Revision: Returns the selected devices revision and firmware version information.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Over time features and fixes are added to various products. The "Get Revision" feature provides a convenient way of determining if the devices in the system have these features and/or fixes or if they need to be updated.

		Revisions	npleted revision collect	on, 9/17/02 11 30	40 AM	_			
		Point # 1	Tagname EQP-CTH	R-001 C	<u>tevision</u> int 0.82	<u>Version</u> 0.820	2		
			Print			0K	and a second sec		
vices Found	Get Revision	Globals	Point Display	Reset Module		Arrange	Display Address	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC		Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload		Delete	New Device		Exit

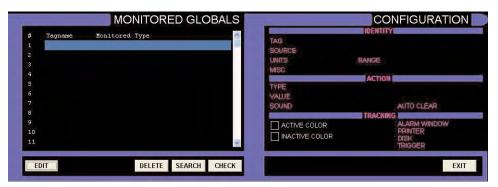
In the example above, the controller was selected prior to initiating the "Get Revision" command and the "Revisions..." dialog box displays the controllers information.

CONFIGURATION • COMMAND BAR

Globals: Provides access to configuration services allowing defined global memory values to be set up for tracking by the DCD.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Once configured these globals can be logged and/or printed by the event monitor and can also be used to control dynamic graphics and TAG objects in the "online graphics" environment.



Note: Global memory points <u>cannot</u> be configured from this location. Global memory point creation and configuration is done within the controllers logic editor.

To configure a global memory point for monitoring, select a "slot" from the "Monitored Globals" pane on the left side of the dialog box and then

select the "Edit" button.

This will open a dialog box displaying all configured global memory points that are available for monitoring.

In the example to the right, two points are available.

Choose the desired point and select "OK" to access the configuration dialog box for the point.

			Tagname	Type	
-		MON	MCOP-FA002 MCOP-FA003	Boolean Boolean	
	Tagnarie 18009-99,0001	Nonitored Ti Boolean			
EDIT	Get Revision	Globals	Point Display	Reset Module	OK. Cancel
10000 (A. 1941)	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору
ownload					

13-6 EAGLE QUANTUM PREMIER

A dialog box labeled "Global Point Monitor Configuration..." that is specific to the type (digital, analog, etc.) will be displayed allowing the monitoring of the point to be configured.

al		1	1	1	
ame:	MCOP-FA001	Change	Previous	Next Point Number: 1	OK
lisc:	Main Crude Oil Pump	Room - FM-200 Pre-Discharg	e Alarm Active		
		Alarm Condition C Disabled C Transition Dn C Transition Off	Printer Log to Disk Alarm Window Auto Clear Trigger Fault	Active Normal Black V Black V Sound None V	
		Name MCOP-FA001 FE	200 Preklarm		
		1.001 1.001 1.1			

The selected example point above is a "Digital" ON/OFF point type that can be configured to log to the printer, disk, alarm window. In the example below, an "Analog" point type is selected and can be configured for multiple conditional events to be tracked.

None C = Equal Image: None Im	re-Discha							
Condition Name Analog Comparison Selection Condition Name None Comparison None Plack		Range :						
Condition Name Comparison Range: 3276832767 C EL Sound Active N None C E guid Value Image: 3276832767 C EL Sound Active N None C E guid Value Image: 3276832767 Image: Superstand Image: Superstand <t< td=""><td></td><td></td><td>-32768 32767</td><td></td><td></td><td></td><td></td><td></td></t<>			-32768 32767					
Condition Name Comparison Range: 3276832767 C EL Sound Active N None C > Grade Value C None P None P None P P		Units	2					
Condition Name Comparison Range: 3276832767 C EL Sound Active N None C > Grade Value C None P None P None P P				and the second	-			
Condition Name Image: 32/6832/6/ C EL Sound Active N None Image: 32/6832/6/ C EL Sound Active N None Image: 32/6832/6/ Image: 32/6832/6/ Value Image: 32/6832/6/ Image: 32/6832/6/ <td< td=""><td></td><td></td><td>Analog Comp</td><td>arison Selection</td><td></td><td></td><td></td><td></td></td<>			Analog Comp	arison Selection				
Londition None L L Sound Addree M None C = Equal C None Equal F None Elack E None C <				Range	32768 32767			
None C Not Equal Value Value None Elack F	ame				<u>NC</u>	12.	a state of the second se	Normal
None Image: Constraint of the second secon					1	None		Black
					14	None	Black •	Black
			C > Greate	r than	E.	☐ None	• Black •	Black
None C[] In Range Value 0 - Rone - Black - E					0 -	□ None	• Black •	Black
None Black + E			C][Out F	lange	-	- None	T Plast T	Black
						1 Jaone	- Prack	Diaca
Help OK Cancel			Help	UK	Cancel			

CONFIGURATION / COMMAND BAR / GLOBALS

Discrete Points: Globals tied to "discrete" ON/OFF type events can be set to alarm when the event transitions either High (ON) or Low (OFF) with the "Alarm Condition" radio button. They can also be disabled which removes them from tracking but leaves the event configured in case it is desired to activate it later without the need for knowing the configuration details.

Transition On: When the tracked event transitions from the off state to the on state the alarm will be activated as configured.

Transition Off: When the tracked event transitions from the on state to the off state the alarm will be activated as configured.

-	P. 11-1	
0	Disabled	
	Transition On	
C	Transition Off	

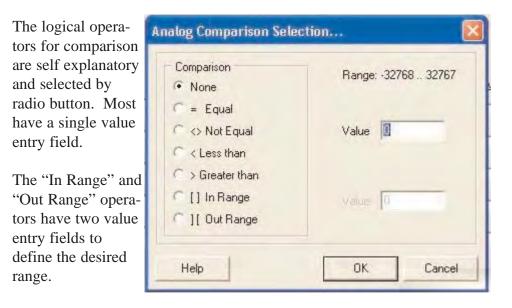
The event configuration consists of selecting where the event is to be tracked (Printer, Disk, Alarm Window), whether it will automatically

Printer	Active Norma	3
Log to Disk	Black 💌 Blac	k 🔻
Alarm Window	Sound	
Auto Clear	None	-
Trigger Fault		

clear when the event returns to its normal condition, what colors will be used for the events normal and active states, and whether a recorded sound will be triggered when the event occurs. There is also an option to allow the event to "trigger a fault" instead of an alarm for display purposes in the online graphics environment. **Analog Points:** Globals tied to "analog" type events can be set to alarm in accordance with "conditional arguments" chosen from the "Analog Comparison Selection..." dialog box.

Tagname:	MCOP-PDA-1	Cha	nge	<u>P</u> re	vious	Next	
Misc:	MCOP Pre-Dischar	ge Elapsed	Time				
		Range : Units	-32768 3 %	2767			
				Analog Comparison Se	lection		
<u>Condit</u>	1			Comparison	Rar	ge: -32768 32767	<u>s</u> c fl
None				C = Equal C <> Not Equal C < Less than	Valu	ie 🚺	- F
None	e			C > Greater than			
None	e			C [] In Range		ie 0	
None							

Up to five conditions can be named and configured with each one using one of the available comparisons. The analog signal is compared using the selected logical operator against the values entered. When the condition is true the event will be activated and tracked as configured.



Once the event name is entered and the comparison configured, the event

tracking configuration is set up using the check boxes and pull-down menus to the right of the event name.

The five checkbox selections are defined below:

	E	D	W	AC	FL	Sound		Active	Normal
	•	•	V	•	Г	Warning	•	Red	Green 💌
-	Г	Г	Г	Г	Г	None	•	Black -	Black •
1	Г	Г	Г	Г	Г	None	•	Black -	Black •
-	Г	Г	Г	Г	Г	None	•	Black -	Black •
-	Г	F	F	-	F.	None	+	Black -	Black .

P: Printer (Tractor feed event printer), D: Disk (Daily log file), W: Window (One line FIFO display at the bottom of the online graphics screen), AC: Auto Clear (Event directly tracks the "raw" data state and doesn't require operator acknowledgement), FL: Fault (Designates the event to be considered a fault instead of an alarm for online graphics purposes.

gname: MCOP-PDA	-1 Cha	ange	Previous	Ne				F	oint Number: 2			OK
Misc: MCOP Pre-Disc	harge Elapsed	i Tine										
	Range : Units	-32768 32767 2										
Condition Name					7	1.000	0.000		Sound		Active	Normal
>29 30 Seco	nds remaini	ng							Warning	and a	Red	 Green Black
None									None	-	Black	
None									None	-	Black	_
None									None			• Black

In the completed sample above, when the analog value exceeds 29 the event "30 Seconds Remaining" will be logged to the printer (in red), daily log file, event window and the OIS will play the "Warning" sound.

When the value drops below 29 the even will automatically clear.

Selecting a "Monitored Global" display its associated configuration data in the "Configuration" pane to the right of the globals list.

#	Tagname MCOP-FA001	Monitored Type Boolean	~	TAG	MCOP-PDA-1	IDENTI	X	
+ 2 3 4	MCOP-PDA-1	Integer		SOURCE UNITS MISC	INTEGER % MCOP Pre-Discl			
5				TYPE	GREATER THAN	ACTIO	N	1 of
7				SOUND	29.0 WARNING		AUTO CLEAR	Yes
B						TRACKI		_
9 10 11			~		E COLOR IVE COLOR		ALARM WINDOW PRINTER DISK TRIGGER	Yes Yes Yes Non

This provides "at a glance" a complete configuration overview of the selected global.

Since hundreds of monitored global points can be created, a "Search" button is provided to quickly locate a specific point entering all or part of the text from the points tagname.

A "Check" button ensures that the monitored global is indexed to a valid tag in the controller. If the tag has been deleted after the creation of the monitored global, an error will be generated.

A "Delete" button is used to remove one or more monitored globals from the database.

Point Display: Shows detailed information about a selected node including status and diagnostics, alarm history, calibration history and trend, and if applicable the current analog value. To access a devices point display, select the device from the LON schematic by single clicking on it. It will hilight as shown below.



Select the "Point Display" button and the appropriate display will open.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Each device type has a point display that is specific to the information available for its type of field device. In this example, an "Eclipse" infrared hydrocarbon gas detector is selected.

	INPUT TRACKING	The same second second second	ALARM LOGS
100		ALARM 1 06:09:59	01-01-01 High Alarm
90		ALARM 2 12:12:33	07-10-02 Low Alarm
70		ALARM 3 12:12:42	07-10-02 Low Alarm
60		ALARM 4 13:02:20	07-10-02 Low Alarm
50	High	ALARM 5 13:02:20	07-10-02 High Alarm
40		ALARM 6 17:56:59	09-16-02 Low Alarm
30		ALARM 7 17:58:41	09-16-02 High Alarm
20	Low	ALARM 8 10:05:34	09-17-02 Low Alarm
0 40.79 %LEL High	25 30 35 40 45 50 55 60 Alarm: 50.00 Low Alarm: 20.00	RECORD TIME	DATE TYPE
C: Eclipse IR Hydrocarbon Detecto ATION: Port Premier Node 16	Requesting device data 214 DEVIC	E TYPE:Eclipse	TAG:ECL-016
	LON B, Device Offline	Warm-up Open Lamp	Remove
Low Gas Alarm Memory Fault	Com 1 Fault		Inhibit
	Sensor Fault		Reset
Zero Drift	Calibration Active		
	Calibration Fault		
nvalid Configuration Fault	Calibration Fault	-	
		LON A Coun	
Fault Unable to Configure LON A, Device Offline C/	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY		
Fault Unable to Configure LON A, Device Offline C/ BASE 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01:01:00		ter Ext
Fault Unable to Configure LON A, Device Offline C/ BASE 00:00:00 CAL 2 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01-01-00 01-01-00		ter Ext
Fault Unable to Configure LON A, Device Offline C/ BASE 00:00:00 CAL 2 00:00:00 CAL 3 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01:01:00 01:01:00 01:01:00		ter Ext
Fault Unable to Configure LON A, Device Offline CAL 2 00:00:00 CAL 2 00:00:00 CAL 3 00:00:00 CAL 4 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01:01:00 01:01:00 01:01:00 01:01:00		ter Ext
Fault Unable to Configure LON A, Device Offline CAL 2 00:00:00 CAL 2 00:00:00 CAL 3 00:00:00 CAL 4 00:00:00 CAL 5 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01:01:00 01:01:00 01:01:00 01:01:00 01:01:00	*C	
Fault Unable to Configure LON A, Device Offline CAL 2 00:00:00 CAL 3 00:00:00 CAL 4 00:00:00 CAL 5 00:00:00 CAL 6 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01 01 00 01 01 00 01 01 00 01 01 00 01 01 00 01 01 00 01 01 00	*C	
Fault Unable to Configure LON A, Device Offline CAL-2 00:00:00 CAL-2 00:00:00 CAL-3 00:00:00 CAL-4 00:00:00 CAL-5 00:00:00 CAL-6 00:00:00 CAL-7 00:00:00	Low Voltage Fault Dity Optics Internal Comm Fault ALIBRATION HISTORY 01.01.00 01.01.00 01.01.00 01.01.00 01.01.00 01.01.00 01.01.00 01.01.00 01.01.00 01.01.00		ter Ext
Fault Unable to Configure LON A, Device Offline CAL 2 00:00:00 CAL 3 00:00:00 CAL 4 00:00:00 CAL 5 00:00:00 CAL 6 00:00:00	Low Voltage Fault Dirty Optics Internal Comm Fault ALIBRATION HISTORY 01 01 00 01 01 00 01 01 00 01 01 00 01 01 00 01 01 00 01 01 00	*C	

Both configuration and dynamic information for the device is arranged in a logical manner and presented on a full screen template. If the controller is not currently connected and communicating with the S3 station then simulated data will be displayed for the selected point.

CONFIGURATION / COMMAND BAR / POINT DISPLAY

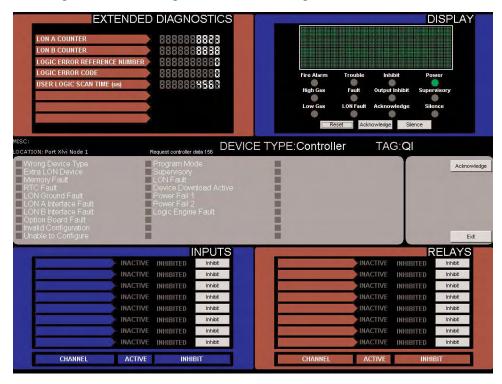
In the example below Node 1, the Controller is selected.



When the "Point Display" button in the command bar is selected a point display template specific to the controller is brought up.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Point displays are very useful in determining the status of the device, for resetting faults, inhibiting functions, checking calibration and alarm his-



tories and in the case of the controller, you can see a mimic of the faceplates scrolling text display.

Point displays are also accessible from the online graphics mode but certain maintenance and diagnostic features are excluded. **Reset Module:** This command forces a selected field device to perform a "soft restart" effectively "rebooting" the field device. This will also reset any latched alarms, faults, outputs, etc.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

The reset command can be sent to a single selected device or a group of devices.

In the example to the right a group of nodes 1-125 was selected from the LON schematic and the reset command issued.

The controller then sent the reset command to the appropriate devices and logged the activity to the "Reset Module(s)" dialog box to provide feedback to the user.

Reset Module(s)	
Connecting to controller. Sending group 1-125 Ending module resetting at 9/17/02 11:42:21 AM	*
Print Dence	Ukay

Download: Sends all configuration data from S3's LON configuration database to the controller. This command must be used after changing the configuration of a node, group of nodes, or controller logic.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

To send configuration data to the devices on the LON, choose

"Download". This will cause S^3 to sequentially download the configuration of all nodes, starting with LON address 1 and ending with the last configured node.

Get RTC: Requests the "Real Time Clock" data from the controller.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

The gateway will return the current date and time, according to its internal clock. Verify this date and time against that of the S^3 station for



accuracy. If it is not the same as the S3 station, use the Set RTC command described later to correct the discrepancy.

LON Diagnostic: Displays a graphic "LON Schematic" displaying dynamic information about the LON and the devices residing on it. The schematic begins with Node 1, the controller, in the upper left corner and a line representing the communication network (LON) running back and forth across and down the screen.



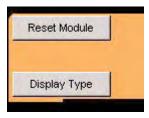
The LON is typically wired as a loop starting and ending at the controller although the schematic does not show this for aesthetic reasons. The end of the LON at the lower right is assumed to connect back to the controller at the top left of the screen.

Each configured device is represented by a rectangle bisected longitudinally with the tag name displayed in the upper section and the node num-

EQP-CTR-001	FGI0-005	IDC-010	H2S-011	EXE-012	UVIR-0
1	5	10	11	12	13

ber (LON address) displayed in the lower section.

Using the "Display Type" button the node number in the lower section can be replaced with the device type.



CONFIGURATION / COMMAND BAR / LON DIAGNOSTIC

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This button is a "toggle" and will change name following activation to indicate what its function will be on its next activation.

	IDC-001	SAM-001	ARM-00
2	IDC	SAM	ARM

Diagnostic data is displayed to two ways on the display, through the color of the rectangle defining each node,

EQP-CTR-001	FGI0-005	IDC-010	H2S-011	EXE-012	UVIR-C
1	5	10	11	12	13

and through indicators and counters at the bottom of the screen.



The LON is typically wired as a loop starting and ending at the controller which has two physical interfaces (transceivers) labeled "A" and "B".

On an intact LON each of these transceivers receives information from all of the field devices at roughly the same time. A nodes proximity to one or the other transceiver along with the propagation delay of long wiring distances and/or network extenders will induce a small time differential. This differential will cause an individual nodes message to be read by either the A or B transceiver first and processed by the controller.

If the last message processed by the controller for a node comes through the "A" transceiver the rectangle representing that node will have a green outline on the diagnostic LON schematic. If it comes through the "B" transceiver its rectangle will be outlined in yellow.

Normal LON: On a healthy LON with good network integrity, message traffic will appear random and each nodes outline color will constantly change without any pattern.

Faulted LON: On a faulty LON with a break in the wiring or other abnormal condition, message traffic may have only one path to the controller. This would be indicated graphically by all of the nodes before the problem changing to one color (green or yellow) and the nodes after the problem changing to the other color. The area where the color transition occurs is most likely the problem area.

In this way the LON diagnostic display can be used to localize LON wiring problems.

In addition to the graphic representation of message traffic on the display, quantitative data is available for diagnostics through indicators and counters.



If a node on the schematic is selected (by single-clicking on its rectangle) the five indicators in the lower left of the screen will show the diagnostic data from the selected node.

To the right of these indicators are LON counters that show message pro-

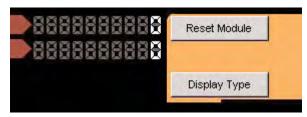
cessing by the controller. On a healthy system the counters should be close to equal. On a system with a degraded network, there may be a significant offset

LON A COUNTER	888888888
LON B COUNTER	B88888888
Requesting device data 67 Tagname: Miscellaneous:	

showing either the "A" or "B" transceiver getting the majority of traffic.

Reset Module: To the right of the LON counters is the "Reset Module"

button. This command forces a selected field device to perform a "soft restart" effectively "rebooting" the field device. This will also reset any latched alarms, faults, outputs, etc.



CONFIGURATION / COMMAND BAR / LON DIAGNOSTIC

Point Address: Allows a node on the LON schematic to be given a different address.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

This is typically used when similar nodes are copied & pasted to preserve a particular set of configuration parameters. After the paste function, the "new" node may have an incorrect address and it must then be changed.

To use this function, select a node by single-clicking on its rectangle. Once the node is hilighted, click on the "Point Address" button and the "Enter new point address" dialog box will appear.

EQP-CTR-001		IDC-010 H2S					ECL-016	UVFD-022		
4	5	10 1	1 12	13	14	15	16	22	24	-
			1700	er new point addre	a k	×				
				1						
				inge 5-250						
			12]						
				1	1					
				OK	Cancel					
						-				
Devices Found	Get Revision	Globals	Point Display	Reset Module		Arrang	e Displa	ау Туре	Paste	
_		-							T able	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC		Сору	F	ind		
Edit	Get Voltages	Outputs	Print	Upload		Delete	New	Device		Exit
						-	_		-	

Enter the desired new node number and the click on the "OK" button.

Set RTC: Sends the current date and time of the S^3 station to the controller synchronizing them. Since the field devices all use the controllers date and time pulse when storing their own alarm and calibration data, it

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

is important that it match the clock used by S3 station for event monitoring and tracking.

Edit: Selecting the "Edit" button displays the detailed configuration data for a single selected node. You can also enter the edit mode for a particular node by double-clicking on the rectangle representing the node on the

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

LON schematic. Below is an example of the controller configuration screen. Detailed examples of node editing, for each device, will be

	P Se P P	aud Rate 115,200 anty None rial Port rotocol Not Use and Hare 13,200 arry None voduce 14	2	Miscellaneous Beeper Volume Allow LDN Po User Para	int Disabling	Option Board Type			
evices Found	Get Revision. Get RTC	Logic Globals LON Diagnostic	Point Display Point Address	Alams Reset Module Set RTC	User Level	Arrange Copy	OK Display Type Find	Paste	

shown in the Premier Device Configuration section of this document.

Get Voltages: Displays 24 vdc supply voltage information for uses such as troubleshooting power distribution problems.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Selecting the "Get Voltages" button will display a graphic LON Schematic upon which S3 will overlay dynamic 24 vdc power supply data from each compatible field device.

ROD-	CTP-001	FGI0-0	05 IDC-0	10 H2S-0.	EXE-012	UVIR-013	SAM-014	ARM-015	ECL-016	UVFD-022	TIR-024	
	1				1.55 12: 23.19	13	14: 23.5		2 16: 22.85	22	24: 24.0	i i
												1
_												
												1
-												
r												
												
_												
												_
								Pri	nt			
								-				
					Write executed							Exit
					Tagname: Miscellaneous:				100 C			EXE
					Miscellaneous:							

Certain previous generation Eagle Quantum field devices may not be compatible with this command.



In the example above nodes 12, 14, 15 and 16 are compatible and display the node address in the lower left with the supply voltage in the lower right. Nodes 13 and 22, a UV/IR and UV optical flame detector do not support this feature and only display their node number.

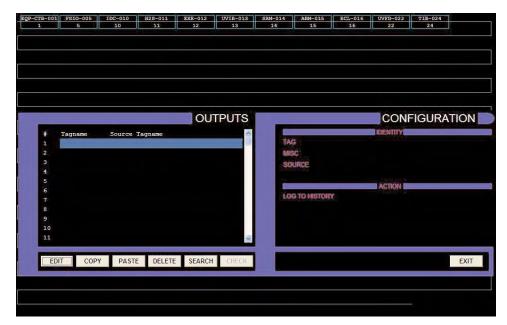
Outputs: Tags linked to commands to be sent to the controller or field devices on the LON via the online graphics system are configured here.

Devices Found	Get Revision	Globals	Point Display	Reset Modul
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

If your system does not include online graphics you may skip this section.

The "user configured buttons" available when in the "online graphics" mode can be used to control certain features of Eagle Quantum Premier hardware. Before the buttons can be configured from the Graphics Editor the "Outputs" must first be configured here. Each "output" is a tag in the DCD database that references a command or controls a memory location within the Premier controller.

Select the "Outputs" button from the command bar to access the configuration screen.



The screen is divided into two sections, Outputs & Configuration. On the left side the outputs pane consists of a scrolling list showing all configured output tags in the database. Below the list are buttons for creating and maintaining the tag list.

On the right side is the configuration pane which will show the details of any selected output from the list.

To create an output, double click on one of the "slots" in the scrolling list or select a slot and click on the "Edit" button below the list.

This will display the "Output Editor" dialog box.

EQP-CTR-001			H2S-011	EXE-012		SAM-014	ARM-015	ECL-016	UVFD-022	TIR-024	
1	5	10	11	12	13	14	15	16	22	24	
		utput Editor Tagname: Visc:	mad							GUR	ATION
# 1 2 3 4 5 6 7 7 8 9 10 11	Tagname	Log to	History	 ● Di ● Gi ● Gi ● Gi ● Gi ● Ci <l< td=""><td></td><td></td><td></td><td>Collaspe All</td><td></td><td></td><td>EXIT</td></l<>				Collaspe All			EXIT
								OK	Cancel		
							-			_	
Devices Found	Get Revision	-		int Display	Reset Module		Arran	ge Dis	play Type	Paste	
Download	Get RTC	LON Diagn	ostic Poi	nt Address	Set RTC		Copy	/	Find		
Edit	Get Voltages	Output		Print	Upload			e Ne	w Device		

The Output Editor provides two data entry fields, the first for entering the Tagname desired for the configured output, the second provides for a "long description" of the tagname function.

Below these two fields is a hierarchal list of "destinations" to tie the output to in the database.

Any item on the list that has a "+" before it has subordinate items and clicking on the "+" will expand the list showing all items that make up that category.

To the right of the list are two buttons that can "Expand" or "Collapse" all subordinate items in the list for easy viewing.

A checkbox in the lower left of the Output Editor dialog box determines whether the configured output will be logged to the history file upon execution. Below is the Output Editor dialog box just after opening. A random, unique tagname is generated by default by S³.

Output Editor		
Tagname: Misc:		
Log to History	 Controller Digital Inputs Global Boolean Global Float Global Integer Global Time/Date IC Boolean IC Float IC Integer IC Integer IC Time/Date LON Relays 	Collaspe All Expand All
		OK Cancel

The firsts twelve items on the list provide access to controller commands and the global database. The "LON" item will allow access to all field device command functions, the "Relays" item is for accessing the controllers onboard relays.

In the example below, the "Controller" item has been expanded by clicking on the "+" sign and now shows three subordinate items, Activate

Acknowledge, Activate Silence and Reset.

As these additional items are revealed, the list extends beyond the bottom and becomes scrolling.

The hierarchal arrangement of items provides an easy and logical method of accessing the thousands of potential items that could be configured as outputs on a large premier system.



Sample output configurations:

Example 1 involves an output to acknowledge an alarm on the controller. With the controller selected and its item list expanded select the "Activate Acknowledge"item.

Output Editor		
Tagname: md		
Misc:		
Log to History	 Controller Activate Acknowledge Activate Silence Reset Digital Inputs Global Boolean Global Double Global Float Global Integer Global Integer IC Boolean IC Double IC Float IC Integer IC Time/Date LON 	Collaspe All Expand All
		OK Cancel

Next, create the Tagname and Miscellaneous comments and select "Log to History" to complete the configuration.

Tagname:	Ack-CTR-0	001					
Misc:	Acknowledge Cmd. to Controller						
I⊽ Logt	o History	 Controller Activate Acknowledge Activate Silence Reset Digital Inputs Global Boolean Global Double Global Float Global Time/Date IC Boolean IC Theat IC Integer 	×	Collaspe All Expand All			
				OK Cancel			

When the configuration is complete, select the "OK" button in the lower right of the dialog box.

The configured output #1 is now displayed both in the output list on the left along with its details displayed in the configuration pane on the right.

_	O	UTPUTS	CONFIGURATION
# Tagname	Source Tagname	~	DENTITY
Ack-CTR-00	01 EQP-CTR-001.Activate Ackno	owledge	TAG Ack-CTR-001
			MISC Acknowledge Cmd. to Controller
			SOURCE EQP-CTR-001.Activate Acknowledge
4			2008-0002-00 Bardon to We Brand State of Physics are 20
5			ACTION
6			LOG TO HISTORY TRUE
8			
9			
10			
11		~	
EDIT COPY	PY PASTE DELETE SEARC	CHECK	EXIT
EDIT COPY	PY PASTE DELETE SEARC	CHECK	

Example 2 involves creating an output to reset an Agent Release Module (ARM) on the LON. This output will be configured in output slot #2.

Double click on the second slot, or single click the slot and select the "Edit" button in the bottom left of the output pane to open the "Output Editor" dialog box.

Output Editor.	·		
Tagname:	FkuPaPaY	IF	
Misc:			
☐ Log t	to History	 Controller Digital Inputs Global Boolean Global Double Global Integer Global Integer Global Time/Date IC Boolean IC Double IC Float IC Integer IC Integer IC Time/Date IC Time/Date Relays 	Collaspe All Expand All
			OK Cancel

Notice that a random tagname has been entered automatically, next select the "LON" item. All field devices will be listed under this item.

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Clicking on the "+" sign left of the "LON" item will expand it revealing the devices on the LON. In this sample program there are only 10 field devices but in typical systems their could be dozens.

Notice that each LON field device has the "+" sign to its left signifying that there are subordinate items associated with them. The number of subordinate items will vary by device type.

Output Editor.			
Tagname:	FkuPaPaYWI	r'	
Misc:			
E Log to) History	IC Double IC Float IC Integer IC Time/Date IC ARM-015 IC ECL-016 IC EXE-012 IF FGI0-005 IDC-010 IDC-010 IDC-010 IDC-010 IDC-010 IDC-010 IDC-010 INP-022 IUVIR-013 IP Relays	Collaspe All Expand All
			OK Cancel

Expand the "ARM-015" item to display its subordinate items. An ARM has only two selections; "Device Removed" and "Reset".

Output Editor.			
Tagname:	FkuPaPaYW	r'	
Misc:			
C Log to	o History	IC Double IC Float IC Float IC Integer IC Time/Date IC Inte/Date IC Integer Device Removed Reset ECL-016 ECL-016 ECL-016 EXE-012 FGI0-005 H2S-011 IDC-010 H2S-011 FGI0-005 H2S-011 IDC-010 H2S-011 H2S-012 H2S	Collaspe All Expand All
			OK Cancel

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Select the "Reset" item from the ARM-015 list, fill in the Tagname and Miscellaneous fields and then select "Log to History" to complete the configuration.

Output Editor.			
Tagname:	Rst-ARM-01	5	
Misc:	Reset Cmd.	to ARM-015	
₩ Log t	o History	 IC Double IC Float IC Integer IC Time/Date LON ARM-015 Device Removed ECL-016 EXE-012 FGI0-005 H2S-011 IDC-010 SAM-014 TIR-024 UVFD-022 	Collaspe All Expand All
			OK Cancel

Then select the "OK" button in the lower right of the dialog box to complete the configurations entry into the database.

			OUTPUTS	1	CONFIGURATION
# 1 2 3 4 5 6 7 8 9 10 11	Tagname Ack-CTR-001 Rat-ARM-015	Source Tagname EQP-CTR-001.Activate ARM-015.Reset	s Acknowledge	TAG MISC SOURCE	IDENTITY Rest-ARM-015 Reset Cmd. to ARM-015 ARM-015 Reset ACTION STORY TRUE
(E	DIT COPY	PASTE DELETE	SEARCH CHECK		EXIT

This completes the configuration of the first two output "slots".

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Example 3 involves creating an output to initiate a manual Optical Integrity (Oi) test on a UV/IR optical fire detector. This output will be configured in output slot #3.

Output Editor.			
Tagname:	01-UVIR-01	3	
Misc:	Manual Oi	Test UVIR-013	
F⊽ Log to	o History	- IC Integer - IC Time/Date - LON	Collaspe All Expand All
			OK Cancel

Above is the output editor dialog box with "UVIR-013" expanded, "Start Manual Oi Test" selected, and the Tagname and miscellaneous fields filled out.

Notice that the UVIR detector has three subordinate items instead of two as in example 2 with the ARM module.

		OUTPUTS	-	CONFIGURATION
+	Tagname	Source Tagname		IDENTITY
	Ack-CTR-001	EQP-CTR-001.Activate Acknowledge	TAG	Oi-UVIR-013
	Rst-ARM-015	ARM-015.Reset	MISC	Manual Oi Test UVIR-013
	Oi-UVIR-013	UVIR-013.Start Manual Oi Test	SOURCE	UVIR-013.Start Manual Oi Test
4				
5				ACTION
6			LOG TO H	
8				
10				
11				
		×		
-			1	
E	DIT COPY	PASTE DELETE SEARCH CHECK		EXIT

The three examples for output tags are now complete and the configuration information is displayed on the "Outputs Configuration" screen. **Output Configuration Screen Details:** The left had pane uses a scrolling list with three columns to display the configured outputs and allow for their editing.

#	Tagname	Source Tagname
1	Ack-CTR-001	EQP-CTR-001.Activate Acknowledge
2	Rst-ARM-015	ARM-015.Reset
3	Oi-UVIR-013	UVIR-013.Start Manual Oi Test
4		
5		
б		
7		
8		
9		
10		
11		

The first column "#" contains the slot number for the outputs in the database. In the example above, the first three slots are configured.

The second column contains the "Tagname" that is used within the database to identify the item. This tagname will be used throughout the S^3 environment, and specifically within the graphic editor when assigning these outputs to user configured buttons.

The third column "Source Tagname" displays the tagname of the device that the output is associated with followed by the command function. In the hilighted example of slot 3 above, the source is UVIR-013 and the command function is "Start Manual Oi Test". This is then represented in the output list as;

UVIR-013.Start Manual Oi Test

The six buttons at the bottom of the Outputs pane perform the following functions:



Edit: Opens the "Output Editor" dialog box to allow an output to be configured for slot selected.

Copy: Allows a selected slots configuration to be copied for pasting into another slot to speed up the configuration of similar outputs.

Paste: Used with "Copy" above, allows a copied slots configuration to be pasted into the selected slot to speed up the configuration of similar outputs.

Delete: Immediately and permanently deletes a slots configuration. This function is not "reversible" so use with caution.

Search: Since thousands of outputs can be configured, the search function allows for locating matching text strings to quickly find a desired slot for viewing or editing.

Check: Primarily used following editing of the LON configuration to verify that all configured outputs are still linked to a valid items in the database.

Print: Allows for the select printing of configuration information for the controller, field devices and database for documentation purposes.

Devices Found	Get Revision	Globals	Point Display	Reset Modul
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Note: This command will send the selected configuration data to the default Windows printer, not the alarm & event printer.

Once the "Print" button on the command bar is selected the print selection dialog box will open.

EQP-CTR-001			-011 EXE-01							
1	5	10 1	1 12	13	14	15	16	22	24	
		21							and a	
	0									
	Salact	the points to prin	No.							
	Jelect	the points to prin	Le ce							
	LON			Outputs		Glob	als			
		ARM-015		Ack-CTR-001			MCOP-FA001			
		ECI-016		0i-UVIB-013			MCOP-PDA-1			
-		EQP-CTR-001 EXE-012		Rst-ARM-015						
		FGID-005								
		H2S-011								
		IDC-010								
		SAM-014 TIR-024								
		UVFD-022								
		UVIR-013								
		-		1						
		Select All De	select All	Select All	Deselect All		Select All	Deselect A		
		<u>[]</u>								
									_	
		Ouput to PDF		OK	Cancel					
						1				
									240	
Devices Found	Get Revision	Globals		Reset Module				1 -	0.1	
Devices Found	Get Revision	Globals	Point Display	Reset Module		Arran	nge Di	splay Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC		Cop	v	Find		
1000 C 1000		-					-			-
Edit	Get Voltages	Outputs	Print	Upload		Dele	te N	ew Device		Exit
		-								

The dialog box is divided into three main selection areas, LON, Outputs, and Globals. All configured items for each category are displayed along with a checkbox to select the items data for printing.

At the bottom of each column are "Select All" and "Deselect All" buttons to aid in the rapid selection of data to print.

Optionally, the data can be output to a "PDF" format by using the checkbox in the lower left of the dialog box. **Upload:** Queries the controller for its configuration and if a complete configuration was properly stored, it will be uploaded and saved to a user selected project name. The current project will not be changed.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

CAUTION: USING THE UPLOAD COMMAND WILL COMPLETE-LY REPLACE ANY EXISTING CONFIGURATION FOR THE ACTIVE PORT.

The "Upload" command is typically used when attaching an S^3 station to an existing system for which there is no existing database on the S^3 station.

CONFIGURATION / COMMAND BAR / UPLOAD

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CONFIGURATION / COMMAND BAR / UPLOAD

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CONFIGURATION / COMMAND BAR / UPLOAD

Configuration Bar: The configuration bar has eight buttons, each of which is used in the configuration of the LON and creation of LON devices.

Paste	Display Type	Arrange
	Find	Сору
	New Device	Delete

Configuration Bar Feature Definitions

Arrange: This button allows the re-arrangement of the nodes on the LON schematic for the purpose of matching the physical and logical order of the network.

	Reset Module	Arrange	Display Type	Paste	
s	Set RTC	Сору	Find		
1	Upload	Delete	New Device		Exit

This must be done to optimize the functionality of the LON diagnostic screen.

QP-CTR-001		DC-010 H2S-			SAM-014	ARM-015	ECL-016	UVFD-022	TIR-024	
	5	10 1.	1 12	13	14	15	16	22	24	
									-25	
evices Found	Get Revision	Globals	Point Display	Reset Module		Norma	il Displ	ay Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC		Copy		ind		
							-			
Edit		Outputs	Print	Upload		Delete	B New	Device		

On the example network schematic shown above the node order is shown numerically. Node 1 being the controller, followed sequentially by nodes

CONFIGURATION / CONFIGURATION BAR / ARRANGE

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5, 10, 11, 12etc. In the plant, it's entirely possible that "Node 5" may wire to "Node 20" and the overall order could be 1, 5, 20, 21, 23 ... etc.

	FGI0-005 I						L-016 UVFD-0		
1	5	10 1	1 12	13	14	15	16 22	24	
Devices Found	Get Revision	Globals	Point Display	Reset Module:		Normal	Display Type	Paste	
Download	Get RTC		Point Address	Set RTC			Find	1.000	
		LON Diagnostic				Сору			
Edit		Outputs	Print	Upload		Delete	New Device		

The "Arrange" button allows you to move the location of the nodes on the schematic representing the LON to match the actual way the LON is wired in the field. This is an important step for ease of future LON troubleshooting.

To use the "Arrange" function, click on the button and drag the nodes

into their desired locations. To move a node, click and drag it over the area between the two nodes where you would

Arrange	Display Type	Paste	
Сору	Find		
Delete	New Device		Exit

like it to be, then release the mouse button. The node will then be moved to this location but retain its original address.

When the physical and logical addresses have been reconciled, select the

"Normal" button to return to the standard LON configuration screen.

Normal	Display Type	Paste	
Сору	Find		
	New Device		Esuit

Display Type: A "toggle button" that allows either the default Node Number to be displayed on the LON schematic, as shown in the example below, or the device type.



When the "Display Type" button is selected, the LON schematic will substitute the device type for the node number, as shown below.

When the device type is being displayed, the button on the configuration

bar will toggle to say "Display Number", and when selected shifts the LON schematic display back to the default Node Number view.

	IDC-001	SAM-001	ARM-00
2	IDC	SAM	ARM

Copy: Used in conjunction with the "Paste" command, "Copy" allows a nodes configuration to be duplicated elsewhere on the LON while retaining the configuration data.

у	Reset Module	Arrange	Display Type	Paste	
s	Set RTC	Сору	Find		
	Upload	Delete	New Device		Exit

This is very useful when there are to be many nodes of the same type and configuration on a LON. The detailed configuration only needs to be done once, then copy and paste as many as needed with only the new nodes tag name and address needing to be manually entered.



To copy a node select it by single clicking on the device then choose the "Copy" button. The "Paste" button will produce a new device with all of the configuration from the copied node, just enter the new tag name and miscellaneous text.

CONFIGURATION / CONFIGURATION BAR / VARIOUS

Find: Displays a dialog box that allows the configuration database to be searched for specific types of field devices, a specific node address, or specific text.

	Reset Module	Arrange	Display Type	Paste	
	Set RTC	Сору	Find		
1	Upload	Delete	New Device		Exit

The "Find" button will open the "Find all..." dialog box which provides radio buttons to select a device type, and fields for either a LON address or text from either the tagname or miscellaneous text.

elect	
C Agent Release (ARM)	C 8 Point Relay
CCTV	C Initiating Device Circuit (IDC)
C Controller	C Power Supply Monitor
C DCU	G Signal Audible Module (SAM)
C Eclispe (Point Infared)	C Single Frequency Infared
C 8 Point Analog Input	C UV Detector
C 8 Point DCIO	C UV/IR Detector
C 8 Point Pulse Input	C X3301
C Point Number:	-
• Text	
Searches tag	names and miscellaneous text

Items found matching the search criteria are highlighted in blue on the LON schematic.

This is particularly useful when trying to find a specific tag name on very large systems with hundreds of points.

Delete: Removes a selected node from the LON configuration.

iy 🛛	Reset Module	Arrange	Display Type	Paste	
55	Set RTC	Сору	Find		
1	Upload	Delete	New Device		Exit

Select a node or multiple nodes on the LON Schematic and then select the "Delete" button to remove them from the database.

EQP-CTR-001		IDC-010 H2S-			SAM-014	ARM-015	ECL-016	UVFD-022		
1	5	10 1.	1 12	13	14	15	16	22	24	
							1			
			Warning	-						
			A	re you sure you want	to delete the sel	ected point(s)?				
			- <u>^</u> ^							
				Yes	Cancel		-			
				Les	Cancer		_			
									_	
evices Found	Get Revision	Globals	Point Disblay	Reset Module		Arrang	e Disn	av Type	Paste	
	Get Revision	Globals	Point Display	Reset Module		Arrang		lay Type	Paste	
evices Found Download	Get Revision Get RTC	Globals LON Diagnostic	Point Display Point Address	Reset Module Set RTC		Arrang Copy		lay Type Find	Paste	

Use this function with caution as it does not have an "undo"!

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New Device: Opens the "Select Point Type" dialog box from which you can choose the type of new device to add to the LON.

1	5	10 1	1 12	.13	14	15	16 22	24	
			elect point type						
			Device Types						
				elease (ARM)	C them de				
			C (0)		 Initiating D 	evice Circuit (IDC)			
			C Loonali		C Power Sup	ply Monitor			
			C DCU		Signal Aud	ible Module (SAM)			
			C Eclipse	Point Infared)	C Engelsen				
			C Diam		C UV Detecti	7			
			C 8 Chann		C UV/IR Det				
						ector			
		_	(C) : 10:00		C X3301		_		
				OK	Cancel		-		
					Curico				
_						è			
vices Found	Get Revision	Globals	Point Display	Reset Module		Arrange	Display Type	Paste	
	and with the second second	LON Diagnostic	Point Address	Set RTC		Сору	Find		
Download	Get RTC	LON Diagnostic	Point Address	SETRIC		Copy			

In the example above, "Initiating Device Circuit (IDC)" has been selected.

At this point, selecting the "OK" button would add an IDC to the LON, just after the last configured device.

At this point, the configuration dialog box for the selected point type is displayed. This dialog box provides access to all of the programmable parameters for the selected device type. The detailed configuration instructions for each device type is covered in a later chapter.

EAGLE QUANTUM PREMIER 14-1



Controller: The "Controller" is the first device on any Eagle Quantum Premier Local Operating Network (LON). This device is used performs the user logic, provides the NFPA-72 required operator interface elements and provides a communication interface to the S³ Operator Interface Station (OIS) and/or other intelligent systems for monitoring purposes.

Both the user logic and the configuration for all of the LON devices is first created and stored in the S³ configuration database, then downloaded to the Controller, which in turn downloads this information to the field devices where it is stored in their non-volatile memory.

A copy of the configuration data is also stored in the Controllers own non-volatile memory.

When an Eagle Quantum Premier port is first created, the LON schematic is empty except for a "node rectangle" representing the Controller, as shown in the example to the right.

Tl	1
Single	

The node rectangle is divided in half horizontally with the tag name in the top and controller configuration in the bottom. S³ has assigned "T1" as a temporary tag name. This tagname is randomly generated.

DEVICE CONFIGURATION / CONTROLLER

14-2 EAGLE QUANTUM PREMIER

This is replaced by the user assigned tag name as described in the "Point Configuration • Common Settings" section of this users guide. The bottom half will contain the controller configuration default of "Single" signifying a single "non-redundant" arrangement.

Configure a Controller: To begin controller configuration, double-click on its selection rectangle or single-click on the selection rectangle and choose the "Edit" button in the lower left position of the command bar. This opens the "Configure a controller..." dialog box which provides access to all of the user configurable features of the controller, including access to the logic editor.

Tagname:	T1			
Misc:				-
MISC.				
		Detector Electronic	cs Eagle Quantum Premier	
Configuration	Port	Serial Port 1	Inputs / Relays	Option Board
		Protocol Not Used 💌		Type None 💌
Baud Rate	115,200 💌	Baud Rate 19,200 -	Inputs Relays	
Parity	None			ControlNet The Primary
		Address 1		
Redundancy		Miscellaneous		
		Beeper Volume High		
ſ	Enable			
		User Parameters		
Communicatio	on Option Board	Serial Port 2	Serial Port 3	Serial Port 4
Туре	None	Protocol Not Used	Protocol Not Used	Protocol Not Used
Type		Baud Rate 9600	Baud Flate 9600 r	Baud Rate 9600
1 ype			Parity None -	Parity None 💌
		Parity None 💌		
		Address 1	Address 1	Address 1
	I Port 3 for Downloading		Address	

Note:

This chapter of the user guide deals with the hardware configuration of the controller only. Logic creation is covered in chapter 18.

Tagname: This field provides room for a 24 character tagname which will be used to reference the controller throughout the S^3 global database. This tagname is used in the graphic editor, online graphics, logic editor, OPC server, and all printed documentation. Upon device creation in the database S^3 assigns a randomly generated tagname.

Misc: The "Miscellaneous" field provides room for an optional 32 character description to be used as desired.

CONTROLLER

EAGLE QUANTUM PREMIER 14-

Redundancy: The EQP system supports either a simplex (Single) or redundant (Dual) configuration. This selection is displayed in the lower half of the rectangle representing the controller.

If a redundant arrangment is to be used, two identical controllers are hooked up in parallel. On a failure of the primary the "Hot-Standby" unit would take over without interruption.

Redundancy configuration: If redundancy is to be used, "Enable" this feature with the redundancy checkbox, and then select "Type-A" from the pull down menu for "Communication Option Board". The "Type-A" option board is required to support redundancy and also provides an additional three serial ports for user configuration.

Configuration		Se
comparator	iron	P
Baud Rate	Lane Lane	
Parity	None	
		1
Redundancy		Mi
	Enable	
		-
Communicati	on Option Board	Se
Туре	None	26
1,100	11000	
		9
E Per		ē
		1

Configure a contr	roller			
Tagname: T	1			
Misc:				
		Detector Electronics	Eagle Quantum Premier	
Configuration Port		Serial Port 1 Protocol Not Used	Inputs / Relays	Option Board
Baud Rate 115	5,200 -	Baud Rate 19,200 💉	Inputs Relays	Type None 💌
Parity Nor	ne 💌	Parity None		ControlNet Primary Mac Address N/A Secondary
Redundancy		Miscellaneous		
		Beeper Volume High		
⊽ Er	nable	User Parameters		
- Communication Op	tion Board			
		Serial Port 2	Serial Port 3	Serial Port 4
Туре Тур	eA 💌	Protocol Not Used	Protocol Not Used Bacd Rate 9600	Protocol Not Used Baud Rete 9600
		Party MODBUS Slave MODBUS Master	Panty None	Parity None
🔽 Senal Port		Address 1	Address 1	Address 1
Logic		Alarms	User Level	ОК

Serial Ports: The Eagle Quantum Premier Controller supports up to six serial ports. Two on the motherboard; one for configuration and a second for Modbus communications. Four on the option board; one for redundancy and three for Modbus.

(Note: one of the option ports can be used for configuration.)

CONTROLLER / CONFIGURATION PORT

Configuration Port: This motherboard port is used to connect to an S³ workstation to perform configuration, diagnostics and troubleshooting. It utilizes a proprietary protocol unique to the EQP controller and S³ software package and cannot be used by other devices. The configuration port uses the RS-232 standard and it has two configurable parameters;

baud rate and parity.

Baud Rate: The port speed can be adjusted in standard intervals between a high speed of 115,200 baud which is both the default setting and the recommended setting, and, a low speed of 2,400 baud. Lower speeds are not recommended but sometimes required if the controllers location is too far from the S³ workstation to support the recommended speed.

Parity: The parity setting for the controllers configuration port defaults to "None" but it can also be adjusted to either "Even" or "Odd".

	Detector Elec	tronics Eagle Qua
Configuration Port	Serial Port 1	Inputs / F
	Protocol Not Used	•
Baud Rate 115,200 💌	Baud Rate 19,200	<u> </u>
Parity None 💌	Parity None	
	Address 1	
Redundancy	Miscellaneous	
	Beeper Volume High	-
I Enable	beeper volume righ	-
	User Parameters	
	-	
Communication Option Board	Serial Port 2	Serial Po
Туре Туре А 💌	Protocol Not Used	▼ Protoco
	Baud Rate Not Used	Baud R
	INODUUS SIAVO	
	Parity MODBUS Maste	er Panty
Senal Port 3 for Downloading	Parity MODBUS Mast	Panty Address

There are no other adjustable parameters for the configuration port.

Serial Ports 1-4: These ports can be used for communication with a host device such as a users Distributed Control System (DCS), Programmable Logic Controller (PLC) or Human Machine Interface (HMI).

Ports 1 and 4 uses the RS-485 standard, 2 and 3 use the RS-232 standard. Each have four configurable parameters; protocol, baud rate, parity and address.

Protocol: This serial port currently supports the Modbus RTU slave protocol and the pop-up menu allows the selection of either "MODBUS Slave" or "Disabled". Port 3 can also be set as a configuration port.

Baud Rate: The motherboard ports speed can be adjusted in standard intervals between a high speed of 115,200 baud and a low speed of 2,400

baud. 19,200 baud is both the default setting and the most commonly used setting for connection to Modbus compliant devices. Ports 2-4 on the Type-A expansion board have a speed range of 9,600 to 230,400 bps.

Parity: The parity setting for the controller's configuration port defaults to "None" but it can also be adjusted to either "Even" or "Odd".

Address: The address field is for entering the desired Modbus station address. The default value is "1" and it can be changed by using the "up/down" arrows or direct entry of a value.

The Modbus station address must be in a range from 1 to 247.

Miscellaneous: This section of the "Configure a controller..." dialog box has three adjustable parameters; setting of the controller's built in "beeper" volume, LON point disabling and access to the user parameter editor.

Beeper Volume: The Eagle Quantum Premier controller has an integral "Beeper" to annunciate a variety of conditions and to meet regulatory requirements.

Configure a controller		
Tagname: T1		
Misc:		
	Detector Electronics	Eadle Quan
Configuration Pot Baud Rate 115,200	Serial Port 1 Protocol Not Used Baud Rate 19,200	Inputs / Rela
Parity None 💌	Parity None	
Redundancy	Miscellaneous Beeper Volume High 💌 User Parameters	
Communication Option Board	Serial Port 2	Serial Port 3
Туре Туре А 💌	Protocol Not Used Baud Rate Mot Used MODBUS Slave MODBUS Master	Protocol Baud Rate Parto
Senal Port 3 for Downloading	Address 1	
Logic	Alarms	User Level

To accommodate the controller being mounted in areas with different amounts of ambient noise the beeper can be adjusted to any of three settings; Low, Medium and High, via a pop-up menu. The default value is "Low" which is suitable for installations where the controller is not in a separate enclosure and is in a control room / office type environment.

Allow LON Point Disabling: This checkbox selection determines whether or not field devices can be "Disabled" via software command for maintenance or diagnostic purposes.

This feature is enabled by default.

User Parameters: This button opens the "User Parameters..." dialog box allowing for their values to be set.

		_				
Tagname:	EQP-CTR-00	User Par	amet	ers		
Misc:	Eagle Quan		#	Parameter		
MISC.	Inagre Quan		1	0		
			2	0		
			3	0		10.1
Configuration			4	0		'Relays
Baud Rate	115,200		5	0		Inputs Relays
Parity	None		6	0		
0.110.1			7	0		
Serial Port			8	0		Board
Protocol	MODBUS Slave		9	0		None
Baud Rate	19,200		10	0		
Parity	None		11	0		Net 15
Address	1		12	0		ress
			13	0		
			14	0		
			15	0		
			16	0		
			-			
			ſ	OK Cancel	-	
Logic		-			-	OK

These parameters are intended for use in special applications utilizing the Allen-Bradley ControlNet interface option.

The use of these parameters is described in the users guide for the ControlNet option module.

In general applications, these parameters should be "0".

CAUTION Do not make adjustments to the settings of these parameters unless you have detailed knowledge of their operation.

WARNING

Inappropriate use of these parameters could cause unintended results in controller operation.

CONTROLLER / USER PARAMETERS

Inputs / Relays: The Eagle Quantum Premier controller provides eight unsupervised digital inputs and eight unsupervised relay outputs. This I/O can be configured to perform pre-assigned "Static Logic" functions or they can be configured at the users discretion for any desired purpose.

L	letector Ele	ctronics	Eagle Quantum I	Premier	
Serial Port 1			Inputs / Relays		
Protocol	Not Used	•			т
Baud Flate	19.200	1	1		
Parity	None	1	Inputs	Relays	M

All sixteen of these I/O points are accessible by the controller's user programmable logic.

Inputs: Selecting the "Inputs" button will open the "Controller Input Editor..." dialog box. By default the "Static Logic" functions for each point is disabled and each point is unnamed.

Tagname	Description	Static Logic	Static Logic	Static Logic Name
Reset		Enabled 🔀	Inverted	Reset
Ack		X		Acknowledge
Silence		X		Silence
Extra				N/A
Enter		X		Enter
Cancel	*****	X		Cancel
Next		X		Next
Previous		X		Previous

The functions of the static logic functions are self explanatory and mirror the functionality of the controller's faceplate buttons.

Inputs continued...

The primary reason for this feature is to accommodate instances where the controller must be mounted inside another enclosure and the faceplate buttons are brought through the door to allow operation while inside. Typically a window allows viewing of the controller's faceplate.

Tagname	Description	Static Logic Enabled	Static Logic Inverted	Static Logic Name	
Reset		X		Reset	
2 Ack		×		Acknowledge	
3 Silence		×		Silence	
t Extra				N/A	
5 Enter		×		Enter	
Cancel		×		Cancel	
7 Next		×		Next	
Previous		X		Previous	

Each point can be logically "inverted" by using the checkbox in the "Static Logic Inverted" column.

If the use of "Static Logic" is required, use the appropriate checkbox to enable this feature on a point-by-point basis and enter a tagname and description appropriate to the desired function(s).

Relays: Selecting the "Relays" button will open the "Controller Relay Editor..." dialog box. By default the "Static Logic" functions for each point is disabled and each point is unnamed.

Tagname	Description	Static Function Enabled	Normally Energized	Static Function Name
Fire Alarm		X		Fire Alarm
Supervisory		X		Supervisory
Low Gas		X		Low Gas Alarm
High Gas		X		High Gas Alarm
Inhibit		X		Inhibit
Output Inhibit	·····	X		Output Inhibit
LON Fault	· · · · · · · · · · · · · · · · · · ·	X		LON Fault
Beeper		X		Beeper

The functions of the static logic functions are self explanatory and mirror the functionality of the controller's faceplate LEDs and beeper.

CONTROLLER / INPUTS AND RELAYS

If the use of "Static Logic" is not required, use the appropriate checkbox to enable this feature on a point-by-point basis and rename the function(s).

Options Board: The Eagle Quantum Premier controller is designed to be expandable and is provided with a slot for an add on circuit board.

Selecting the "Type" pop-up menu will display the available options.

If no expansion board is installed select "None"

If the "ControlNet" expansion board is selected the "ControlNet Mac Address" field will activate allowing data entry.

The ControlNet option provides redundant communications with Allen-Bradley (or compatible) products that support this ControlNet.

uantum Premier	
/Relays Inputs Relays	Option Board Type ControlNet ControlNet Mac Address 2 Secondary
Port 3 col S ³	Serial Port 4 Protocol MODBUS Slave 💌

The ControlNet Mac address can be set in a range from 1 to 99.

Configure a controller continued...

Across the bottom of the "Configure a controller..." dialog box there are four buttons; Logic, Alarms, User Level and OK.

Logic	Alarms	User Level	ОК

Logic: This button launches the S³ Logic Editor for the Eagle Quantum Premier controller. This feature is covered in detail in Chapter 18.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the controller that can be configured to be monitored by S^3 . The controller has 75 alarms and events that can be monitored, some of which are disabled by default. Alarm and event monitoring is covered on the next page.

User Level: Allows user levels to be set on a variety of controller features for security. Assign an appropriate user level to each item in the list. For details in user level settings refer to Chapter 9.

User Level Editor		
Button Action	User Level 🛛 🔺	ays
Acknowledge		s Relays
Reset	0	- Troidys
Silence	0	
- Inhibit Input 1	0	1
Sla Inhibit Input 2	0	ControlNet 👻
Inhibit Input 3	0	
Inhibit Input 4	0	and the second sec
	0	15
	0	
Inhibit Input 7	0 🗸	
	av 1	
	UK Lancel	
	Acknowledge Reset Silence Inhibit Input 1 Sla Inhibit Input 2 Inhibit Input 3	Button Action User Level Acknowledge Image: Comparison of the section

OK: Closes the "Configure a controller..." dialog box when finished.

CONTROLLER

EAGLE QUANTUM PREMIER 14-11

ALARMS & EVENTS

Enabled Name		Printer	File	Window	Auto				Graphic	Miscellanous	~
× File Ave		1. 22			Clear	Sound	Active Color	Normal Color	Trigger Group		
A REAL PROPERTY AND INCOME.		X	X	X		Warning	Red	Green	None	Fire Alarm	
Troubl	le	X	X	X		Warning	Red	Green	None	Trouble	
First S	can	X	x	X		Warning	Red	Green	None	First Scan	
EX High G	Sas Alam	X	x	X		Warning	Red	Green	None	High Gas Alarm	
Low G	ias Alam	x	x	x		Warning	Red	Green	None	Low Gas Alarm	
Ackno	wiedge (LED State)	X	x	x		Warning	Red	Green	None	Acknowledge (LED State)	
Silence	e (LED State)	x	x	x		Warning	Red	Green	None	Silence (LED State)	
Progra	am Mode	X	x	X		Warning	Red	Green	None	Program Mode	
Ackno	wiedge Button	X	x	x		Warning	Red	Green	None	Acknowledge Button	
Silence	e Button	X	x	x		Warning	Red	Green	None	Silence Button	
Reset	Button	X	x	x		Warning	Red	Green	None	Reset Button	
IX Super	visory	X	x	x		Warning	Red	Green	None	Supervisory	~

Every field device on the LON as well as the controller have a device specific set of alarms and events that can be configured for the S³ DCD to track. This data is made available by the DCD to the S³ Online Graphics program and OPC Server.

Although the number and type of events vary from device to device, the methodology for the configuration of these items is the same and will be covered in detail only once.

In the descriptions for configuring each type of field device any unique attributes pertaining to that devices event tracking will be presented.

ALARMS & EVENTS

Alarms: Allows for the configuration of the alarm and event monitoring for the device. These alarms and events are used by the S³ Online Graphics program and OPC Server.

Clicking on the "Alarms" button will open the "Alarms to Monitor..." dialog box. Below is an example of the controller's event configuration.

Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	^
x	Fire Alarm	X	X	X		Waming	Red	Green	None	Fire Alarm	
x	Trouble	X	x	x		Warning	Red	Green	None	Trouble	
	First Scan	x	x	x		Warning	Red	Green	None	First Scan	
x	High Gas Alarm	x	X	x		Warning	Red	Green	None	High Gas Alarm	
x	Low Gas Alarm	x	X	X		Warning	Red	Green	None	Low Gas Alarm	
	Acknowledge (LED State)	X	X	x		Warning	Red	Green	None	Acknowledge (LED State)	
	Silence (LED State)	x	X	x		Warning	Red	Green	None	Silence (LED State)	
	Program Mode	X	X	x		Warning	Red	Green	None	Program Mode	
	Acknowledge Button	X	x	X		Warning	Red	Green	None	Acknowledge Button	
	Silence Button	x	X	x		Warning	Red	Green	None	Silence Button	
x	Reset Button	X	X	X		Warning	Red	Green	None	Reset Button	
×	Supervisory	X	x	x		Warning	Red	Green	None	Supervisory	
	Match all rows to the top row>	м	М	м	м	м	м	м	м		

The dialog box is a scrolling list with eleven attribute columns. There are four buttons running horizontally across the bottom of the window; Custom, Factory, OK and Cancel.

Defaults Custom Factory

Custom: Selecting this button will replace all of the names with those in the second language database. Refer to "Strings" in the preferences section of this users guide. Chapter 6.

OK

Cancel

Factory: Restores the factory default values to <u>ALL</u> fields and settings.

OK: Closes the dialog box and stores changes in the configuration to the database.

Cancel: Closes the dialog box without storing changes.

In addition to these buttons, eight columns have a "M" button at the bottom of the column. This will "Match" every row in that column to the value or setting in the top row. The eleven columns in the "Alarms to Monitor..." dialog box are defined below.

arms to	Monitor										Ľ
Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	^
X	Fire Alarm	X	x	x		Warning	Red	Green	None	Fire Alarm	
X	Trouble	X	X	X		Waming	Red	Green	None	Trouble	

Enabled: Turns an event on or off. If disabled, no other settings do any-thing.

Name: This 48 character field is used to describe the event or alarm. This is the text that will be used and recorded throughout the S^3 applications suite when the event occurs.

Printer: When selected, sends the event to the S³ event printer.

File: When selected, sends the event to the "Alarm History" module of S^3 for storage in the daily log.

Window: When selected, sends the event to the "Active Alarms" module of S^3 . This module is accessed via the F6 key when online. It will also be displayed in the single line FIFO display at the bottom of the screen when in the Online mode. Refer to Chapter 3.

Auto Clear: This selection determines whether the logged event will track the real time occurrence of the event or when the operator acknowl-edgement is factored in.

If the AC checkbox is <u>not</u> selected, which is the default, when an event occurs it will be logged to the appropriate locations, as configured by the Printer, File, Window selections, with the date and time of occurrence. When the event returns to its normal state, nothing will happen until the operator activates the "Acknowledge" button. The system will then log the date and time of the event returning to "Normal". In reality it's logging the first time the operator activates the Acknowledge button <u>after</u> the event has returned to normal.

If the AC checkbox <u>is</u> selected, when an event occurs it will be logged to the appropriate locations, as configured by the Printer, File, Window selections, with the date and time of occurrence. When the event returns to its normal state, the system will then log the date and time of the event returning to "Normal".

ALARMS & EVENTS

Alarms to Monitor continued...

Alarms to Monitor										
Enabled Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	^

Sound: Each event may have a sound attached to it which plays when the event occurs, until the Acknowledge button is actuated. The sound

Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanou
X	Fire Alarm	X	X	X		Warning -	Red	Green	None	Fire Alarm
x	Trouble	X	X	x		None Warning 2	Red	Green	None	Trouble
	First Scan	X	X	x		3	Red	Green	None	First Scan
x	High Gas Alarm	X	X	×		5 6 7	Red	Green	None	High Gas A
x	Low Gas Alam	X	X	x		8	Red	Green	None	Low Gas Ala
	Acknowledge (LED State)	X	X	X		10 11 12	Red	Green	None	Acknowledg
	Silence (LED State)	X	X	X		13 14	Red	Green	None	Silence (LE
	Program Mode	X	X	x		15 Naming	Red	Green	None	Program Mo

can be the default "Warning" or any of sixty three custom sounds. Use the pull down menu to select the desired sound.

Active Color / Normal Color: You can select one of four different colors for recording when events become "Active" or return to "Normal".

Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanou
×	Fire Alarm	X	X	X		Warning	Red 💌	Green	None	Fire Alarm
x	Trouble	×	X	X		Warning	Black Blue Red	Green	None	Trouble
	First Scan	×	X	x		Waming	Green Red	Green	None	First Scan

These color selections are made from the pull down menu located to the right of the event name. The color selections apply to both printed and screen presentations of the event. In the example above, the event will be shown in Red when active and Green when it returns to normal.

ALARMS & EVENTS

Graphic Trigger Group: Determines how the event will be classified to the S³ Online Graphics application.

Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanou
X	Fire Alarm	X	X	X		Warning	Red	Green	None 💌	Fire Alarm
x	Trouble	×	X	X		Warning	Red	Green	Alarm Fault	Trouble
	First Scan	×	X	X		Warning	Red	Green	None	First Scan

When a system is being configured that utilizes "Online Graphics" the graphic trigger configuration for each event determines how the symbol representing the device will respond when ever it changes state.

Each Eagle Quantum device has four potential states. Listed in order of increasing precedence they are; Normal, New Fault, Fault, New Alarm, Alarm.

Each of these states can have a color combination assigned to the symbol representing a field device in the online graphics. This is done within the graphic editor, described in Chapter 11.

The key to this capability resides in the configuration of the event into the appropriate trigger group of None, Alarm or Fault.

Use the pop-up menu to select the appropriate trigger group for each device.

Miscellaneous: This field always shows the factory default description for the event. This is helpful in checking custom settings to ensure translation or assignment accuracy.

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ALARMS & EVENTS

EAGLE QUANTUM PREMIER 14-17



The EQ2500ARM Series Agent Release Module (ARM) is located on the LON/SLC and provides agent release capability for the Eagle Quantum Premier system.

The device is controlled by programmable logic in the Controller and can be used for "Single," "Cross" or "Counting" Zone Style initiation.

Optional time delay, abort and manual release sequences allow the output to be programmed for use in unique applications.

Tagname:	DH-DO-015				
Misc:	Agent Rele	ase Module			
		Mode Control Squib Timed Continuous Non-Latching	Release Time 0 0 = Continuous 1 - 32,767 Seconds Used only with timed mode.		
	Alarms	User Level	Set Defaults	ОК	Cancel

The Agent Release Module can monitor and control two output devices (rated for 24 vdc), which are energized together.

The release circuits are compatible with a variety of solenoid or initiator (squib) based suppression systems.

The release circuit is supervised for open circuit conditions. If a trouble condition occurs (open circuit or solenoid supply voltage less than 19 volts), it will be indicated at the controller.

Mode Control: ARM outputs can be latching or non-latching. Non-latching follows the condition of the user programmed logic. Latching requires a reset of the controller.

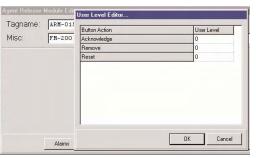
Agent Release	Module Editor.				
Tagname:	DH-DO-015				
Misc:	Agent Relea	ase Module			
	Alarms	Mode Control Squib Timed Continuous Non-Latching	Release Time 0 0 = Continuous 1 - 32,767 Seconds Used only with timed mode.	ΟK	Cancel

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S3.

nabled	Name		Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	
x	Device Removed		×	X	X		Warning	Red	Green	None	Device Removed	
x	Channel Active		X	x	x		Warning	Red	Green	None	Channel Active	
x	Control Message Fa	ault	x	x	x		Warning	Red	Green	None	Control Message Fault	
x	Channel Open		X	x	x		Warning	Red	Green	None	Channel Open	
x	Channel Isolated		x	x	x		Warning	Red	Green	None	Channel Isolated	
x	Wrong Device Type	e	X	x	x		Warning	Red	Green	None	Wrong Device Type	
x	Inhibit Status		x	x	x		Warning	Red	Green	None	Inhibit Status	
x	Invalid Configuration	n	x	x	x		Warning	Red	Green	None	Invalid Configuration	
x	Fault		x	x	x		Warning	Red	Green	None	Fault	
x	Unable to Configure	•	x	x	x		Warning	Red	Green	None	Unable to Configure	
x	LON A, Device Off	ine	x	x	x		Warning	Red	Green	None	LON A, Device Offline	
x	LON B, Device Off	ine	X	x	x		Warning	Red	Green	None	LON B, Device Offline	
	Match all rows to t	he top row>	м	м	м	м	м	м	м	м		
efaults	Custom	Factory								ОК	Cancel	

User Level: Allows user levels to be set on a variety of device features for security. Assign an appropriate user level to each item in the list. For details in user level settings refer to Chapter 9.

OK: Closes the "Agent Release Module Editor..." dialog box when finished.



Point Display: The ARM has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

Devices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device		Exit

The point display provides a single window view of all available real-time data for the device.

EXTEND	ED DIAGNOSTICS		and the state	ALA	RM LOGS
		ALARM 1	11:02:12	06-26-02	Release
LON A COUNTER	8888888888	ALARM 2	11:09:41	06-26-02	Release
LON B COUNTER		ALARM 3	11:37:18	06-26-02	Release
Research and the second se		ALARM 4	11:37:44	06-26-02	Release
li se		ALARM 5	13:01:56	06-26-02	Release
1		ALARM 6	00:00:31	01-01-01	Release
		ALARM 7	18:05:17	09-16-02	Release
		ALARM 8	18:40:23	09-16-02	Release
H		RECORD	TIME	DATE	ТҮРЕ
M-200 Release Solenoid ON: Port Premier Node 15	Requesting device data 198 DEVIC	E TYPE:ARM		TAG:AR	M-01 5
evice Removed		Device Offline	_	Y	Remove Acknow
hannel Active	LON B,	Device Offline			
ontrol Message Fault	Device	Offline			
hannel Open	Com 1 I				
hannel Isolated	Com 2 I				
valid Configuration		ltage Fault			
ault	Low Au	x Power Fault			
nable to Configure					E

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EAGLE QUANTUM PREMIER 14-21



Digital Communication Unit (DCU)

For gas detectors and other analog inputs

DCU's are single channel analog input modules for the Eagle Quantum Premier LON. S³ provides four variations of software support for DCU's, as follows:

- Explosive: For use with Det-Tronics catalytic bead combustible gas detectors.
- Oxygen: For use with Det-Tronics electrochemical oxygen depletion cells.
- Universal: Used with Det-Tronics line of electrochemical cells measuring a variety of toxic gasses.

The "Universal" DCU can also be used with any standard 4-20ma* analog input and it for allows for the entry of user assigned units and ranges.

	DCU Editor							
	Tagname. Misc:	DH-GD-C	11					
i-				versal (Automa iversal (Manu	itic Calibral al Calibratio			
			Units: Range: High Alam Low Alam Cel Levet	Pointw 3LFL 0-100 50.00 25.00 50.00	Min 10 5 20	Max 60 40 %LFL 100		
n			PV Deadband Gas Made Calibration Calibration	5.00 Gas Dete Algorithm	x	F		
		Alarms	User Level		Set Defa	ults	OK	Cancel

• **DCU Pointwatch:** Used with Detector Electronics "PointWatch" U9400 series infrared point hydrocarbon detectors.

*The actual range digitized by the DCU is between 0 and 24 ma because some field devices utilize the over-range & under-range areas for diagnostic or other data. From a configuration standpoint, all DCU's have the same basic adjustable parameters; Alarm 1, Alarm 2, and Calibration gas concentration (Cal Level).

DCU Editor					
Tagname:	DH-GD-011				
Misc:					
	Explo	osive	Oxygen		
	Ur	niversal (Autom	atic Calibration)		
	L	Jniversal (Manu	al Calibration)		
		Pointw	atch		
	Unit	:: %LFL			
	Range	e: 0 - 100			
			<u>Min Max</u>		
	High Alarm	r. 50.00	10 60		
	Low Alam	n 25.00	5 40 %LFL		
	Cal Leve	t: 50.00	20 100		
	PV Deadband	: 5.00	%		
	Gas Mode	: Gas Dete	ctor 💌		
	Calibratio	n Algorithm	С		
	Calibratic	n Method	Automatic		
	Alarms User Level		Set Defaults	ОК	Cancel

The DCU Universal also has a fields for entering the engineering units and unit range for the attached sensor.

The "PV Deadband" field determines what percentage change in the Process Variable (PV) will prompt the DCU to send an immediate update to the controller instead of waiting for its regularly scheduled message time. The default is 5%.

The "Gas Mode" selection has two choices; "Gas Detector" or "Other". The default is "Gas Detector" which limits the adjustable range of the low and high alarm setpoints to be consistent with regulatory requirements.

Common Settings: The bottom of the "DCU Editor..." dialog box contains buttons for setting all of the common settings on the device.

		construction 1		1
Alarms	User Level	Set Defaults	OK	Cancel

DIGITAL COMMUNICATION UNIT (DCU)

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

Completing Configuration: When all parameters have been set, select the

nabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	^
X	Device Removed	×	X	X		Warning	Red	Green	None	Device Removed	
x	High Gas Alarm	X	x	x		Warning	Red	Green	None	High Gas Alarm	
x	Low Gas Alarm	x	x	x		Warning	Red	Green	None	Low Gas Alarm	
x	Wrong Device Type	X	x	x		Warning	Red	Green	None	Wrong Device Type	
x	Inhibit Status	×	x	x		Warning	Red	Green	None	Inhibit Status	
x	Invalid Configuration	X	x	x		Warning	Red	Green	None	Invalid Configuration	
x	Fault	X	x	x		Warning	Red	Green	None	Fault	
X	Unable to Configure	X	x	x		Warning	Red	Green	None	Unable to Configure	
x	LON A, Device Offline	x	x	x		Warning	Red	Green	None	LON A, Device Offline	
x	LON B, Device Offline	X	x	x		Warning	Red	Green	None	LON B, Device Offline	
x	Device Offline	×	x	x		Warning	Red	Green	None	Device Offline	
x	Com 1 Fault	X	x	x		Warning	Red	Green	None	Com 1 Fault	
	Match all rows to the top row>	м	м	м	м	м	м	м	м		

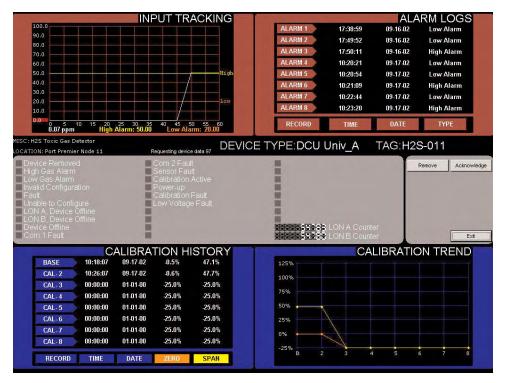
OK button to return to the LON configuration screen.

From the Command Bar Download the new configuration to the controller, or configure other devices.

Devices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device		Exit

Note:

The Download command will send <u>all</u> configurations. Individual nodes cannot be downloaded as is the case with earlier generations of Eagle products (i.e. EAGLE2000 & Eagle Quantum) **Point Display:** The DCU has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Note:

The above point display is as accessed from the configuration area. The point display in the online monitoring mode does not include the LON A & B Counters.

DIGITAL COMMUNICATION UNIT (DCU)

EAGLE QUANTUM PREMIER 14-25



PIRECL

"Eclipse" Point IR Hydrocarbon Detector

The Pointwatch Eclipse Model PIRECL is a diffusion based, point-type infrared gas detector that provides continuous monitoring of combustible hydrocarbon gas concentrations in the range of 0 to 100% LEL.

The PIRECL has integral communication hardware and resides on the EQP communication network without the need for external interface modules.

Tagname:	DH-GD-016				
Misc:	Eclipse IR H	ydrocarb	on Det	ector	
	Gas Type Met	hane	2	-	
	Calibration Gas Type Met	hane	2	Calibration Method	Standard
	Units:	*LEL	4 Cha	racters max	Special Gas Settings
			Min	Max	Coefficients
	High Alarm:	55.00	5	60	Alpha 0.811659991
	Low Alarm:	25.00	5	40 %LEL	Beta 0 407420005
	Calibration Gas Concentration:	50.00	20	100	Gamma 0.000322000
	Calibration Cuvett Length:	150.00			Ela 1.61360001E
	PV Deadband:	5.00	%		
I	- Low Alarm Latching		ligh Alarm	Latching	Volume AtLEL 5.00

The first step in configuring the Eclipse detector is to enter the tagname and any miscellaneous text in the appropriate fields at the top of the dialog box.

Gas Type:

After entering the desired tagname and miscellaneous information, select the gas type the detector is being installed to primarily monitor from a pull-down list.

There are six common hydrocarbon gasses that have be characterized and put into the detectors memory.

There are three "Reserved" fields for future standard characterizations and one selection called "Special" which if selected allows a unique hydrocarbon gas to be defined and downloaded to the detector.

clipse Editor					
Tagname:	DH-GD-016				
Misc:	Eclipse II	RH	ydrocarb	on Det	ect
	Gas Type	Met	hane		-
	Calibration Gas Type Ur	Etha Prop Ethy Prop Buta Res Res	oane Iene wlene erved erved erved		vie Ma
	High Ala	Spe		÷	60
	Low Ala	rm:	25.00	5	40
	Calibration G Concentratio		50.00	20	10
	Calibration		ana an		

Special Gases

If "Special" is selected as the gas type, the "Special Gas Settings" area of the editor becomes active and allows for the entry of the gas coefficients necessary to define the gas.

Misc: Eclipse IR Hydrocarbon Detector Gas Type Special Calibration Gas Type Methane Calibration Standard Units: *LEL 4 Characters max High Alarm: 55.00 5 60 Low Alarm: 25.00 5 40 %LEL Deta 0
Calibration Gas Type Methane Calibration Units: % LEL 4 Characters max Min Max High Alarm: 55.00 5 60 Low Alarm: 25.00 5 40 % LEL Delta 0
Calibration Gas Type Methane Calibration Units: *LEL 4 Characters max Min Max High Alarm: 55.00 5 60 Low Alarm: 25.00 5 40 %LEL
Units: Min Max Coefficients High Alarm: 55.00 5 60 Low Alarm: 25.00 5 40 %LEL
Min Max Alpha 5999174118 High Alarm: 55.00 5 60 Beta 0.407420009 Low Alarm: 25.00 5 40 %LEL Date 0
High Alarm: 55.00 5 60 Beta 0.407420000 Low Alarm: 25.00 5 40 %LEL Date 0
Low Alarm: 25.00 5 40 %LEL
Delta D
Concentration: 50.00 20 100 Gamma 0.000322000
Covet/Length 150.00 1 150 mm Eta 1.613600015
PV Deadband: 5.00 %
Low Alarm Latching High Alarm Latching

Once the gas type has been selected, a calibration gas type and method must be chosen.

Version 3.1

ECLIPSE

Calibration Gas: Type and Concentration

Eclipse supports three selections for calibration gas type; Ethane, Methane and "same as measured".

Typically the calibration gas type is the same as the measured gas, however, in some installations it may be preferred to use a single type of calibration gas to calibrate a number of hydrocarbon detectors even though they are not all characterized to monitor the same gas in normal operation.

Eclipse supports the use of either Methane or Ethane as a calibration gas regardless of the "Gas Type" selected for the detector. Of course, the "measured gas" can also be selected as the calibration gas type.

Tagname:	DH-GD-016				
Misc:	Eclipse IR H	ydrocarb	on Det	ector	
	Gas Type Met	hane	2	-	
	Calibration Gas Type Met	hane	1	Calibration Method	Standard
	Sam	ie as Measure hane ane	bed	ters max	Special Gas Settings
		FF 00	Min	Max	Alpha 0.811659991
	High Alarm:	55.00	5	60	Beta 0.407420005
	Low Alarm:	25.00	5	40 %LEL	Deta
	Calibration Gas Concentration:	50.00	20	100	the second secon
	Calibration	150.00			Gamma 0.000322000
	Guvett Length:	5.00			Eta 1.613600015
	PV Deadband:	10.00	%		(HU2)
	Low Alarm Latching		High Alarm	Latching	At LEL 5.00

Once the calibration gas type is set, the concentration must be set.

The default value of 50%LEL can be changed between 20%LEL and 100%LEL to match the gas being used.

Alarm Setpoints:

The High and Low gas alarm setpoints can be changed by entering new values in the fields provided on the dialog box.

Eclipse Editor.				
Tagname:	DH-GD-016			
Misc:	Eclipse IR H	ydrocarbo	on Detector	
	Gas Type Met	nane	•	
	Calibration Gas Type Met	nane	✓ Calib Meth	libration Standard
	Units:	*LEL	4 Characters max	Special Gas Settings
			Min Max	Coefficients
	High Alarm:	55.00	5 60	Alpha 0.811659991
	Low Alarm:	25.00	5 40 %LE	
	Calibration Gas Concentration:	50.00	20 100	Delta 0
	Calibration Cuvett Length:	150.00		
	PV Deadband:	5.00	%	
Г	Low Alarm Latching	Гн	ligh Alarm Latching	Volume Ar LEL 5:00
	Alarms Use	er Level	S	Set Defaults OK Cancel

The default values are 50%LEL for the High Alarm and 20%LEL for the Low Alarm.

The High alarm can be adjusted within a range of 5%LEL and 60%LEL.

The Low alarm can be adjusted within a range of 5%LEL and 40%LEL.

Note:

The Low Alarm setpoint cannot be set to a higher value than the High Alarm setpoint.

PV Deadband:

The "PV Deadband" field determines what percentage change in the Process Variable (PV) will prompt the unit to send an immediate update to the controller instead of waiting for its regularly scheduled message time. The default is 5%.

Common Settings: The bottom of the "Eclipse Editor..." dialog box contains buttons for setting all of the common settings on the device.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

nabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	
x	Device Removed	×	x	X		Warning	Red	Green	Fault	Device Removed	
x	High Gas Alarm	×	x	X		Warning	Red	Green	Alarm	High Gas Alarm	
x	Low Gas Alarm	X	x	x		Warning	Red	Green	Alarm	Low Gas Alarm	
x	Wrong Device Type	X	x	x		Warning	Red	Green	Fault	Wrong Device Type	
x	Memory Fault	X	x	x		Warning	Red	Green	Fault	Memory Fault	
x	Inhibit Status	X	x	X		Warning	Red	Green	Fault	Inhibit Status	
×	Zero Drift	×	x	X		Warning	Red	Green	Fault	Zero Drift	
x	Invalid Configuration	X	x	x		Warning	Red	Green	Fault	Invalid Configuration	
x	Fault	X	x	x		Warning	Red	Green	Fault	Fault	
×	Unable to Configure	×	x	x		Warning	Red	Green	Fault	Unable to Configure	
×	LON A, Device Offline	x	x	X		Warning	Red	Green	Fault	LON A, Device Offline	
x	LON B, Device Offline	X	x	x		Warning	Red	Green	Fault	LON B, Device Offline	
	Match all rows to the top row>	м	м	м	м	м	м	м	м		

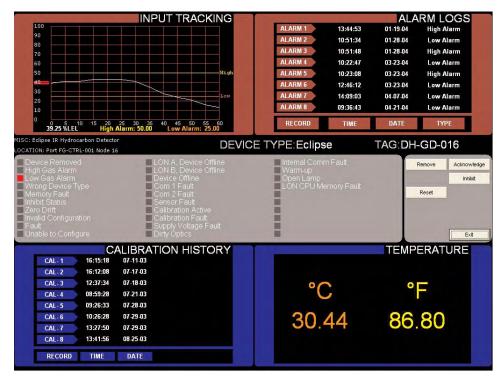
Completing Configuration: When all parameters have been set, select the OK button to return to the LON configuration screen.

From the Command Bar Download the new configuration to the controller, or configure other devices.

Devices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device		Exit

Note:

The Download command will send <u>all</u> configurations. Individual nodes cannot be downloaded as is the case with earlier generations of Eagle products (i.e. EAGLE2000 & Eagle Quantum) **Point Display:** The DCU has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Input Tracking: The upper left quadrant contains a 60 second analog track running from left to right, the newest data on the left margin. This area graphically displays the low and high alarm setpoints as horizontal lines crossing the graph area, Yellow for High and Orange for Low. Digital readouts at the lower margin also display the PV and alarm setpoints.

Alarm History: The upper right quadrant displays the alarm history for the device. The last eight alarms with date and time are shown. This data is stored in the field device and retrieved over the LON for display.

Calibration History: The lower left quadrant displays the calibration history for the device. The last eight calibrations with date and time are shown. This data is stored in the field device and retrieved over the LON for display.

Temperature: The lower right quadrant displays the sensor package temperature.

Status & Diagnostics: Crossing the whole point display in the center is an area displaying 24 discrete pieces of status and diagnostic information on the detector.

EAGLE QUANTUM PREMIER 14-31



Analog Input Module (AIM) 8 channel input module for 0-24 ma signals.

AIM's are multi-channel analog modules for the Eagle Quantum Premier LON. From a configuration standpoint, each channel can be configured to be either a gas detector or a generic analog input.

The AIM is configured by double-clicking on its selection rectangle on the LON schematic. This opens the "8 Channel AIM Editor..." which provides fields for the entry of any user changeable parameters.

Each of the eight inputs have their configuration information grouped by channel and a scroll bar is used to see them all.

8 Channel Ana	alog Input Modul	e (EQ3710) Edito	or				
Tagname:	DH-AI_006						
Misc:	8 Ch. Analo	g Input Modu.	le				
Tagname: DH-	-AV-001	Misc: Wind	Speed			PVD	eadband: 3.00 %
Units: MPH	L.	Туре	mA Range (Jut of Range	Engineering Range	Low Alarm	High Alarm
Gas Mode: Oth	er (Non Gas) 💌	C Explosive	Low: 4.00	3.00	Low: 0.00	SP: 60.00	SP: 80.00
and the second second			High: 20.00	21.00	High: 150.00	DB: 3.00	DB: 3.00
Channe	əl 1	Universal				Falling Trigger	Falling Trigger
Tagname:		Misc:				PVD	eadband: 3.00 %
Units: *LF	L	Туре	mA Range (Jut of Range	Engineering Range	Low Alarm	High Alarm
Gas Mode: Othe	er (Non Gas) 👻	C Explosive		3.00	Low: 0.00	SP: 20.00	SP: 50.00
			High: 20.00	21.00	High: 100.00	DB: 3.00	DB: 3.00
Channe	el 2	Universal				🔲 Falling Trigger	Falling Trigger
Tagname:		Misc:				PV D	eadband: 3.00 %
Units: *LF	L	Туре	mA Range (Jut of Range	Engineering Range	Low Alarm	High Alarm
Gas Mode: Oth	er (Non Gas) 💌	C Explosive		3.00	Low: 0.00	SP: 20.00	SP: 50.00
and the second se			High: 20.00	21.00	High: 100.00	DB: 3.00	DB: 3.00
Channe	913	 Universal 				Falling Trigger	Falling Trigger

Channel Configuration:

Adjustable parameters include the engineering units and range, the analog signal (ma) range, alarm setpoints, deadband adjustments for both the module and the eight individual channels, and an alarm trigger direction selection per channel.

Tagnar Misc:							
MISC.	8 Ch. Analo	g Input Modu.	le				
Tagname:	DH-AV-001	Misc: Wind	Speed			PV De	eadband: 3.00 %
Units:	мрн	Туре	mA Range	Out of Range	Engineering Range	Low Alarm	High Alarm
Gas Mode:	Other (Non Gas) 🔻	C Explosive	Low: 4.00	3.00	Low: 0.00	SP: 60.00	SP: 80.00
			High: 20.00	21.00	High: 150.00	DB: 3.00	DB: 3.00
Cha	nnel 1	Universal				Falling Trigger	🔲 Falling Trigger
Tagname:		Misc:				PV De	eadband: 3.00 %
Units:	*LFL	Туре	mA Range	Out of Range	Engineering Range	Low Alarm	High Alarm
Gas Mode:	Other (Non Gas) 💌	C Explosive	Low: 4.00	3.00	Low: 0.00	SP: 20.00	SP: 50.00
			High: 20.00	21.00	High: 100.00	DB: 3.00	DB: 3.00
Char	nnel 2	Universal				Falling Trigger	Falling Trigger
Tagname:		Misc:				PV De	eadband: 3.00 %
Units:	*LFL	Туре	mA Range	Out of Range	Engineering Range	Low Alarm	High Alarm
Gas Mode:	Other (Non Gas) 🔻	C Explosive	Low: 4.00	3.00	Low: 0.00	SP: 20.00	SP: 50.00
			High: 20.00	21.00	High: 100.00	DB: 3.00	DB: 3.00
Char	nnel 3	 Universal 				Falling Trigger	🔲 Falling Trigger

Being a multi-channel device there are multiple tagnames. At the top of the dialog box there is a device tagname that refers to the module as a whole and is used with its global status and diagnostic events.

Ranges: Below this are channel tagnames and configuration fields relating to the eight individual channels. Fields are provided to enter the engineering units and ranges for both the milliamp input and engineering range.

Deadband: A field is provided to enter the desired PV (Process Variable) Deadband. Normally all values are transmitted to the controller every five

seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

The Alarm Setpoint areas also provide a deadband (DB) field allowing the individual alarm hysteresis to be configured.

%	3.00	eadband:	PV D	
	Alarm	High	arm	Low
0	80.00	SP:	60.00	SP:
	3.00	DB:	3.00	DB:
	3.0 Falling		3.00 Iling Trigger	

Alarm Trigger Direction: In addition, each alarm has a checkbox to choose a "Falling Trigger" alarm type.

When selected, the alarm will activate when the analog value drops below the setpoint as its value is falling.

In the default configuration, a rising value activates the alarm as it passes through the setpoint.

	P^	/Deadband:	3.00	%
Low	Alarm	High	Alarm	
SP:	20.00	SP:	50.00	-
DB:	3.00	DB;	3.00	
	Falling Trigge	r 🗖 F	alling Trigg	er

Gas Mode: Each channel can be configured to be used with a "Gas Detector" or "Other (Non Gas)" instrument.

Tagname:	DH-AV-001	М
Units:	МРН	Туре
Gas Mode:	Other (Non Gas) 💌	CE
	Gas Detector Other (Non Gas)	
Char	nnel 1	(• U

When a channel is configured as "Other" it can be used to monitor virtually any linear analog value from a wide range of temperature, pressure, level and other transmitter types.

When configured as a gas detector, regulatory requirements will preset alarm setpoint ranges and certain alarm characteristics.

Common Settings: The bottom of the "AIM Editor..." dialog box contains buttons for setting all of the common settings on the device.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

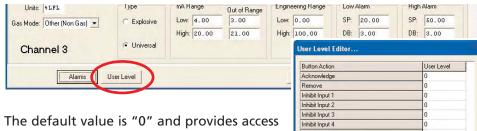
Units: % LFL	lype	mA Hange		Out of R	ange	Engineering Han	ge Lov	v Alarm	High Alarm
Gas Mode: Other (Non Gas)		Low: 4.00		3.00		Low: 0.00	SP	20.00	SP: 50.00
		High: 20.0	0	21.00		High: 100.00	DB	3.00	DB: 3.00
Channel 3	Universal						Г	Falling Trig	ger Falling Trigger
Alarms	Alarms to Monitor								
	Enabled Name	Pinter	File V	Vindow Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Micelanous
	IX Device Removed	x	x	×	Warning	Red	Green	Alarm	Device Removed
his scrolling	IX Wrong Device Type	×	x	×	Warning	Red	Green	Fault	Wrong Device Type
5	Fix Memory Fault	1x	×	× C	Warning	Red	Green	Fout	Memory Fault
ist displays	IX Invalid Configuration	x	×	X	Warning	Red	Green	Fault	Invalid Configuration
he alarms	Foult	x	x	IX I	Warning	Red	Green	Fault	Fault
nd events	IX Unable to Configure	X	×	x r	Waming	Red	Green	Fault	Unable to Configure
elated to	IX LON A. Device Offine	X	×	IX I	Waring	Red	Green	Fault	LON A. Device Offine
	E LON B. Device Offine	X	×	X	Waming	Red	Green	Fault	LON B. Device Offine
he device	Device Offine	x	×	IX C	Waning	Red	Green	Fout	Device Offine
hat can be	Com 1 Fault	x	×		Warning	Red	Green	Fout	Com 1 Fault
onfigured	D Com 2 Fault	x	×	R L	Warning	Red	Green	Fout	Com 2 Fault
o be moni-	Supply Voltage Fault	x	×	R F	Warning	Red	Oreen	Fout	Supply Vokage Fault
	Match all rows to the to	ap row → M	м.	м м		d M	м	M	
ored by S ³ .	Defaults Custom	Factory	-		-			OK	Cancel

The first 12 alarms pertain to the status and diagnostic for the overall module.

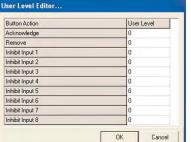
inabled	Name		Pn	rites	File	Window	Auto Clear	Sound		Active	Color	Normal Color	Graphic Trigger Group	Miscellanous			
X	Device Removed		1	×	x	X		Warning		Red		Green	Alorm	Device Removes	ł		
x	Wrong Device Type		I	x	x	x	П	Warning		Red		Green	Fault	Wrong Device T	уре		
x	Memory Fault	Alarms to	Monito	r													l
×	Invalid Configuration	Enabled	Name					Printer	File	Window	Auto Diear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	-
x	Fault	X	High Alan	m				X	X	X	Γ	Warning	Red	Oreen	Alorm	Channel 1 High Alarm	1
×	Unable to Configure	x	Low Alan	m				x	x	x		Warning	Red	Green	Alarm	Channel 1 Low Alarm	
x	LON A, Device Offin	×	Inhibit St	atus				×	×	x		Waining	Red	Green	Foult	Channel 1 Inhibit Status	1
×	LON B, Device Offin	x	Fault					×	x	×		Warning	Red	Green	Foult	Channel 1 Fault	
X	Device Offline	x	Out of Ra	ange	Low F	ault		x	x	x		Warning	Red	Green	Fault	Channel 1 Out of Range Low Fault	
x	Com 1 Fault	×	Out of Ra	enge	High	aut		×	×	x		Waining	Red	Green	Foult	Channel 1 Out of Range High Fault	
×	Com 2 Fault	X	High Alan	m				X	X	×	Π	Warning	Red	Green	Alorm	Channel 2 High Alarm	
X	Supply Voltage Fault	×	Low Alar	m				×	×	×		Warring	Red	Green	Alarm	Channel 2 Low Alarm	
	Match all rows to the	X	Inhibit Sta	ahua				X	x	x		Warning	Red	Green	Foult	Channel 2 Inhibit Status	
elaults	Custom	x	Fault					X	x	x		Warning	Red	Green	Foul	Channel 2 Fault	
Crobins		×	Out of Re	ange	LowF	auit		×	×	×		Warring	Red	Green	Foult	Channel 2 Out of Range Low Fault	
		X	Out of Ra	inge	High I	ault		X	x	x		Warning	Red	Green	Foult	Channel 2 Out of Range High Fault	
			Match a	a row	to th	e top row	>	м	м	M	м	м	M	M	м		

After this come 6 alarms for each of the eight channels. This gives a total of 60 alarms and events that can be enabled and monitored by S³ for this module type.

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", and "Inhibit" buttons for the module which are accessible from the devices point display.



to all users. Change these values to match your user account configuration and security needs.



Completing Configuration: When all parameters have been set, select the OK button to return to the LON configuration screen.

From the Command Bar Download the new configuration to the controller, or configure other devices.

Devices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device		Exit

Point Display: The AIM has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

100	INPUT T				
86		2			
72					
58		High 3			
44		4			
30		5			
16					
-12		6			
-26		Low 7			
-40 0 5 10 15 20 25 0°C High Ala	5 30 35 40 45 arm: 60.00 Low #	50 55 60 8			
and the second	arm: 60.00 Low #	Alarm: -30.00			
3 Ch. Analog Input		DEVICE	TYPE: AI EQ371	0 TAG	EQP-AIM-001
ON: Port EQP Node 9	Requesting de	wice data 20			
	Com 2 Fa				Remove
	Supply Vo				the second se
able to Configure N A, Device Offline					
able to Configure IN A, Device Offline IN B, Device Offline				I A Counter	
able to Configure N A, Device Offline N B, Device Offline wice Offline					F
able to Configure IN A, Device Offline IN B, Device Offline					E
able to Configure N A, Device Offline N B, Device Offline wice Offline m 1 Fault				I B Counter	E CHANNELS
able to Configure N A, Device Offline NI B, Device Offline wice Offline m 1 Fault EQP-VD 401	0.0			NB Counter	
able to Configure N A, Device Offline N B, Device Offline Mice Offline m 1 Fault EQP VD.001 EQP VD.001	0.00			I B Counter	
able to Configure IN A, Device Offline NB, Device Offline mice Offline mi 1 Fault EQP-VD.001 EQP-VV.001 EQP-TT.001	0.00			Inhibit	
able to Configure N A, Device Offline N B, Device Offline wice Offline min 1 Fault EQP-VD.001 EQP-VD.001 EQP-TT-001 EQP-HR-001	0.00 0.00 0.00			Inhibit Inhibit Inhibit Inhibit	
able to Configure N A, Device Offline N B, Device Offline wice Offline m1 Fault EQP-VD.001 EQP-VD.001 EQP-TT-001 EQP-HR.001 CHANNEL 5	0.00 0.00 0.00 0.00			Inhibit Inhibit Inhibit Inhibit Inhibit	
able to Configure N A, Device Offline N B, Device Offline wice Offline m 1 Fault EQP-VD-001 EQP-VD-001 EQP-TT-001 EQP-HR-001 CHANNEL 5 CHANNEL 6	0.00 0.00 0.00 0.00 0.00			I B Counter	
able to Configure IN A. Device Offline N.B. Device Offline Mice Offline m1 Fault EQP-VD.001 EQP-TT.001 EQP-HR.001 CHANNEL 5 CHANNEL 5 CHANNEL 7	0.00 0.00 0.00 0.00 0.00 0.00			I B Counter	
able to Configure N A, Device Offline N B, Device Offline wice Offline m 1 Fault EQP-VD-001 EQP-VD-001 EQP-TT-001 EQP-HR-001 CHANNEL 5 CHANNEL 6	0.00 0.00 0.00 0.00 0.00			I B Counter	

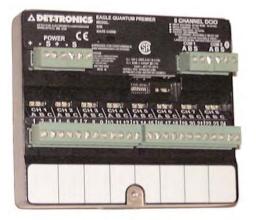
The point display provides a single window view of all available real-time data for the device.

Being a multichannel device, the AIM point display allows any of the 8 inputs to be connected to the analog input track in the top left quadrant by clicking on the desired channel button on the right of the graph.

The bottom half of the point display provides a data display area and annunciator for all 8 inputs. It also provides for "Inhibiting" the channels.

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EAGLE QUANTUM PREMIER 14-37



Direct Current Input Output (DCIO) Module

Flexible 8 channel input/output module for 24 vdc discrete field devices.

DCIO's are flexible 8 channel discrete (ON/OFF) input/output modules for the Eagle Quantum Premier LON.

From a configuration standpoint, each channel can be configured to be either an input or an output, supervised or unsupervised.

The DCIO is configured by double-clicking on its selection rectangle on the LON schematic.

This opens the "8 Channel DC I/O Editor..." which provides fields for the entry of any user changeable parameters.

ag	Iname: DH-IO-00	7								
disc	C: 8 Channe	1 DCIO Module								
T	agname	Description	Туре	_	Supervision		Activation Time	Static Logic Mode (Input)		
1 ^M	IAC-007-1	Manual Activation of Fire Alarm	Input	Ŧ	Opens/Shorts	¥		Fire Alarm	-	
2 P	'SL-007-2	Fire Main Pressure Low	Input		None			Trouble	-	
3 P	SLL-007-3	Main Gas Header - Low Alarm	Input	•	None			Low Gas Alarm	•	
4 P	SHH-007-4	Main Gas Header - High Alarm	Input	•	None			High Gas Alarm	-	
5 51	V·007-5	FM-200 Release	Output		None	•	1			
6 V	'A-007-6	Visible Alarm - Fire Alarm	Output	•	None Opens Opens/Shorts		1			
7 A	A-007-7	Audible Alarm - Fire Alarm	Output	•	None		1			
A	A-007-8	Audible Alarm - Gas Release	Output		None		1			

Being a multi-channel device there are multiple tagnames. At the top of the dialog box there is a device tagname that refers to the DCIO and is used with its global status and diagnostic events. Below this are channel tagnames for the status and diagnostics relating to the eight individual channels. It also provides buttons for accessing other configurable items such as alarm and event tracking for the unit and user levels settings.

Tagname: The tagname at the top of the dialog box refers to the entire module.

Each of the eight channels also require a tagname and until one is entered, that channel is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

Tá	agname: DH-IO-007									
М	liSC: 8 Channel :	DCIO Module								
1	Tagname	Description	Туре	_	Supervision		Activation Time	Static Logic Mode (Input)		
1	MAC-007-1	Manual Activation of Fire Alarm	Input	Ŧ	Opens/Shorts	v		Fire Alarm	•	
2	PSL-007-2	Fire Main Pressure Low	Input	•	None			Trouble	-	
3	PSLL-007-3	Main Gas Header - Low Alarm	Input	•	None	Ŧ		Low Gas Alarm	•	
4	PSHH-007-4	Main Gas Header - High Alarm	Input	•	None			High Gas Alarm	•	
5	SV-007-5	FM-200 Release	Output		None	•	1			
6	VA-007-6	Visible Alarm - Fire Alarm	Output	•	None Opens Opens/Shorts		1			
7	AA-007-7	Audible Alarm - Fire Alarm	Output		None	Ŧ	1			
8	AA-007-8	Audible Alarm - Gas Release	Output	•	None		1			

Type: Using a pull down menu each channel can be configured to be either an input or an output.

When configured as an input the channels will work with "dry" contact closure type devices.

When configured as an output the channels will power a 24 vdc load.

Supervision: Via a pull down menu, the inputs and outputs may be software configured to supervise their attached device.

Available supervision options include "None", "Open Circuit" detection, "Open and Short" circuit detection.

Activation Time: If a channel is configured as an output, an "Activation Time" (in seconds) can be entered.

The value is in seconds.

This feature works in conjunction with the user program to simplify the logic and protect the field device.

When being programmed in the controller, if this channel is selected as a "Timed" output then the value entered in the "Activation Time" field determines how long the output remains energized, even if the user logic keeps the output energized.

Static Logic Mode (Input): If the channel is configured as an input, a pull down menu will allow any of five different "static logic" functions to be assigned, or, to select "Other" which is the default and has no automatic function.

agname:	DH-10-007									
lisc:	8 Channel DCIO) Module								
Tagname		Description	Туре		Supervision		Activation Time	Static Logic Mode (Input)		
007-1		Spare	Input	•	None	•		Other	•	
PSL-007-2		Fire Main Pressure Low	Input		None	Ŧ		Trouble	Ŧ	
PSLL-007-3		Main Gas Header - Low Alarm	Input	•	None	•		Low Gas Alarm	T	
PSHH-007-4		Main Gas Header - High Alarm	Input		None			High Gas Alarm	-	
SV-007-5		FM-200 Release	Output	•	None	Ŧ	1	Fire Alarm Trouble Low Gas Alarm	t.	
VA-007-6		Visible Alarm - Fire Alarm	Output		None			High Gas Alarm Supervisory		
AA-007-7		Audible Alarm - Fire Alarm	Output		None	•		Other	-	
AA-007-8		Audible Alarm - Gas Release	Output	Ŧ	None	Ŧ	1			

The five static logic functions are:

- Fire Alarm: Sets off the "Fire Alarm" LED and relay* on the EQP controller.
- **Trouble:** Sets off the "Trouble" LED and relay* on the EQP controller.
- Low Gas Alarm: Sets off the "Low Gas" LED and relay* on the EQP controller.
- **High Gas Alarm:** Sets off the "High Gas" LED and relay* on the EQP controller.
- **Supervisory:** Sets off the "Supr" LED and relay* on the EQP controller.

If a static logic function has been selected for an input, when the input is active that action will occur automatically without the need for any user programmed logic.

If the input is to be used with user programmed logic only, select "Other".

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

8 AA-007-8	Audible Alarm - Gas Release	Output ▼ None Output ▼ None	•••••••••••••••••••••••••••••••••••••••	
-1	Alarms	ser Level	0K	K Cancel

The first 13 alarms pertain to the status and diagnostic for the overall module.

Enabled			Pinter	File	Window	Auto Clear	Sound		Active	Color	Normal Color	Graphic Trigger Group	Miscellanous			
X	Device Removed		×	X	X		None		Red		Green	None	Device Removed			
x	Control Message Fault	Alarms to	Monitor.	њ.												
×	Wrong Device Type	Enabled	Name				Puries	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	-
X	Memory Fault	x	Manual Fire	Alam			(X	X	X	F	None	Red	Green	Alarm	Channel 1 Channel Active	_
x	Invalid Contiguration	x	Channel Sho	orted			x	x	x		None	Red	Green	None	Channel 1 Channel Shorted	
x	Fault	x	Channel Op	en			×	×	x		None	Red	Green	None	Channel 1 Channel Open	
X	Unable to Configure	X	Inhibit Statu				X	x	X		None	Red	Green	None	Channel 1 Inhibit Status	. 18
×	LON A. Device Offline	x	Fault				x	x	x		None	Red	Green	None	Channel 1 Fault	
X	LON B, Device Offine	x	Channel Act	ive			×	×	×		None	Red	Green	None	Channel 2 Channel Active	
x	Device Ottline	x	Channel She	orted			×	x	x	Γ	None	Red	Green	None	Channel 2 Channel Shorted	
×	Com 1 Fault	X	Channel Ope	en			×	×	×		None	Red	Green	None	Channel 2 Channel Open	
X	Com 2 Fault	X	Inhibit Statu				X	x	x		None	Red	Green	None	Channel 2 Inhibit Status	
	Match all rows to the	x	Fault				x	x	x		None	Red	Green	None	Channel 2 Fault	
elaults	Custom	×	Channel Act	ive			×	X	×		None	Red	Green	None	Channel 3 Channel Active	
		X	Channel She	orted			X	x	x		None	Red	Green	None	Channel 3 Channel Shorted	
			Match all ro	ows to	the top row	>	м	м	м	м	м	м	м	м		

After this come 5 alarms for each of the eight channels. This gives a total of 53 alarms and events that can be enabled and monitored by S³ for this module type.

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", and "Inhibit" buttons for the module which are accessible from the devices point display.

7 AA-007-7	Audible Alarm - Fire Alarm	Output 🔻 No	one 🔻 1	
8 AA-007-8	Audible Alarm - Gas Release	Output 🔻 😈	lser Level Editor	
	Alarms	User Level [Button Action	User Level
			Acknowledge	0
			Remove	0
			Inhibit Input 1	0
The default y	value is "0" and provid	200206	Inhibit Input 2	0
			Inhibit Input 3	0
o all users.	Change these values to	o match	Inhibit Input 4	0
			Inhibit Input 5	0
our user acc	count configuration and	d security 👔	Inhibit Input 6	0
needs.	count configuration and		Inhibit Input 6 Inhibit Input 7	0

DIRECT CURRENT INPUT/OUTPUT MODULE (DCIO)

Completing Configuration: When all parameters have been set, select the OK button to return to the LON configuration screen.

From the Command Bar Download the new configuration to the controller, or configure other devices.

Point Display: The DCIO has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

EXTENDED D			
LOCATION: Port FG-CTRL-001 Node 5	DEVICE TYPE:	DCIO EQ3700 TAG:DH	-10-007
Device Removed Control Message Fault Wrong Device Type Memory Fault Invalid Configuration Fault Unable to Configure LON A, Device Offline	LON B, Device Off Device Offline Com 1 Fault Com 2 Fault Supply Voltage Fau		Remove Acknowledge
		C	HANNELS
007-1		Inhibit	
PSL-007-2		Inhibit	
PSLL-007-3	the second se	Inhibit Input	
PSHH-007-4		Inhibit Inpu	
SV-007-5		Inhibit Outpu	
VA-007-6		Inhibit Outpu	
AA-007-7 AA-007-8		Inhibit Outpu	
AA-007-8		Inhibit Outpu	neset
CHANNEL TAGNAME	ACTIVE SHORTED OPEN FAU	lt inhibit typ	E RESET

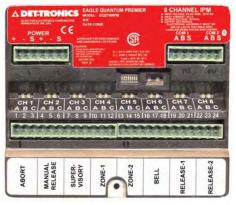
The point display provides a single window view of all available real-time data for the device.

The bottom half of the point display provides a data display area and annunciator for all 8 inputs. It also provides for "Inhibiting" the channels.

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DIRECT CURRENT INPUT/OUTPUT MODULE (DCIO)

EAGLE QUANTUM PREMIER 14-43



Intelligent Protection Module (IPM)

8 channel input/output module for 24 vdc discrete field devices.

Description: The Intelligent Protection Module (IPM) is a part of the Det-Tronics Eagle Quantum Premier (EQP) System that is specially designed to monitor, supervise and control one fire suppression hazard.

The IPM is designed to provide continuous and automated local area fire protection, while monitoring system operation through continuous supervision of its Inputs/Outputs and Local Operating Network/Signalling Line Circuit (LON/SLC) connection to the EQP controller.

In addition the module contains a unique "embedded logic program" that if enabled during configuration allows the IPM to perform local area protection in a "back-up mode" without controller interaction. The IPM utilizes eight pre-configured Input/Output (I/O) channels to perform its monitoring, supervision and mitigation functions.

Inputs: On the input side, three supervised channels provide the following connections:

- Channel 1 for an Abort station
- Channel 2 for a Manual Release station
- Channel 3 for a Supervisory device.

Two additional input channels (zones) provide connections for "two-wire" conventional (non-relay based) smoke and heat detectors.

- Channel 4: Zone 1 detection circuit
- Channel 5: Zone 2 detection circuit

Outputs: On the output side, three supervised outputs (1 signaling, 2 releasing) provide the following connections:

- Channel 6 for a notification appliance such as a bell, horn or lamp.
- Channels 7 & 8 for a main and reserve or secondary agent release.

CONFIGURATION

Tagname: The tagname at the top of the dialog box refers to the entire module.

Each of the eight channels also require a tagname and until one is entered, that channel is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

Tagname: DH-IPM-001 Misc: Intelligent Pro		DH-	IPM-001										
		Int	elligent Pro	tecti	on Mo	odule							
	Abort I	Mode:	Mode 1	•	Contro	ol Mode	Ba	ack-up Mode	•	Detectio	n Circuit Delay: 30	ī÷	
	Zone I	vlode:	Single Zone	•			Г	Manual Release	Delayed				
		C	hannel 6 (Signal Circ	uit - Bell/	'SAM)								
		c	Ine Zone Bell Tone:	Contin	Jous	-	•	Two Zone Bell	Tone:	DIF	-		
	Tagname	[agname		Description			-	Туре	Supervision	_	Activation Time		
1	DH-CPR-AR			Manua	al Abort F	Release	(AR)	Input		Input	Opens/Shorts	v	
2	DH-CPR-MR			Manual Release Input			******	Input	Opens/Shorts				
3	DH-CPR-SI		Supervisory Input		******	Input	Opens/Shorts	•					
4	DH-CPR-1SA			Zone 1 - Smoke Alarm			******	Input	Opens/Shorts	•			
5	DH-CPR-2SA			Zone 2	2 - Smok	e Alarm		************	******	Input	Opens/Shorts	•	
6	DH-CPR-AA			Bell - A	udible A	larm		**********	******	Output	Opens	Ŧ	
7	DH-CPR-R1	R-R1 Release Output - Mai		ut - Main	n		******	Output	Opens	•	90		
	DH-CPR-R2			Releas	e Ouput	- Reser	ve			Output	Opens		90

Type: On the IPM the channel type is preset and not user changeable.

Supervision: Via a pull down menu, the inputs and outputs may be software configured to supervise their attached device. Available supervision options include "None", "Open Circuit" detection, "Open and Short" circuit detection.

Activation Time: If a channel is configured as an output, an "Activation Time" (in seconds) can be entered. The value is in seconds. This feature works in conjunction with the user program to simplify the logic and protect the field device.

When being programmed in the controller, if this channel is selected as a "Timed" output then the value entered in the "Activation Time" field determines how long the output remains energized, even if the user logic keeps the output energized.

Abort Mode: The IPM abort input, Channel 1, is software configurable to use any one of three modes of operation. These three modes operate as follows:

Channel IPM	A I/O Editor					
Tagname:	DH-IPM-035					
Misc:	Intelligent H	Protection Module				
Abor	t Mode: Mode 1	Control Mode:	Back-up Mode	- Detectio	on Circuit Delay: 30 -	-
Zone	Mode 1 Mode 2		Manual Release D			-
T	One Zone Bell To		▪ Two Zone Bell To			America
Tagname		Description		Туре	Supervision	Activation Time
1 DH-CPR-AR		Manual Abort Release	(AR) Input	Input	Opens/Shorts	T
2 DH-CPR-MR	1	Manual Release Input		Input	Opens/Shorts	•
		p				

Mode 1: Upon activation, the delay timer will count down to and hold at 10 seconds; upon release, timer will continue to count down to zero.

Only this mode complies with UL 864.

Mode 2: Upon activation the delay timer will reset to its initial value and on release will continue counting down to zero.

IRI Mode: Functions similar to "Mode 1" except the abort will only function if activated prior to a second alarm.

Zone Modes:

The IPM has two "zone modes"; Single or Cross Zoned. The backup logic will execute differently depending on the zone mode selected.

8 Channel IP	M I/O E	ditor				
Tagname:	DH-	IPM-035				
Misc:	Int	elligent Pr	otecti	on Module		
Abo	rt Mode:	Mode 1	•	Control Mode:	Back-up Mode	•
Zon	e Mode:	-	•		T Manual Release	e Delayed
	CI	Single Zone Cross Zoned larmer o (Signar Ci	гсик - ве п/	SAM)		

• Alarm Condition

Single Zone Mode: Upon receipt of an alarm from an activated detector on IPM channel 4 or 5 OR activation of the manual station, channel 2:

Signal circuit devices are activated per the software selected signaling circuit configuration described earlier – Bell Circuit (SAM) Channel 6

Programmed release time delay activated.

Release output(s) activated.

Operation of Abort: Discharge is aborted ONLY when alarm is from a detector, and abort is activated during programmed release time delay. Abort sequence is dependent on the abort mode selection as described earlier.

Cross Zoned Mode: Upon receipt of an alarm from one activated detector in one zone.

Signal circuit devices are activated per the software selected signaling circuit configuration, two zone mode, one zone in alarm, as described earlier – Bell Circuit (SAM) Channel 6.

Second Alarm Condition: Upon receipt of an alarm from a second activated detector in the other zone.

Signal circuit devices are activated per the software selected signaling circuit configuration, two zone mode, two zones in alarm.

Programmed release time delay activated.

Release output(s) activated.

• Manual Alarm Condition – Cross Zoned Mode:

Upon receipt of a manual alarm from Channel 2 the signal circuit devices are activated per the software selected signaling circuit configuration, two zone mode, two zones in alarm

Programmed release time delay activated.

Release output(s) activated.

• Signaling Circuit Operation – Bell Circuit (SAM), Channel 6: This output channel can be software selected to any standard EQP Signal Audible Module (SAM) configuration. In a cross-zoned mode, selections are limited as follows:

Single Zone Mode: The signaling circuit can be configured to any standard SAM selection.

8 Chann	el IPM	I/O E	ditor			
Tagname:		DH-	IPM-035			
Misc:		Int	elligent Pro	tecti	on Module	
	Abort I	Mode:	Mode 1	•	Control Mode:	Back-up Mode
	Zone	Mode:	Single Zone	•		🦵 Manual Release Del
		Cł	nannel 6 (Signal Circ	uit - Bell/	/SAM)	
		0	ne Zone Bell Tone:	Contin	uous	▼ Two Zone Bell Tor
		-		Off Continu	JOUS	
				60 BPN	1	
Tagn	ame			120 BF Tempo Trouble	ral	
DH-CI	PR-AR			Superv	Children and Child) Input

Signal Circuit in Cross Zoned Mode: In this mode the user must make

two selections.

Tagname:	DH-IPM-035
Misc:	Intelligent Protection Module
	t Mode: Mode 1 Control Mode: Back-up Mode Detection Circuit Delay: Mode: Cross Zoned Manual Release Delayed
	Channel 6 (Signal Circuit - Bell/SAM)
	One Zone Bell Tone: Continuous Two Zone Bell Tone: Off Off Continuous E0 EPM

A standard SAM selection for when a single detection circuit is in alarm and another selection for when both detection circuits are in alarm.

control Mode

The IPM has 3 operation modes, Controller Only, Back-up Mode, Embedded Only.

I/O E	ditor			
DH-	IPM-035			
Int	elligent Pro	otecti	on Module	
Mode:	Mode 1	•	Control Mode:	Back-up Mode 💌
Mode:	Single Zone	•		Embedded Logic Only Controller Only Back-up Mode
	DH- Int Mode:	I/O Editor DH-IPM-035 Intelligent Pro Mode: Mode 1 Mode: Single Zone	DH-IPM-035 Intelligent Protecti Mode: Mode1	DH-IPM-035 Intelligent Protection Module Mode: Mode1 Control Mode:

- **Controller Only:** In this mode the I/O of the IPM will be controlled from the EQP Controller only and embedded logic is inactive.
- Back-up Mode: (The default selection) the IPM I/O is normally controlled by the EQP Controller but utilizes embedded logic in accordance with the "Control Transfer Sequence Description" to control its I/O under certain circumstances.
- Embedded Only: In this mode the IPM continuously operates from its embedded logic. The status of all IPM I/O is available to the EQP Controller but control of the outputs are not; however, controller and S³ reset commands are accepted.

Detection Circuit Delay Selection:

This selection provides a time delay that will apply to the two detector circuits, (Channels 4 and 5) as well as to the manual release signal (Channel 2).

There are seven time delay selections running between 0 and 60 seconds in ten second increments as shown below:

Tagname:	DH-IPM-001
lisc:	Intelligent Protection Module
	Mode: Mode 1 Control Mode: Back-up Mode Detection Circuit Delay: 30 🔹 Mode: Single Zone Manual Release Delayed
	0 Second
	10Seconds
	20Seconds
	30Seconds
	40Seconds
	50Seconds
	60 Seconds

If the time delay selected is greater than 30 seconds, this time will apply only to the two detection circuits. The manual release time delay will be clamped at 30 seconds.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

8 DH-CPR-R2	Release Ouput	Reserve	Output	Opens	▼ 90
	Alarms	User Level		ОК	Cancel

The first 14 alarms pertain to the status and diagnostic for the overall module.

nabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	1
x	Device Removed	×	X	x		Warning	Red	Green	Alarm	Device Removed	
x	Control Message Fault	X	x	x		Warning	Red	Green	Fault	Control Message Fault	
x	Wrong Device Type	×	x	x		Warning	Red	Green	Fault	Wrong Device Type	
x	Memory Fault	X	x	X		Warning	Red	Green	Fault	Memory Fault	
x	Invalid Configuration	x	x	x		Warning	Red	Green	Fault	Invalid Configuration	
x	Fault	X	x	x		Warning	Red	Green	Fault	Fault	
x	Unable to Configure	X	x	x		Warning	Red	Green	Fault	Unable to Configure	
x	LON A, Device Offline	X	x	x		Warning	Red	Green	Fault	LON A, Device Offline	
x	LON B, Device Offline	X	x	x		Warning	Red	Green	Fault	LON B, Device Offline	
x	Device Offline	X	x	x		Warning	Red	Green	Fault	Device Offline	
x	Com 1 Fault	x	x	x		Warning	Red	Green	Fault	Com 1 Fault	
×	Com 2 Fault	×	x	x		Warning	Red	Green	Fault	Com 2 Fault	8
	Match all rows to the top row>	м	м	м	м	м	м	м	м		

After this come 4 alarms for each of the eight channels.

This gives a total of 46 alarms and events that can be enabled and monitored by S^3 for this module type.

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", Module and Channel "Reset" buttons for the module which are accessible from the devices point display.

8 DH-CPR-R2	Release Ouput - Reserve	Output Op	ens 🔻 90
to all users. Char	Alams User Level e is "0" and provides access age these values to match t configuration and securi-	User Level Editor Button Action Acknowledge Remove Reset Reset Input 4 Reset Input 5	User Level 0 0 0 0 0 0

Point Display: The IPM has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

EXTEND	ED DIAGNOSTICS	E	MBEDDED ABORT TIMER
REDUNDANCY FAULT CODE	888888888	0	SECONDS
ISC: Intelligent Protection Module DCATION: Port EQP Node 24	DEVICE	TYPE:IPM EQ	3740 TAG:DH-IPM-024
Device Removed Control Message Fault Wrong Device Type Memory Fault Invalid Configuration Fault Unable to Configure LON A, Device Offline	Device Of Com 1 Fa Com 2 Fa Supply Vo	ult	Renove Acknowledg Reset
			CHANNELS
DH-CPR-AR	ABORT ACTIVE		INPUT
DH-CPR-MR	MANUAL RELEASE ACTIVE		INPUT
DH-CPR-SI	SUPERVISORY		INPUT
DH-CPR-1SA	ZONE 1 ALARM		INPUT
DH-CPR-2SA DH-CPR-AA	ZONE 2 ALARM		INPUT
DH-CPR-AA DH-CPR-R1	SIGNAL CIRCUIT ACTIVE RELEASE CIRCUIT 1 ACTIVE	_	OUTPUT
DH-CPR-R1 DH-CPR-R2	RELEASE CIRCUIT 2 ACTIVE		OUTPUT
	ACTIVE	SHORTED OPI	EN FAULT TYPE

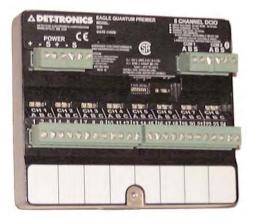
The point display provides a single window view of all available real-time data for the device.

The bottom half of the point display provides a data display area and annunciator for all 8 inputs and outputs.

Reset Button: The reset button on the IPM point display will reset the module. Part of this reset includes automatically cycling power to the two smoke detector zones (channels 4 & 5) to reset these latching devices.

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EAGLE QUANTUM PREMIER 14-53



Relay Module

8 channel relay module

Description: The 8 Channel Relay Module consists of eight individually configured output channels. Each output channel drives a Form-C relay.

NOTE

The relay module only supports equipment that operates on 24 vdc/vac (not to exceed 2amperes) at each output channel.

The relay module has two LEDs for the device and two LEDs for each channel.

On the device level, one green LED indicates power, while the other amber LED indicates a LON communication fault.

For each channel, one red LED indicates channel activation and the other amber LED indicates a fault condition.

Tagname: The tagname at the top of the dialog box refers to the entire module.

C	hannel Rela	ay Editor		
T	agname:	DH-RM-001		
М	lisc:	8 Ch. Relay Module		
	Tagname	Description	Comm Fail Mode	Normally Energized
1	DH-RO-001	Relay output 1	Failed Off 🛛 🔻	
2	DH-R0-002	Relay output 2	Failed On 🔹	
3	DH-RO-003	Relay output 3	Hold Last State 🔹	
4	DH-RO-004	Relay output 4	Failed Off 🛛 🔻	
5	DH-RO-005	Relay output 5	Failed Off 🔹 🔻	

Each of the eight channels also require a tagname and until one is entered, that channel is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

RELAY MODULE

Description: This field provides an area to describe the function of each relay.

Adding this optional information can make troubleshooting and startup easier.

Com Fail Mode: Each of the 8 relays can be individually configured to respond in one of three ways in the unlikely event of a complete loss of communications with the EQP controller.

Tagname: DH-RM-001		DH-RM-001							
Misc: 8 Ch. Relay Mod		8 Ch. Relay	Module						
	Tagname		Description	Comm Fail Mode	Normally Energized				
1	DH-RO-001		Relay output 1	Failed Off 🛛 🔻					
2	DH-RO-002		Relay output 2	Failed On 🔻					
3	DH-RO-003		Relay output 3	Hold Last State 🛛 🔻					
1	DH-RO-004		Relay output 4	Failed Off 🛛 🔻					
5	DH-RO-005		Relay output 5	Failed Off 🛛 🔻					
6	DH-RO-006			Hold Last State 🔹					
7	DH-RO-007			Hold Last State 🛛 🔻					
3	DH-RO-008			Hold Last State 🛛 🔻					

The three selections are as follows:

Failed Off: Relay coil de-energizes

Failed On:Relay coil energizes

Hold Last State: Relay coil stays energized or de-energized as per its last valid command from the EQP controller.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

7 DH-RO-007			Hold Last State	•	
8 DH-RO-008			Hold Last State	•	
	Alarms	User Level		ОК	Cancel

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

RELAY MODULE

The first 13 alarms pertain to the status and diagnostic for the overall module.

After this come 3 alarms for each of the eight channels. This gives a total of 37 alarms and events that can be enabled and monitored by S^3 for this module type.

Enabled	Name		Printer	File	Window	Auto	Sound		Active	Color	Normal Color	Graphic Trigger Group	Miscellanous			
X	Device Removed		X	X	X	F	Warning		Red		Green	Alorm	Device Removed	1		
x	Control Message Fault		X	x	x		Warning		Red		Green	Feul	Control Message	Fault		
x	Wrong Device Type	Alarms In	Monitor	e .												
X	Memory Fault	Enabled	Name				Purites	File	Window	Auto.	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	1
x	Invalid Contiguration	X	Com 2 Fault				X	X	X	Г	Warning	Red	Green	Foult	Com 2 Fault	
x	Foult	x	Supply Volta	ge Fau	ĸ		x	x	x	-	Warning	Red	Green	Fault	Supply Voltage Fault	
X	Unable to Configure	x	Channel Acti	1			X	×	×		Waining	Red	Green	Alorm	Channel 1 Channel Active	
×	LON A. Device Offin	x	Inhibit Status				×	x	x		Warning	Red	Green	Foult	Channel 1 Inhibit Status	
x	LON B, Device Offin	x	Fault				x	x	x	-	Warning	Red	Green	Fault	Channel 1 Fault	
x	Device Ottline	x	Channel Act	ve			×	×	×		Waining	Red	Green	Alorm	Channel 2 Channel Active	
×	Com 1 Fault	x	Inhibit Status				×	X	×		Warning	Red	Green	Foult	Channel 2 Inhibit Status	
X	Com 2 Fault	X	Fault				×	×	×		Warning	Red	Green	Fout	Channel 2 Fault	
	Match all rows to the	x	Channel Act	ve			x	x	x		Warning	Red	Green	Alorm	Channel 3 Channel Active	
Defaults	Custom	x	Inhibit Status				x	x	x		Warning	Red	Green	Foul	Channel 3 Inhibit Status	
		×	Fault				×	X	×		Wanng	Red	Green	Fout	Channel 3 Fault	
		X	Channel Act	ve			x	x	x		Warning	Red	Green	Alarm	Channel 4 Channel Active	
			Match all ro	ws to t	he top rov	e-15	м	м	M	M	M	M	м	м		

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", and "Inhibit" buttons for the module which are accessible from the devices point display.

7 DH-RO-007		Hold Last State 🛛 🔻	
8 DH-RO-008		Hold Last State 🛛 🔻	
	Alarms User Level	User Level Editor	n É e i
		Button Action	User Level
		Acknowledge	0
he default va	lue is "0" and provides access	Remove	0
		Inhibit Output 1	0
o all users. Cl	hange these values to match	Inhibit Output 2	0
our user acco	unt configuration and securi-	Inhibit Output 3	0
	and configuration and securi	Inhibit Output 4	0
/ needs.		Inhibit Output 5	0
		Inhibit Output 6	0
		Inhibit Output 7	0

Point Display: The IPM has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

<i>\$</i>				
EXTEND	DED DIAGNOSTICS			
LON A COUNTER	88888888			
LON B COUNTER				
MISC : Annunciator Interface Relays LOCATION: Port FG-CTRL-001 Node 38	Requesting device data 45	E TYPE:Rel. EQ3	3720 TAG:D	H-RM-038
Device Removed Control Message Fault Wrong Device Type Memory Fault Invalid Configuration Fault Unable to Configure LON A, Device Offline	Device C Com 1 F Com 2 F	Fault		Remove
				CHANNELS
FG-ESD-R1			Inhibit	
FG-ESD-R2 FG-ESD-R3			Inhibit	
FG-ESD-R4			Inhibit	
FG-ESD-R5			Inhibit	
FG-ESD-R6			Inhibit	
FG-ESD-R7			Inhibit	
FG-ESD-R8			Inhibit	
CHANNEL TAGNAME	ACTIVE	FAULT	INHIBIT	

The point display provides a single window view of all available real-time data for the device.

The bottom half of the point display provides a data display area and annunciator for all 8 relay outputs.

Inhibit Buttons: Each relay output has an inhibit button that can be used to disable that channel from responding to commands from the user logic program in the EQP controller.

RELAY MODULE

EAGLE QUANTUM PREMIER 14-57



IDC

2 channel Initiating Device Circuit (IDC) module

Description: The EQ22xxIDC Series Initiating Device Circuit (IDC) module is located on the LON/SLC and provides supervised input capability for the Eagle Quantum Premier system.

There are three 2 Channel EQ22xxIDC Series Initiating Device Circuit (IDC) modules available:

The EQ22xxIDC allows discrete inputs from smoke/heat detectors, manual call stations or other contact devices.

It accepts two dry contact inputs for use with devices such as relays, pushbuttons, key switches, etc.

The IDC supports ANSI/NFPA 72 Class B, Style B supervised input circuits.

Each circuit requires its own end of line (EOL) resistor for monitoring circuit continuity.

The EQ22xxIDCGF Initiating Device Circuit Ground Fault Monitor (IDCGF) responds to the presence of a ground fault within the power circuitry of the system.

It provides an unsupervised dry contact input and ground fault monitoring circuitry for indicating a power supply trouble condition.

It is intended for use with a third party power supply.

The EQ22xxIDCSC Initiating Device Circuit Short Circuit (IDCSC) is similar to the IDC, but supports ANSI/NFPA 72 Class B Style C supervised input circuits. (Not FM Approved.)

Tagname: The tagname at the top of the dialog box refers to the entire module.

Each of the two input⁻t channels also require a tagname and until one is entered, that channel is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

agname:	DH-DI-010			
lisc:	2 Chl. IDC Inp	ut Module		
Tagname		Description	Static Logic Mode (Input)	
DH-DI-010A		Manual Alarm Call box	Fire Alarm 🔻	
2 C				

Configuration: Enter the Tagname for the module, a miscellaneous description and then the tagnames and descriptions for the two input channels.

Until tagnames are assigned to the two input channels they are not available in the S3 database for programming in the user logic.

Static Logic Mode (Input): Each of the two inputs has a pull down menu that allows one of five different "static logic" functions to be assigned, or, to select "Other" which is the default and has no automatic function.

The five static logic functions are:

- **Fire Alarm:** Sets off the "Fire Alarm" LED and relay* on the EQP controller.
- **Trouble:** Sets off the "Trouble" LED and relay* on the EQP controller.
- Low Gas Alarm: Sets off the "Low Gas" LED and relay* on the EQP controller.
- **High Gas Alarm:** Sets off the "High Gas" LED and relay* on the EQP controller.
- **Supervisory:** Sets off the "Supr" LED and relay* on the EQP controller.

If a static logic function has been selected for an input, when the input is active that action will occur automatically without the need for any user programmed logic.

If the input is to be used with user programmed logic only, select "Other".

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

T	agname:	DH-DI-010			
M	isc:	2 Chl. IDC Inpu	ut Module		
	Tagname		Description	Static Logic Mode (Input)	
1	DH-DI-010A		Manual Alarm Call box	Fire Alarm 🔻	
	DH-DI-010B			Fire Alarm 🔻	*********

The first 11 alarms pertain to the status and diagnostic for the overall module.

After this come 3 alarms for each of the eight channels.

This gives a total of 17 alarms and events that can be enabled and monitored by S^3 for this module type.

Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	<
X	Device Removed	x	X	×		None	Red	Green	Fault	Device Removed	
x	Wrong Device Type	X	x	x		None	Red	Green	Fault	Wrong Device Type	
x	Invalid Configuration	X	x	x		None	Red	Green	Fault	Invalid Configuration	
x	Fault	X	x	X		None	Red	Green	Fault	Fault	
x	Unable to Configure	X	x	X		None	Red	Green	Fault	Unable to Configure	
x	LON A, Device Offline	X	x	X		None	Red	Green	Fault	LON A, Device Offline	
x	LON B, Device Offline	X	x	x		None	Red	Green	Fault	LON B, Device Offline	
x	Device Offline	X	x	X		None	Red	Green	Fault	Device Offline	
x	Com 1 Fault	X	x	x		None	Red	Green	Fault	Com 1 Fault	
x	Com 2 Fault	X	x	x		None	Red	Green	Fault	Com 2 Fault	
x	Supply Voltage Fault	X	x	x		None	Red	Green	Fault	Supply Voltage Fault	
x	Channel Active	×	x	x		None	Red	Green	Alarm	Channel 1 Channel Active	
	Match all rows to the top row>	м	м	м	м	м	м	м	м		

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User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", and "Inhibit" buttons for the module which are accessible from the devices point display.

Editor			
agname: DH-DI-010			
lisc: 2 Chl. IDC Ing	ut Module		
Tagname	Description	S	tatic Logic Mode (Input)
DH-DI-010A	Manual Alarm Call box	ser Level Editor	
DH-DI-010B		Button Action	User Level
		Acknowledge	0
Alarms Us	er Level	Remove	0
Alainis	er Lever	Inhibit Input 1	0
		Inhibit Input 2	0
e default value is "(des access to all user ese values to match count configuration eds.	s. Change your user		

Point Display: The IPM has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

The point display provides a single window view of all available real-time data for the device.



The top right quadrant of the display shows the last eight alarms (channel activation) with their date and time data.

The bottom half of the point display provides a data display area and annunciator for the two input channels.

Inhibit Buttons: Each input has an inhibit button that can be used to disable that channels status from reaching the user logic program in the EQP controller.

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IDC

EAGLE QUANTUM PREMIER 14-63



X9800

Infrared Optical Flame Detector

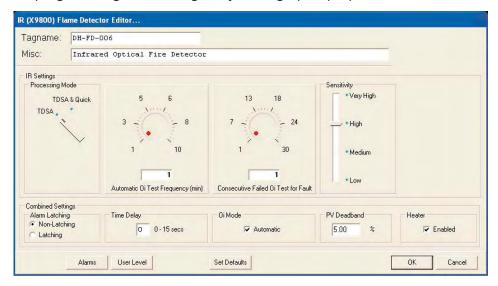
Description: The X9800 is located on the LON/SLC and provides Infrared Optical Flame detection capability for the Eagle Quantum Premier system.

The X9800 meets the most stringent requirements worldwide with advanced detection capabilities and immunity to extraneous sources, combined with a superior mechanical design.

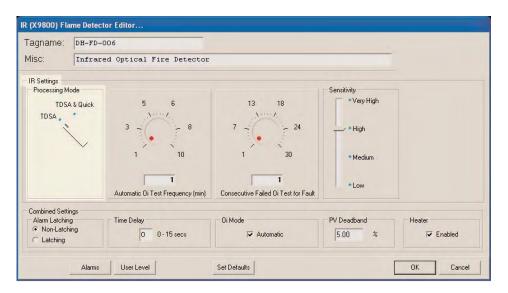
The detector is equipped with both automatic and manual oi test capability. The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

Tagname: The tagname at the top of the dialog box refers to the flame detector.

Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.



Configuration: Enter the Tagname for the detector, a miscellaneous description and then adjust the IR Settings.



Processing Mode: The X9800 features signal processing options.

These options determine the type of logic that the detector will use for processing fire signals to customize the X9800 to the application.

Two signal processing options are available for the X9800: "TDSA" and "TDSA & Quickfire".

• TDSA enabled

The TDSA signal processing technique analyzes the input signal in real time, requiring the IR signal to flicker randomly in order to recognize it as a fire condition.

Using TDSA signal processing, the X9800 ignores regularly chopped blackbody sources (occurring in areas where moving conveyors and hot objects in proximity to one another result in a regularly chopped IR signal), because it looks for a less uniform signal.

However, in the presence of a regularly chopped signal, the unit is more susceptible to false alarms due to sporadic IR that functions as a trigger when occurring in conjunction with the regularly chopped signal. • TDSA & Quick Fire enabled (either initiates fire alarm).

The Quick Fire (High Speed) feature can be used in conjunction with the TDSA signal processing method.

This method overrides TDSA requirements in the event of an intense signal. When Quick Fire is activated, the detector is capable of responding to an intense fire signal in less than 30 milliseconds (0.030 seconds).

Using the Quick Fire feature in conjunction with TDSA signal processing allows the detector to provide a high speed response to a large, non-flickering fire (such as in high pressure gas applications) while maintaining an ability to respond to smaller fires.

Automatic oi

The X9800 includes the Automatic Optical Integrity (oi) feature — a calibrated performance test that is automatically performed once per minute to verify complete detector operation capabilities.

No testing with an external test lamp is required.

The detector automatically performs the same test that a maintenance person with a test lamp would perform — once every minute, 60 times per hour. However, a successful automatic oi test does not produce an alarm condition.

The X9800 signals a fault condition when less than half of the detection range remains. This is indicated by the amber color of the LED on the face of the detector.

Magnetic oi / Manual oi

The detector also incorporates both magnetic oi and manual oi features that provide the same calibrated test as the automatic oi, and in addition actuates the message to verify output operation for preventive maintenance requirements.

These features can be performed at any time and eliminate the need for testing with a non-calibrated external test lamp.

CAUTION

These tests require disabling of all extinguishing devices to avoid release resulting from a successful test.

The magnetic oi test is performed by placing a magnet by the marked location (mag oi) on the outside of the detector.

The manual oi test is accomplished by selecting the button on the devices Point Display.

The magnet must be held in place for a minimum of 6 seconds to complete the test.

These test methods activate the calibrated IR emitter.

If the resulting signal meets the test criteria, indicating that greater than half of the detection range remains, the Alarm message changes state, the indicating LED changes to red, and a full scale reading is displayed in the analog readout on the S³ Point Display.

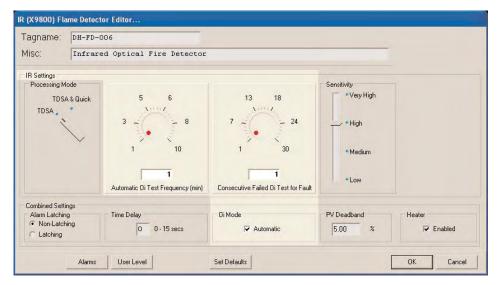
This condition remains until the magnet is removed or the S³ software test command is released.

If less than half of the detection range remains, no alarm is produced and a fault is generated.

The fault indication can be reset by momentarily applying the magnet or the S³ Software Point Display reset button.

Oi Configuration

The frequency of Oi testing can be adjusted between once a minute as maximum and up to once every ten minutes as a minimum.



There is also a checkbox for automatic operation.

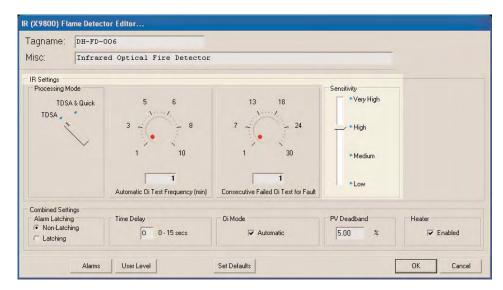
The number of failed Oi tests needed to generate a fault can also be adjusted within a range of 1 to 30.

Test failures can sometimes be generated during heavy rain or other environmental conditions thus requiring this parameter to be flexible.

X9800

Sensitivity:

Dense fog, rain as well as certain gases and vapors can absorb IR radiation and reduce the sensitivity of the detector.



The sensitivity of the detector can be adjusted to any one of four settings using the slider control as shown above.

Alarm Latching: This refers to the fire alarm "message" being sent from the detector to the EQP controller and then used in both the embedded and user programmed logic. Non-latching is the default and most common setting.

Using the Radio Buttons select either latching or nonlatching for the alarm operation. If set to latching, the user will have to reset the detector from its S³ Point Display following an alarm.

Time Delay: An input time delay can be programmed by entering a value from 1 to 15 seconds in the provided field.

This will delay sending the fire alarm message to the EQP controller until the fire alarm has been generated <u>uninterrupted</u> for the specified time. This programmable delay can be used to filter out spurious events.

Alarm Late	1.000
C Latchin	9
	Alarma

Time Del	ay	
	0	0 - 15 secs
	0	0 - 15 sec:

PV Deadband: A field is provided to enter the desired PV (Process Variable) Deadband.

Normally all values are transmitted to the controller every five seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

Alarm Latching Non-Latching Latching	Time Delay	Oi Mode	PV Deadband	Heater
Alarms	User Level	Set Defaults		OK Cancel

Heater: A checkbox is provided to enable the Microprocessor controlled heated optics for increased resistance to moisture and ice. In climates where this is not an issue, deselecting this option will save up to 8 watts per detector.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

Alarm Latching Non-Latching Latching	Time Delay	Oi Mode	PV Deadband	Heater
Alarms	User Level	Set Defaults		OK Cancel

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S^3 .

Inabled	Name	Printer	File	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	2
x	Device Removed	×	x	X		Warning	Red	Green	Alarm	Device Removed	
×	Fire Alarm	x	x	X		Warning	Red	Green	Alarm	Fire Alarm	
×	Temperature Out of Range	X	x	x		Warning	Red	Green	Fault	Temperature Out of Range	
x	CPU Fault	X	x	x		Warning	Red	Green	Fault	CPU Fault	
×	Wrong Device Type	X	x	x		Warning	Red	Green	Fault	Wrong Device Type	
x	Inhibit Status	X	x	x		Warning	Red	Green	Fault	Inhibit Status	
x	Invalid Configuration	X	x	x		Warning	Red	Green	Fault	Invalid Configuration	
x	Fault	X	x	x		Warning	Red	Green	Fault	Fault	
x	Unable to Configure	×	x	x		Warning	Red	Green	Fault	Unable to Configure	
x	LON A, Device Offline	X	x	x		Warning	Red	Green	Fault	LON A, Device Offline	
x	LON B, Device Offline	×	x	x		Warning	Red	Green	Fault	LON B, Device Offline	
x	Device Offline	X	x	x		Warning	Red	Green	Fault	Device Offline	
	Match all rows to the top row>	м	м	м	м	м	м	м	M		

There are 27 alarms and events that pertain to the status and diagnostics for the X9800.

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", "IR Calibration", "Manual Oi (FIRE)" and "Reset" buttons for the module which are accessible from the devices point display.

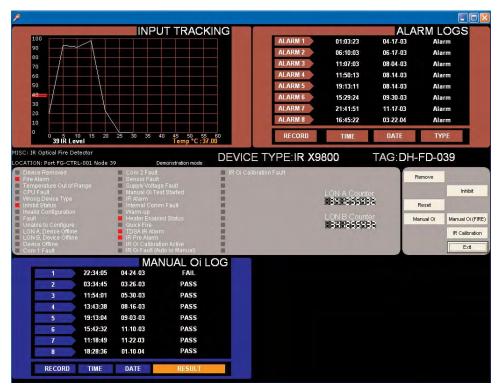
Alarm Latching	Time Delay	Oi Moo
Alarms	User Level	Set Defa

	User Level
cknowledge	0
lemove	0
fanual Oi	0
nhibit	0
leset	0
R Calibration	0
fanual Oi (FIRE)	0

The default value is "0" and provides access to all users.

Change these values to match your user account configuration and security needs.

Point Display: The X9800 has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Alarm Logs: The top right quadrant of the display shows the last eight alarms with their date and time data.



Analog Input Track: The top left quadrant shows a dynamic 60 second history of the measured variable (IR counts) for the detector. The input track scrolls from left to right with the most current data at the "pen" on the left margin. The display updates once every five seconds.

Oi Log: The bottom left quadrant of the point display shows the detectors manual Optical Integrity (Oi) log. The last eight manual tests are shown with the date, time and a PASS/FAIL indicator.

Status & Diagnostics: The middle portion of the point display shows the discrete status and health indicators for the detector.

Buttons: There are six buttons that can send commands to the detector including; remove, inhibit, reset, Manual Oi, Manual Oi (FIRE) and IR Calibration.

EAGLE QUANTUM PREMIER 14-7



Description: The EQ2500SAM Signal Audible Module is located on the LON/SLC and provides NFPA-72 compliant Notification Appliance Circuit (NAC) control capability to the Eagle Quantum Premier system.

The Signal Audible Module provides two indicating circuits for controlling UL Listed 24 vdc polarized audible/visual indicating appliances.

The device is located on the LON and is controlled by programmable logic in the Controller.

Each output circuit is independently programmable to allow notification of separate events.

Each output can be individually activated for any one of the following predefined outputs:

- 1. Continuous
- 2. 60 beats per minute
- 3. 120 beats per minute
- 4. Temporal pattern.

Device outputs operate in the reverse polarity manner when activated. Each output is rated at 2 amperes.

The output circuits are supervised for open and short circuit conditions.

If a wiring fault occurs, a trouble condition will be indicated at the Controller and on the S³ Point Display.

Tagname: The tagname at the top of the dialog box refers to the module. Each of the two output channels also require a tagname. Until the tagnames are entered the module is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

SAM Editor			
Tagname:	DH-DO-034		
Misc:	2 CHL SAM Module		
Tagnan	ne	Description	
1 DH-DO-	034A	Rotating beacon on LB2	
2 DH-DO	-034B	Spare channel	
		····· *·······························	
	Alarms User Level	OK	Cancel

Below the tagname is a "Misc" text field to enter descriptive information to better identify the location or purpose of the module. Data in this field is optional.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

Name		Printes	File	Window	Auto: S Clear	ound		Active Co	akor	Normal Color	Graphic Trigger Group	Miscellanous		S	
Device Removed		x	x	X	E V	Varning		Red		Green	None	Device Removed			
Wrong Device Type	Alarms to A	Monitor	6												
Control Message Fault	Enabled N	lame				Puntes	File	Window	Auto	Sound	Active Colo	Normal Color	Graphic	Miscellanous	1
Invalid Configuration	IX C	Com 2 Fault	-		_	x	x	X	Elear	Warning	Red	Green	None	Com 2 Fault	_
Fault	IX S	upply Volta	ge Fau	t		x		x	-		Bed	Green	None	Supply Voltage Fault	
Unable to Configure	IX L	OW AUX PO	ver Fau	e .		×			-		Red	Green	None	Low Aux Power Fault	
LON A, Device Office	x C	hannel Acti	ME			x			F		Red	Green	None	Channel 1 Channel Active	
LON B, Device Offline	IX C	hannel Sho	ted			x	x	X	-	Warning	Red	Green	None	Channel 1 Channel Shorted	
Device Offline	IX C	hannel Ope	m			×	X	x	-	Wanng	Red	Green	None	Channel 1 Channel Open	
Com 1 Fault	IX Ir	nihibit Status				X	x	×		Warning	Red	Green	None	Channel 1 Inhibit Status	
Com 2 Fault	IX C	hannel Acti	ve			×	X	X		Wanng	Red	Green	Noné	Channel 2 Channel Active	
Supply Voltage Fault	X C	hannel Sho	nted			X	x	x		Warning	Red	Green	None	Channel 2 Channel Shorted	
Match all rows to the	IX C	hannel Ope	era.			x	x	x		Warning	Red	Green	None	Channel 2 Channel Open	
Custom	IX Ir	nhibit Status				X	X	×		Warning	Red	Green	None	Channel 2 Inhibit Status	
	1	Match all ro	ws to t	ne top row	·>	м	M	M	м	M	м	м	м		-
	Control Message Faul Invalid Configuration Fault Unable to Configure LON A, Drivion Offline LON B, Device Offline Drivion Offline Com 1 Fault Com 2 Fault Supply Voltage Fault Match all rows to the	Wrang Dence Type Alermin to J Control Message Fault Enabled Invasid Configuration Finded Fault IX Unable to Configure IX LON A, Device Offline IX Davice Offline IX Conno D. Buologo Offline IX Conno D. Buologo Offline IX Conno T. Fault IX Stephy Voltage Fault IX Match all rows to the IX	Vinong Device Type Control Message Faul Unable Configuration Faul Unable to Configuration Faul Unable to Configure IDN A, Device Office Device Office Device Office Device Office IS Channel Ope Con 1 Faul IS Channel Ope Con 2 Faul IS Channel Ope Con 1 Faul IS Channel Ope Con 2 F	Concel Removes	Alternetics IX IX IX IX Wrong Denoter Type Alarmes to Monitor Enabled Name Control Message Fault Enabled Name Inscription Fault IX Control Active IX IX Fault IX Cont 2 Fault IX Control Active LDN A, Device Offline IX Channel Shoted IX Channel Active Device Offline IX Channel Goen IX Channel Active Con T Fault IX Channel Active IX Channel Active Supply Volage Fault IX Channel Active IX Channel Active Cont T Fault IX Channel Active IX Channel Active Match all rows to the IX Channel Dem IX Inshibt Status	Anne Anne	Construction Construction Writing Denoter Type Alarmis to Montifor Writing Control Message Fault Enabled Name Printee Invalid Configuration Fix Dir Dir Dir Fault Enabled Name Printee Printee Invalid Configuration Fix Cont 2 Fault Dir Dir Unable to Configure Fix Low Aux Power Fault Dir Dir	Construction Construction Writing Denoter Type Alarmes to Montifor If I	Anne Date Red Wring Dence Type Annes to Monitor Face Plate Field Monitor Configuration Face Plate Field Window Monitor Configuration Face Plate Field Window Face Enabled Name Plate Field Window Monitor Configuration Field Field	Control Metabolis IX IX	Control Determined Devel Writing Denoter Typer Ixit mice to Montifor Control Mestage Fault Ixit mice to Montifor Enabled Rame Printer Fall Invoide Configure Ixit mice to Montifor Fault Ixit Configure Unable to Configure Ixit Manning Invoide Configure Ixit Mice Information Invoide Configure Ixit Ixit Ixit Ixit Ixit Ixit Ixit Ixit	Additional Structure David Tragger Group. Vertrage Backers Fault IX IX	Answer Drive Tragger Group Control Message Fault IX IX	Annesh Hanness Date Trigger Broup Wring Dence Type IX IX <td>Answeit/Honores Disk Disk Tigger Group Wrong Dence Type IX IX</td>	Answeit/Honores Disk Disk Tigger Group Wrong Dence Type IX IX

There are 13 alarms and events that pertain to the status and diagnostics for the module plus 4 per output channel.

SIGNAL AUDIBLE MODULE (SAM)

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove" and "Inhibit" buttons for the module

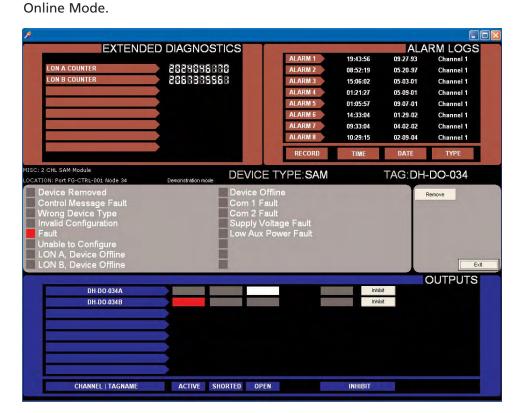
	User Level Editor	
\sim	Button Action	User Level
Alarms User Level	Acknowledge	0
	Remove	0
	Inhibit 1	0
	Inhibit 2	0

The default value is "0" and provides access to all users. Change these values to match your user account configuration and security needs.

rity needs. **Point Display:** The SAM has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the

OK

Cancel



The point display provides a single window view of all available real-time data for the device.

SIGNAL AUDIBLE MODULE (SAM)

Alarm Logs: The upper right quadrant of the point display shows the last eight alarms that have occurred along with their date & time. This information is stored in the module and is retrieved over the LON for display in this area.

EXTEND					
EXTEND	ED DIAGNOSTICS	ALARM 1	19:43:56	ALA 09-27-93	RM LOGS
LON A COUNTER	888888888	ALARM 2	08:52:19	05-20-97	Channel 1
LON B COUNTER	2050305555	ALARM 3	15:06:02	05-03-01	Channel 1
		ALARM 4	01:21:27	05-09-01	Channel 1
		ALARM 5	01:05:57	09-07-01	Channel 1
		ALARM 6	14:33:04	01-29-02	Channel 1
		ALARM 7	09:33:04	04-02-02	Channel 1
		ALARM 8	10:29:15	02-09-04	Channel 1
		RECORD	TIME	DATE	ТҮРЕ
SC: 2 CHL SAM Module CATION: Port FG-CTRL-001 Node 34		E TYPE:SAM		TAG:DH-	DO-034
Invalid Configuration Fault Unable to Configure LON A, Device Offline LON B, Device Offline		oltage Fault Power Fault			Exit
DH-DO-034A			Inhit		DUTPUTS
DH-DO-034B			Inhit	bit	
			_		

Status & Diagnostics: The middle area of the point display shows the discrete status of 13 pieces of tracked status and diagnostic data.

Channel Status: The bottom half of the point display provides an annunciator style display depicting the status and health of the two output channels. Next to the channel tagname are indicators for Active, Shorted, Open and the Inhibit status. Buttons are also provided to inhibit either of the output channels. (If the user has sufficient access privileges.)

SIGNAL AUDIBLE MODULE (SAM)

EAGLE QUANTUM PREMIER 14-75



X3301

Multi-Spectrum Infrared Optical Flame Detector

Description: The X3301 is located on the LON/SLC and provides Multi-Spectrum Infrared Optical Flame detection capability for the Eagle Quantum Premier system.

It provides unsurpassed detection of fires from light to heavy hydrocarbon fuels combined with the highest degree of false alarm rejection.

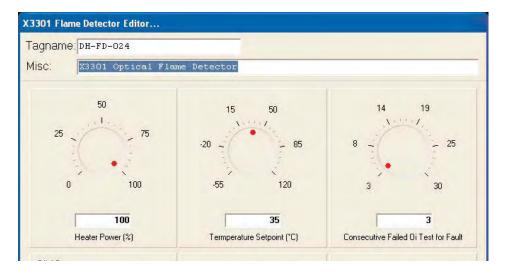
The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

The X3301 contains three IR sensors with their associated signal processing circuitry. A multi-color LED on the detector faceplate indicates detector status condition. Microprocessor controlled heated optics increase resistance to moisture and ice.

Configuration

Tagname: The tagname at the top of the dialog box refers to the flame detector.

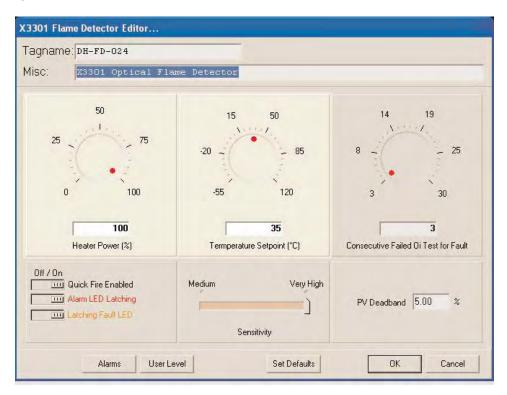
Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.



X3301

Heated Optics

Heater Power: Up to 8 watts of power can be utilized to provide heat to the optical sensing elements. The "Heater Power" adjustment allows the user to determine the maximum amount of power to use in trying to achieve the temperature setpoint. This can be an important adjustment in situations where the power budget is limited or in installations with large quantities of detectors.



Temperature Setpoint: The default temperature setpoint for the heated optics is 35°C but can be adjusted utilizing the rotary dial or by entering a value in the setpoint field.

OPTICAL INTEGRITY (Oi)

Automatic oi: The X3301 includes the Automatic Optical Integrity (oi) feature — a calibrated performance test that is automatically performed once per minute to verify complete detector operation capabilities.

No testing with an external test lamp is required.

The detector automatically performs the same test that a maintenance person with a test lamp would perform — once every minute, 60 times per hour. However, a successful automatic oi test does not produce an alarm condition.

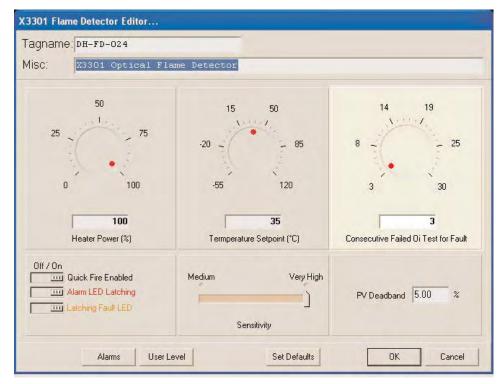
The Protect•IR signals a fault condition when less than half of the detection range remains. This is indicated remotely on the S³ Point Display and is evi-

X3301

dent locally by the amber color of the LED on the face of the detector.

Oi Test Fault

The detector automatically conducts oi tests to check the integrity of the optical sensing systems. Three consecutive failed oi tests will generate a



fault condition, which will be indicated by the LED on the face of the detector turning amber. The EQP Controller and S³ software will also annunciate this fault.

In certain environmental conditions like very heavy rain, oi test failures can occur even though the hardware is not faulty. To compensate for this the number of failed oi tests required to generate the fault can be adjusted upward to a maximum of 30.

Magnetic oi / Manual oi

The detector also incorporates both magnetic oi and manual oi features that provide the same calibrated test as the automatic oi, and in addition actuates the Alarm to verify output operation for preventive maintenance requirements. These features can be performed at any time and eliminate the need for testing with a non-calibrated external test lamp.

The magnetic oi test is performed by placing a magnet by the marked location (mag oi) on the outside of the detector. The manual oi test is accomplished by selecting the oi Test button on the Point Display in the S³ software. The magnet must be held in place for a minimum of 6 seconds to complete the test. Either of these test methods activates the calibrated IR emitters. If the resulting signal meets the test criteria, indicating that greater than half of the detection range remains, the Alarm status message to the EQP controller changes state, the indicating LED changes to red, and the analog signal displayed in the tracking area of the S³ point display goes to maximum.

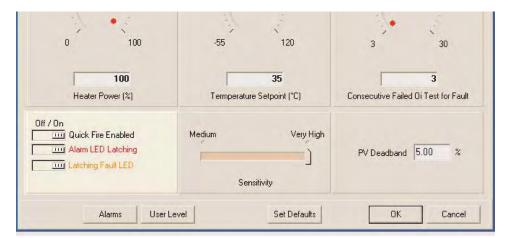
This condition remains until the magnet is removed or the software test is complete. If the alarm LED is configured for non-latching operation, it will change states and the red LED will turn to green.

If the unit has latching LED's, the detector's operating software will automatically reset the relays with no operator action required.

If less than half of the detection range remains, no alarm is produced and a fault is generated. The fault indication can be reset by momentarily applying the magnet or via S³ software command.

Quick Fire Enabled: The "Quick Fire" feature can be enabled or disabled from a soft-switch in the bottom left area of the configuration dialog box.

Quick Fire mode is for enhanced response to "flash" type fires. For details refer to the X3301 instruction manual; 95-8527-6.4.



Alarm LED Latch: The tri-color LED on the face of the detector turns red when in alarm and can be configured to be either latching or non-latching. If latching is selected, following a fire detection, the LED will stay on until the detector is reset from the point display for the detector in the S³ software. The default is non-latching.

Fault LED Latch: The tri-color LED on the face of the detector turns amber when a fault is present (fire over-rides fault) and can be configured to be either latching or non-latching. If latching is selected, following a fire detection, the LED will stay on until the detector is reset from the point display for the detector in the S³ software. The default is non-latching.

X3301

Detector Sensitivity: The sensitivity of the detector can be adjusted

Heater Power (%)	Termperature	Setpoint (°C)	Consecutive Failed Oi Test for F	ault
Off / On	Medium	Very High	PV Deadband 5.00	%
	Sens	itivity		
Alarms User L	evel	Set Defaults	OK Car	icel

between medium and very high using the sensitivity slider control in the center bottom area of the configuration dialog box.

PV Deadband: A field is provided to enter the desired PV (Process Variable) Deadband.

Heater Power (%)	J Termperature Setpo		Consecutive Failed Oi Test for Fault
Off / On UII Quick Fire Enabled Alarm LED Latching Latching Fault LED	Medium C Sensitivity	Very High	PV Deadband 5.00 %
Alarms	.evel S	Set Defaults	OK Cancel

Normally all values are transmitted to the controller every five seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

Alarm LED Latching	Medium Very High	PV Deadband 5.00 %
Alarms User Leve	l Set Defaults	OK Cancel

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S^3 .

There are 30 alarms and events that pertain to the status and diagnostics for the X3301.

nabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	^
X	Device Removed	×	x	x		None	Red	Green	Fault	Device Removed	
x	Fire Alarm	X	x	x		None	Red	Green	Alarm	Fire Alarm	
x	Temperature Out of Range	X	x	x		None	Red	Green	Fault	Temperature Out of Range	
x	CPU Fault	×	x	x		None	Red	Green	Fault	CPU Fault	
x	Wrong Device Type	X	x	x		None	Red	Green	Fault	Wrong Device Type	
x	Inhibit Status	×	x	x		None	Red	Green	Fault	Inhibit Status	
×	Invalid Configuration	×	x	X		None	Red	Green	Fault	Invalid Configuration	
x	Fault	×	x	x		None	Red	Green	Fault	Fault	
x	Unable to Configure	×	x	x		None	Red	Green	Fault	Unable to Configure	
×	LON A, Device Offline	×	x	x		None	Red	Green	Fault	LON A, Device Offline	
x	LON B, Device Offline	X	x	x		None	Red	Green	Fault	LON B, Device Offline	
x	Device Offline	X	x	x		None	Red	Green	Fault	Device Offline	
	Match all rows to the top row>	м	м	м	м	м	м	м	м		

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", "IR Calibration",

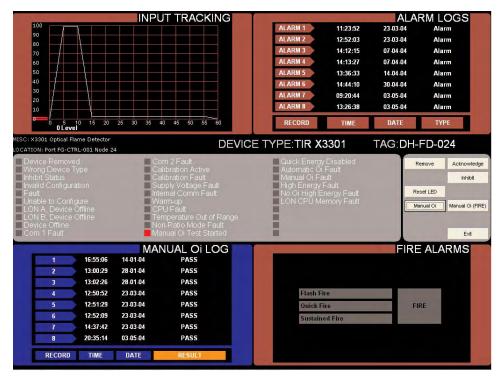
Unick Fire Enabled	Medium Sensitivity	very High	PV Deadband	5.00 %
Alarms	Level Set D	efaults User Level Editor	Гок	Cancel
"Manual Oi (FIRE)" and the module which are ac devices point display.		Button Action Acknowledge Remove Manual Oi Inhibit Reset		User Level 0 0 0 0 0
The default value is "0" access to all users.	and provides	Manual Oi (FIRE)		0

Change these values to match your user account configuration and security needs.

Hemove	0	
Manual Oi	0	
Inhibit	0	
Reset	0	
Manual Oi (FIRE)	0	
	ОК	Ca

Point Display: The X3301 has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.

The point display provides a single window view of all available real-time data for the device.



Alarm Logs: The top right quadrant of the display shows the last eight alarms with their date and time data.

Analog Input Track: The top left quadrant shows a dynamic 60 second history of the measured variable (IR counts) for the detector. The input track scrolls from left to right with the most current data at the "pen" on the left margin. The display updates once every five seconds.

Oi Log: The bottom left quadrant of the point display shows the detectors manual Optical Integrity (Oi) log. The last eight manual tests are shown with the date, time and a PASS/FAIL indicator.

Status & Diagnostics: The middle portion of the point display shows the discrete status and health indicators for the detector.

Buttons: There are six buttons that can send commands to the detector including; remove, inhibit, reset, Manual Oi, Manual Oi (FIRE) and IR Calibration.

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X3301

EAGLE QUANTUM PREMIER 14-83



EQ2200UV

Ultraviolet (UV) Optical Flame Detector

Description: The EQ2200UV is located on the LON/SLC and provides UV Optical Flame detection capability for the Eagle Quantum Premier system.

The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

Configuration

Tagname: The tagname at the top of the dialog box refers to the flame detector.

Tagname:	DH-FD-02	2			
Misc:	EQ UV Op	tical Flame Detecto	or		
		Processing Mode © Standard Arc Rejection Latching Mode © Non-Latching © Latching Di Mode © Automatic Time Delay 5 0 - 7 secs PV Deadband	Arc Rejection C Low Medium C High C Very High Sensitivity C Low C Medium C High Very High		
	Alarms	PV Deadband	5.00 %	ОК	Cancel

Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

The UV detector output (measured in counts per second) is compared to the fire threshold (the "sensitivity" setting). If the radiant energy level from the fire exceeds the selected alarm threshold level, the fire alarm output is activated. In every application, it is crucial to ensure that the radiant ultraviolet energy level from the expected fire at the required distance from the detector will exceed the selected sensitivity level.

The UV detector can be programmed for "Arc Rejection" or "Standard Signal Processing".

EQ2200 UV FI	ame Detector	Editor		
Tagname:	DH-FD-022	2		
Misc:	EQ UV Opt	tical Flame Detecto	r	
		Processing Mode Standard Arc Rejection Latching Mode Non-Latching Latching Di Mode Automatic Time Delay 5 0-7 secs PV Deadband	Arc Rejection C Low Medium C High C Very High Sensitivity C Low Medium C High C Very High Very High	
	Alarms	User Level	Set Defaults	OK Cancel

Arc Rejection (Recommended Factory Setting)

The Arc Rejection mode enables the detector to prevent nuisance fire alarms caused by UV from short-duration electrical arcs or electrostatic discharge, while maintaining the ability to reliably detect the UV given off by a flame.

Typical applications that benefit from arc rejection logic include electrostatic coating processes and uncontrolled environments where transient UV sources can be present, such as many typical outdoor applications.

Most false alarm sources have short transient UV signatures, while fire creates a long UV signature over many seconds. Most fires are detected in a few seconds.

Standard Signal Processing

Standard signal processing is recommended for high speed suppression systems only. To allow for high speed operation, the standard processing mode does not incorporate the arc rejection programming.

This mode should only be used in a controlled, indoor environment.

Alarm Latching Mode: The red LED on the face of the detector comes on when in alarm and can be configured to be either latching or non-latching. If latching is selected, following a fire detection, the LED will stay on until the detector is reset from the point display for the detector in the S³ software. The default is non-latching.

Tagname:	DH-FD-022		
Misc:	EQ UV Optical Flame I	etector	
	Processing Mode C Standard Arc Rejection Latching Mode Non-Latching Oi Mode Automatice Time Delay 5 0 - 7 sect PV D	n C Low G High C Very High C Low C Low C Low C Low C Medium C High	
	Alarms User Level	Set Defaults	OK Cancel

Oi Mode: The EQ2200UV includes the Automatic Optical Integrity (oi) feature — a performance test that is automatically performed once per minute to verify complete detector operation capabilities.

No testing with an external test lamp is required. The detector automatically performs the same test that a maintenance person with a test lamp would perform —once every minute, 60 times per hour. However, a successful automatic oi test does not produce an alarm condition.

The EQ2200UV signals a fault condition when less than half of the detection range remains. This is indicated by the Oi fault message on the EQP Controller and via the S³ software.

The default mode is Automatic. Manual Oi tests can be initiated from the point display in the S^3 software.

Time Delay: An input time delay can be programmed by entering a value from 1 to 7 seconds in the provided field.

This will delay sending the fire alarm message to the EQP controller until the fire alarm has been generated <u>uninterrupted</u> for the specified time. This programmable delay can be used to filter out spurious events.

PV Deadband: A field is provided to enter the desired PV (Process Variable) Deadband.

Tagname:	DH-FD-022		
Misc:	EQ UV Optical Flame Detect	ac	
	Processing Mode © Standard © Arc Rejection Latching Mode © Non-Latching © Latching Oi Mode © Automatic Time Delay 5 0 - 7 secs	Arc Rejection C Low Medium C High C Very High Sensitivity C Low C Medium C High C Very High	
	PV Deadband	5.00 %	

Normally all values are transmitted to the controller every five seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

nabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	~
x	Device Removed	X	x	X		None	Red	Green	Fault	Device Removed	
x	Fire Alarm	X	x	x		None	Red	Green	Alarm	Fire Alarm	
×	Wrong Device Type	×	x	x		None	Red	Green	Fault	Wrong Device Type	
x	Inhibit Status	X	x	x		None	Red	Green	Fault	Inhibit Status	
x	Invalid Configuration	x	x	x		None	Red	Green	Fault	Invalid Configuration	
x	Fault	X	x	X		None	Red	Green	Fault	Fault	
x	Unable to Configure	×	x	x		None	Red	Green	Fault	Unable to Configure	
x	LON A, Device Offline	X	x	X		None	Red	Green	Fault	LON A, Device Offline	
x	LON B, Device Offline	×	x	x		None	Red	Green	Fault	LON B, Device Offline	
x	Device Offline	X	x	x		None	Red	Green	Fault	Device Offline	
x	Com 1 Fault	x	x	x		None	Red	Green	Fault	Com 1 Fault	
×	Com 2 Fault	X	x	x		None	Red	Green	Fault	Com 2 Fault	8
	Match all rows to the top row>	м	м	м	м	м	м	м	м		

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S^3 .

There are 20 alarms and events that pertain to the status and diagnostics for the EQ2200UV.

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", Manual Oi



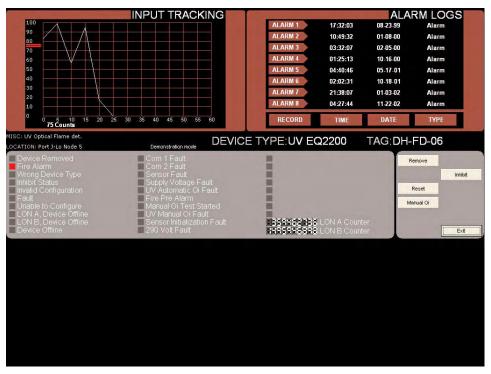
(FIRE)" and "Reset" buttons for the module which are accessible from the devices point display.

The default value is "0" and provides access to all users.

Change these values to match your user account configuration and security needs.

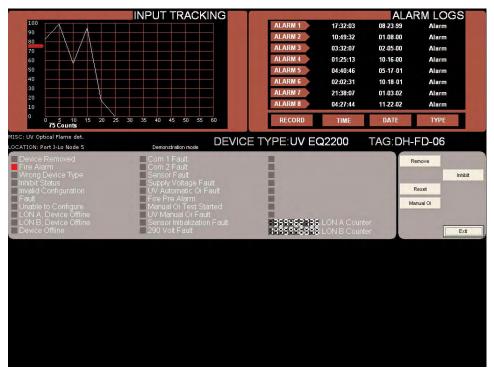
utton Action	User Level
cknowledge	0
emove	0
anual Oi	0
eset	0
hibit	0

Point Display: The EQ2200UV has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Alarm Logs: The top right quadrant of the display shows the last eight alarms with their date and time data.



Analog Input Track: The top left quadrant shows a dynamic 60 second history of the measured variable (UV counts) for the detector. The input track scrolls from left to right with the most current data at the "pen" on the left margin. The display updates once every five seconds.

Status & Diagnostics: The middle portion of the point display shows the discrete status and health indicators for the detector.

Buttons: There are four buttons that can send commands to the detector including; Remove, Inhibit, Reset and Manual Oi.

EAGLE QUANTUM PREMIER 14-89



X2200

Ultraviolet (UV) Optical Flame Detector

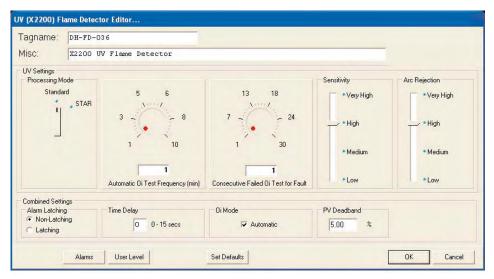
Description: The X2200 UV is located on the LON/SLC and provides Multi-Spectrum Infrared Optical Flame detection capability for the Eagle Quantum Premier system.

The X2200 meets the most stringent requirements worldwide with advanced detection capabilities and immunity to extraneous sources, combined with a superior mechanical design. The detector is equipped with both automatic and manual oi test capability.

The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

Configuration

Tagname: The tagname at the top of the dialog box refers to the flame detector.



Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.

SIGNAL PROCESSING OPTIONS

The UV detector output (measured in counts per second) is compared to the fire threshold (the "sensitivity" setting). If the radiant energy level from the fire exceeds the selected alarm threshold level, the fire alarm output is activated.

In every application, it is crucial to ensure that the radiant ultraviolet energy level from the expected fire at the required distance from the detector will exceed the selected sensitivity level.

The UV detector in the X2200 can be programmed for "Arc Rejection" or "Standard Signal Processing".

fagname:	DH-FD-O	36			
Misc:	X2200 U	V Flame Detector			
UV Settings Processing M	ode			Sensitivity	Arc Rejection
Standa	rd STAR	5 6 N	13 18 	•Very High	•Very High
		3 - 8	7 - 24	∙ High	• High
		1 10	1 30	* Medium	• Medium
		Automatic Di Test Frequency (min)	Consecutive Failed Oi Test for Fault	Low	*Low
Combined Setti	ngs				
Alarm Latchin Non-Latch Latching		Time Delay	0i Mode I ✓ Automatic	PV Deadband 5.00 %	

STAR (Arc Rejection)

The "STAR" mode (recommended factory setting) enables the detector to prevent nuisance fire alarms caused by UV from short-duration electrical arcs or electrostatic discharge, while maintaining the ability to reliably detect the UV given off by a flame.

Typical applications that benefit from arc rejection logic include electrostatic coating processes and uncontrolled environments where transient UV sources can be present, such as many typical outdoor applications.

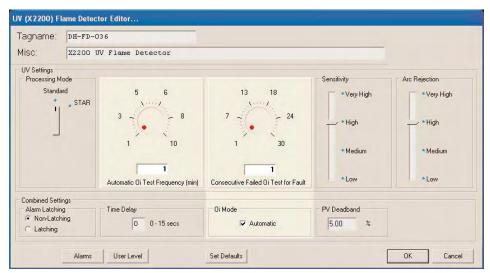
Most false alarm sources have short transient UV signatures, while fire creates a long UV signature over many seconds. Most fires are detected in a few seconds.

Standard Signal Processing

Standard signal processing is recommended for high speed suppression systems only. To allow for high speed operation, the standard processing mode does not incorporate the arc rejection programming.

This mode should only be used in a controlled, indoor environment.

Automatic oi: The X2200 includes the Automatic Optical Integrity (oi) feature — a calibrated performance test that is automatically performed once per minute to verify complete detector operation capabilities. No testing with an external test lamp is required. The detector automatically performs the same test that a maintenance person with a test lamp would perform —once every minute, 60 times per hour. However, a successful automatic oi test does not produce an alarm condition.



The X2200 signals a fault condition when less than half of the detection range remains. This is indicated by the fault message on the EQP controller and is evident by the amber color of the LED on the face of the detector.

The oi feature is set to automatic as a factory default but can be deselected for "manual only" operation. Manual oi tests can be initiated via the detectors point display in the S³ software.

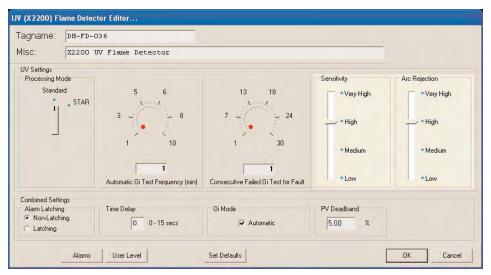
Oi Test Frequency

The default oi test frequency is once a minute but can be adjusted to any whole minute increment up to a maximum of ten minutes.

Oi Test Fault

The detector automatically conducts oi tests to check the integrity of the optical sensing systems. Three consecutive failed oi tests will generate a fault condition, which will be indicated by the LED on the face of the detector turning amber. The EQP Controller and S³ software will also annunciate this fault.

In certain environmental conditions like very heavy rain, oi test failures can occur even though the hardware is not faulty. To compensate for this the number of failed oi tests required to generate the fault can be adjusted upward to a maximum of 30. **Sensitivity and Arc Rejection:** The detector sensitivity and arc rejection settings are adjusted using the four position sliders provided in the configuration dialog box.



The factory default for both is "High" which responds to a 1 x 1 foot n-Heptane fire at 60 feet in 1 second with standard processing. For other fuels, distances, etc. refer to the Appendix in the X2200 instruction manual 95-8549.

Combined settings:

	Automatic Oi Test Frequenc	y (min) Consecutive Failed Di Test fo	or Fault	* Low
Combined Settings Alarm Latching Non-Latching Latching	Time Delay	Oi Mode	PV Deadband 5.00 %	
Alarms	User Level	Set Defaults		OK Cancel

Alarm LED Latch: The tri-color LED on the face of the detector turns red when in alarm and can be configured to be either latching or non-latching. If latching is selected, following a fire detection, the LED will stay on until the detector is reset from the point display for the detector in the S³ software. The default is non-latching.

PV Deadband: Normally all values are transmitted to the controller every five seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

Time Delay: An input time delay can be programmed by entering a value from 1 to 15 seconds in the provided field.

This will delay sending the fire alarm message to the EQP controller until the fire alarm has been generated <u>uninterrupted</u> for the specified time. This programmable delay can be used to filter out spurious events. Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

Combined Settings				
Alarm Latching	Time Delay	Oi Mode	PV Deadband	
Non-Latching	0 0 · 15 secs	Automatic	5.00 %	
C Latching		1. Theoman	13.00	

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

inabled			Printer	File	Window	Auto Clear	Sound		Active (Color	Normal Color	Graphic Trigger Group	Miscellanous			
X	Device Removed		×	X	X	F	Warning		Red		Green	Alorm	Device Removed	1		
x	Fire Alarm	larms to	Monitor													
x	Temperature Out of F	Enabled	Name				Purter	File	Window	Auto.	Sound	Active Color	Normal Color	Graphic	Miscelanous	12
X	CPU Fault		-	_		_	-			Clear				Trigger Group		
X	Wrong Device Type	X	Device Ottin	e			X	X	X		Warning	Red	Oreen	Foult	Device Offline	
10		X	Com 1 Fault				x	x	x		Warning	Red	Green	Fault	Com 1 Fault	
X	Inhibit Status	x	Com 2 Fault				×	X	×	П	Warning	Red	Green	Fout	Com 2 Fault	
X	Invalid Configuration									-	waning	neu	Oreen	rout		
X	Fault	X	Sensor Fault				X	X	X		Warning	Red	Oreen	Fault	Sensor Fault	
in		X	Supply Volta	ge Fai	8		x	x	x	Π	Warning	Red	Green	Fault	Supply Voltage Fault	
X	Unable to Configure	E	Manual Oi Te	est Sta	sted		×	X	×	Ē	Waining	Red	Green	Noné	Manual Oi Test Started	
x	LON A. Device Office	5.	290 Volt Fau													
X	LON B. Device Offine	X	230 VOR Figu				X	X	X		Warning	Red	Oreen	Fault	290 Volt Fault	
	Device Offline	X	UV Alarm				×	X	×		Warning	Red	Green	Alarm	UV Alarm	
X	Device Unline	X	Internal Com	m Fau	i:		X	x	X	E	Warning	Red	Green	Fault	Internal Comm Fault	
	Match all rows to the	-	Warm-up												Warm-up	
							X	X	X		Warning	Red	Green	None		
elaults	Custom	X	UV Pre Alam	•			×	X	×		Warning	Red	Green	Alarm	UV Pre Alam	
		E 1	UV Oi Calibri	ntion A	ctive		X	x	x		Warning	Red	Green	None	UV Oi Calibration Active	
		1	Match all ro	ws to	the top row	>	м	м	м	м	м	м	м	м		

There are 25 alarms and events that pertain to the status and diagnostics of the X2200 detector.

User Levels: The "User Level Editor..." provides a means for limiting access

	Automatic Di Test Frequency (min)	Consecutive Failed	User Level Editor	4 • 4300
Combined Settings	Time Delay	0i Mode	Button Action	User Level
Non-Latching	0 0 · 15 secs	🔽 Auto	Acknowledge	0
C Latching	0 0 - 15 secs	I ∨ Auto	Remove	0
			Manual Oi	0
Alarm	s User Level	Set Defaults	Inhibit	0
Alarm	s User Level	Set Deraults	Reset	0
			UV Calibration	0
	and a day of UD a second		10:(EIDE)	0

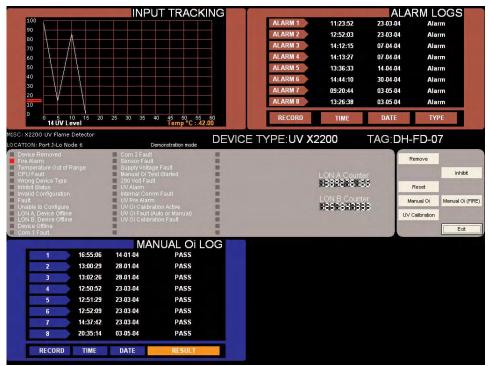
to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", Manual Oi (FIRE)" and "Reset" buttons for the module which are accessible from the devices point display.

Acknowledge	
)
Remove)
Manual Oi)
Inhibit)
Reset)
UV Calibration)
Manual Oi (FIRE))

The default value is "0" and provides access to all users.

Change these values to match your user account configuration and security needs.

Point Display: The X2200 UV detector has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Alarm Logs: The top right quadrant of the display shows the last eight alarms with their date and time data.

Analog Input Track: The top left quadrant shows a dynamic 60 second history of the measured variable (UV Level) for the detector. The input track scrolls from left to right with the most current data at the "pen" on the left margin. The display updates once every five seconds.

Oi Log: The bottom left quadrant of the point display shows the detectors manual Optical Integrity (Oi) log. The last eight manual tests are shown with the date, time and a PASS/FAIL indicator.

Status & Diagnostics: The middle portion of the point display shows the discrete status and health indicators for the detector.

Buttons: There are six buttons that can send commands to the detector including; remove, inhibit, reset, Manual Oi, Manual Oi (FIRE) and UV Calibration.

X2200

EAGLE QUANTUM PREMIER 14-95



EQ2200UVIR

Ultraviolet (UV) / Infrared (IR) Optical Flame Detector

Description: The EQ2200UVIR is located on the LON/SLC and provides a combination UV & IR Optical Flame detection capability for the Eagle Quantum Premier system.

The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

Configuration

Configuration of the detector is through the "EQ2200UVIR Flame Detector Editor..." dialog box which contains controls for manipulating all of the

agname:	DH-FD-013			
isc:	EQ UV/IR OF	tical Flame Dete	ector	
UV	Settings		IR Settings	
- A - A	rocessing Mode Standard Arc Rejection rc Rejection Low Medium	Sensitivity C Low Medium C High C Very High	0i Threshold C Low Medium High Very High Di Test Frequency 1 Minute 1 Hour	Sensitivity C Low Medium High Very High C 2 Hours C 4 Hours
-1 6	mbined Settings .atching Mode Non-Latching Latching	Di Mode I Automatic	Time Delay	PV Deadband

adjustable parameters of the detector. This includes processing and sensitivity adjustments for both of the sensors along with some global settings for alarm action, Oi, time delays and deadband.

EQ2200UVIR

Tagname: The tagname at the top of the dialog box refers to the flame detector as a whole and is the identifier used for programming.

lagname:	DH-FD-013
Misc:	EQ UV/IR Optical Flame Detector

Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes. The optional description entered in the miscellaneous text field can be used for further describe where or how the detector is being used and can be helpful in troubleshooting.

Sensor Settings & Sensitivity: Both the UV and IR sensors have independently adjustable settings for a variety of processing and sensitivity variables that can be used to fine tune the detectors operation to fit the application.

agname:	DH-FD-013				
isc:	EQ UV/IR OF	tical Flame Det	ector		
- UV	Settings		IR Settings		
- A	rocessing Mode Standard Arc Rejection rc Rejection	Sensitivity C Low I Medium	Oi Threshold C Low Medium High Very High Di Test Frequency	Sensitivity C Low Medium High Very High	
	Medium	C Very High	I Minute C 1 Hour	C 2 Hours C 4 Hours	
	ombined Settings		20.21		
6	Latching Mode Non-Latching Latching	0i Mode I Automatic	Time Delay	PV Deadband	
	Alarms L	Jser Level	Set Defaults	OK Car	ncel

UV Specific Settings: The UV detector can be programmed for either "Standard Signal Processing" or "Arc Rejection".

Arc Rejection (Recommended Factory Setting)

The Arc Rejection mode enables the detector to prevent nuisance fire alarms caused by UV from short-duration electrical arcs or electrostatic discharge, while maintaining the ability to reliably detect the UV given off by a flame. Most false alarm sources have short transient UV signatures, while fire creates a long UV signature over many seconds. Most fires are detected in a few seconds.

Standard Signal Processing

Standard signal processing is recommended for high speed suppression systems only. To allow for high speed operation, the standard processing mode does not incorporate the arc rejection programming.

This mode should only be used in a controlled, indoor environment.

UV and IR Sensor Sensitivity Settings: Both the UV and IR detectors can be individually programmed to operate in one of four sensitivity settings; Low, Medium, High or Very High.

The sensitivity level determines the maximum response distance and the response for the UV/IR detector as a whole will be the lesser of the two.

	Sensitivity	Arc Rejection	30 Inch Methane	1 Sq. Ft. Gasoline	1 Sq. Ft. Methanol
	Low		40	30	15
UV	Medium		60	45	20
Standard	High		80	65	35
	Very High		100	100	55
	Low	Medium	35	30	10
	Low	High	35	30	10
	Medium	Medium	55	40	15
UV Arc	Medium	High	55	40	15
Rejection	High	Medium	60	50	25
	High	High	65	50	25
	Very High	Medium	85	65	50
	Very High	High	85	65	50
	Low		40	65	40
ID	Medium		55	75	45
IR	High		65	90	55
	Very High		90	100	60

Examples of sensitivity settings are shown in the table below:

Combined Settings: The bottom portion of the dialog box contains settings for the alarm latching, Optical Integrity (Oi), input time delay and PV dead-band adjustments that apply to the whole detector as opposed to a specific sensor.

Latching Mode Non-Latching	Oi Mode	Time Delay	PV Deadband 5.00 %
C Latching			

Alarm Latching Mode: The red LED on the face of the detector comes on when in alarm and can be configured to be either latching or non-latching. If latching is selected, following a fire detection, the LED will stay on until

EQ2200UVIR

the detector is reset from the point display for the detector in the S³ software. The default is non-latching.

Oi Mode: The EQ2200UVIR includes the Automatic Optical Integrity (oi) feature — a performance test that is automatically performed to verify complete detector operation capabilities.

 Latching Mode Non-Latching 	Oi Mode	Time Delay	PV Deadband
C Latching			1

No testing with an external test lamp is required. The detector automatically performs the same test that a maintenance person with a test lamp would perform —once every minute, 60 times per hour. However, a successful automatic oi test does not produce an alarm condition.

While the default Oi test frequency is once a minute, it can be changed to once an hour, every two hours, or once every four hours.

The default mode is Automatic. Manual Oi tests can be initiated from the point display in the S^3 software.

Time Delay: An input time delay can be programmed by entering a value from 1 to 7 seconds in the provided field.

This will delay sending the fire alarm message to the EQP controller until the fire alarm has been generated <u>uninterrupted</u> for the specified time. This programmable delay can be used to filter out spurious events.

PV Deadband: A field is provided to enter the desired PV (Process Variable) Deadband.

Normally all values are transmitted to the controller every five seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

 Non-Latching Latching 	Automatic	0 0 · 7 secs	5.00 %	
Alarms	User Level	Set Defaults	ОК	Cancel

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

EQ2200UVIR

inabled	Name		Purites	File	Window	Auto	Sound		Active Co	alor	Normal Color	Graphic Trigger Group	Miscellanous			
X	Device Removed		x	X	X	F	Warning		Red		Green	None	Device Removed			
x	Fire Alarm		157	IET.	127	-							Fire Alern			
x	Wrong Device Type	Alarms I	o Monitor	¥												
×	Inhibit Status	Enabled	Name				Punter	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	
x	Invalid Contiguration	X	UV Automati	c Oi F	suit		X	X	X	Г	Warning	Red	Green	None	UV Automatic Oi Fault	
IX	Fault	T	IR Automatic	OrFa	ut		x	x	x	Г	Warning	Red	Green	None	IR Automatic Di Fault	
X	Unable to Configure	x	UV Manual (DiFau	ŧ		×	×	×		Warning	Red	Green	None	UV Manual Oi Fault	
X	LON A, Device Offini	X	IB Manual O	i Fault			x	x	X		Warning	Red	Green	None	IR Manual Oi Fault	
X	LON B, Device Offini	x	Missing UV 1	lube F	ault		x	x	x	-	Warning	Red	Green	None	Missing UV Tube Fault	
x	Device Ottline	×	Missing IR M	lodule	Fault		×	×	×		Warning	Red	Green	None	Missing IR Module Fault	
X	Com 1 Fault	X	290 Volt Fau	a			×	x	×	Г	Warning	Red	Green	None	290 Volt Fault	
X	Com 2 Fault	×	UV Fault				×	X	×		Wanning	Red	Green	Noné	UV Fault	
1~	Match all rows to the	x	IR Fault				X	X	X		Warning	Red	Green	None	IR Fault	
	Match all rows to the	x	UV Alarm				x	x	x	-	Warning	Red	Green	None	UV Alarm	
elaults	Custom	X	IR Alarm				×	X	×		Warning	Red	Green	None	IR Alarm	
		-	Match all ro	wis to	the top ro	H-15	м	м	M	M	м	M	м	м		

There are 26 alarms and events that pertain to the status and diagnostics of the EQ2200UVIR

User Levels: The "User Level Editor..." provides a means for limiting access

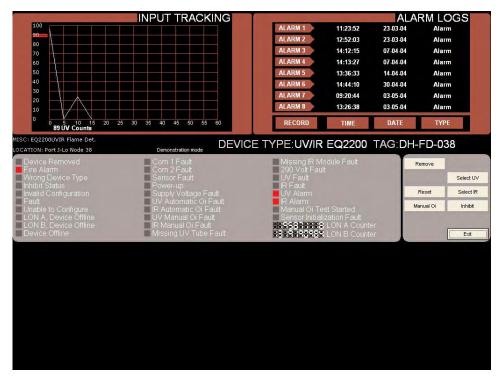
 Non-Latching Automatic Latching 	0 0 · 7 secs 5.0	00 %	
Alarms User Level	User Level Editor	User Level	
Additis	Acknowledge	0	
	Remove	0	
to the "Acknowledge",	Manual Oi	0	
5,	Reset	0	
"Remove", "Manual Oi",	Select UV	0	
"Inhibit", Manual Oi (FIRE)"	Select IR	0	
and "Reset" buttons for the	Inhibit	0	
module which are accessible from the devices point display.			
The default value is "0" and		OK Cancel	

provides access to all users.

Change these values to match your user account configuration and security needs.

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Point Display: The EQ2200UVIR has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Alarm Logs: The top right quadrant of the display shows the last eight alarms with their date and time data.

Analog Input Track: The top left quadrant shows a dynamic 60 second history of the measured variable (UV counts or IR level) for the detector. The input track scrolls from left to right with the most current data at the "pen" on the left margin. The display updates once every five seconds.

Only one of the two PV's (UV or IR) can be displayed at a time, used the "Select UV/IR" buttons on the center right side of the display to toggle between displaying UV Counts as shown in the example above, or, the IR sensors level.

Status & Diagnostics: The middle portion of the point display shows the discrete status and health indicators for the detector.

Buttons: There are six buttons that can send commands to the detector including; Remove, Inhibit, Reset, Select UV, Select IR and Manual Oi.

EQ2200UVIR

EAGLE QUANTUM PREMIER 14-101



X5200

Ultraviolet (UV) / Infrared (IR) Optical Flame Detector

Description: The X5200 is located on the LON/SLC and provides UV/IR Optical Flame detection capability for the Eagle Quantum Premier system.

The X5200 meets the most stringent requirements worldwide with advanced detection capabilities and immunity to extraneous sources, combined with a superior mechanical design. The detector is equipped with both automatic and manual oi test capability.

The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

Configuration

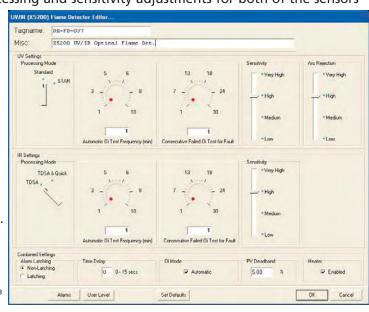
Tagname: Configuration of the detector is through the "UVIR (X5200) Flame Detector Editor..." dialog box which contains controls for manipulating all of the adjustable parameters of the detector.

This includes processing and sensitivity adjustments for both of the sensors

along with some global settings for alarm action, Oi, time delays and deadband.

The tagname at the top of the dialog box refers to the flame detector as a whole and is the identifier used for programming.

Until a tagname is entered the detector is not available in the S³ database for pro-



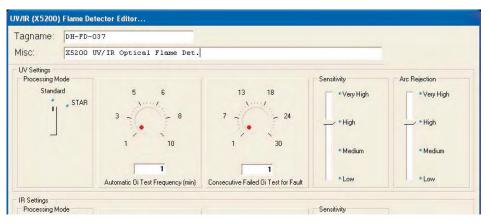
gramming, monitoring or dynamic graphic purposes. The optional description entered in the miscellaneous text field can be used for further

Tagname:	DH-FD-037						
Misc:	X5200 UV/	IR Optical	l Flame Det.				
UV Settings Processing M	lode					Sensitivity	Arc Rejection
Standa	ard	5	6	13	18	Very High	Very High

describe where or how the detector is being used and can be helpful in troubleshooting.

The X5200 features signal processing options for both the UV and IR sensors. These options determine the type of logic that the detector will use for processing fire signals to customize the X5200 to the application.

UV DETECTOR OPTIONS: The UV detector output (measured in counts per second) is compared to the fire threshold (the "sensitivity" setting). If the radiant energy level from the fire exceeds the selected alarm threshold level, the fire alarm output is activated. In every application, it is crucial to ensure that the radiant ultraviolet energy level from the expected fire at the required distance from the detector will exceed the selected sensitivity level.



The UV detector in the X5200 can be programmed for "Standard" signal processing or "Arc Rejection".

Arc Rejection: (Recommended Factory Setting)

The Arc Rejection mode enables the detector to prevent nuisance fire alarms caused by UV from short-duration electrical arcs or electrostatic discharge, while maintaining the ability to reliably detect the UV given off by a flame.

Typical applications that benefit from arc rejection logic include electrostatic coating processes and uncontrolled environments where transient UV sources can be present, such as many typical outdoor applications. Most false alarm sources have short transient UV signatures, while fire creates a

X5200

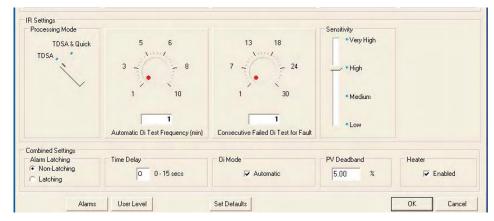
long UV signature over many seconds. Most fires are detected in a few seconds.

Standard Signal Processing: Standard signal processing is recommended for high speed suppression systems only. To allow for high speed operation, the standard processing mode does not incorporate the arc rejection programming. This mode should only be used in a controlled, indoor environment.

IR DETECTOR OPTIONS

The IR detector in the X5200 can be programmed for; "TDSA enabled" or both "TDSA and Quick Fire enabled" (either initiates fire alarm).

Time Domain Signal Analysis (TDSA): The TDSA signal processing technique analyzes the input signal in real time, requiring the IR signal to flicker ran-



domly in order to recognize it as a fire condition.

Using TDSA signal processing, the X5200 ignores regularly chopped blackbody sources (occurring in areas where moving conveyors and hot objects in proximity to one another result in a regularly chopped IR signal), because it looks for a less uniform signal.

However, in the presence of a regularly chopped signal, the unit is more susceptible to false alarms due to sporadic IR that functions as a trigger when occurring in conjunction with the regularly chopped signal.

Quick Fire (High Speed): The Quick Fire (High Speed) feature can be used in conjunction with the TDSA signal processing method.

This method overrides TDSA requirements in the event of an intense signal. When Quick Fire is activated, the detector is capable of responding to an intense fire signal in less than 30 milliseconds (0.030 seconds).

Using the Quick Fire feature in conjunction with TDSA signal processing allows the detector to provide a high speed response to a large, non-flickering fire (such as in high pressure gas applications) while maintaining an ability to respond to smaller fires.

Sensor Sensitivity Adjustments:

Both the UV and IR sensors have individually adjustable sensitivity selections. These settings combined with the signal processing and arc rejection selections will effect how the detector responds to different types of fires. For details on the impact of these settings on a variety of common fuels, refer to the X5200 Instruction manual, **Detronics number 95-**8546.

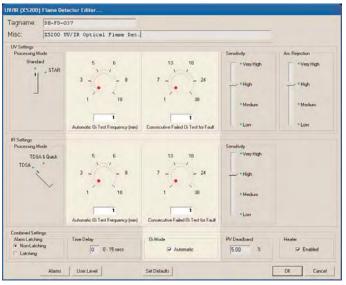


Automatic Optical Integrity (Oi)

The X5200 includes the Automatic Optical Integrity (oi) feature — a calibrated performance test that is automatically performed once per minute to verify complete detector operation capabilities. No testing with an external test lamp is required. The detector automatically performs the same test that a maintenance person with a test lamp would perform — once every minute, 60 times per hour. However, a successful automatic oi test does not produce an alarm condition.

The X5200 signals a fault condition when less than half of the detection range remains. This is indicated by the Fault relay and is evident by the amber color of the LED on the face of the detector.

The oi feature is set to automatic as a factory default but can be deselected for "manual only" operation. Manual oi tests can be initiated



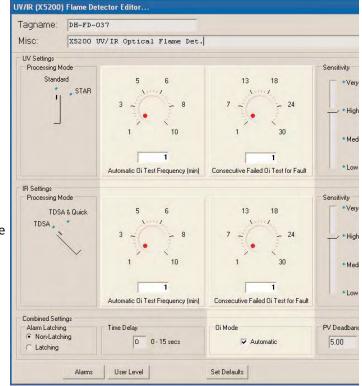
via the detectors point display in the S³ software.

Oi Test Frequency

The default oi test frequency is once a minute but can be adjusted to any whole minute increment up to a maximum of ten minutes.

Oi Test Fault

The detector automatically conducts oi tests to check the integrity of the optical sensing systems. Three consecutive failed oi tests will generate a fault condition, which will be indicated by the LED on the face of the detector turning



amber. The EQP Controller and S³ software will also annunciate this fault.

In certain environmental conditions like very heavy rain, oi test failures can occur even though the hardware is not faulty. To compensate for this the number of failed oi tests required to generate the fault can be adjusted upward to a maximum of 30.

Oi Mode: The X5200 UVIR includes the Automatic Optical Integrity (oi) feature — a performance test that is automatically performed to verify complete detector operation capabilities.

Combined Settings: The bottom portion of the dialog box contains settings for the alarm latching, Optical Integrity (Oi), input time delay and PV dead-band adjustments that apply to the whole detector as opposed to a specific sensor.

Alarm Latching Non-Latching Latching 	Time Delay	Oi Mode	PV Deadband 5.00 %	Heater
Alarms	User Level	Set Defaults		OK Cancel

Alarm Latching Mode: The red LED on the face of the detector comes on when in alarm and can be configured to be either latching or non-latching. If latching is selected, following a fire detection, the LED will stay on until the detector is reset from the point display for the detector in the S³ software. The default is non-latching.

Alarm Latching • Non-Latching • Latching	Time Delay	Oi Mode	PV Deadband	Heater
Alarms	User Level	Set Defaults		OK Cancel

Time Delay: An input time delay can be programmed by entering a value from 1 to 15 seconds in the provided field.

This will delay sending the fire alarm message to the EQP controller until the fire alarm has been generated <u>uninterrupted</u> for the specified time. This programmable delay can be used to filter out spurious events.

PV Deadband: A field is provided to enter the desired PV (Process Variable) Deadband.

Normally all values are transmitted to the controller every five seconds; If the PV changes more than the entered percentage before the five second report time arrives, an immediate message is sent with the current values.

Alarms: Selecting this button opens the "Alarms to Monitor..." dialog box.

Alarm Latching Non-Latching Latching 	Time Delay	Oi Mode	PV Deadband	Heater
Alarms	User Level	Set Defaults		OK Cancel

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

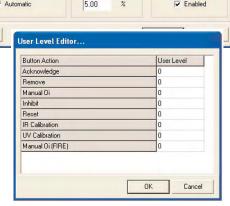
There are 33 alarms and events that pertain to the status and diagnostics of the X5200 UVIR.

abled Name	amoved		Printer	File W	Indon	2ear	brund		otive Cok		email Col		er Group	Ascellancus Device Removed		3			
Fee Alam		o Monitor	IT.	10	107	-				~				Fee Alam				X	
or o	Ensble	1 Name				Piete	File	Window	v Auto Clear	Sound	F.	Activ	e Color	Normal Color	Trigger Group	Micelanour	ă		
E Wrind	X	Device Offine Con 1 Fault				X	X	X		Wanni	ng	Red		Oreen		Device Office			
R leviald	(x	Com 2	urms to	Mon	itor														
X Foult	x		Enabled	Name					1	Printer	File	Window	Auto Clear	Sound	Active Col	or Normal Color	Graphic Trigger Group	Miscellanous	-
	X	Supply	Г	Heate	r Enabl	ed Stat	us.			X	X	X	Г	Warning	Red	Oreen	None	Heater Enabled Status	
R LON B		Manua 290 Vo	x	Quick	Fee					x	x	x	Π	Warning	Red	Green	Alarm	Quick Fire	
R Device	X	UV Ala	×	TDSA	IR Ala	m				×	X	×		Waining	Red	Green	Alarm	TOSA IR Alam	
Malch	X	IR Alan	x	UV Pr	e Alam					x	x	x		Warning	Red	Green	Alorm	UV Pre Alam	
NATE CI	x	Interna	x	IR Pre	Alarm					x	x	x	Г	Warning	Red	Green	Alarm	IR Pre Alarm	
	E	Waters		UV OI	Calibra	tion Ac	tive			×	×	x		Waining	Red	Green	None	UV Oi Calbration Active	
		Healer	Г	IB Oil	Calibrat	ion Act	w			X	x	×		Warning	Red	Oreen	None	IB Oi Calibration Active	
		Match	×	UV Oi	Fault	Auto or	Manu	all		×	X	×		Warning	Red	Green	Fout	UV Di Fault (Auto or Manual)	
	Delauto	0	X	IR Oil	Fault (A	uto or h	lanua	ŋ		x	x	X		Warning	Red	Green	Foult	IR Oi Fault (Auto or Manual)	
			x	UV Di	Calibra	tion Fa	A			x	x	x		Warning	Red	Green	Foul	UV Or Calibration Fault	
			X	IR Oil	Calibrat	ion Fau	R.			X	X	×		Warning	Red	Green	Fault	IR Oi Calibration Fault	
				Matc	h all ro	ws to th	e top i	(OW>		м	м	M	м	м	м	м	м		

User Levels: The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", Manual Oi



(FIRE)", "IR Calibration", "UV Calibration" and "Reset" buttons for the module which are accessible from the devices point display.



The default value is "0" and provides access to all users.

Change these values to match your user account configuration and security needs.

Point Display: The X5200 UVIR detector has a custom "Point Display" that can be accessed from either the Point Display button on the Command Bar or from the Online Mode.



The point display provides a single window view of all available real-time data for the device.

Alarm Logs: The top right quadrant of the display shows the last eight alarms with their date and time data.



Analog Input Tracks: The top left and bottom right quadrants show a dynamic 60 second history of the detectors measured variables, UV and IR levels. The input track scrolls from left to right with the most current data at the "pen" on the left margin. The display updates once every five seconds.

Oi Log: The bottom left quadrant of the point display shows the detectors manual Optical Integrity (Oi) log. The last eight manual tests are shown with the date, time and a PASS/FAIL indicator.

Status & Diagnostics: The middle portion of the point display shows the discrete status and health indicators for the detector.

Buttons: There are eight buttons that can send commands to the detector including; remove, inhibit, reset, Manual Oi, Manual Oi (FIRE), IR Calibration and UV Calibration.

EAGLE QUANTUM PREMIER 15-1



LOGIC EDITOR

The Eagle Quantum Premier controller is a programmable device that requires a "user program" to be written to customize the system for the hazard(s) being monitored.

This "user program" is developed utilizing a "Logic Editor" within the S³ software environment that provides the following facilities:

- An IEC-61131-3 style logic editor for developing logic.
- A logic simulator for testing and debugging the logic.
- The ability to download the program to the controller.
- The ability to monitor the operation of the logic "online".
- The ability to create printed documentation of the user program.

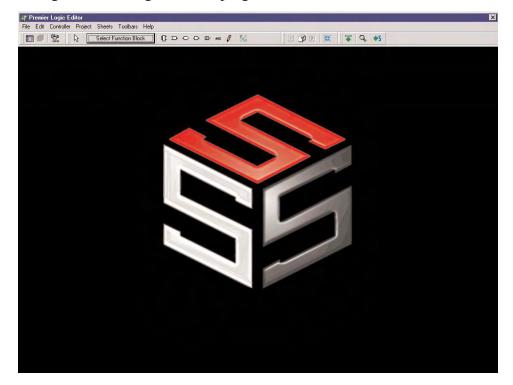
	Та	igure a controller. Igname: QI SC: QI			_	_			
	- Si	onfiguration Port Back Rate (115,200 Posity None erial Port Protocol Not Use and Rate (19,200 Com, Uone Notice (1)	2	Detector Electron Miscellaneous Beeper Volume (Hig Allow LON Point User Parame	h 💽 Disabling	Inputs / Relay Inputs Option Board Type			
Devices Found	Get Revision	Logic	Point Display	Alams	User Level	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC		Сору	Find		
Edit	Get Voltages	Outputs	Print	Upload		Delete	New Device		Ex

The logic editor is accessed through the controllers configuration dialog box. In the lower left of the "Configure a controller …" dialog box there is a "Logic" button. Selecting this button will launch the "Logic Editor".

LOGIC EDITOR

15-2 EAGLE QUANTUM PREMIER

Once the "Logic" button is selected from the "Configure a controller …" dialog box, the "Logic Editor" program is launched.

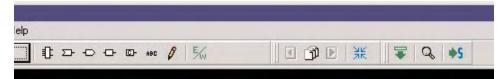


The "Premier Logic Editor" is a full screen application, and when launched looks like the example above.

The upper area of the screen contains the applicable menus at the top and a button bar below that provides access to a variety of editing and display tools. Below the button bar, is an empty area with the S³ logo, this is the main work area where logic pages are displayed and edited.

∦ ∦ P	remie	r Logic E	ditor		_									
File	Edit	Controller	Project	Sheets	Toolbars	Help								
	0	64 10101	₿ [Select F	unction Blo	ck	¶ ⊅	Ð	¢	¢	ABC	0	5	

There are seven standard Windows pull down menus; File, Edit, Controller, Project, Sheets, Toolbars and Help. Each menu will be described in detail later. The button bar is customizable but in the examples above and below it is shown in its default configuration.



LOGIC EDITOR

File Menu: This menu contains the standard "Windows" routines for setting up to print to a network printer and then printing selected reports.

ile Edit Co	ontroller Projec	t Sheets Toolbars Help		
Save	Ctrl+S	Select Function Block	1 2 - 0 - 0 - 10 /	E/w
Printer Setu				
Print Report				
COLIC PERMIS	Ctrl+P			
Print	Ctri+P			

Print Reports: Calls up the "Select reports to print..." dialog box which presents ten check boxes to select what portions of the controllers config-

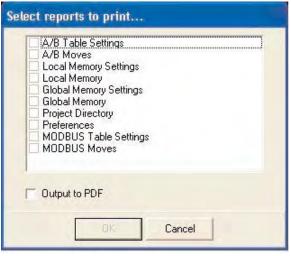
uration are to be assembled into a report for printing.

In the lower left of the dialog box, there is an "Output to PDF" checkbox that will send the reports to a PDF file instead of to the selected network printer.

These reports can be read and printed by Adobe Acrobat[™] and other PDF compliant programs.

Quit: The "Quit" selection will shut down the logic editor program and return to the controllers configuration dialog box.

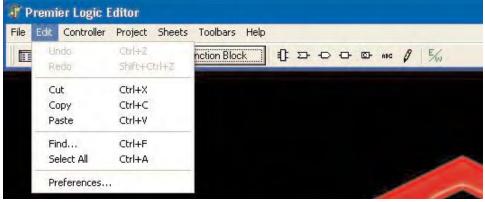
If there are unsaved changes to the configuration you will be prompted to save changes prior to exiting the logic editor.



Configuration F	7-4	Detector Electronics Premi	91 Inputs / Relays
	-ort 115,200 •	Beeper Volume High	
	None 💌		Inputs Relays
Serial Port		Allow LON Point Disabling	Option Board
Protocol	Not Used 💌	Liser Parameters	Type None
	19,200	User Parameters	
	None		ControlNet
	1 -		Address

LOGIC EDITOR / FILE MENU

Edit Menu: This menu contains the standard "Windows" routines for Cut, Copy and Paste that will be used throughout the program. In addition there is a "Find" command, "Select All" and "Preferences".



Find: This command will open the "Find" dialog box which provides a Text entry field and a Find button.

Text:

Sheet

Element

Find

Type Text

Cancel

When a "Find" is initiated S³ will search the logic drawings and list the matching elements along with their originating drawing sheet, element type and the full text associated with the search.

In the sample below, a logic page was opened and a search for the

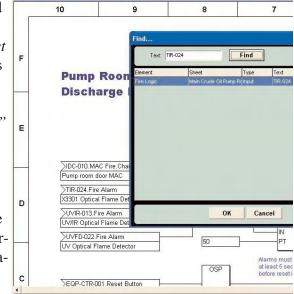
text string "TIR-024" was entered and the results are shown.

							Prem
							File Edit
	×5	₩ 🗣 🔍	II C P E	-D -D ED ABE 0 5/10	lect Function Block	Sek	
- 🗆 ×				Pump Room)	eet 1 of 1 (Main Crude Oil P	ram Fire Logic She	🕼 Prog
2	5	6	7	8	9	10	
		1			Find		
			ind	2-024	Text TIR-		F
			Type Text	Sheet	BoomElement	Dunner	
			nput TIR-024	Main Crude Oil Pump Ro			
					arge	DISCH	
	_						
							E
-	-						
IN	and the second					Pump room d	
PT	R1					TIR-024.Fire	
Pre-Alarm							D
visible and alarms to	300		Cancel	ОК			
to dischar			IN Q				
			Cancel	Sheet Main Grude Oli Pump Ro	AC Fire. Cha door MAC a AJarm il Flame Det		E

LOGIC EDITOR / EDIT MENU

In this sample find, the listed *Element* is "Fire Logic" which is a program, the *Sheet Name* in the logic program is "Main Crude Oil Pump Room", the *Type* is "Input" and finally the located "*Text*" is "TIR-024".

In the example to the right, you can see the input block "TIR-024 Fire Alarm" on the left side of the logic page partially behind the "Find..." dialog box.



Preferences: This selection opens the "Preferences..." dialog box which contains a number of checkbox selections pertaining to the visual display

of the logic editor, compiling (Build) options and a Simulator selection.

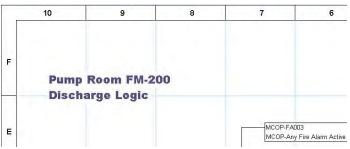
The example to the right shows the logic editors default configuration. Each of these selectable options are described in detail below.

Visual	Build
Show grid lines	Show errors/warnings after build
Show line marks	Include trace information
Show full paths	Compress and D/L project
Simulation	7
Minimize I/O windows on start	

Show grid lines: When selected this will display a faint cyan reference lines on the drawing pages that correspond to the horizontal and vertical

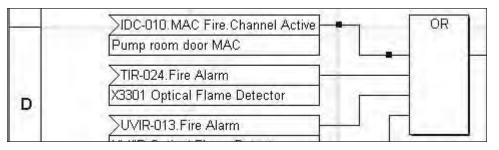
references on the drawing title block.

The grid lines are drawn "behind" the graphic logic elements.



LOGIC EDITOR / EDIT MENU

Show Line Marks: In the logic editor when a line is selected by clicking on it, or, when the "Connection Tool" has been selected, a small black rectangle marks the beginning and end of each line as shown in the first example below.



Selecting "Show Line Marks" as in the second example below, will display an additional three visual indicators spaced between the beginning

	DC-010.MAC Fire.Channel Active	• T	OR
	Pump room door MAC	1	
	TIR-024.Fire Alarm		
D	X3301 Optical Flame Detector		
-	VVIR-013. Fire Alarm		
		_	

and end of the line to provide better visual cues on lines that are long or close to many others. This is only a visual cue and has no effect on the ability to select or edit the line.

Show Full Paths: A tagname might be a channel on an IDC or HDIO or it could be the complete device. This option allows for the complete path to be shown.

In the example to the
right, an IDC which is
tagged IDC-010 has
two channels. One
channel is "MAC Fire".

MAC Fire. Channel Active	OR
Pump room door MAC	
TIR-024.Fire Alarm	
X3301 Optical Flame Detector	

When "Show Full Paths" is enabled the channel tagname is to be shown

to the left of the tagname, as shown in the example to the right. It now reads; "IDC-010.MAC Fire"

SIDC-010.MAC Fire Channel Active	-	OR
Pump room door MAC		
TIR-024.Fire Alarm	4	
X3301 Optical Flame Detector	1	

LOGIC EDITOR / EDIT MENU

Show errors/warnings after build: When enabled, the logic editor will automatically display the "ERROR / WARNINGS VIEWER" at the completion of a project compile (build) listing any problems.

This can also be done manually by using the "Show Errors/Warnings" menu item under the "Project" menu or by using the "E/W" button on the toolbar.

_		ERROR / WARNINGS VIEWER
Тупе	A Description	
Error	Missing connection	
Error	Type Mismatch	
PRINT		OK

Selecting one of the errors will close the viewer and display the section of logic containing the problem.

You may also choose to print out the list using the "Print" button in the lower left of the dialog box.

Include trace information: The compiler generates markers in the code for the troubleshooting of compiler or controller errors. Normally, for faster execution of the program, this would not be selected. If a non-log-ical error is occurring this could be used to aid in troubleshooting.

Compress and D/L project: When enabled the **complete project** is compressed and downloaded to the controller whenever the download command is executed. This powerful feature backs up all aspects of the project including any non-Premier ports and custom graphics. It is very similar to the routine of the "Backup/Restore" utility described in Chapter 7 except the compressed file is stored in non-volatile memory in the controller instead of on the OIS hard disk or network.

This option allows any S³ station to later "upload" the complete project for editing or display without needing an original copy.

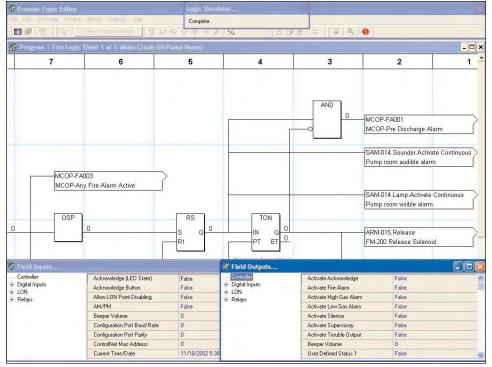
If this option is not selected it will be **<u>impossible</u>** for an S^3 station without the original project file to view, edit or troubleshoot the program in the controller. An attached S^3 station will be able to determine the LON makeup and provide LON and device diagnostics, but access to the controller program will not be available.

Note:

This option adds time to the build and download and is not required for proper operation of the program.

In practice this option is usually disabled until the user program and entire project are complete, tested and ready for service.

Minimize I/O windows on start: This option is used to control the look and feel of the logic simulator on startup. The simulator has two I/O



windows. One is inputs and the other is outputs. When the simulator

starts these windows will normally open full size. If the checkbox is enabled they will open in the minimized state.



Controller Menu: This menu provides access to a variety of memory management functions for internal program variables and for the configu-

File Edit	Controller Project Sheets	Toolbars Help
	Global Memory Local Memory	on Block] 10: Σ→ -⊃ -□ IC→ III→ III 5%
	AB Table Settings	
	AB Moves	
	AB Monitor	
	MODBUS Table Settings	
	MODBUS Moves	
	MODBUS Monitor	

ration of the Allen Bradley and Modbus tables used by outside systems to access the controllers data.

Global Memory: Global memory is typically used to exchange data with external devices such as Modbus or Allen-Bradley PLC's. This menu item opens the "Global Memory Editor..." which allows for the creation of and displays information on the five types of global memory. It also allows for the adjustment of memory allocations.

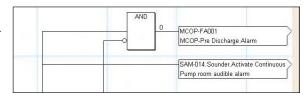
The dialog box is "tabbed" allowing for the selection of the memory type to be displayed/edited. In the example to the right, "Boolean" is selected and there are three points created.

To create a global memory point, put

-	Tagname	Description	Protect	ed Value
	MCOP-FA001	MCOP-Pre Discharge Alarm		
	MCOP-FA002	MCOP-FM200 Discharge		
	MCOP-FA003	MCOP-Any Fire Alarm Active		
0				

the editing cursor in the "Tagname" field and enter a tagname, then if desired enter a long name in the "Description" field.

Once created, this global memory point will be available in the logic editor for use as an input to or output from logic elements.



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Memory Allocation: The amount of memory set aside for each of the five types is adjustable. Clicking on the "Memory Allocation" button at the bottom of the memory editor dialog box will open the "Memory Allocation..." dialog box.

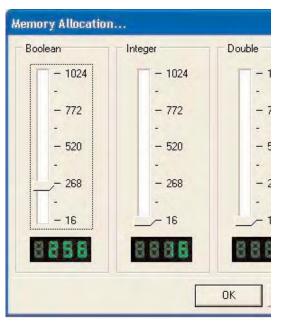
Progra	ım Fire Logic Sheet	1 of 1 (Main Crude Oi	LPump Room)					-
_	10	9	8		7	6	5	
		ibal Memory Editor	e Float Date/T					
	Bo	oolean Integer Doubl		ime		_		
		Memory Allocatio	Integer	Double	Floating Point	Time/Date		-
	Pump 1	- 1024	- 1024	- 1024	- 1024	- 1024		
_	Disch ²		-	-	-	-		
	3	- 772	- 772	- 772	- 772	- 772		
	4		- 520	- 520	- 520	- 520		
	5		-	-	-			
	6	- 268	- 268	- 268	- 268	- 268		
	7	- 16	- 16	- 16	- 16	- 16		
	Pump room		0000	8888	0000	8888	RS	
							Q	
	X3301 Optic 10		Γ	OK Can	cel			F
	SUVIR-013.1							Pre-Alarr visible ar
	UV/IR Optic		Mem	ory Allocation	Find		ок	alarms to
	JUVFD-022		150					to discha
	UV Optical Flam	e Detector	00					
			OSF		s must be clear for st 5 seconds			

This dialog box provides five "slider" type adjustments to change the memory allocation for each type. The default setting is 16 and is adjust-

ed by clicking on the slider and dragging it up or down until the desired quantity is reached.

Up to 1K (1024) can be allocated for each type of memory. The minimum like the default value is 16.

To set the memory allocation, move the slider to the approximate value desired. To set the exact value, observe the digital display and use the Up/Down arrow keys to change the value one number at a time.



Local Memory: This menu item opens the "Local Memory Editor..." which allows for the creation of and displays information on the five types of local memory. It also allows for the adjustment of memory allocations.

	Bool	ean Integer Double Float	Date/Time				
The dialog box is		Tagname	Description		Protected	Value	1
"tabbed" allowing	1						
for the selection of	2						-
the memory type to	3						
be displayed/edited.	5						
In the example to the	6						
right, "Boolean" is	7						
selected and there	8						
are no points created	10						
yet.			Memory Allocation	Find		OK	_

To create a local memory point, put the editing cursor in the "Tagname" field and enter a tagname, then if desired enter a long name in the "Description" field.

Once created, this local memory point will be available in the logic editor for use as an input to or output from logic elements.

Value: The value column is available in each of the five local memory types and allows the setting of an initial value. This value will be used when the program begins execution and if the variable is not written to will remain unchanged.

Memory Allocation: Local Memory is allocated in the same manner as described earlier for Global Memory.

A "Memory Allocation..." dialog box provides a slider to adjust the amount of memory for each type.

loolean	Integer	Double	Floating Point	Time/Date
- 1024	- 1024	- 1024	- 1024	- 1024
-		-	-	
- 772	- 772	- 772	- 772	- 772
-	-	-	-	-
- 520	- 520	- 520	- 520	- 520
-	-	-	-	-
- 268	- 268	- 268	- 268	- 268
-	-	-	-	-
- 16	16	16	16	16
8856	8888	8886	8886	8888
	-	OK Cano	1	

15-12 EAGLE QUANTUM PREMIER

AB Table Settings: This menu selection opens a dialog box which allows up to eight communication interface "tables" to be configured to allow for data to be "moved" between the Eagle Quantum Premier controller and an Allen-Bradley PLC or other system utilizing Allen Bradley communication protocols.

Clicking on any cell in the "File Type" column will activate a pop-up menu allowing the selection of the proper table type for the data to be exchanged.

The three file types are binary, floating point (Float) and Integer. To configure a table, select the appropriate file type, file number, starting address and the number of words to read (count).

Once the tables are configured, click the "OK" button to allocate memory to support the new table configuration.

	File Type	File Number	Starting Address	Count
1	Binary	20	0	128
2	Integer	10	0	256
3	None	- 0	0	0
4	None Binary	0	0	0
5	Float	0	0	0
6	None	0	0	0
7	None	0	0	0
8	None	0	0	0

In the example above, table 1 is configured for binary data which will be stored in file 20. The table will be 128 words (16 bit registers) long and therefore support 2048 discrete "bits" of information.

AB Moves: This dialog box allows for the configuration of data moving between an Allen Bradley system and the Eagle Quantum Premier controllers memory.

The dialog box uses a tabbed interface with two tabs on the left side representing the two directions data can flow.

AB to Globals AI	e Moves			
© Boolean © Double © Float	● Integer ● Time/Date		1 2 B20/0 B20/1 B20/2 B20/3	
Tagname MCOP-FA001 MCOP-FA002 MCOP-FA003	Source B20/0 B20/1	Clear	820/4 820/5 820/6 820/7 820/8 820/9 820/10 820/10 820/11 820/12 820/13 820/14 820/15 820/14 820/15 820/16 820/16 820/17 820/18 820/19 820/20 820/21 820/21 820/23 820/24	
		OK Cancel		

- Data to be moved from the AB system into the Premier controllers memory is configured under the "AB to Globals" tab.
- Data that will move from the Premier controller to the AB system is configured under the "All to AB" tab.

On the right side of the dialog box is a tabbed scrolling list representing configured data tables. In the example above, there are two tabs, one for each configured AB table (see previous page). There can be up to eight tabs representing the maximum number of configured data tables.

To configure data for movement, select and drag an address from the right hand side and drop it into the "Source" cell next to the desired "Tagname" in the left hand side.

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AB Moves...continued: In the example below the AB address "B20/0" is configured to be moved to a Premier controller global variable "MCOP-FA001" and AB address "B20/1" in the process of being

AB Table	e Moves		
Globals	 Integer Time/Date 	1 2 B20/0 B20/1	~
Float		B20/2	
		B20/3	
+		B20/4 B20/5	
Tagname	Source	B20/5	
MCOP-FA001	B20/0	B20/7	
MCOP-FA002	B20/1	B20/8	
MCOP-FA003	hي ا	B20/9	
		820/10	
		B20/11	

"dropped" onto a Premier controller global memory point "MCOP-FA002".

The radio buttons on the left hand side of the dialog box will determine which configured global variables are displayed.

In the example to the right the "Boolean" radio button is selected and the three configured boolean globals are displayed as potential targets for data input.

AB to Globals Al	to AB
- Globals	 Integer Time/Date
Tagname	Source
MCOP-FA001	B20/0
MCOP-FA002 MCOP-FA003	B20/1

Note:

Data coming from an AB system into the Premier controller can only be moved into global memory locations that have been configured using the Global Memory Editor as described on preceding pages of this manual.

AB Moves...continued: When the "All to AB" tab is selected, a hierarchical list of "sources" is shown on the left hand side of the dialog box which can be selected for "movement" to "destinations" in the AB system.

⊞ - Controller ⊡ - Digital Inputs	1 2		
🗄 Global Boolean	Source	Destination	~
Global Double	0	B20/0	
Global Float ⊕- Global Integer		B20/1	
Global Time/Date		B20/2	
- IC Boolean		B20/3	
IC Double		B20/4	
IC Float		B20/5	
- IC Integer		B20/6	
IC Time/Date Local Boolean		B20/7	
- Local Double		B20/8	
Local Float		B20/9	
🕀 Local Integer		B20/10	
Local String		B20/11	
Local Time/Date Local Timer		B20/12	
⊕-LON		B20/13	
⊞ Relays		B20/14	
		B20/15	
		B20/16	
		B20/17	
		B20/18	*
Collapse All Expand All		Clear	

Any item on the list that has a "+" before it has subordinate items and clicking on the "+" will expand the list showing all items that make up that category.

Below the list are two buttons that can "Expand" or "Collapse" all subordinate items in the list for easy viewing.

The first twelve items on the list provide access to controller status information and the globals database. The "LON" item will allow access to all field device information, the "Relays" item is for accessing the controllers onboard relay status.

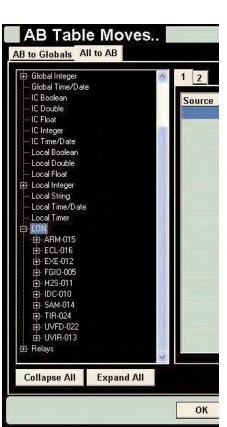
15-16 EAGLE QUANTUM PREMIER

In the example to the right, the "LON" item has been expanded by clicking on the "+" sign and now shows ten subordinate items, each of which is a field device.

As these additional items are revealed, the list extends beyond the bottom and becomes scrolling.

The hierarchical arrangement of items provides an easy and logical method of accessing the thousands of potential items that could be configured as outputs on a large premier system.

In the example below, a field device on the LON, an Agent Release Module with the tagname "ARM-015" has been selected and "opened" to display its subordinate data. Any of the displayed items can be selected and configured



for "movement" to the AB system utilizing the "drag and drop" method.



To configure a data point for "movement" click and "drag" the selected point to the right side of the dialog box and "drop" it on the desired Allen Bradley destination address.

AB Table Moves B to Globals All to AB		
ARM-015 		Destination
- Channel Active	change Active	B20/0
- Channel Isolated - Channel Open	10	B20/1
- Com 1 Fault		B20/2
Com 2 Fault	1 contraction of the second se	B20/3

In the above example, the "Channel Active" point is in the process of being moved to the selected destination address "B20/0" in the AB table.

🖻 ARM-015 📉 📶 1 2	
Activation Time	Destination
Channel Active	B20/0
Channel Isolated	B20/1
Channel Open Com 1 Fault	B20/2
	B20/2
Control Message Fault	B20/3 B20/4
Descriptor	
Device Offline	B20/5
Device Removed	B20/6
Device Type Code	B20/7
Fault	B20/8
Invalid Configuration	B20/9
Last Direction	B20/10
- LON A Counter	B20/11
LON B Counter	B20/12
- LON B, Device Offline	B20/13
Low Aux Power Fault	B20/14
Neuron Firmware ID	B20/15
Neuron ID Number	B20/16
	B20/17
Tagname	B20/18
Wrong Device Type	020/10
ollapse All Expand All	Clea

Once "dropped" in the desired cell in the "Source" column on the right side of the dialog box, the "Channel Active" status for "ARM-015" will now map to the Allen Bradley destination address of "B20/0".

This process must be repeated for all data to be shared with the AB host device.

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AB Monitor: This dialog box is a tool for checking the value of data in any of the eight configurable data tables used for exchanging data between the Premier controller and Allen Bradley systems.

- Tai		95 97 96 98			
#	Value	Address	~		
1		B20/0			
2	_	B20/1 B20/2			
4	_	B20/2 B20/3			
5	-	B20/4			
6		B20/5			
7		B20/6			
8		B20/7			
9		B20/8			
10		B20/9			
11		B20/10			
12		B20/11	~		

The desired table is selected with a radio button in the top portion of the dialog box and a scrolling list displays the data.

In the example above the viewer has just been activated and is attempting to establish communication with the Premier controller.

EAGLE QUANTUM PREMIER 15-19

MODBUS Table Settings: This menu selection opens a dialog box which shows the three communication interface "tables" to be configured to allow for data to be "moved" between the Eagle Quantum Premier controller and a Modbus based system utilizing the industry standard Modbus RTU communication protocol.

There are three register types, Coil, Input and Holding each of which are for the exchange of a different type of data. The default "Count" for each register type is 0.

Adjust the "Count" to match the number of registers required for each type. Once the tables are configured, click the "OK" button to allocate memory to support the new table configurations.

T	MODBUS Table	e Settings
	Register Type	Count
1	Coll	150
2	Input	150
3	Holding	150
	ОК	Cancel

15-20 EAGLE QUANTUM PREMIER

MODBUS Moves: This dialog box allows for the configuration of data moving between a "Modbus RTU Master" system and the Eagle Quantum Premier controllers memory.

The dialog box uses a tabbed interface with two tabs on the left side representing the two directions data can flow.

MB Tabl	e Moves			
Globals Globals Globalean Double Float	 Integer Time/Date 		1 2 3 00001 00002 00003 00004	
Tagname MCOP-FA001 MCOP-FA002 MCOP-FA003	Source	Clear	00005 00006 00007 00008 00009 00010 00011 00012 00013 00014 00015 00016 00017 00018 00017 00018 00019 00020 00021 00022 00023 00024 00025	
		OK Cancel		

- Data to be moved from the MB system into the Premier controllers memory is configured under the "MB to Globals" tab.
- Data that will move from the Premier controller to the MB system is configured under the "All to MB" tab.

On the right side of the dialog box is a tabbed scrolling list representing configured data tables. In the example above, there are three tabs, one for each available MB table (see previous page).

To configure data for movement, select and drag an address from the right hand side and drop it into the "Source" cell next to the desired "Tagname" in the left hand side.

MODBUS Moves...continued: In the example below the MB address "00001" is configured to be moved to a Premier controller global variable "MCOP-FA001" and MB address "00002" in the process of being

MB Tabl	e Moves		
Globals	Integer	1 2 3	
Double	Time/Date	00001	^
Float		00003	
		00004	
_		00005 00006	
Tagname	Source	00008	
MCOP-FA001	00001	00007	
MCOP-FA002	00002	00008	
MCOP-FA003	hs.	00010	
	1	00011	
		00011	

"dropped" onto a Premier controller global memory point "MCOP-FA002".

The radio buttons on the left hand side of the dialog box will determine which configured global variables are displayed.

In the example to the right the "Boolean" radio button is selected and the three configured boolean globals are displayed as potential targets for data input.



Note:

Data coming from a Modbus system into the Premier controller can only be moved into global memory locations that have been configured using the Global Memory Editor as described on preceding pages of this manual. **MODBUS Moves...continued:** The three available Modbus data tables are accessed by the three tabs at the top of the right hand side of the dialog box.

MB Table Moves		
MB to Globals All to MB		
Globals © Boolean	1 2 3	
Double Time/Date	00001	^
• Float	00002 00003 00004	
Tagname Source	00005 00006	

Select the table desired by clicking on the appropriate tab.

1 2 3

40001/1

40001/2

40001/3

40001/4

40001/5

40001/6

40001/7

40001/8

40001/9

40001/10

40001/11

40001/12

40001/13

40001/14

40001/15

40001/16 40002

40002/1 40002/2

40002/3

40002/4 40002/5 40002/6 40002/7

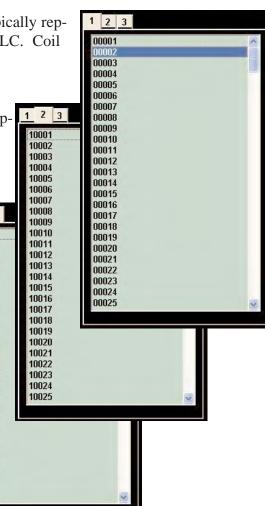
40001

Tab 1: Is for "Coils" which typically represent "Outputs" in a Modbus PLC. Coil addresses start with "0".

Tab 2: Is for "Inputs" which typically represent discrete input cards in a Modbus PLC. Input addresses start with "1".

Tab 3: Is for registers (16 bit words) that occupy an address range beginning with 40,001.

Registers can be used either as a whole "16 bit" word to move an integer value, or as sixteen individual "bits", into which boolean "ON/OFF" data can be moved.



MODBUS Moves...continued: When the "All to MB" tab is selected, a hierarchical list of "sources" is shown on the left hand side of the dialog box which can be selected for "movement" to "destinations" in the AB system.

Digital Inputs	
Global Boolean Source	Destination
Global Double	40001
Global Float Global Integer	40001/1
Global Time/Date	40001/2
IC Boolean	40001/3
IC Double	40001/4
IC Float	40001/5
···· IC Integer II Integer III Integer	40001/6
Local Boolean	40001/7
Local Double	40001/8
Local Float	40001/9
Local Integer	40001/10
Local String Local Time/Date	40001/11
Local Timer Local Timer	40001/12
E LON	40001/13
🗄 Relays	40001/14
	40001/15
	40001/16
	40002
	40002/1
Collapse All Expand All	Clear

Any item on the list that has a "+" before it has subordinate items and clicking on the "+" will expand the list showing all items that make up that category.

Below the list are two buttons that can "Expand" or "Collapse" all subordinate items in the list for easy viewing.

The firsts twelve items on the list provide access to controller status information and the globals database. The "LON" item will allow access to all field device information, the "Relays" item is for accessing the controllers onboard relay status.

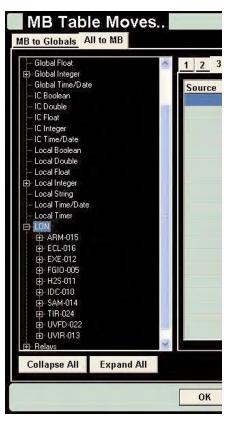
15-24 EAGLE QUANTUM PREMIER

In the example to the right, the "LON" item has been expanded by clicking on the "+" sign and now shows ten subordinate items, each of which is a field device.

As these additional items are revealed, the list extends beyond the bottom and becomes scrolling.

The hierarchical arrangement of items provides an easy and logical method of accessing the thousands of potential items that could be configured as outputs on a large premier system.

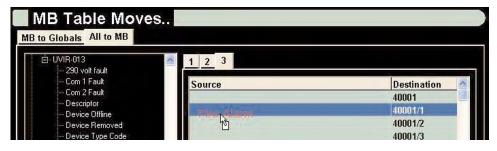
In the example below, a field device on the LON, an UV/IR Fire Detector with the tagname "UVIR-013" has been selected and "opened" to display its subordinate data. Any of the displayed items can be selected and configured



for "movement" to the MB system utilizing the "drag and drop" method.



To configure a data point for "movement" click and "drag" the selected point to the right side of the dialog box and "drop" it on the desired Modbus destination address.



In the above example, the "Fire Alarm" point is in the process of being moved to the selected destination address "40001/1" in the MB table.

i⊡- UVIR-013 i⊷ 290 volt fault	<u>1 2 3</u>	
Com 1 Fault	Source	Destination
Com 2 Fault Descriptor		40001
- Device Offline	UVIR-013.Fire Alarm	40001/1
- Device Removed		40001/2
- Device Type Code		40001/3
Fault		40001/4
- Fire Alarm		40001/5
- Flame Detector Counts per S	er 📰 🖌	40001/6
- Invalid Configuration		40001/7
IR Alarm IR Automatic Di Fault		40001/8
IR Fault	a	40001/8
IR Manual Oi Fault		
- IR Oi Test Frequency		40001/10
- IR Oi Threshold		40001/11
- IR Sensitivity		40001/12
Last Direction		40001/13
Latching		40001/14
LON A Counter		40001/15
LON A, Device Offline LON B Counter		40001/16
- LON B Counter		40002
	~	40002/1
Collapse All Expand All		Clear

Once "dropped" in the desired cell in the "Source" column on the right side of the dialog box, the "Fire Alarm" status for "UVIR-013" will now map to the first "bit" of register 40000, Modbus destination address of "40001/1"

This process must be repeated for all data to be shared with the MB host device.

15-26 EAGLE QUANTUM PREMIER

MODBUS Monitor: This dialog box is a tool for checking the value of data in any of the three configurable data tables used for exchanging data between the Premier controller and Modbus RTU systems.

MODBUS	Table Viewer		
— Tab	le		
	1 02 03		
#			
		00001	
2		00002	
4		00004	
5		00005	
6		00006	
7		00007	
8		00008	
9		00009	
10		00010	
11		00011	
12		00012	

The desired table is selected with a radio button in the top portion of the dialog box and a scrolling list displays the data.

In the example above the viewer has just been activated and is attempting to establish communication with the Premier controller.

Project Menu: This menu allows access to the project directory as well as several functions related to logic creation, debugging, simulation and downloading to the controller.

TPremier Logic I	ditor	
File Edit Controller	Project Sheets Toolbars Help	
	Directory Build Show Errors / Warnings Check Function Block	
	Download F9 Monitor Simulate	

S³ uses the international standard "IEC-1131" for the structure and style of the logic programming environment.

Selecting "Directory" will open the "Project Directory..." dialog box which lists the existing project "Elements" and provides tools for the cre-

	Select Function Block I D	mier Logic Editor		_				
Project Directory Elements] Nane Type Enabled Description Free Logic Program Gas Logic Program True Gas Algorithms Detete Delete	Project Directory Elements Name Type Free Logic Program Gas Logic Program True Gas Algorithms Open Settings Delete Duplcate Excort Import Move Up Move Down					10	10	
Elements Name Type Enabled Description New Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Delete Delete	Elements Name Type Enabled Description Fite Logic Program True Fite Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Escort Import Move Up Move Down	Select Fund	tion Block	200B	ABC 0 5/W		業 〒 ♀ ♦5	
Elements Name Type Enabled Description New Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Delete Delete	Elements Name Type Enabled Description Fite Logic Program True Fite Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Escort Import Move Up Move Down							
Elements Name Type Enabled Description New Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Delete Delete	Elements Name Type Enabled Description Fite Logic Program True Fite Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Escort Import Move Up Move Down							
Elements Name Type Enabled Description New Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Delete Delete	Elements Name Type Enabled Description Fite Logic Program True Fite Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Escort Import Move Up Move Down							
Elements Name Type Enabled Description New Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Delete Delete	Elements Name Type Enabled Description Fite Logic Program True Fite Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Escort Import Move Up Move Down							
Name Type Enabled Description Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Settings	Name Type Enabled Description Fire Logic Program True Gas Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Upplicate Esson Import Move Up		Project Direct	огу			100	
Name Type Enabled Description Fire Logic Program True Fire Algorithms Open Gas Logic Program True Gas Algorithms Open Settings	Name Type Enabled Description Fire Logic Program True Gas Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Upplicate Esson Import Move Up		[Elements]					
Fire Lopic Program True Fire Apprintimes Gas Logic Program True Gas Algorithms Settings Delete	Fire Logic Program Tue Fire Algorithms Gas Logic Program True Gas Algorithms Delete Duplicate Duplicate Export Move Up Move Down							
Gas Logic Program True Gas Algorithims Dpen	Ges Logic Program True Ges Algorithms Open Settings Delete Duplicate Escont Import						New	
Delate	Delete Duplicate Estorit Import		Gas Logic	Program		Gas Algorithins	Open	
Delate	Delete Duplicate Estorit Import						Sattinga	
	Duplicate Electric Move Up Move Down							
	Duplicate Electric Move Up Move Down							
Duplicate	Export Import Move Up Move Down						Delete	
	Move Up Move Down						Duplicate	
	Move Up Move Down							
Firmer	Move Up Move Down						Firmer	
E XADA	Move Up Move Down						Export	
Import							Import	
Move Un Move Down			Move Un	Move Dow	n			
	ОК		more op					
	UK							

ation, editing, deletion, duplication and arrangement of these elements. In the S³ programming environment an "Element" can be either a user program or a function block. In the example above, there are two existing elements, both of which are programs.

LOGIC EDITOR / PROJECT MENU / DIRECTORY

15-28 EAGLE QUANTUM PREMIER

Move Up / Move Down: The Premier Controller executes its logic programs in the order that they appear in the "Elements tab" of the "Project Directory..." dialog box. In the example below, the controller will execute the program "Fire Logic" first and then process the "Gas Logic" program.

Open
Open
Settings
Delete
Duplicate
Export
Import

The "Move Up" and "Move Down" buttons located in the lower left of the "Project Directory..." dialog box are used to change the execution order of the programs. In the example above, the "Fire Logic" program is hilighted.

Selecting the "Move Down" button moves it down one position, in this case to the bottom of the two element list as shown in the example below.

ements				
				-
Name	Туре	Enabled	Description	
Gas Logic	Program	True	Gas Algorithims	-
Fire Logic	Program	True	Fire Algorithims	

LOGIC EDITOR / PROJECT MENU / DIRECTORY

EAGLE QUANTUM PREMIER 15-29

New: This button opens the "Element type selection" dialog box used to configure a newly created element. Fields are provided for an element name and description along with radio buttons to select the "Type" of element to be created, "Program" or "Function block".

lement type selection	6		
Name:			
Description:			
	Eanguage Function Block	Type Program C Function block	
	ОК	Cancel	

The default selection is for the creation of a new "Program". The "Language" selection is fixed at "Function Block" as S³ does not currently support any other languages.

Name:	New Program		
Description:	32 character	long description	4
		Language	Туре
			Program
		Function Block	
			C Function block

Enter a "Name" up to 20 characters long and an optional "Description" of up to 32 characters. Both the name and description show up in the directory window and help to identify the program or function block.

Select the "OK" button to return to the "Project Directory..." dialog box and the information on the newly created third element named "New Program" is now hilighted.

Vame	Туре	Enabled	Description	New
Fire Logic Gas Logic	Program Program	True True	Fire Algorithims Gas Algorithims	Open
New Program	Program	True	32 character long description	Settings
				Delete
				Duplicate
				Export
				Import

Settings: Select the "Settings" button to open the "Element settings..." dialog box which has two program control check boxes and some additional fields that pertain to "Functions" and will be covered later.

Element setting Name:	35 New Program			
Description:	32 character long	g description		
v	gram Enabled First Scan Only	Function Password Name (5 Characters)	Version C GUID GUID	-
		OK Canc	9	

The "Program" check boxes are "Enabled" and "First Scan Only".

Enabled: The enabled checkbox determines whether the program will be executed by the controller or not. When checked the program will run.

First Scan Only: When checked the program will run <u>once</u> when the controller executes its first logic scan and will not run again until the controller is stopped and restarted. This is typically used for a "setup" routine.

Delete: This button will remove the selected program or function block from the directory, project and hard drive. This function cannot be "undone".

Name	Туре	Enabled	Description	New
Fire Logic Gas Logic	Program Program	True True	Fire Algorithims Gas Algorithims	Open
New Program	Program	True	32 character long description	Settings
		Yes	No	Duplicate Export

In the example below the element "New Program" is selected, choosing

the Delete button will display a dialog box asking to confirm the deletion of the element. Selecting "Yes" will permanently remove it.

15-32 EAGLE QUANTUM PREMIER

Duplicate: This button will make a copy of a selected element and add it to the project directory. When the Duplicate button is selected a dialog box will open allowing a new name to be entered for the duplicated element. Enter a name and then select "OK" to complete the duplication.

Fire Logic Program Gas Logic Program	True True	Fire Algorithims Gas Algorithims	
		uas Algona intis	Open
Enter the	name		Settings
			Delete
	OK	Cancel	Duplicate
			Export
			Import

Selecting "Cancel" will abort the duplication.

Import: The import function facilitates bringing certain elements created in another project into the current one. These elements can be functions or function blocks.

When the "Import" button is selected, the standard Windows "Open" dialog box appears to allow navigation to the location of the source files to be "imported". A pull down menu allows filtering by type making it easier to locate the desired function or function block.

Open		?	
Look in:	My Documents	· + € 💣 💷 -	
My Music My Picture			
File name:	[Open	
Files of type:	Functions & Function blocks	✓ Cancel	1
-	Functions Function blocks Functions & Function blocks		_

EAGLE QUANTUM PREMIER 15-33

Export: If a function block or function is hilighted in the project directory window, the "Export" button will become active allowing the element to be exported.

Project Di	Save As	? 🔀	
Elements Name Fire Logic Gas Logi Mark V L	Project 1		ew jen
	File name: Save as type: Automatic	Save	lete
Move	Up Move Down		port
			к

The standard Windows "Save As" dialog box allows for naming the file and choosing a destination to save to. **Build:** The build option "compiles" the project. The project is a program that must be compiled to download to the controller.

T Premier Logic	Editor				
File Edit Controller	Project She	ets Toolbars Help			
		··· Drs / Warnings	5 D D D	C- 88C Ø	E/w
	Download Monitor Simulate	F9			

The build process allocates memory, validates tagnames, validates data types, etc.

Project: Prei	mier				
Compiling: (Complet	ed.			
Section:		6	Total Sec	tions:	į.
Hints	0	Warning	gs: O	Errors:	

View the "Errors/Warnings" viewer if the build window indicates any errors or warnings. A preference selection will automatically open the "Errors/Warnings" viewer if selected. **Show Errors/Warnings:** This menu selection opens the viewer and displays any problems found in the project during the last build (compile).

T Premi	ier Logic I	ditor								
File Edit	Controller	Project	Sheets	Toolbars	Help					
	Directory Build]: ⊅	00	CD- ABC	Ø	E‰		
		Show	Errors /	Warnings						
		Chec	k Punction	n Block						
		Down	load		F9					
		Monit	or							
		Simul	ate							

When enabled, the logic editor will display the "ERROR / WARNINGS VIEWER" at the completion of a project build listing any problems.

_		ERROR / WARNINGS VIEWER
tiyns.	Alteconation	
Error	Missing connection	
Error	Type Mismatch	
PRINT		ОК

Selecting one of the errors will close the viewer and display the section of logic containing the problem.

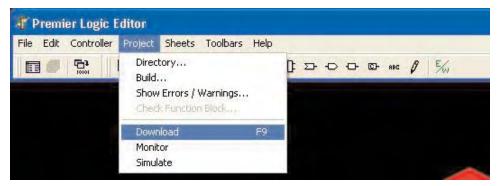
You may also choose to print out the list using the "Print" button in the lower left of the dialog box.

Check Function Block: When a function block is open for editing, this menu item becomes available. When selected S^3 will check the validity of the program and list any found errors or warnings.

🕴 Premier Logic E	ditor			
File Edit Controller	Project Sheets Toolb	ars Help		
Function Block	Directory Build Show Errors / Warnin Check Function Block.	gs	∑-+⊃-⊡-©-880 Ø 5‰ (Natitle)	
10	Download Monitor Simulate	F9	8	

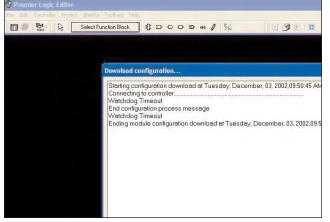
If a function block is not open for editing this feature is not available.

Download: Once the project has been "built" and no errors or warnings were discovered, selecting this menu item will transfer the project to the controller.



If a valid build is not found when the menu item is selected, S^3 will automatically initiate a build and if no errors or warnings are discovered, the program is downloaded to the controller.

During the download process, a dialog box will open displaying the establishing of the communication connection with the controller, the download progress and listing any errors or warnings that may occur.

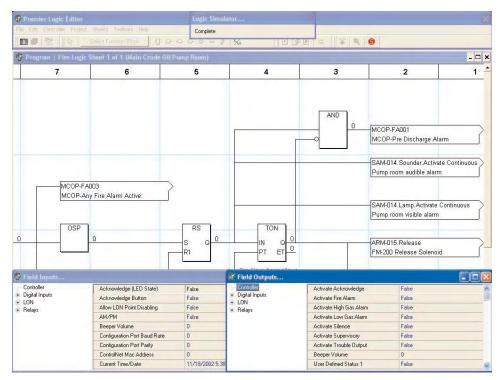


Simulate: If the project has been "built" and no errors were discovered then the program can be simulated within the S³ environment.

T Premi	ier Logic I	ditor									
File Edit	Controller	Project	Sheets	Toolbars	Help						
	10101	Build Show	Errors / '	Warnings]; 2-	00	- ©-	ABC 0	7 <u>5</u> /w	
		Dowr Monil			F9						
		Simu	ate							-	

Simulation allows for program testing and debugging without the need for an actual Eagle Quantum Premier controller being attached to the S^3 workstation.

Below is an example of a program in the "simulation" mode. Details on setup and use of the S^3 logic simulator for Eagle Quantum Premier is covered in Chapter 19 of this users guide.



When the simulator is running, the value for each logic element is displayed on the screen to the right of the element. Inputs can be directly manipulated and variables can be modified as well. (See Chapter 19)

LOGIC EDITOR / PROJECT MENU / SIMULATE

15-38 EAGLE QUANTUM PREMIER

Sheets Menu: The S³ logic editor utilizes a Computer Aided Design (CAD) style of program to create logic in much the same way that a draftsperson would have created drawings depicting logic in the past.

Drawing "sheets" are used to create the logic and also serve as documentation of this logic.

T Pr	emier Logic Editor								X
	Edit Controller Project Sheets Toolbars Help			Luc-					
	Settings Title Blocks	<u>)</u>	• 0 = ⁶ /w		p 🖸 💥 🦷	F Q +5			-
P P	rogram Fire Logic : Previous	ie Oil Pump Room)						-	. 🗆 🗙
	10 Next	7	6	5	4	3	2	1	-
F	Local Variable Editor						IICOP-FAD1 IICOP-Pre Disolarge Alam		F
E	Discharge Logic	MCOP-FAILS MCOP-ANY Fire	: Alam Actue	7			SAM-D14 Soulder Actuale Co Pump room avdble alarm		E
D	2002-010-002 File Claws LACting 0 K Filesp xxm xxx Milesch 0 K STIR-624 File Alam 0 K V0VM 021 File Alam 0 K V0VM 021 File Alam 0 K V0VM 021 File Alam 0 K				TON N Q FT ET Pre-Alam the rallow uk bis and aroble atoms to signal proto disolarge of FH-2ID		SAULDI LampActure Contre Proproon uis ble atum AR II-DIS Rekare (FII-DID Rekare Solenois IIICOP-FIIID Beckarge IIICOP-FIIIDD Beckarge		D
с	VV 70502017 Avail 80 VV 70502017 Avail 80 VV 70502017 Avail 000 Statistics 000 Statistics 000 Statistics 000 Statistics 000	Alams mestbe okardo kastó secosás bebe resetis esabled.	at						c
в									в
A					F.S.I.System a. Inc. 1256 North Post Cale F Hourton, Te sai 7705 F Monthass T. H. Poling R. Hourt R. Poling R. Hourt R. Poling Resource F	Road 1 USA 5/13/2 5/15/2	PROJECT Premier ELEMENT NAME Fire Logic SHEET TITLE		A
					PARCARD BY		Main Crude Oi	1 Pump Re	A A
	10 9 8	7	6	5	4	3	2	1	M

The "Sheets" menu provides access to features determining the layout of the logic pages along with the information in the title block.

Premier Logic Editor	Sheets Toolbars Help	
	Settings Title Blocks,	[] 고····································
🗗 Program Fire Logic S	Previous	le Oil Pump Room)
10	Next	8
	Local Variable Editor	



None of these menu items will "do" anything unless an element (program or function block) has been opened from the project directory window.

Settings: This menu item opens a dialog box where logic pages are given a "title" that appears in the title bar of the window for the drawing sheet, and a size and orientation for the drawing sheet can be selected.

T Premier Logic Editor		
File Edit Controller Project	Sheets Toolbars Help	
	Settings Title Blocks	D: ⊐ -⊃ -⊃ - © +90 Ø ⊨‰
🕼 Program Fire Logic S	Previous	le Oil Pump Room)
10	Next	8
	Local Variable Editor	
		_

The "Sheet Settings..." dialog box will list all existing sheets that have been created for an element (program or function block) along with seven buttons for "sheet management" purposes.

Shee	et Settings						
-	Title Main Crude Oil Pump Room			Size			
1				B-Landscape	T		
2	2 Product Transfer Pump Room			B-Landscape			
1000		******		A-Landscape A-Portrait			
				B-Landscape B-Portrait C-Landscape C-Portrait D-Landscape D-Portrait			
A	Append	Delete	Move Up	Goto			
	Insert Du	uplicate	Move Down		OK		

Size: A pull down menu to the right of the sheets title allows for the selection of the logic sheets size and orientation.

LOGIC EDITOR / SHEETS MENU

Engineering drawing sizes ranging from "A" to "D" can be selected in either a Landscape (Horizontal) or Portrait (Vertical) orientation. In the example below, "B-Landscape" is selected which creates a sheet 17" wide by 11.5" high.

			Ĭ	
	Title		Size	
1	Main Crude Oil Pump Room		B-Landscape	
2	Product Transfer Pump Roc	m	B-Landscape	-
		A-Landscape A-Portrait		
			B-Landscape B-Portrait	-
			C-Landscape C-Portrait D-Landscape D-Portrait	
A	ppend Delete	Move Up	Goto	

Append: This button will create a new sheet at the end of the list of existing sheets. On selection, a dialog box will open allowing the new sheet to be named upon creation.

Delete: This button will remove a selected sheet from the element. This cannot be "undone" and should be used with caution!

Insert: This button will create a new sheet after the sheet currently hilighted in the list of existing sheets. On selection, a dialog box will open allowing the new sheet to be named upon creation.

Duplicate: This button will create a new sheet at the end of the list of existing sheets. This "duplicate" will have a copy of all logic and settings on the original sheet. A dialog box will open allowing the new sheet to be named upon creation.

Move Up / Down: These two buttons are used to change a sheets position within the elements execution list. This is an extremely important feature in that the Eagle Quantum Premier controller executes logic in the order the sheets appear in the "Sheet Settings..." list.

In the example below, Item 2, the "Product Transfer Pump Room" sheet is selected. In its current position its logic will execute after the "Main Crude Oil Pump Room" and before the logic for the "Evaporator Room".

	Title		Size	
	Main Crude Oil Pump Room		B-Landscape	
	Product Transfer Pump Roo	om	B-Landscape	Ŧ
	Evaporator Room	Evaporator Room		
۵	Append Delete	Move Up	Goto	

The "Move Down" button will place it after the "Evaporator Room" in both visible location in the list as well as logic execution order. The inverse would be true if the "Move Up" button were selected.

Goto: This button will open the sheet currently selected. In the example above, the Goto button will open the "Product Transfer Pump Room" sheet.

OK: The OK button will accept any changes and close the "Sheet Settings..." dialog box.

Title Blocks: In the lower right area of each drawing sheet is a "Title Block" area which contains fields typically used to describe the project and functionality of the logic on the sheet.

🗿 Premier Logic Editor		
File Edit Controller Project	Sheets Toolbars Hel	Þ
	Settings	
	Title Blocks	
🔐 Program Fire Logic 🕯	Previous	e Oil Pump Roem)
10	Next	8
	Local Variable Editor	

Selecting this menu item opens the "Sheet Title Block Editor..." dialog box. This dialog box provides 18 fields for data entry to describe the

Shee

project and logic functionality.

The first field "Sheet" shows the current sheet number within the element (program or function block). Below that are fields for the sheet "Title", drawing "Number" and drawing "Revision".

Below this are fields for tracking the creation of the logic and modifications.

Below this are three field each for a "Top" and "Bottom" user edit. The top area is three lines to the left of the project name,

Sheet:	1 :		
Title:	Main Crude Oil Pump	Room	
Number:	090201-02-01		
Revision:	A		
	Action	Time	
Created By:	E. Menchaca	9/13/2	
Modified By:	M. Poling	9/15/2	
Printed By:			
Approved By:			
	Top Us	er Edit	
Line 1: F.S	I. Systems, Inc.		_
Line 2: 129	6 North Post Oak Roa	be	_
Line 3: Hou	uston, Texas 77065 l	JSA	
	Bottom U	ser Edit	
Line 1:			-
Line 2:			
Line 3:			

the bottom area is three lines to the left of the drawing size. In the lower left of the dialog box a "Copy To" button allows the entered information

		F.S.I. Systems, In 1296 North Post O Houston, Texas 7	c. ak Road 7065 USA	PROJECT	nier		
		CREATED BY E. Menchaca	9/13/2	ELEMENT I			
		MODIFIED BY M. Poling	9/15/2	Fire	Logic		
		PRINTED BY		SHEET TIT		and a second	
		APPROVED BY		Main	Crude O	il Pump R	oom
				B		9 NUMBER 1-02-01	REV A
6	5	4	3		2	1	

to be copied to any other selected sheets within the same element (program or function block). **Next / Previous:** These menu items become active whenever an element has more than one logic sheet.

🗿 Premier Logic Editor		
File Edit Controller Project	Sheets Toolbars Help	
	Settings Title Blocks	[코C - IC eec 🥖 트/
👔 Program Fire Logic	Previous	ransfer Pump Room)
10	Next	8
	Local Variable Editor	

They change the displayed logic sheet to the next or previous one as is appropriate.

T Premier Logic Editor		
File Edit Controller Project	Sheets Toolbars Help	
	Settings Title Blocks	[Σ - C - C + RC Ø ⊨‰
🔐 Program Fire Logic S	Previous	ransfer Pump Room)
10	Next	8
	Local Variable Editor	

Local Variable Editor: Variables are used to store intermediate values within a logic program or function block. "Local Variables" are only used within a function block and their values are not accessible outside of that specific function block.

Before local variables can be used, they must first be created. This is done with the "Local Variable Editor..." accessible through the menu selection.

File Edit Controller Project	Sheets Toolbars Help					
	Settings Title Blocks					
🕡 Function Block Mark	Previous	f 1 (No title)				
10	Next	8				
-	Local Variable Editor					

This menu selection is only available when a function block sheet is currently active.

LOGIC EDITOR / SHEETS MENU

15-44 EAGLE QUANTUM PREMIER

In the example below, a single variable is being created, the tagname "UV Counts" has been entered, the description has been entered, and the pull down menu is active in order to choose the appropriate "Data Type" for the variable.

Tagname	Description	Data Type
UV Counts	UV Counts from detector	Boolean 💌
		N/A Boolean String Integer Float Time/Date Double Structure

The default quantity of local variables allocated by S3 is "1" and must be changed to meet the needs of the function block being created.

The "Allocation" button at the bottom center of the "Local Variable Editor..." dialog box will open the "Local Variable Allocation..." dialog box.

From here up to 1K (1024) local variables can be allocated. In the example to the right, "8" has been entered into the field and will be created.

Local Variable Allocatio	on	
Enter a number between 1 -	- 1024	
ОК	Cancel	

Once the "OK" button is selected, the allocation dialog box will close and 8 "slots" are now allocated for variable creation within the Local Variable Editor. In the example below the creation of local variable #1 "UV Counts" has been completed and there are now additional slots to create up to eight local variables.

	Tagname	Description	Data Type
1	UV Counts	UV Counts from detector	Integer
2			N/A
3			N/A
4			N/A
5			N/A
6			N/A
7			N/A
8			N/A

Note:

The number of local variables available (1-1024) is not dependent on the data type, i.e. you do not get more variables by choosing only boolean types instead of integer or floating point types.

15-46 EAGLE QUANTUM PREMIER

Toolbars: Toolbars provide "shortcuts" to many menu items described earlier. The "Toolbars" menu provides a mechanism for enabling or disabling any or all of the four "Toolbars" used in the logic editor. By default all are enabled.

TI	remi	ier Logic I	ditor			
File	Edit	Controller	Project	Sheets	Toolbars	Help
					Gates Sheet	t Toolbar Toolbar Toolbar Di Panel Toolbar

For the example above all have been disabled and the toolbar area of the logic editor (horizontal area just below the menu names) is empty.

Project Toolbar: This toolbar provides three shortcuts; Project Directory, Save Project and Build Project.

T Premier Logic Editor		
File Edit Controller Project Sheets	Toolbars Help	
	🖌 Project Toolbar	
	Gates Toolbar Sheet Toolbar Control Panel Toolbar	



Project Directory: The project is divided into elements. These elements are made up of programs and function blocks.

Selecting this icon provides access to the tools for the creation,

opening, ordering, duplication, deleting and configuration of these project elements. It also allows for the importing and exporting of function blocks.



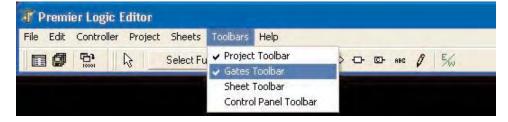
Save Project: Selecting this icon saves the project. Note that the project is automatically saved whenever the "Build" command is initiated.



Build Project: Selecting this icon builds (compiles) the project. The project is a program that must be compiled before it can be downloaded to the controller. The build process allocates mem-

ory, validates tagnames, validates data types, etc.

Gates Toolbar: This toolbar provides access to all of the tools used in the creation of the logic programs and function blocks.



The "Gates Toolbar" provides access to ten logic creation, editing and verification tools.





Pointer Tool: This arrow shaped tool is used to select and manipulate the position and or size of any logic function on a sheet.

Select Function Block: This button opens the "Function Selection" window which contains a scrolling list of all standard and user created functions available for selection.

Standard User	1	B. State State	
Name	/ Group	Description	
ABS	Math	Absolute	
ADD	Math	Add numeric values	
AND	Binary	Logical AND	
ANDW	Binary	Bitwise AND	
AVG	Math	Average	
BINT	Conversion	Boolean to Integer	
BTW	Relational	Between two values	
BTWT	Relational	Between two times	
CEIL	Math	Ceiling	
CTD	Counter	Down counter	
СТИ	Counter	Up counter	
CTUD	Counter	Up/Down counter	
DBLFLT	Conversion	Double to Float	
DBLINT	Conversion	Double to Integer	
DIV	Math	Divide	
ET	Relational	Equal To	
FLR	Math	Floor	
FRAC	Math	Fractional	
GE	Relational	Greater than or equal to	
GT	Relational	Greater Than	43

Gates Toolbar continued...

File Edit	Controller	Project Sh	neets T	oolbars	Help								
•		and the second s	lect Func			₽	₽	Ð	Ð	₫-	ABC	0	E/w



Function Block Icon: When the user selects a standard or a user created function block from the "Function Selection..." window, the selection is saved. The "Function Block" icon then

becomes a shortcut to this last selected function block.

In the example below the "ABS" function is selected via the "Function Selection..." window. When the window is closed the "ABS" function will be assigned to the "Function Block" icon.

Function Sele	ection		
Standard User			
Name	/ Group	Description	
ABS	Math	Absolute	2
ADD	Math	Add numeric values	
AND	Binary	Logical AND	
AMDUL	Disper	Difusion AND	

Subsequent selections of this icon will allow repeated selection and placement of this gate type without having to reopen the "Function Selection..." window.



Input Variable: All input variables to a program or function are via this symbol. Once placed on a logic sheet, the input variable must be "linked" to a compatible parameter on the con-

troller, a field device, or a location in controller memory.



Output Variable: All output variables from a program or function are via this symbol. Once placed on a logic sheet, the output variable must be "linked" to a compatible parameter on the

controller, a field device, or a location in controller memory.



Local Variable: Local variables are available in function blocks only. If a sheet for a standard "Program element" is opened, this function will be grayed out. These variables pro-

vide for the transfer of values between sheets of a multi-sheet block and private local storage (local variables).

Gates Toolbar continued...

Premi	er Logic	: Edito)F												
ile Edit	Controlle	r Pro	ject Sh	eets	Toolbars	Help									
•	10101	B	Sel	ect Fur	nction Blo	ck	₽	₽	Ð	¢	0-	ABC	0	5/w	



Constant Value: Constants allow for user set values to be input to a function or output variable that do not change during the execution of the program or function.



Comment: The user may want to place comments on the sheets to communicate what task a section of logic performs or any other annotation.

Premier Logic Ed	l <mark>itor</mark> Project Sheats Toolba	- Male	
Program Fire l	Logic Sheet 1 of 2 (A	Main Crude Oil Pump Room)	
		R1 PT ET	FM-200 Release Solenoid
		Pre-Alarm timer allow	/5
TOF	AND	300 visible and audible	MCOP-FA002

In the example above, there is a comment indicating "Pre-Alarm timer allows visible and audible alarms to signal prior to discharge of FM-200" below the timer that delays discharge while annunciation is in progress.



Connection Tool: The function block inputs and outputs are connected via the "Connection Tool". This tool is also referred to as the "Line Tool" and the "Wire Tool".



Errors/Warnings: When a build is performed any and all errors are reported via a window. This icon opens the "Error/Warning Viewer" described earlier in this chapter.

Sheet Toolbar: There are four icons which provide shortcuts to menu items having to do with logic sheets.

T Premi	er Logic Edite	DT									
File Edit	Controller Pro	ject Sheets	Toolbars	Help							
		Select Fu	✓ Project✓ Gates		>	Ð	0	ABC	0	E/w	
			V Sheet	Toolbar							
			Contro) Panel Toolbar							

These four icons from left to right are; Previous Sheet, Sheet Settings, Next Sheet and Fit to Window.

	 _
- C- ABC Ø 5/	
ump Room)	



Previous Sheet: When a multi-sheet logic or function block element is open and a "previous sheet" exists, this button will hilight and its selection will open the previous sheet.



Sheet Settings: Sheets have a name, size and position. Via this icon the "Sheet Settings..." window is opened from which sheets can be created, deleted and have their name changed. In addi-

tion a sheets logic execution order can be changed.

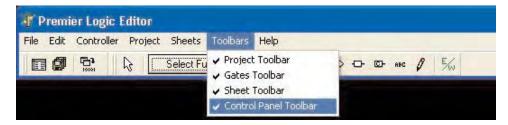


Next Sheet: When a multi-sheet logic or function block element is open and a "next sheet" exists, this button will hilight and its selection will open the next sheet.

М	12 th
21	K

Fit to Window: This icon scales the drawing sheet so that the entire sheet can be viewed in one window. Editing is not allowed when the "Fit to Window" feature is active.

Control Panel Toolbar: There are three icons which provide shortcuts to menu items having to do with logic and the controller.



These three icons from left to right are; Download, Monitor and Simulate.





Download: When this icon is selected and the project has been "built" and no errors were discovered then the program is transferred to the controller. If a valid build is not found then a

"build" is performed and if no errors are discovered the program will be downloaded to the controller.



Monitor: When connected to a controller and the project matches the program in the controller, the logic of the program can be monitored. In the monitor mode, the logic sheet is displayed on screen and the results of all function block bins can be viewed.



Simulate: If the project has been "built" and no errors were discovered then the program can be simulated on the S³ workstation. If a valid build is not found, the build is automatically performed and if no errors are found the simulation is started.

Help Menu: The help menu provides access to the online help system and has two areas; "Standard Functions" and "Main Window".

TPremier Logic Editor		
File Edit Controller Project Sheets Toolbars	Help	
Select Function Block	Sandard Functions Main Window	ABC 🖉 🔣 🐺
	9	

Standard Functions: This portion of the help system covers all of the available logic operators available for use in the logic editor.

🕼 Premier Log	ic Ed	🥏 S 3 Eag	gle Qua	ntum Pr	emier Lo	gic Edit	or	
File Edit Contro	liat	File Edit	Bookma	rk Optior				
	B	Contents	Index	Back	Print	12	-22	
		ABS						

Selecting this menu item will open a hypertext linked help window featuring all available logical operators.

File Edit Boothmark Oppliers Contents Index Data Contents Index Data STANDARD LIBRARY Index GROUPS ABSOLUTE ADD AND AND AND AVERAGE BETWEEN BETWEEN IIME BOOLEAN TO INTEGER CEIL COMMENT CONSTANT DIVIDE DOUBLE TO FLOAT DOUBLE TO FLOAT DOUBLE TO FLOAT DOUBLE TO INTEGER EQUAL TO FLOOR FRAC GREATER THAN GREATER THAN EQUAL TO INPUT	I Premier Logic E	🕏 S‡ Eagle Quantum Premier Logic Editor			×
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DOUBLE TO FLOAT DOUBLE TO INTEGER DOWN COUNTER EQUAL TO FLOOR FRAC GREATER THAN GREATER THAN EQUAL TO		CONSTANT			
DOUBLE TO INTEGER DOWN COUNTER EQUAL TO FLOOR FRAC GREATER THAN GREATER THAN EQUAL TO		DIVIDE			
DOWN COUNTER EQUAL TO FLOOR FRAC GREATER THAN GREATER THAN EQUAL TO		DOUBLE TO FLOAT			
DOWN COUNTER EQUAL TO FLOOR FRAC GREATER THAN GREATER THAN EQUAL TO		DOUBLE TO INTEGER			
EQUAL TO FLOOR FRAC GREATER THAN GREATER THAN EQUAL TO					
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GREATER THAN EQUAL TO					
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To access detailed information on a subject, click on a library function and the information will be displayed.

LOGIC EDITOR / HELP MENU

In the example below, the "Absolute" function was selected and the details of how to use this function are shown.

OPremier Logic Ed	🛷 Sª Eagle Qua	antum Premier Logic E	ditor					
File Edit Controller	File Edit Bookm	ark Options Help						
E 2 🔛 🕞	Contents Index	Back Print <<	2					
		ITE	to function					
	THIS IUNCTION	r provides ari absolu	le function.					
	Input	Parameter	Type I.D.E.	Description Input	No No			
	Output		I.D.F	Output	No			
	The output will The output will Example: -23 =	be of the same type as be the absolute value of = 23.	the input. the input.					
	Group : Math							
	Related Functi	ons.						
📲 start 💦 🥐	Welcome - Lo	3 3	📌 QIIConfigure	🕂 QIILogicMaker	🦉 untitled - Paint	终 5 ³ Eagle Qua	1 2 2 4 5	9:20 AM

Use the Contents, Index, Back and Print buttons below the help windows menu bar to navigate the help system and print hard copies as required.

LOGIC EDITOR / HELP MENU

Main Window: This portion of the help system covers the description and operation of the icons in the logic editors tool bar.

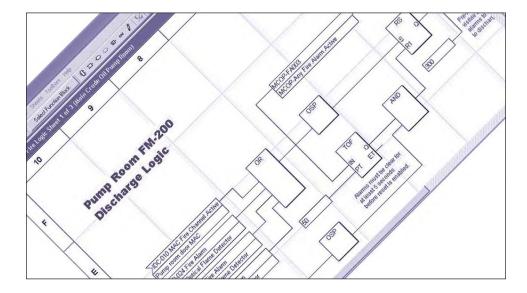
T Premi	ier Logic I	Editor					
File Edit	Controller	Project Sheets	Toolbars	Help			
	📰 🕼 🔛 👌 Select Function Block		Sandard Functions	APC	1 5/1 5		
			Main Window		V /W		

Pictures of the tool bar icons are shown along with a description of their functions.



Use the Contents, Index, Back and Print buttons below the help windows menu bar to navigate the help system and print hard copies as required.





LOGIC CREATION

The S³ Logic Editor provides a modern full featured IEC-61131-3 style environment to generate, test and document user programmable logic for Eagle Quantum Premier controller.

S³ utilizes the "Function Block Diagram (FBD) Language".

FBD is a graphically oriented language that corresponds to block logic diagrams. The elements used in this language appear as blocks wired together to form logic circuits. The wires can communicate binary and other types of data between FBD elements. In FBD programming, a group of elements visibly interconnected by wires is known as a *network*. An FBD diagram may contain one or more networks. In the S3 programming environment these networks can span multiple sheets within a program or function block element.

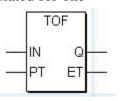
LOGIC EDITOR / LOGIC CREATION

DEFINITIONS

Programs: Programs are the highest-level executable elements within an S^3 project. Programs can invoke functions or function blocks, but cannot invoke other programs. Projects are typically partitioned into multiple programs based on the operational requirements of an installation.

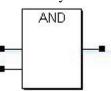
Function Blocks: In S³ a function block is an executable element that yields one or more values and is generally used to perform repetitive operations. Variables within a function block persist from one evaluation of the function block to the next, so that the values calculated for one

evaluation can be used in the next. Therefore, invocation of the same function block with the same input values may not yield the same output values. Examples of such function blocks are timers and counters like the Timer OFF delay (TOF).



Functions: A function is an executable element that yields exactly one

result. Unlike function blocks, variables in a function do not persist from one evaluation to the next. An example of a typical function is the boolean "AND" gate. Two or more inputs are evaluated and result in a single output.



Extensible Functions: These functions have a minimum of two (2) inputs and can have a maximum of thirty two (32). The number of inputs into the function can be adjusted by double clicking on it.

This will open a dialog box allowing the input number to be set and also

may allow invert-	Gate Settings	
ing any or all of the inputs as well as the output.	Number of Inputs 2	
In the AND gate example to the right, the default	3 4 5 6 6 7 8 2	
of two non invert- ed inputs and a	OK	

non inverted output are shown. To change the extensible number of inputs, click on the arrow to the right of the "Number of Inputs" field.

EAGLE QUANTUM PREMIER 15-57

The "Gate Settings..." dialog box provides a scrolling pull-down menu from which the number of inputs can be adjusted anywhere between Two (2) and Thirty Two (32).

Number of Inputs	8
NOT Enables	✓ Output 1 ✓ 2 3 ✓ 4 5 ✓ 6 7 8

Gate Settings...

Number of Inputs

2

NOT Enables

4

5

6

7

9

9

0

Cancel

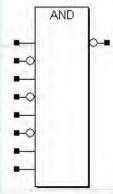
In the examples above and to the left, eight inputs were selected and then inputs Two (2), Four (4) and Six (6) were inverted by clicking on the "NOT Enable" checkbox corre-

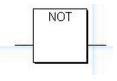
sponding to those inputs. In addition, the output was inverted in the same manner.

Once these selections were made, clicking on the "OK" button closes the "Gate Settings..." window and the reconfigured function appears as in the example to the right.

Note the small circles on the output and input "pins" indicate that these signals are "Inverted" from their normal state.

Non-Extensible Functions: These functions have a single non expandable input. One example of a non-extensible function is the boolean "NOT" gate, as shown in the example to the right. A single input with a single output.

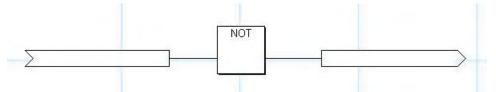




15-58 EAGLE QUANTUM PREMIER

Placing Logic Operators on a Sheet: To develop a program the user must be able to use the Logic Editor to place functions, function blocks, variables, inputs and outputs on a sheet within an element and then connect them together into viable networks.

Below is an example of one of the simplest networks possible, a nonextensible function with a single input and a single output.



To create this network you must open a sheet within a created element and place the three logic operators on the sheet and connect them together.

	6	Select Function Block	0	∑-	Ð	Ð	D -	ABC	0	Ew	
--	---	-----------------------	---	----	---	---	------------	-----	---	----	--

- 1. All logic operators are selected via the icons on the "Gates Toolbar" shown above and described earlier in this chapter.
- Σŀ
- 2. Click on the "Input Variable" icon on the Gates Toolbar.

The cursor will change to a miniature input variable symbol when positioned within the drawing area of the current sheet.

3. Place the Input Variable on the sheet by positioning the mouse cursor over the sheet and clicking the left mouse button.

The cursor will return to the "Arrow" symbol and this tool can be used to move the placed Input Variable to the desired location on the sheet. It may also be moved using the arrow keys.

4. Activate the Select Function Block button on the "Gates Toolbar" to open the "Function Selection..." dialog box. 5. Scroll down the list of available logical operators (function blocks or functions) and locate the binary "NOT" operator.

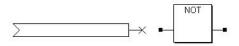
Note: If you know the name of the desired operator, it can be located quickly by typing its name. As you begin typing S³ will automatically reposition the scrolling list.

6. Select NOT and click "OK".

The cursor will change to a miniature function block symbol when positioned within the drawing area of the current sheet.

7. Place the "NOT" function on the sheet by positioning the mouse cursor over the sheet and clicking the left mouse button.

The cursor will return to the "Arrow" symbol and this tool can be used to move the placed function to the desired location on the sheet. It may also be moved using the arrow keys.



8. Click on the "Output Variable" icon on the Gates Toolbar.

Ð

The cursor will change to a miniature output variable symbol when positioned within the drawing area of the current sheet.

3. Place the Output Variable on the sheet by positioning the mouse cursor over the sheet and clicking the left mouse button.



Once all three logic operators are placed on the sheet, they must be connected together before the program can be considered finished and ready to be compiled.

LOGIC EDITOR / LOGIC CREATION

15-60 EAGLE QUANTUM PREMIER

Connecting Logic Operators: Inputs, outputs, constants, functions, function blocks, etc. can be connected to each other either directly or by using "wires".

In the example to the right, con-

nections must be made between the input, output and NOT gate.

Direct Connection: To use the "direct connect" method, use the mouse to select the Input Variable and drag it to the right until its output connector mates with the NOT gates input connector as shown below.

	NOT
At this point,	
the S ³ has linked	
the Input Variable	to the input of the NOT gate and moving the Input
Variable away wi	th the mouse will automatically create a "wire" to keep
the connection,	NOT
as shown to the right.	
•	

Once this connection is established, the input variable can be repositioned anywhere left of its connection point and the connection wire will change

size and shape	2	 NOT		
to keep the con-	<u>/</u>		- ×-	>
nection.			and the second s	



Using Wires: Click on the "Wire Tool" to activate it. The cursor changes to a miniature wire tool or pencil when it is positioned anywhere within the drawing area of the sheet. This

means that wires can be drawn from one logic operator to another to connect them.

When active, the wire tool appears as in the example below. Using the

wire tool, con-			٦ <i>ه</i>	
nect the output	2			\geq
of the NOT gate				/
to the input of the	Output Variable.	This will con	mplete the drawing of	
this three logic	>		1 //	
operator net-	2			\geq
work.				/

Next, the Input Variable and Output Variable must be "linked" to an appropriate I/O point or memory location in the controller.

LOGIC EDITOR / LOGIC CREATION

Linking Variables: Input and output variables must be linked to compatible field device or controller memory data. Using the three logic operator "example network" created on the previous page, double-clicking on the "Input Variable" will open the "Input Selection..." dialog box which provides access to the Eagle Quantum Premier's database.

	heets Toolbars Help	.	
Program Fire Logic Sh		14.	↓ ◆5 Ⅰ ⑦ Ⅰ 業
10	9	8 Input Selection	7 6
F	• [Controller Digital Inputs Global Boolean Global Float Global Integer Global Time/Date IC Boolean IC Double IC Float IC Float IC Integer IC Time/Date Local Boolean Local Couble Local Integer Local Integer Local Integer Local Time/Date	Collapse All Expand All
D		Local Timer	Help OR Cancel

The "Input Selection..." dialog box presents the database as a hierarchical list of sources.

Any item on the list that has a "+" before it has subordinate items and clicking on the "+" will expand the list showing all items that make up that category.

To the right of the list are two buttons that can "Collapse All" or "Expand All" subordinate items in the list for easy viewing.

The first nineteen items on the list provide access to controller status information and the globals database. The "LON" item will allow access to all field device information, the "Relays" item is for accessing the controllers onboard relay status.

LOGIC EDITOR / LOGIC CREATION / VARIABLE LINKING

Linking Variables continued...

In the example below, the "LON" category has been expanded to reveal the field devices and then an Eclipse Infra-Red (IR) hydrocarbon gas detector tagged "ECL-015" has been expanded. The data available for

this device exceeds the window length and the list has become "scrolling" to accommodate the expanded data.

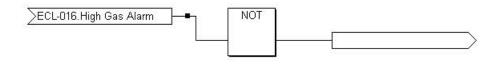
In this example, a "Boolean*" or "Binary" data element named "High Gas Alarm" has been selected by clicking on it with the mouse. Its selection is noted by its text description being hilighted.

The "block" with a letter preceding the data points name indicates the "Data Type" for that point.

The NOT gate in our

example network requires a "Binary" data type for both inputs and outputs. The "High Gas Alarm" selected meets this criteria.

Selecting the "OK" button closes the "Input Selection..." dialog box and "links" the "ECL-015 High Gas Alarm" to the "Input Variable" of the example network, as shown below.



*Note: For detailed "Data Type" definitions, structures and ranges, refer to the last page of this Chapter.

ON ABM-015	~	Collapse /
ECL-016		Expand A
- 📔 Cal Gas Concentration		
Calibration Active		
F Calibration Cuvett Length		
📕 Calibration Fault	-	
🔣 Calibration Gas Type		
Calibration Method		
📳 Com 1 Fault		
📳 Com 2 Fault		
- B Descriptor		
📳 Device Offline		
Device Removed		
📕 Device Type Code		
Dirty Optics		
📕 Eclipse Gas Type		
Fault		
Firmware Version		
Gas Coefficient a (Only used w		Help
Gas Coefficient b (Only used w		нер
Gas Coefficient c (Only used w		
Gas Coefficient d (Only used w		
Gas Coefficient e (Only used w	2	OK
F High Alarm Setpoint		
- 📙 High Gas Alarm	4	Cancel

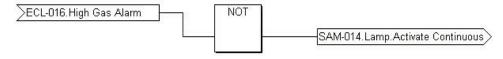
Linking Variables continued...:

box.

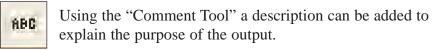
The final step in completing the example network is to link the NOT gates output variable to an appropriate point.

Double clicking on the NOT gh Gas Alarm "Output Variable" opens the "Output Selection ... " dialog **Output Selection..** IC Time/Date Collapse All Local Boolean Local Double Expand All This dialog box pres-Local Float Local Integer ents the database in the Local String Local Time/Date same manner as Local Timer LON described on the previ-ABM-015 ous page for the input ECL-016 EXE-012 selection process. FGI0-005 H2S-011 ---- IDC-010 SAM-014 For this example, the E Device Removed Lamp LON data structure has Activate 120 bpm Activate 60 bpm been expanded, a Help R Activate Continu Signal Audible Module Activate Temporal Sounder (SAM) with the tag-TIR-024 OK UVFD-022 name "SAM-014" has UVIR-013 Cancel Relays been expanded and the Binary data point

"Activate Continuous" for the Lamp output has been selected. Selecting the "OK" button will close the "Output Selection..." dialog box and link this output to the output variable as shown below.



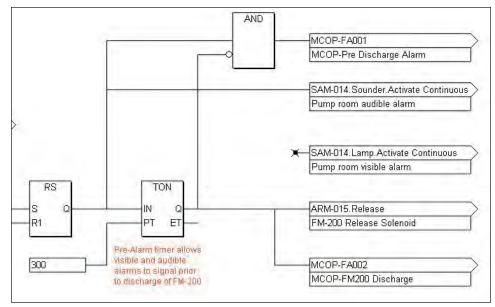
The network is now complete, when the High Gas Alarm for ECL-016 goes "ON" the lamp controlled by SAM-014 goes "OFF".



ECL-016.High Gas Alarm	T
	SAM-014.Lamp.Activate Continuous
	All Clear Lamp: On when ne gas alarm present.

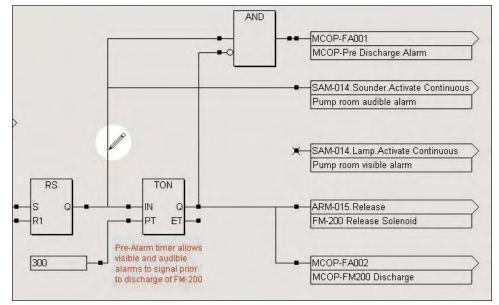
LOGIC EDITOR / LOGIC CREATION / VARIABLE LINKING

Wire-on-Wire: This type of connection is used when a single signal needs to be routed to multiple destinations as in the example below.



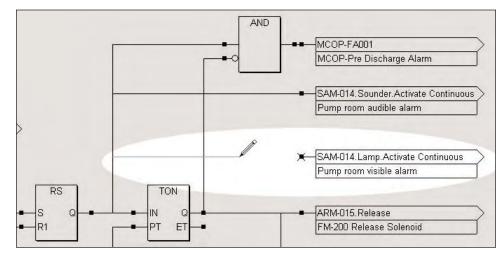
In this example the output "Q" of a "Reset-Set (RS)" block needs to be routed to the input of an "AND" gate, to the input of a timer (TON) and to two output locations on SAM-014. The first connection to SAM-014's audible alarm is complete, the second connection to SAM-014's visible alarm output needs to be created.

To accomplish this type of connection the "Wire Tool" is used. Select

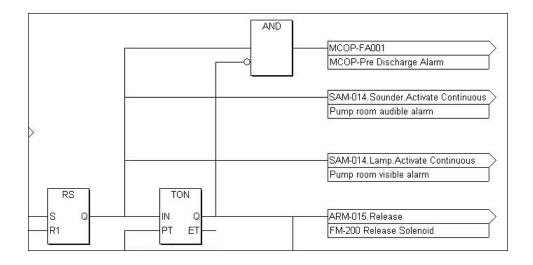


the "Wire Tool" and place it on an existing "wire" where a connection is

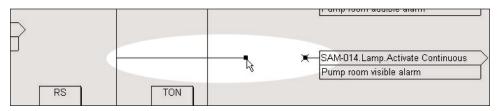
desired. Click to and drag to make the connection and create a wire. Draw the wire from the initial wire-to-wire connection point to the input of the desired variable.



The completed circuit will look like the example below.



If the mouse button is released while "drawing" the wire, before completing the connection, an incomplete line segment will be created. To complete this segment, use the arrow tool to click and drag the incomplete end of the wire to its desired destination.



LOGIC EDITOR / LOGIC CREATION / VARIABLE LINKING

15-66 EAGLE QUANTUM PREMIER

Combining the techniques described in the last few pages with the comprehensive standard set of S^3 functions and function blocks, virtually any kind or complexity of logic can be created quickly and easily.

-	ier Logic Editor Controller Project Sheet:	7 Toolbars Help					X
Prop	ram Fire Logic Sheet			¥ Q ♦\$ 0 D	米		_ 🗆 :
	10	9	8	7	6	5	4
F	Pump R	oom FM-20	00				
	and the second sec	ge Logic					
E				MCOP-FA003 MCOP-Any Fire	Alarm Active	7	
		ire. Channel Active		OSP		RS	
	Pump room door	MAC				S Q	
D	X3301 Optical FI	Alarm		TOF	AND	300	Pre-Alarm visible and alarms to s
	UV/IR Optical FI: VVFD-022.Fire UV Optical Flam	Alarm		IN Q PT ET			to discharç
			OSP	Alarms must be clear for at least 5 seconds before reset is enabled.	0		

The example above utilizes a binary OR, a One Shot Pulse (OSP), a binary AND, a Reset/Set (RS) and text comments to create a portion of the protection logic for a pump room.

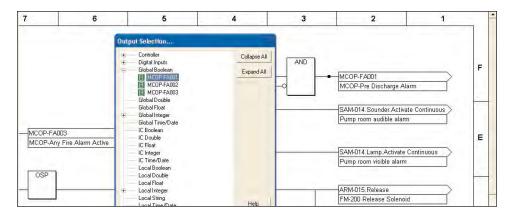
In some cases, the complexity of the logic being designed or just the number of logic operators required may use more room than is available on the selected sheet size.

In these cases, the sheet can be made larger by selecting the "Settings" item of the "Sheets" menu. Sheet size can be increased from the minimum "A" size up to a maximum "D" size.

If once the desired sheet size has been selected more room for logic is still required, information can be sent "between" the sheets in an element.

LOGIC EDITOR / LOGIC CREATION / VARIABLE LINKING

Sheet-to-Sheet Network Linking: For very complex logic situations, it may be necessary for a logic network to span more than one sheet. This is fully supported and easy to implement. By assigning an "Output Variable" to a compatible "Global Variable" memory location in the controller, the value can then be accessed on another sheet.



In the example to the below, an Input Variable was placed and linked to a global memory point "MCOP-FA001".

The value for this point was generated on the preceding sheet where it

was assigned to the global database. Once placed in the global database, the value of "MCOP-FA001" can be used as an "Input Variable" on any other sheet in the project.

10	9	8	7
		Input Selection	
		Controller Digital Inputs	Collapse Al
		🖃 — Global Boolean	Expand All
F		MCOP-FA001	
		Global Double	
MCOP-FA001	—×	Global Float	
		Global Integer Global Time/Date	
		IC Boolean	

15-68 EAGLE QUANTUM PREMIER

Data Types: Functions and Function blocks typically require a specific

data type to be attached to their input and output pins. The S³ online help file provides detailed information on both the data type compatibility requirements as well as how each logic operator functions. Below is a definition of the available data types, within the S³ database these types are represented as follows:

- B = Boolean I = Integer D = Double F = Float
- S = String
- T = Time/Date

Detector	IEC 1131-3	Range
Dettettor	ILC 1151-5	Range

LON ABM-015	Collapse A
ARM-015 ECL-016	-
ELL-016	Expand A
Calibration Active	
E Calibration Cuvett Length	
R Calibration Fault	
Calibration Gas Type	
Calibration Method	
Com 1 Fault	
Com 2 Fault	
Device Offline	
Device Removed	
Device Type Code	
Dirty Optics	
📕 Eclipse Gas Type	
Fault	
F Firmware Version	
📔 Gas Coefficient a (Only used w	
- 📔 Gas Coefficient b (Only used w	Help
📔 Gas Coefficient c (Only used w	
E Gas Coefficient d (Only used w	
Gas Coefficient e (Only used w	ОК
E High Alarm Setpoint	
— 📙 High Gas Alarm 🛛 🛛 💌	Cancel

Boolean	Boolean	8 bit value, $1 = $ True, $0 = $ False
Integer	Integer	2 bytes, 16 bit value, -32,76832,767
Double	Double Integer	4 bytes, 32 bit value, -2,147,483,6482,147,483,647
Float	Real	4 bytes, 32 bit value (IEEE 754 single precision) Most positive number 3.4028E+38 Least positive number 1.1754E-38 Least negative number -1.1754E-38 Most negative number -3.4028E+38

NOTE: When floats are used in a comparison for Equal (=), the comparison will be true if the values are within 0.01 of each other.

String	String	80 bytes	(Not supported a	as an I/O variable)
Time/Date	e Undefined When displayed	Item ID 1 2 3 4 5 6 as a string	Description Seconds (0-59) Minutes (0-59) Hours (0-23) Day (1-31) Month (1-12) Year the format is mm/	Data Type Integer Integer Integer Integer Integer Integer dd/yyyy hh:mm:ss

Structure Structure A structure that does not have a fixed length.

LOGIC EDITOR / LOGIC CREATION / DATA TYPES

DEVICE ITEMS REFERENCE

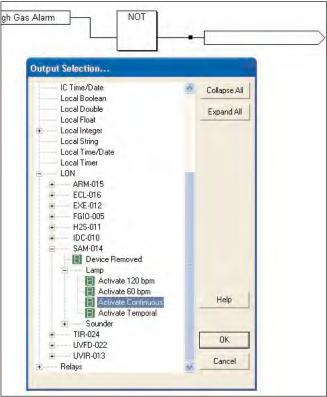
As described earlier, inputs and outputs to the logic must be "linked" to variables in the S³ database for the controller in which the logic resides. As the database is "browsed" to locate the desired variable for a LON device, controller or memory location a very large array of device "items" are presented.

These items are listed in alphabetic order under each tagname in the database.

Many of these items are familiar, like the standard "fire & gas" device types "Fire Alarm", "Lo Gas Alarm" etc.

Others like "Neuron ID" and "Firmware Version" are not.

In addition to the standard F&G



alarms each LON device and the controller itself have a great deal of additional status and diagnostic information that can be utilized in logic.

The following pages of this users guide provide a reference to over 300 of these "Device Items" so that the programmer can determine whether they could be used to enhance the user program being worked on.

Item Descriptions:

Item : 1 Firmware ID String:

The controller automatically polls LON devices for an ID string. The ID string contains an abbreviated device name and firmware version. As an example, "DCU 3.01" is the ID string for a DCU. The first three characters hold the device ID and the last 5 characters hold the firmware version. In multi processor units like the Eclipse and X3301 this represents the version of the software running on the neuron chip. For the controller, this variable holds the version of the main program, not the neuron firmware. Firmware version is used to determine device type and available functionality.

Item : 2 Neuron ID number:

Each neuron holds a unique 48 bit "Neuron ID" number. Neuron ID numbers could be used as an alternative method to dip switch addressing in a future version.

Item : 3 Firmware Version:

The firmware version is represented as a floating-point number. In multi processor units like the Eclipse and X3301 this represents the version of the software running on the main processor, not the neuron chip.

Item : 4 Serial Number:

This location holds a unique serial number used for device identification.

Item : 5 Manufacture Date:

Date of device manufacture.

Item : 6 OEM Device Code:

This code is used to synchronize software features to a customer. This item can only be set at the factory by the controller final test fixture. It is not part of the user configuration.

Device Codes

Value Description

- 0 Detector Electronics
- 1 Solar Turbines

Item : 7 Device Code:

Each device type has a unique code associated with it. Controller to PC configuration software use "Device Codes" to identify device types. The Controller to field device interface uses "LON Type Code" for backward compatibility.

Device Code	Device	LON Type
Code		
1	DCU	95
2	IDC	91
3	UV Detector	92
4	SAM	93
5	ARM	94
6	UV/IR Detector	96
7	PSM	97
8	8 Point DC I/O Module	110
9	8 Point Relay Module	111
10	8 Point Analog Input Module	112
11	8 Point Pulsed Input Module	113
12	Eclipse PIR	98
13	X3301	99
14	X2200 UV	114
15	X9800 IR	115
16	X5200 UV/IR	116
17	IPM (DCIO Smoke)	117
100	Premier Controller	200

DEVICE ITEM NUMBER DESCRIPTIONS

Item : 8 Tag Name:

User defined 20 character ASCII string.

Item : 9 Descriptor:

User defined 32 character ASCII string.

Item : 10 Update Rate:

The frequency of field device status transmission is adjusted with this variable. The allowable range is from 1,000 to 10,000 ms.

Item : 11 Time and Date of Configuration:

The time and date of the configuration information is saved in this variable.

Item : 12 Unique Configuration Number:

Each configuration will be assigned a unique number, which can be used to identify the configuration.

Item : 13 Configuration Port Baud Rate:

Serial baud rate for the controller configuration port is set with this variable. A code is used to represent each rate.

Baud Rate Codes

Code	Speed
1	2400
2	4800
3	9600
4	19.2K
5	38.4K
6	57.6K
7	115.2K

Item : 14 Configuration Port Parity:

Controller configuration port parity setting is set with this variable. A code is used to represent each type.

Parity

- Code Type
- 1 None
- 2 Odd
- 3 Even

Item: 15 LON Address:

Each device on the LON network must have a unique address. Valid controller addresses are in the range of 1 to 4. Field device addresses are in the range of 5 to 250.

Controller LON Address:

Primary controllers will set this variable to 1 while secondary controllers will have a value of 2. User logic and external interfaces can use this variable to determine which controller is currently the master. Host configuration software need not write to this item.

Item : 16 Option Board Type:

This variable defines the type of option board installed.

Option Board Types

Value Description

- 1 No Option Board Installed
- 2 ControlNet

Item : 17 Current Time and Date:

The controller real time clock can be set or read with this variable.

Item : 18 User Name:

The name of the PC user can be saved with this variable.

Item : 19 ControlNet MAC Address:

The ControlNet MAC address is set with this variable. Allowable values range from 1 to 99.

Item : 20 Serial Port 1 Protocol:

The second serial port protocol is set with this variable.

Serial Port Protocols

- Value Description
- 1 Port not used
- 2 Modbus Slave
- 3 Modbus Master

Item : 21 Serial Port 1 Baud Rate:

Serial baud rate for the controller RS485 serial port is set with this variable. The default baud rate is 9600.

Item : 22 Serial Port 1 Parity:

The controller second serial port parity setting is set with this variable. The default parity is "None".

Item : 23 Serial Port 1 Address:

The address field is only used for Modbus protocol. Valid Modbus addresses are in the range from 1 to 247. The default address is 1.

Item : 24 Allow LON Point Disabling:

If this variable is set true, LON device disabling will be allowed. This feature has not been implemented, at this time disabling is always allowed.

Item : 25 Beeper Volume:

The volume level of the internal beeper can be adjusted with this variable. Values from 1 (lowest) to 4 (highest) are allowed.

Beeper Volume

- Value Description 1 Off 2 Low
- 3 Medium
- 4 High

Item: 26 Channel Type:

This variable is used to configure a DCIO channel as an input or output.

Value Definition

- 1 Input
- 2 Output

3 Smoke Detector (not implemented yet) Note: When smoke is selected, only supervision option 3 (opens and shorts) and static logic mode fire is allowed.

Item : 27 Low Alarm Latching:

When this configuration variable is set low alarms are latched until the unit is power cycled or a reset command is issued.

Item : 28 High Alarm Latching:

When this configuration variable is set high alarms are latched until the unit is power cycled or a reset command is issued.

Item : 29 DCU Type Code:

See the DCU section for a description of this variable.

Item : 30 Gas Mode:

Gas Mode is used to determine if static logic should activate high and low gas alarms. When mode 1 is selected static logic will activate the controller gas alarms. Mode 2 should be used for non-gas detector inputs.

Gas Mode Value Definition 1 Gas Detector 2 Other (Non Gas)

Item : 31 Engineering Zero Value:

Zero range corresponds to the 4 ma value on the sensor input. For example, if 4 ma equates to 10.0 MPH of air flow the engineering zero value should be set to 10.0.

Item : 32 Engineering Full Scale Value:

Full scale range corresponds to the 20 ma value on the sensor input. For example, if 20 ma equates to 900.0 MPH of air flow the engineering zero value should be set to 900.0.

Item : 33 Calibration Level:

This variable determines the calibration point for the 4 to 20 ma input. Valid values are in the range of 20 to 100% of full scale.

Item : 34 Low Alarm Setpoint:

Alarm setpoints must be within the limits listed on the DCU type code table. Alarm determination is done at the DCU not the controller. However, user logic could be created within the controller to allow for many more alarm levels.

Item : 35 High Alarm Setpoint:

Alarm setpoints must be within the limits listed on the DCU type code table. Alarm determination is done at the DCU not the controller. However, user logic could be created within the controller to allow for many more alarm levels.

Item : 36 Units Text:

This field holds the engineering units as a text string. The text string shall be displayed with the process variable on the faceplate display. Future versions of DCUs with on board displays may also utilize this information for display.

Item : 37 PV Change Dead-band:

The process variable dead-band can be adjusted with this variable. This is only used during "Online" operation and is expressed as a percentage of full scale. When the host computer instructs the controller to operate in online mode the controller sends exception messages to the host computer when device variables change. However, many analog values are constantly changing which many cause an abundance of unneeded messages. The "PV Change Dead-band" variable is provided to limit how often the value is sent. The value must change by the "PV Change Dead-band" amount or more fro the value to be sent.

Item : 38 Input Static Logic Mode:

Input mode is used to determine if static logic should activate controller alarms on input activation. For example, if mode 1 is selected, static logic will activate the controller fire alarm when the input is activated.

Mode	Definition
0	Invalid
1	Fire Alarm
2	Trouble
3	Low Gas Alarm
4	High Gas Alarm
5	Supervisory
6	Other

Item : 39 UV Sensitivity:

Sensitivity

Value	Definition	Standard Mo	ode		
Star Mode					
1	Low	96 cps	96 cps		
2	Medium (Defau	lt)	48 cps		
48 cps					
3	High	24 cps	24 cps		
4	Very High	8 cps	8/16 cps		

Item : 40 Time Delay:

Valid times are from 0 to 7 seconds with a default value of 5 seconds.

Item : 41 UV Arc Rejection:

UV Arc Rejection

Value	Definition	Gate Length	
1	Low	.250	
2	Medium (Default)		.125
3	High	.0625	
4	Very High	.0625	

Item : 42 UV Processing Mode:

UV processing mode can be selected with this variable.

UV Processing Mode Value Definition 0 Standard 1 Star

Item : 43 Oi Mode:

Optical Integrity mode can be selected with this variable.

Oi Mode Value Definition 0 Automatic 1 Manual

Item : 44 Latching:

0 = non-latching ouput.

1 = latching output.

Item : 45 ARM Output Mode:

See the ARM section for a description of this variable.

Item : 46 Activation Time:

The output hold on time can be set with this variable.

DEVICE ITEM NUMBER DESCRIPTIONS

Item : 47 IR Sensitivity:

IR Sensitivity

III JCI	SICIVICY		
Value	Definition	UV/IR	
X3301			
		Counts per C	Gate
Effecti	ve counts per seco	ond .	
1	Low	8	64
Low (n	ot used)		
2	Medium (Default	:)	6
48	Medium		
3	High	4	32
High (not used)			
4	Very High	2	16
Very High (Default)			

The IR for UV/IR detectors always uses 0.125 second gate length for sampling the counter. The signal is compared to the threshold every _ second.

Item : 48 IR Oi Threshold:

IR Oi Threshold

Value	Definition	Counts per Second
1	Low	64
2	Medium (Default)	48
3	High	32
4	Very High	16

The Oi test will run for a maximum of five seconds.

Item : 49 IR Oi Test Frequency:

IR Oi Test Frequency

- Value Definition
- 1 1 minute (Default)
- 2 1 Hour
- 3 2 Hours
- 4 4 Hours

Three consecutive failures are required to fault, and three consecutive good tests are required to return to normal. While an IR oi fault is active the test frequency is reduced to once per minute.

Item : 50 Full Scale Value:

The Engineering unit full scale value is configurable and must match the current rating of power supply monitor. Only one model has been defined, 80 Amp, with a range of -16 Amps to +80 Amps.

Item : 51 AC Fault Threshold:

The power supply monitor fault threshold can be set with this variable.

Item : 52 Supervision Option Select:

An I/O channel can be configured with or without supervision.

e Defini	tion
No Su	pervision
Monit	or for opens
Monit	or for opens and shorts
No Su Monit	pervision or for opens

Item : 53 Eclipse Gas Type:

This field allows the Eclipse to be configured for different gas types.

Code	Description	
------	-------------	--

- 1 Methane (Default)
- 2 Ethane
- 3 Propane
- 4 Ethylene
- 5 Propylene
- 6 Butane
- 7 Reserved
- 8 Reserved
- 9 Reserved
- 10 Special

Item : 54 Calibration Gas Type:

Calibration gas type is selected with this code.

Description	Code	
Same as Measured	(Default)	1
Methane	2	
Propane	3	

Item : 55 Calibration Method:

DescriptionCodeStandard (Default)1Cuvett2

Item : 56 Cuvett Length:

1.0 to 150.0 mm, default 150mm

Item : 57 Calibration Gas Concentration:

The allowable range is from 20 to 100% with 50% as the default.

Item : 58 Volume at LEL:

Used for programming a special gas type, the default value is 5%.

Item : 59 Gas Coefficient a:

Used for programming a special gas type.

Item : 60 Gas Coefficient b:

Used for programming a special gas type.

Item : 61 Gas Coefficient c:

Used for programming a special gas type.

Item : 62 Gas Coefficient d:

Used for programming a special gas type.

Item : 63 Gas Coefficient e:

Used for programming a special gas type.

Item : 64 Device Removed:

The user sets this bit when the device has been removed from the system. Configuration information shall be retained in the controller to allow the device to be added at a later time. If the removed bit is set when program mode is exited, the status will be saved during a power cycle.

This item is used to tell the controller a device has been removed from the network. The controller will signal the "Extra LON Device" fault if the device is on-line with the removed item is set.

Item : 65 Static Logic Inverted:

Setting this item tells the controller invert the signal when used with-in static logic. This can be used to have a normally energized controller relay or a normally active digital input.

Item : 66 Alternate Function:

Each controller relay has a predefined alternate function. When an alternate function is enabled, static logic controls the relay. When a relay is configured for alternate function, it can not be used by user logic.

Item : 67 Fire Alarm:

Fire alarm is indicated with this item. For the controller this item represents the state of the fire alarm LED and relay, if programmed for the alternate function.

Item : 68 Trouble:

This item represents the state of the trouble LED and relay on the controller.

Item : 69 First Scan:

This item is intended for use with-in user logic, it is true only during the first scan of user logic after program mode is exited.

Item : 70 High Alarm:

High alarm is indicated with this item. For the controller this item represents the state of the high gas alarm LED

and relay, if programmed for the alternate function.

Item : 71 Low Alarm:

Low alarm is indicated with this item. For the controller this item represents the state of the low gas alarm LED and relay, if programmed for the alternate function.

Item : 72 Acknowledge:

This bit tracks the state of the controller Acknowledge LED.

Item : 73 Silence:

This bit tracks the state of the controller Silence LED.

Item : 74 Program Mode:

This bit tracks the state of the controller mode and LED, 1 equals program mode.

Item : 75 Acknowledge Button:

This item tracks the state of the acknowledge button on the controller faceplate and is intended for use by user logic.

Item : 76 Silence Button:

This item tracks the state of the Silence button on the controller faceplate and is intended for use by user logic.

Item : 77 Temperature Out of Range Fault:

This item is set for a temperature out of range fault

Item : 78 Reset Button:

This item tracks the state of the Reset button on the controller faceplate and is intended for use by user logic.

Item : 79 CPU Fault:

The item indicates a problem with a processor or memory system, the cause of this fault is device dependent.

Item : 80 Supervisory:

This item tracks the state of the controller Supervisory LED and relay, if programmed for the alternate function.

Item : 81 Channel Active:

This item tracks the state of an I/O channel.

Item : 82 Control Message Fault:

This item is set when a field device does not receive the output control message from the controller.

Item: 83 Channel Shorted:

This item indicates when an I/O channel is shorted.

Item : 84 Channel Open:

This item indicates when an I/O channel is open.

Item : 85 Channel Isolated:

This item indicates when an I/O channel is isolated.

Item : 86 Normalized Process Variable:

Normalized process variable holds the analog value read from the device as a floating point value. For devices with adjustable ranges, values are calculated by using the zero and full scale range values.

Item : 87 Raw Process Variable:

Raw process variable holds the analog value read from the device as an integer value. For devices with adjustable ranges, values are calculated by using the zero and full scale range values.

When the raw integer format is used values are in the range of 0 to 4095.

Values for an ideal 4 to 20 ma sensor are:

DCU Process Variable

Input	Output
0 ma	0
4 ma	682
12 ma	2048
20 ma	3413
24 ma	4095

Item : 88 AC Voltage:

The AC voltage can be read with this variable.

Item : 89 Temperature:

The temperature in degrees C can be read with this variable.

Item : 90 Battery Current:

This variable represents the battery charge or discharge current level. Positive values indicate battery charging while negative values represent battery discharge.

Item : 91 Flame Detector Counts per Second:

This variable represents the counts per second from flame detectors.

Item: 92 Supply Voltage:

Field device supply voltage as measured at the device can be read with this item.

Item : 93 Wrong Device Type:

This item is reserved to signal that the controller has detected a wrong device type. (Not supported in the first release)

Item : 94 Extra LON Device:

This item is used to signal that the controller has detected an extra device on the LON.

Item : 95 Logic Error Reference Number:

If the controller detects an error in user logic, the last trace number is stored in this item.

Item : 96 Logic Error Code:

If the controller detects an error in user logic, an error number is stored in this item.

Logic Erro 0	r Code No Error
1	Unknown Instruction Type
2	Unsupported address mode
3	No Execute function has been defined for this instruction
4	An error was detected in a gate parameter
5	Too many items on the stack for this operation
6	Logic Memory Overflow

Item : 97 Memory Fault:

When this item is true, a fault has been detected in the memory system.

Item : 98 RTC Fault:

When this item is true, the real time clock needs to be set, or the clock circuitry has malfunctioned.

Item : 99 LON Ground Fault:

When this item is true, the controller has detected a ground fault.

Item : 100 Duplicate Address:

Not supported.

Item : 101 LON A Interface Fault:

This bit is set when a problem is detected with LON interface channel A.

Item : 102 LON B Interface Fault:

This bit is set when a problem is detected with LON interface channel B.

Item : 103 Inhibit Status:

This item is set when a device or channel has been inhibited.

Item : 104 Zero Drift:

This item is set when a gas detector goes negative to point of a fault.

Item : 105 Option Board Fault:

The controller sets this item true when a fault is detected in the controller option board.

Item : 106 Invalid Configuration:

This item is set on new units, when the address is changed, or when invalid data is transferred to the device. A valid configuration must be downloaded to clear the item.

Item : 107 Fault:

The controller performs a logical OR of all field device faults to control this item.

Item : 108 Unable to Configure:

This item is set when the controller is unable to successfully transfer configuration information to the field device.

Item: 109 Last Direction:

The controller has two LON channels A and B. In normal operation, both channels receive status messages from all devices. However, during network fault conditions messages will only be received from one side. This item indicates the last side status information was received from. This along with the offline bits can be used in determining the location of a network break. When the bit has a value of 0, channel A was the last side, a value of 1 indicates channel B was the last side.

Item : 110 Lon A Device Offline:

This item is set when the controller has not recently received status messages from the device on the first Lon channel.

Item : 111 Lon B Device Offline:

This item is set when the controller has not recently received status messages from the device on the second Lon channel.

Item : 112 Device Offline:

Three offline item are provided for enhanced fault diagnostics. The controller maintains offline timers for every device on the network. The controller sets the LON x device offline item when it has not received messages from the device on that channel, A or B. The device offline fault item is set when both LON A and B offline bits are set (totally offline). The controller will not attempt to talk to devices that are offline. The item are automatically cleared when status messages are received.

Item : 113 Com 1 Fault:

Each field device contains two network relays used to isolate network wiring faults. A status item is provided for each relay and is set when the fault isolation circuitry has detected and isolated a wiring fault.

Item : 114 Com 2 Fault:

See com 1 fault.

Item : 115 Sensor Fault:

Field devices set this bit to indicate a sensor related fault. Older field devices may also set this fault to signal invalid configuration data.

Item : 116 Calibration Active:

Field devices set this bit to indicate that the sensor calibration process is active.

Item : 117 Power up:

This bit is set during the power up time delay.

Item : 118 Calibration Fault:

This bit is set when a fault is detected during the calibration process.

Item : 119 Supply Voltage Fault:

This item is set when the field device input voltage is below 17.5 volts but still has enough voltage to operate. Many devices can read the input voltage.

Item : 120 UV Automatic Oi Fault:

This item is set when the field device fails an automatic optical integrity test on the ultraviolet detector.

Item: 121 IR Automatic Oi Fault

This item is set when the field device fails an automatic optical integrity test on the IR detector.

Item : 122 Fire Pre Alarm:

This item is set when the field device detects a pre fire alarm condition.

Item : 123 Manual Oi Test Started:

The field device sets the item to indicate that a manual Oi test has started. The bit is self clearing when the test completes.

Item : 124 UV Manual Oi Fault:

The field device sets the item to indicate that a manual Oi test failed.

Item : 125 IR Manual Oi Fault:

The field device sets the item to indicate that a manual Oi test failed.

Item : 126 Missing UV Tube Module:

The field device sets the item to indicate that the UV tube was not detected on start-up.

Item : 127 Missing IR Module:

The field device sets the item to indicate that the IR module was not detected on start-up.

Item : 128 Sensor Initialization Fault:

The field device sets the item to indicate that the sensor was bad at start-up. If the detector is set for Manual Oi the Sensor Initialization Test is conducted on start-up by turning on the test lamp. If less then 2 counts are received the Sensor Initialization fault is set. The Sensor Initialization fault bit is cleared any time 2 counts per second are received.

Item: 129 290 Volt Fault:

The field device sets this item to indicate low or high voltage. Some devices just check for low voltage while others monitor for low and high voltage conditions.

Item : 130 Low Aux Power Fault:

The field device sets this item to indicate low voltage on the aux power input.

Item : 131 UV Fault:

The field device sets this item to indicate a fault with the UV sensor. For the EQ2200 UVIR the UV fault bit is set when an auto UV Oi fault or missing UV tube or manual UV Oi fault or 290 volt fault is detected.

Item : 132 IR Fault:

The field device sets this item to indicate a fault with the IR sensor. For the EQ2200 UVIR the IR fault bit is set when an auto IR Oi fault or missing IR module or manual IR Oi fault is detected

Item : 133 UV Alarm:

The field device sets this item to indicate a UV fire alarm.

Item : 134 IR Alarm:

The field device sets this item to indicate a IR fire alarm.

Item: 135 UV/IR Counts:

This item signals whether the process variable holds the UV or IR counts.

Item : 136 AC Failed:

The field device sets this item to indicate missing AC power input.

Item : 137 Battery Fault:

The field device sets this item to indicate a fault with the battery.

Item: 138 Ground Fault +:

A device sets this item to indicate a ground fault on the plus side of the power supply.

Item: 139 Ground Fault -:

A device sets this item to indicate a ground fault on the negative side of the power supply.

Item : 140 Power Supply Fault:

A device sets this item to indicate a fault on the power supply.

Item : 141 Dirty Optics:

A device sets this item to indicate that the optics need to be cleaned.

Item : 142 Internal Comm Fault:

A device sets this item to indicate that a fault has occurred in the communications between the LON and host processors.

Item: 143 Warm-up:

A device sets this item during the warm-up period.

Item : 144 Open Lamp:

A device sets this item to indicate an open lamp fault.

Item : 145 Alarm Logs:

Up to 8 alarm logs are held in this item.

Item: 146 Calibration Logs:

Up to 8 calibration logs are held in this item.

Item : 147 Activate Output:

Setting this control item will activate the output.

Item : 148 Reset Application:

Setting this control item will reset the device application program.

Item : 149 Request Supply Voltage:

Setting this control item instructs the controller to retrieve the input voltage from the field device.

Item : 150 Inhibit Control:

Setting this control item instructs the controller to retrieve the input voltage from the field device.

Item : 151 Request AC Voltage:

Setting this control item instructs the controller to retrieve the AC voltage from the field device.

Item : 152 Activate Reset:

Setting this control item instructs the controller to send a reset command to the field device.

Item : 153 Start Manual Oi Test:

Setting this control item instructs the controller to send a start manual Oi test command to the field device.

Item : 154 Release:

Setting this control item instructs the controller to send

release command to the ARM module. This will cause the output to activate.

Item : 155 Isolate:

Setting this control item instructs the controller to send isolate command to the field device. This will cause the output to go to the isolate mode.

Item: 156 Select UV or IR:

Changing this control item instructs the UV/IR detector to send the UV or the IR signal.

Item : 157 Activate Continuous:

Setting this control item instructs the field device output to turn on in the continuous mode.

Item : 158 Activate 60 bpm:

Setting this control item instructs the field device output to turn on in the 60 bpm mode.

Item : 159 Activate 120 bpm:

Setting this control item instructs the field device output to turn on in the 120 bpm mode.

Item : 160 Activate Temporal:

Setting this control item instructs the field device output to turn on in the temporal mode.

Item : 161 Request Extended Status:

Setting this control item instructs the controller to retrieve the extended status information from the field-ed device.

Item : 162 Activate Timed:

Setting this control item instructs the controller to activate an output in the timed mode.

Item : 163 Activate Fire Alarm:

Setting this control item in the controller activates the fire alarm output. When this bit is set in a field device the output signals the temporal fire alarm pattern.

Item : 164 Activate Trouble Output:

Setting this control item in the controller activates the trouble output. When this bit is set in a field device the output signals the trouble pattern.

Item : 165 Activate Low Gas Alarm:

Setting this control item in the controller activates the low gas alarm output.

Item : 166 Activate High Gas Alarm:

Setting this control item in the controller activates the high gas alarm output.

Item : 167 LON A Counter:

Within the controller object, this status variable holds the number of heartbeat messages received. Resetting the controller will also reset this counter. When this variable is used with a field device it shows the number of received status messages. The counters are helpful for diagnosing wiring problem on the Lon network.

Item: 168 LON B Counter:

Within the controller object, this status variable holds the number of heartbeat messages received. Resetting the controller will also reset this counter. When this variable is used with a field device it shows the number of received status messages. The counters are helpful for diagnosing wiring problem on the Lon network.

Item : 169 Display Text Line 1:

This variable holds the ASCII test string on the controller faceplate.

Item : 170 Display Text Line 2:

This variable holds the ASCII test string on the controller faceplate.

Item : 171 Display Text Line 3:

This variable holds the ASCII test string on the controller faceplate.

Item : 172 Display Text Line 4:

This variable holds the ASCII test string on the controller faceplate.

Item : 173 Heater Enable Status:

This item is true when the Optics heaters are enabled. They may or may not actually be on at the time depending on the temperature.

Item: 174 LON Fault:

The controller sets this item when a Lon fault is detected.

Item : 175 Signal to Noise Ratio:

A detector's signal to ratio is held in this variable.

Item : 176 Activate Silence:

Setting this control bit activates the controller silence status bit and LED. The LED and status bit will stay true until the controller is reset. The controller clears this control bit after the action is taken.

Item : 177 Activate Acknowledge:

Setting this control bit activates the controller acknowledge status bit, LED, and silences the internal beeper. The LED and status bit will stay true until the controller is reset. However, the beeper will resound if new alarms are received. The controller clears this control bit after the action is taken.

Item : 178 Start IR Oi Calibration:

Setting this control bit will cause the controller send a start IR Oi calibration message to the field device. The controller clears this control bit after the action is taken.

Item : 179 Activate Supervisory:

Setting this control bit activates the controller supervisory output, status bit and LED. The output, LED and status bit will stay true until the controller is reset. The controller clears this control bit after the action is taken.

Item : 180 Latching Fault:

Setting this configuration parameter causes the field device to latch the fault status until the device is reset.

Item : 181 Quick Fire Enable:

Setting this configuration parameter enables quick fire detection method.

Item : 182 Bin Disabled Signaled by LED:

Setting this configuration parameter enables "Bin Disabled Signaled by LED" feature in the X3301.

Item: 183 Heater Power:

This configuration parameter determines what percent of power will be used for the optics heaters.

Item : 184 Temperature Setpoint:

This configuration parameter determines the temperature at which the internal heaters are activated.

Item : 185 Consecutive Failed Oi Tests for Fault:

This configuration parameter determines how many consecutive Oi tests must fail before a fault is generated.

Item : 186 User Logic Scan Time:

This status variable holds the number microseconds needed to complete the user logic.

Item : 187 Power Fail 1:

This controller sets this status variable when low voltage is detected on the power input #1.

Item: 188 Power Fail 2:

This controller sets this status variable when low voltage is detected on the power input #2.

Item : 189 Output Inhibit:

This controller sets this status variable when any outputs are inhibited, this includes the controller and field device outputs.

Item : 190 High Energy Detected:

A field device sets this status bit to indicate that high energy was detected.

Item : 191 High Energy Fault:

A field device sets this status bit to indicate that high energy was detected for a sustained period of time.

Item : 192 Non-Ratio Mode Fault:

A field device sets this status bit to indicate that a nonratio mode fault occurred.

Item : 193 Bin Disable:

A field device sets this status bit to indicate that the bin fire detection mode is disabled.

Item : 194 Quick Energy Disabled:

A field device sets this status bit to indicate that the quick energy detection mode is disabled.

Item : 195 No Oi High Energy Fault:

A field device sets this status bit to indicate that the No Oi High Energy Fault is true.

Item: 196 Flash Fire:

A field device sets this status bit to indicate that it has detected a flash type fire.

Item : 197 Bin Fire:

A field device sets this status bit to indicate that it has detected a bin type fire.

Item: 198 Low Level Fire:

A field device sets this status bit to indicate that it has detected a low level type fire.

Item : 199 Non-Ratio Mode Fire:

A field device sets this status bit to indicate that it has detected a non-ratio mode type fire.

Item : 200 Quick Fire:

A field device sets this status bit to indicate that it has detected a quick type fire.

Item: 201 AM/PM:

This variable is intended for use by user logic to determine the time of day, 1 equals PM and 0 is AM.

Item: 202 Day of Week:

This variable is intended for use by user logic to determine the day of week, the value is 1 for Sunday and 7 for Saturday.

Item : 203 Device Download Active:

The controller sets this variable while it is downloading configuration information.

Item : 204 to 215 User Defined Status 1 to 12:

User defined status is provided as a method to exchange information between the controller and the ControlNet interface. Information placed here is transmitted on ControlNet along with other scheduled data. See the ControlNet specifications for more details.

Item : 216 Logic Engine Fault:

The controller sets this variable true when a fault is detected in the user program.

Item : 217 ControlNet Firmware Version:

This variable hold the firmware version of the ControlNet board.

Item : 218 Activate Trouble Tone:

Setting this control bit will cause the field device output to output the trouble pattern.

Item : 219 Activate Supervisory Tone:

Setting this control bit will cause the field device output to output the supervisory pattern.

Item : 220 Request Alarm Logs:

Setting this control bit will cause the controller to retrieve the alarm logs from a device.

Item : 221 Request Calibration Logs:

Setting this control bit will cause the controller to retrieve the calibration logs from a device.

Item : 222 Request Temperature:

Setting this control bit will cause the controller to retrieve the temperature from a device.

Item: 223 Heater Enable Control:

This item is used to control the optics heater from user logic. This allows the user to disable the heater when AC power is lost.

Item : 224 to 239 User Parameters 1-16:

User parameters can be used as part of a self configuration process. The values are saved in flash memory when program mode is exited.

Item : 240 Start Manual Oi Fire Test:

Setting this control bit will instruct the flame detector to conduct an Oi test and activate the fire alarm output if the unit passes the test. This feature must be password protected.

Item : 241 Sustained Fire:

A field device sets this status bit to indicate that it has detected a sustained type fire. In the X3301 this is the ORED status of Bin fire, low level fire, and non-ratio fire bits.

Item : 242 Lon CPU Memory Fault:

A field device sets this status bit to indicate that it has detected a problem with the memory used with the LON CPU.

Item : 243..247 New Alarms:

The bit is set for one scan of logic when new alarms occur. Intended for resounding silenced alarms in user logic.

Item : 248 Install Network Extender:

Setting this control item instructs the controller to request the network extenders neuron Ids. The Ids are used to address the device when getting network diagnostic information. The neuron Ids will be retained in flash memory when program mode is exited.

Item: 249 Request Lon Diagnostic Info:

Setting this control item instructs the controller to request the Lon Diagnostic Information from the device. Items 250 to 254 are updated.

Item: 250 Transmission Errors:

The number of CRC errors detected during packet reception. These may be due to collisions or noise on the transceiver input.

Item: 251 Transaction timeouts:

The number of times that the node failed to receive expected acknowledgements or responses after retrying the configured number of times. These may be due to the destination node being offline.

Item: 252 Rcv Transaction Full:

The number of times that an incoming packet was discarded because there was no room in the transaction database.

Item: 253 Lost Messages:

The number of times that an incoming packet was discarded because there was no application buffer available.

Item: 254 Missed Messages:

The number of times that an incoming packet was discarded because there was no network buffer available.

Item: 255 IR Processing Mode:

This item is used to select the processing mode for the IR detector.

Value Description

- 1 TDSA
- 3 TDSA and Quick

Item : 256 UV Auto Oi Test Frequency:

This item is used to select how often the automatic Oi test is conducted, see the device for the allowable range.

Item : 257 IR Auto Oi Test Frequency:

This item is used to select how often the automatic Oi test is conducted, see the device for the allowable range.

Item : 258 Consecutive UV Failed Oi Tests for Fault:

This item is used to select how many consecutive automatic Oi tests must fail before a fault is annunciated.

Item: 259 UV Counts per Second:

This item will display the UV signal level.

Item: 260 IR Signal Level:

This item will display the IR signal level.

Item: 261 TDSA IR Alarm:

This item comes true when the IR detector generates a TDSA fire alarm.

Item : 262 UV Pre Alarm:

For the new flame platform detectors, this item comes true when the number of UV counts per second exceeds _ of that needed to signal an alarm.

Item : 263 IR Pre Alarm:

For the new flame platform detectors, this item comes true when 18 or more valid turning points are found during a 10 second period.

Item : 264 UV Oi Calibration Active:

This item comes true while the UV Oi calibration is active.

Item: 265 IR Oi Calibration Active:

This item comes true while the IR Oi calibration is active.

Item : 266 UV Oi Fault:

This item comes true when a manual or automatic UV Oi fault occurs.

Item : 267 IR Oi Fault:

This item comes true when a manual or automatic IR Oi fault occurs.

Item : 268 UV Oi Calibration Fault:

This item comes true when an UV Oi calibration fault occurs. The UV Oi lamp is activated and allowed to stabilize for 2 seconds. An average counts per second is determined. The average counts must be within a targeted window (150 to 250). Otherwise, an Oi calibration fault will occur.

Item : 269 IR Oi Calibration Fault:

This item comes true when an IR Oi calibration fault occurs. The IR Oi lamp is activated and allowed to stabilize for 1 second. The Oi level is set to 1.55v. An average energy level is determined. If the energy level is outside of the targeted window (68 to 72), the Oi level is increased or decreased by 1 D/A step (20mv). This sequence is repeated every 320ms until the energy is inside the target window. The new Oi test energy threshold is _ of the found target. The threshold and the corresponding Oi level are saved in non-volatile memory. If the target is not found within 15 seconds, an IR Oi calibration fault will occur.

Item: 270 Start UV Oi Calibration:

This command item is provided for starting the UV Oi calibration process. The controller will clear the item after the command is sent to the detector.

Item : 271 Comm Fail Mode:

The item defines what state an output should go to on loss of communication with the controller.

Value Mode 1 Hold Last State * 2 Failed Off 3 Failed On * - Default

Item : 272 Heater Enable Config:

This item defines the initial state of the heater enable. The heater enable will assume this state on power-up.

Item : 273 Activate Cancel:

Setting this control bit triggers the same action as pressing the cancel button on the controller faceplate. The controller clears this control bit after the action is taken.

Item : 274 Activate Enter:

Setting this control bit triggers the same action as pressing the enter button on the controller faceplate. The controller clears this control bit after the action is taken.

Item : 275 Activate Next:

Setting this control bit triggers the same action as pressing the next button on the controller faceplate. The controller clears this control bit after the action is taken.

Item : 276 Activate Previous:

Setting this control bit triggers the same action as pressing the previous button on the controller faceplate. The controller clears this control bit after the action is taken.

Item : 277 Actual State:

This variable holds the actual input state before inhibits are applied.

Item : 278 Device Config Step:

This item holds the device configuration step. This item is only intended for system diagnostics.

Item : 279 Ma Range Low:

This value defines the low/zero point for a 4 to 20 mA input channel expressed in mAs. Typical values would be 0.0 or 4.0.

Item: 280 Ma Range High:

This value defines the full scale point for a 4 to 20 mA input channel. A typical value would be 20.0.

Item : 281 Out of Range Low Level (mA):

This value defines the low level current threshold for the out of range low fault.

Item : 282 Out of Range High Level (mA):

This value defines the high level current threshold for the out of range high fault.

Item : 283 Out of Range Low Fault:

This item comes true when the analog input reading is below the "Out of Range Low Level".

Item : 284 Out of Range High Fault:

This item comes true when the analog input reading is above the "Out of Range High Level".

Item : 285 Low Alarm Direction:

This item determines if an alarm should be signaled as the signal level is increasing or decreasing. If this item is set to 1 the alarm will be active while the signal is above the threshold. If this item is set to 2 the alarm will be active while the signal is below the threshold.

Value	Mode
1	Alarm above threshold
2	Alarm below threshold

Item: 286 High Alarm Direction:

See item 284.

Item : 287 Low Alarm Deadband:

This item determines the amount of deadband that should be used for the low alarm.

Item : 288 High Alarm Deadband:

This item determines the amount of deadband that should be used for the high alarm.

Item : 289 Redundancy Enable:

This item determines if the controller is part of a redundancy pair. The system will fault if redundancy is selected and the controllers are not working together. This item should be set to 0 on non-redundant systems and 1 for a primary redundant controller.

Item: 290 Redundancy Fault:

This item indicates a fault has been detected with redundancy. See the Redundancy Fault Code (item 291) for details on the cause of the fault.

Item : 291 Redundancy Fault Code:

This item can be used to determine the cause of a Redundancy fault.

Lots of work to do here, I will be providing a list of faults and associated display strings.

Code	Description
0	No Fault
1	
2	

Item : 292 Request Manual Switch:

This control item is only used with a redundant controller configuration. When this bit is set in a Master controller a switch to the standby controller is initiated. The switch will only occur if the standby controller is online and in a health state.

Item : 293 Beeper Status:

The status of the internal audible beeper is reflected with this variable.

Beeper Status

- Value Description
- 0 Off
- 1 Gas Alarm
- 2 Trouble
- 3 Supervisory
- 4 Fire

Item: 294 Communication Option Board Type:

This configuration item determines what type of Communication Option Board is attached.

Communication Board Type

- Value Description
- 0 None
- 1 Type A

Item : 295 Smoke Detector Type:

This item selects a type of smoke detector.

Value	Detector Type
0	Invalid
1	Apollo
2	Fenwal

Item: 296 Abort Mode:

This item selects the type of abort mode.

Value	Mode
0	Invalid
1	Mode 1
2	Mode 2
3	IRI Mode

Mode 1: Upon activation, timer will count down to and hold at 10 seconds; upon release, timer will continue to count down to zero. **Only this mode complies with UL 864.**

Mode 2: Upon activation, timer will reset to initial value; upon release, timer will continue to count down to zero.

IRI Mode: This function is similar to "Mode 1" with the exception that the abort will only function if held prior to receiving the second alarm.

Item: 297 Detection Style:

This item selects the Detection Style – Single or Cross Zoned. When single zone is selected, a release is activated if ether input is activated. Cross zone requires that both inputs be active before a release is activated.

Value	Mode
0	Invalid
1	Single Zone (1 zone release)
2	Cross Zoned (2 zone release)

Item: 298 Control Mode:

This item selects the embedded logic control mode.

Value	Mode
0	Invalid
1	Embedded Logic Only
2	Controller Only
3	Back-up Mode

Embedded Logic Only: In this mode the device will always use the embedded logic and ignore control messages from the controller.

Controller Only: In this mode the device will accept control information from the controller and never use embedded logic. If communication with the controller is lost the outputs shall retain their last state. Back-up Mode: In this mode the device will accept control information from the controller and only use embedded logic when communication with the controller is lost.

Item : 299 Detection Circuit Delay:

This item allows the selection of a delay time that will apply to detector circuits, as well as a manual release (30 second max. for manual release, this will be handled by the field device). Time delay selection range from 0 to 60 seconds in 10-second increments. This could also be called an abort timer; it gives the user an opportunity to hold off a release during an investigation time.

Item: 300 Abort Active:

This item is true while the release abort input is active. First used with the IPM (DCIO smoke) module.

Item : 301 Manual Release Active:

This item is true while the Manual Release input is active. First used with the IPM (DCIO smoke) module.

Item : 302 and 303 Zone 1 and 2 Alarm:

These items reflect the alarm status of smoke detector loops. First used with the IPM (DCIO smoke) module.

Item : 304 Signal Circuit Active:

This item is true while the alarm signal circuit (SAM output) is active. First used with the IPM (DCIO smoke) module.

Item : 305 and 306 Release Circuit 1 and 2 Active:

These items reflect the state of the release outputs. First used with the IPM (DCIO smoke) module.

Item : 307 Manual Reset Required:

This item comes true when the IPM requires a manual reset.

Item: 308 Embedded Abort Timer:

This item holds the amount of time remaining in the embedded abort timer.

Item : 309 One Zone Bell Tone:

This item is used to select the bell tone when one zone of the IPM is in alarm and embedded logic mode is enabled.

Value	Tone
0	Off
1	Continuous
2	60 BPM
3	120 BPM
4	Temporal
5	Trouble
6	Supervisory

Item : 310 Two Zone Bell Tone:

This item is used to select the bell tone when the second zone of the IPM is in alarm and embedded logic mode is enabled. See Item 309 for a list of available tones. The Marketing specification states that "The software will prevent both selections (309 and 310) from being the same".

Item : 311 Manual Release Delayed:

First used with the IPM to select if the manual release input should be delayed or not. When set, the release output will be delayed by the selected time, if cleared the release is immediate.

Item : 312 Serial Port 2 Protocol:

The second configurable serial port protocol is set with this variable.

Serial Port Protocols

Value Description

- 1 Port not used
- 2 Modbus Slave
- 3 Modbus Master

Item : 313 Serial Port 2 Baud Rate:

The baud rate for the second configurable serial port is set with this variable. The default baud rate is 9600.

Item : 314 Serial Port 2 Parity:

The parity setting for the second configurable serial port is set with this variable. The default parity is "None".

Item : 315 Serial Port 2 Address:

This address field is used for Modbus protocol, valid Modbus addresses are in the range from 1 to 247 with a default value of 1.

Item : 316 Serial Port 3 Protocol:

Serial Port Protocols

Value Description
1 Port not used
2 Modbus Slave
3 Modbus Master
4 S3

Item: 317 Serial Port 3 Baud Rate:

Serial baud rate for serial port 3 is set with this variable. The default baud rate is 9600.

Item : 318 Serial Port 3 Parity:

Serial port 3 parity is set with this variable. The default parity is "None".

Item : 319 Serial Port 3 Address:

The address field is only used for Modbus protocol. Valid Modbus addresses are in the range from 1 to 247. The default address is 1.

Item : 320 Serial Port 4 Protocol:

Serial Port Protocols

- Value Description
- 1 Port not used (Debug Output)
- 2 Modbus Slave
- 3 Modbus Master

Item : 321 Serial Port 4 Baud Rate:

Serial baud rate for serial port 3 is set with this variable. The default baud rate is 9600.

Item : 322 Serial Port 4 Parity:

Serial port 3 parity is set with this variable. The default parity is "None".

Item : 323 Serial Port 4 Address:

The address field is reserved for future use.

DEVICE ITEM NUMBER DESCRIPTIONS

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EAGLE QUANTUM



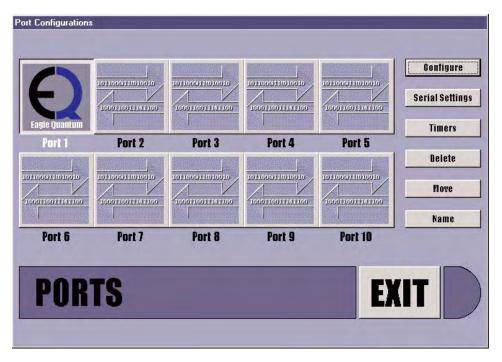
EAGLE QUANTUM CONFIGURATION

One of the supported communication port types is for the Detector Electronics Corporation Eagle Quantum fire & gas system.

System configuration consists of three major phases.

- Identifying all of the devices on the network.
- Configuring the operating parameters of each of these devices.
- Downloading the configuration data over the network to the devices.

Prior to configuration, ensure communication with the Eagle Quantum LCU is established. Reference the "Ports" (Section 2) area of this users guide on establishing serial communications.



Enter the Eagle Quantum configuration screen by either double-clicking on the port button or by selecting the port and then choosing "Configure" from the buttons on the right of the Ports screen.

CONFIGURATION

EAGLE QUANTUM 16-2

Eagle Quantum Configuration Screen: The main configuration screen is divided into two functional areas. The top area, which has a schematic representation of the Local Operating Network (LON[™]) upon which all of the field devices reside, and the lower area which contains context sensitive buttons for accessing features and performing functions.

<1:1>									
4									
									1
									1
1									
ľ									
-									
Misc Text:									
Clear Memory	Downihad	Edit	Get Revision	Get PITC	Get Valtage	Arrange	Сору	Delete	Display Type
Point Display	Point Number	Preses Module	Sec.P.PC	upload	Write EERhold	Find	New Device	Paste	Exit

On a newly configured loop, as represented in the sample above, the LON schematic has a single device, the communication gateway shown at the upper left corner, addressed as "Node 1". This node is automatically placed on the LON because without a gateway, no further configuration or monitoring can take place.

Button Bar Overview: There are two button bars located at the bottom of the screen, the "Command Bar" and the "Configuration Bar". The

Command Bar is used to query or directly manipu-

Poir

ar Memory	Download	Edit	Get Revision	Get RTC	Get Voltage
nt Display	Point Number	Reset Module	Set RTC	Upload	

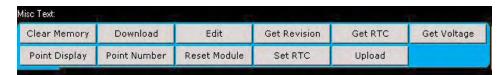
Display Type

Exit

late field devices on the LON. The Configuration Bar is used to create,

	8			
delete, modify or view data about	Arrange	Сору	Delete	
devices on the LON.	Find	New Device	Paste	

The function of each button will be described in detail in the following pages.



Command Bar: The command bar has eleven buttons, each of which initiates a command to a field device to perform a certain function, return a value, or feed "real-time" information to S^3 to be displayed.

The command issued is specific to the node selected in the upper section. In some cases, multiple nodes may be selected using either the shift-click or drag methods and the command can be sent to all applicable nodes in the selected set.

To initiate a command using the command bar, select either a single node or a group of nodes, then click on the desired command button. In most cases a progress monitor will appear and display text messages tracking the execution of the command.

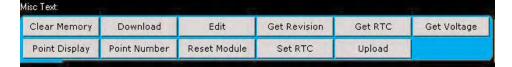
Command Definitions

Clear Memory: This command is only available when a communication gateway is selected. It will command the gateway to delete its point configuration database. This database tells the gateway how many and what kind of field devices are on the LON along with the individual device configuration parameters. This command is typically used on initial setup, or following gateway replacement, prior to downloading new LON configuration data.

Download: Sends all configuration data from S3's LON configuration database to the gateway for all selected nodes. This command is typically used after changing the configuration of a node or group of nodes.

To download to <u>all</u> devices on the LON, de-select all nodes by clicking between the button bar and the LON schematic and then choose "Download". This will cause S³ to sequentially download the configuration of all nodes, starting with 1 and ending with 250.

Edit: Displays the detailed configuration data for a single selected node. Only one node at a time can be edited. You can also enter the edit mode for a particular node by double-clicking on the rectangle representing the node on the LON schematic. Detailed examples of node editing will be shown later in this document.



Get Revision: Requests the software revision of the selected node. The gateway forwards the request to the field device which returns the data to the gateway and then on to S^3 . This feature is used to verify software revision levels in field devices. Different revision levels of the same type of device may have different features and capabilities.

Get RTC: Requests the "Real Time Clock" data from the communication gateway. The gateway will return the current date and time, according to its internal clock. Verify this date and time against that of the S^3 station for accuracy. If it is not the same as the S3 station, use the Set RTC command described later to correct the discrepancy.

Get Voltage: Requests the 24vdc input supply voltage of the selected node. This feature can be used in troubleshooting power distribution problems.

Point Display: Shows detailed information about a selected node including status and diagnostics, alarm history, calibration history and trend, and if applicable the current analog value.

Point Number: Allows a node on the LON schematic to be given a different address. This is typically used when like nodes are copy & pasted to preserve a particular set of configuration parameters. After the paste function, the "new" node may have an incorrect address and it must then be changed.

Reset Module: Forces a soft "re-boot" of the selected field device.

Set RTC: Sends the current date and time of the S^3 station to the communication gateway, synchronizing them. Since the field devices all use the gateways date and time pulse when storing their own alarm and calibration data, it is important that it match the clock used by S3 station for event monitoring and tracking.

Upload: Queries the communication gateway for configurations of selected nodes and then takes this data and updates S³'s database.

	D A		
Arrange	Сору	Delete	Display Type
Find	New Device	Paste	Exit

Configuration Bar: The configuration bar has eight buttons, each of which is used in the configuration of LON devices.

Configuration Definitions

Arrange: This button allows the re-arrangement of the nodes on the LON schematic for the purpose of matching the physical and logical order of the network. The LON address of each node has nothing to do with the order in which the network is wired.

On the network schematic shown in the upper section of the configuration screen, the node order is shown numerically. Node 1 being the gateway, followed sequentially by nodes 2, 3, 4, 5, 6etc. In the plant, it's entirely possible that "Node 5" may wire to "Node 20" and the overall order could be 1, 5, 20, 21, 23 ... etc.

The "Arrange" button allows you to move the location of the nodes on the schematic representing the LON to match the actual way the LON is wired in the field. This is an important step for ease of future LON troubleshooting.

To use the "Arrange" function, click on the button and drag the nodes into their desired locations. To move a node, click and drag it over the area between the two nodes where you would like it to be, then release the mouse button. The node will then be moved to this location but retain its original address.

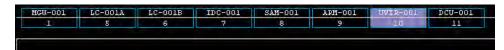
Copy: Used in conjunction with the "Paste" command, "Copy" allows a nodes configuration to be duplicated elsewhere on the LON while retaining the configuration data. This is very useful when there are to be many nodes of the same type and configuration on a LON. The detailed configuration only needs to be done once, then copy and paste as many as needed with only the new nodes tag name and address needing to be manually entered.

Delete: Removes a selected node from the LON configuration.

16-6



Display Type: A "toggle button" that allows either the default Node Number to be displayed on the LON schematic, as shown in the example below, or the device type.



When the "Display Type" button is selected, the LON schematic will substitute the device type for the node number, as shown below.



When the device type is being displayed, the button on the configuration bar will toggle to say "Display Number", and when selected shifts the

Arrange	Сору	Delete	Display Number
Find	New Device	Paste	Exit

LON schematic display back to the default Node Number view.

Find: Displays a dialog box that allows the configuration database to be searched for specific types of field devices, a specific node address, or specific text. Items found matching the search criteria are highlighted in blue on the LON schematic.

This is particularly useful when trying to find a specific tag name on very large systems with hundreds of points.

nd all points
C Main Gateway
C Auxiliary Gateway
C Logic Controller
C Initiating Device Circuit (IDC)
Digital Communication Unit (DCU)
C UV Detector
C Agent Release Module (ARM)
 UV/IR Detector
Signal Audible Module (SAM)
C Logic Controller (2nd Address)
C Power Monitor
C Point Number:
C Text

16-7

New Device: Opens the "Select Point Type" dialog box from which you can choose the type of new device to add to the LON.

MGW-001	LC-001A			SAM-001	ARM-001	UVIR-001	DCU-001			
1	5	6	7	8	9	10	11			
		Selec	ct point type					0		
								10		
			Initiating Device	: Circuit (IDC)	Aux	Gateway	DCU	Ex		
			EQ2200 UV	Detector	1		DCU	02		
			Logic Cor	ntroller	i i		DCU Un	iversal		
			Signal Audible M	Iodule (SAM)	ĵ –		DCU Poir	itwatch		
			Agent Release M	fodule (ARM)	<u>í</u>					
			EQ2200 UV/IF	R Detector	Ĵ.			-		
			Power M	/onitor	1					
					Selected: IDC					
					OK	Cancel				
					-					
Text										
lear Mannuty,	Guvininad	Edit	Get 76	wisian	GEG 2000	Gias Valitage	Arrange	Сору	Delete	Display Ty
Point Display	Point Numbe	er veres Vieda	lule Serri		Upload	Write CERRIGI	Find	New Device	Paste	Exit

In the example above, "Initiating Device Circuit (IDC)" has been selected. The selected choice will be displayed in the lower center of the dialog box, along with the button for the selected choice being outlined.

At this point, selecting the "OK" button would add an IDC to the LON, just after the last configured device.

 LC-001B
 IDC-001
 SAM-001
 ARM-001
 UVIR-001
 DCU-001
 <1.1.2</th>

 6
 7
 8
 9
 10
 11
 12

In addition, the configuration dialog box for the selected point type is displayed. This dialog box provides access to all of the programmable parameters for the selected device type. In the example to the right, an IDC was selected and the configuration parameters for this device type are shown. Details on the configuration of each individual device type will be covered later, but first, all device types have some common setup procedures that must be followed. The IDC example will be used to

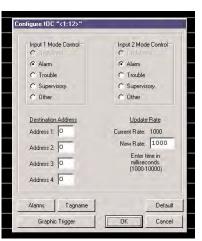
Input 1 Mode Control	Input 2 Mode Control
 Alarm 	 Alarm
C Trouble	C Trouble
C Supervisory	C Supervisory
C Other	C Other
Destination Address Address 1: 0 Address 2: 0	Update Rate Current Rate: 1000 New Rate: 1000 Enter time in
Address 3: 0 Address 4: 0	milliseconds. (1000-10000)
Alarms Tagname	Defa
Graphic Trigger	OK Cano

explore these configuration steps. At the bottom of the example "Configure IDC" dialog box are a group of buttons. These buttons are found on all LON device configuration screens. They are:

16-8

Alarms, Tagname, Graphic Trigger, Default OK and Cancel.

Alarms: The alarm button will open a dialog box displaying all of the preconfigured alarms and events that are applicable for



the type of device being configured. In most cases this equates to sixteen discrete alarms and events.

	n Editor P = Printer D = Daily Log File W = Event Win	dow AC	. =)	Auto (lear				-
100	e Name	<u></u> <u>P</u>	D	_	C Sound		Active		Normal
7	Wiring Com 1 Fault	2	4		None	*	Red	*	Green
7	Wiring Com 2 Fault	1	4	P F	None	*	Red	*	Green
7	Input 1 Open	4	4		None	+	Red	+	Green
7	Input 2 Open	N	7	Г Г	None	•	Red	+	Green
7	Input 1 Active	- -	1		None	*	Red	+	Green
7	Input 2 Active				None	*	Red	+	Green
-	Switch 1 Status	-	4	R L	None	*	Red	*	Green
	Switch 2 Status	-	4	R L	None	*	Red	*	Green
	Switch 3 Status	-	V	R L	None	*	Red	*	Green
	Switch 4 Status	-	V	R L	None	*	Red	*	Green
7	Invalid Configuration	-	V	R L	None	*	Red	*	Green
7	Low Voltage Fault	N	V		None	*	Red	+	Green
V	Unable to Automatically Configure	-	4	R L	None	+	Red	+	Green
7	Gateway Relay/Display Inhibited	-	1	R L	None	*	Red	+	Green
7	Unable to Configure	- -	4	F T	None	+	Red	+	Green
7	Not Communicating	- -	4	R L	None	+	Red	+	Green
	Include Tagname Iro Include PontPoint Custom Delauits Factory Defaults	1					Dkay		

In the example above, the "Factory Default" event configuration for an IDC is automatically configured. Other devices will show their specific default event configurations.

These events can be selectively enabled or disabled by use of check boxes on the left-most side of the dialog box. The default event name is displayed and can be edited if desired.

POINT CONFIGURATION • ALARM SETTINGS

IDC-001	SAM-001	ARM-001	UVIR-001	DCI	J-001		<1:12≻
7	8	9	10		11		12
			_				
	B 11. T.	B13 U					
rinter D =	Daily Log	File $W = E$	vent Window				
				P	D W	AF.	Cound
				T.	<u>n</u>	00	Sound
						-	
					<u></u>	-	
	7	7 8	7 8 9	7 8 9 10	7 8 9 10 Printer D = Daily Log File W = Event Window AC	7 8 9 10 11 Printer D = Daily Log File W = Event Window AC = Aut	7 8 9 10 11 Printer D = Daily Log File W = Event Window AC = Auto C

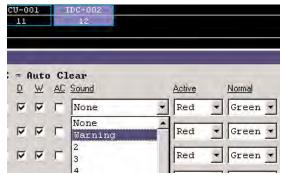
The selection of the checkboxes P,D,W,AC, determine if the event will be routed to the Printer, Daily Log File or Event Window.

Auto Clear: The AC or "Auto Clear" selection determines whether the logged event will track the real time occurrence of the event or when the operator acknowledgement is factored in.

If the AC checkbox is <u>not</u> selected, which is the default, when an event occurs it will be logged to the appropriate locations, as configured by the P, D, W selections, with the date and time of occurrence. When the event returns to its normal state, nothing will happen until the operator activates the "Acknowledge" button. The system will then log the date and time of the event returning to "Normal". In reality it's logging the first time the operator activates the Acknowledge button <u>after</u> the event has returned to normal.

If the AC checkbox <u>is</u> selected, when an event occurs it will be logged to the appropriate locations, as configured by the P, D, W selections, with the date and time of occurrence. When the event returns to its normal state, the system will then log the date and time of the event returning to "Normal".

Sound: Each event may have a sound attached to it which plays when the event occurs, until the Acknowledge button is actuated. The sound can be the default "Warning" or any of sixty three custom sounds. Use the pull down menu to select the desired sound.



16-9

Event Color: You can select one of four different colors for recording when events occur or return to normal. These color selections are made from the pull down menu located to the right of the event on the alarm editor dialog box. The color selections apply to both printed and screen presentations of the event. In the

16-10

	12				
	lear Sound		Active	Normal	
Г	None	+	Red	- Green -	-
П	None	-	Black Blue	Green 💌	-
F	None	•	Red Green	Green 💌	
r E	None	<u>·</u>	Red	• Green •	
Г	None	+	Red	• Green •	

example above, the event will be shown in Red when active and Green when it returns to normal.

Factory Defaults: Replaces the displayed event configurations with the standard event configurations, in English.

Custom Defaults: Replaces the displayed event configurations with custom versions if the user has configured the second language dictionary, as described earlier in this users guide.

Tagname: The tagname button will open a dialog box allowing both a short and log description for the LON device to be entered.

The short name, commonly referred to as the "tag name" will be displayed inside the top portion of the rectangle representing the node on the LON schematic. This tag name can be up to 11 characters long and is used throughout the system to identify the device.

Input 1 Mode Control	Input 2 Mode Control
C Undermed	C Undermed
Alarm	Alarm
C Trouble	C Trouble
C Supervisory	C Supervisory
C Other	C Öther
Address 2: 0 Address 3: 0 Address 4: 0	New Rate: 1000 Enter time in milliseconds. (1000-10000)
Alarms Tagname	Defau

The long name can be up to sixty three characters and allows for a better description of the device, its function or location to be entered. This long

	Input 1 Mode Control	Input 2 Mode Control
	C Undefined	
	Alarm	G Alarm
Tagnar	ne/Misc Text Editor	
	Enter Tagname: <1:	12>
())	17 L.	haracters Maximum
		haracharo Maximum aneous Text
		aneous Text
		aneous Text 63 Characters Maximum
	<u>Miscel</u> OK	aneous Text
	Miscel	aneous Text 63 Characters Maximum
	<u>Miscel</u> OK	aneous Text 63 Characters Maximum
	Miscel OK Address 4: 10	aneous Text 63 Characters Maximum Cancel
	<u>Miscel</u> OK	aneous Text 63 Characters Maximum

name appears in the bottom left corner of the LON schematic when the cursor positioned over one of the LON devices on the schematic.

POINT CONFIGURATION • COMMON SETTINGS

Graphic Trigger: When a system is being configured that utilizes "Online Graphics" the graphic trigger configuration for each device determines how the symbol representing the device will respond when ever it changes state.

16-12

Each Eagle Quantum device has four potential states. Listed in order of increasing precedence they are; Normal, New Fault, Fault, New Alarm, Alarm.

Input 1 Mode Control	Input 2 Mode Control
 Alarm 	Alarm
C Trouble	C Trouble
C Supervisory	C Supervisory
C Other	C Other
Destination Address	Update Rate
Address 1: 0	Current Rate: 1000
Address 2: 0	New Rate: 1000
Address 3: 0	Enter time in milliseconds. (1000-10000)
Address 4: 0	
Alarms Tagname	Defa
Graphic Trigger	OK Canc

Each of these states can have a color combination assigned to the symbol representing a field device in the online graphics. This is done within the graphic editor, described elsewhere.

The key to this capability resides in the configuration of the Graphic Trigger.

	Mar Section	
lot Used	Alarm	Fault
Switch 1 Status Switch 2 Status Switch 3 Status Switch 4 Status Gateway Relay/Display Inhibited	Input 1 Active Input 2 Active	Wiring Com 1 Fault Wiring Com 2 Fault Input 1 Open Input 2 Open Invalid Configuration Low Voltage Fault Unable to Automatically Configure Unable to Configure Not Communicating
Default Copy from		OK

The graphic trigger configuration dialog box displays a list of the sixteen status and diagnostic elements that S^3 can track for the selected device type, in this case an IDC. These elements must be placed into one of the thee columns, Not Used, Alarm, and Fault. This will determine what constitutes an alarm, a fault, or has no effect on the online graphic element.

To reposition the elements from one column to another, simply click and

drag the element from its original column to the desired one and release. To save time, there is also a facility to copy a configuration from another previously configured graphic trigger.

The default button will arrange the trigger configuration into the most common setup for the selected point type.

The OK and Cancel buttons are self explanatory.

POINT CONFIGURATION • COMMON SETTINGS



Communication Gateway: The "Gateway" is the first device on any Eagle Quantum Local Operating Network (LON). This device is used to connect the S³ Operator Interface Station (OIS) to the LON for configuration and monitoring purposes.

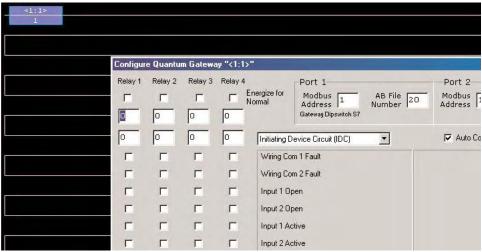
The configuration for all of the LON devices is first created and stored in the S^3 configuration database, then downloaded to the Gateway, which in turn downloads this information to the field devices where it is stored in their non-volatile memory.



A copy of the configuration data is also stored in the gateways own non-volatile memory.

When an Eagle Quantum port is first created, the LON schematic is empty except for a "node rectangle" representing the Gateway, as shown in the example to the right.

The node rectangle is divided in half horizontally with the tag name in the top and node address in the bottom. S^3 has assigned <1:1> as a temporary tag name. This is replaced by the user assigned tag name as described in the "Point Configuration • Common Settings" section of this users guide.



Double-clicking on the node rectangle, or single clicking on it and choosing "Edit" button from the command bar, will open the "Configure Quantum Gateway" dialog box. This dialog box contains all of the configuration parameters for the gateway.

Most of the dialog box pertains to the configuration of the four onboard programmable relays. These 5 amp form-C relays can be configured to perform a simple "OR" voting function on a contiguous group of LON devices.

All relays can be configured to be energized or de-energized in normal operation. Gateway relay operation is independent of the OIS.

Configure	e Quantu	n Gatewa	y "<1:1	
Relay 1	Relay 2	Relay 3		Energize for Normal Address 1 AB File 20 Address 1 Register 0 Gateway Dipswitch S7
0	0	0	0	Initiating Device Circuit (IDC)
Г	Г	Г	Г	Wiring Com 1 Fault
Γ	Г	Γ		Wiring Com 2 Fault
Г	Г	Г	Г	Input 1 Open
Г	Г	Г	Г	Input 2 Open
Г	Г	Г	Г	Input 1 Active
Γ	Г	Γ	Г	Input 2 Active
Г	Г	Г	Г	Switch 1 Status
Г	Г	Г	Г	Switch 2 Status
Г	Г	Г	Г	Switch 3 Status
	Г	Γ	Г	Switch 4 Status
Г	Γ	Г	Г	Invalid Configuration
Г	Г	Г	Г	Low Voltage Fault
Г	Г	Г	Г	Unable to Automatically Configure
				Gateway Relay/Display Inhibited
				Unable to Configure
Г	Γ	Г	Г	Not Communicating
ı		Relay e for Norma		Graphic Trigger Alarms Tagname Okay Cancel

Relay Configuration: There are four vertical columns, one for each relay, on the left side of the dialog box. Each column has sixteen check boxes, one for each of the possible pieces of status or diagnostic information available for a field device. To the right of these columns is a description of what each check box represents. In the example above, an IDC is selected from the device pull-down menu. You can select any type of available device to display its unique parameters. Typically these relays are used for "like" types of nodes.

At the top of each column is a label indicating which relay the column represents. Below the relay number is a check box to determine the relay coil operational configuration, whether it is normally energized or deenergized.

In the default configuration the box is un-checked and the relay coil is

de-energized until the conditions matching its configuration are met.

Under the coil configuration check box are two fields. The top one is for entry of the starting address, the one below is for the ending address. The initial

Relay 1 Relay 2 Relay 3 Relay 4 Energize for Г Г Г Г Normal 0 0 0 0 0 0 0 Initiatin Г Г Wiring

Configure Quantum Gateway "<1:1>"

configuration has a zero in both causing the relay to be non-functional.

In the example to the right, Relay 1 has been configured to have a starting address of 10 and an ending address of 20, inclusive. In this configuration, any node in that range which meets the criteria determined by the check boxes in that column will cause the relay coil to energize.

Wiring

Г

Г

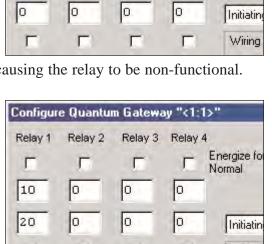
In this example, Relay 1 is configured to respond to either "Input 1

Active" OR "Input 2 Active".

Only Input 1 or Input 2 being "ON" for any node between 10 and 20 will cause the relay to change state.

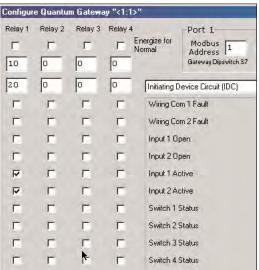
Repeat this configuration process for all four relays.

Note: In addition, at the bottom of the dialog box is a checkbox (not shown) for the operation of the fault relay. Set as required!



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Port Configuration: The gateway has two serial communication ports

that can be used for connecting to other systems. These ports are very flexible and depending on the hardware dipswitch settings and software settings can be used in

Port 1		Port 2
Modbus 1 Address 3 Gateway Dipswitch S7	AB File 20 Number	Modbus 1 Register 0 Address 1 Offset 0
ice Circuit (IDC)	-	Auto Configuration

a variety of configurations. Port 1 can be configured as either a Modbus RTU slave, or for the Allen-Bradley DF-1 protocol.

If configured as a Modbus port, the default station address in the S^3 software is "1". If another station address is required, both the software and hardware dipswitch S7 must be configured to match.

If configured for DF-1, you must set the AB File Number (Default is 20 as shown in the example above).

Port 2 can be configured as either a Modbus RTU slave, or as a Modbus

RTU master. If configured as a master (refer to Eagle Quantum hardware manual for appropriate dipswitch settings) the gateway will continuously send a copy of its datatables to the specified Modbus station address.

Port 2			_	
Modbus Address	1	Reg	ister ffset	0
Address	1-	0	ffset	10

In addition, you may specify an offset in the destination devices memory. The default is 0 which equates to a destination address of 40000. As an example, if you enter an offset of 10, the starting destination address would become 40010.

Auto Configuration: Below the serial port configuration area is a

checkbox labeled Auto Configuration. When selected, the gateway will automatically download configuration data to any new device that comes online, provided its configuration resides in the S^3 database. This feature is designed to

Port 2 Modbus 1 Register 0 Address 1 Offset 0
Auto Configuration

make replacing failed units "automatic" since no operator action is required. With auto configuration, simply set the address DIP switches on the new device to the same settings as the one it is replacing, remove the old unit, install the replacement unit and power it up. The gateway will download the configuration automatically after device powerup.

Input 2 Mode Control

Alarm

C Trouble

C Other

ПK

C Supervisory

Update Rate

Enter time in

milliseconds. (1000-10000)

Default

Cancel

Current Rate: 1000 New Rate: 1000



Initiating Device Circuit (IDC) module Dual supervised input circuits

Configure IDC "<1:12>

Alarm

C Trouble

C Other

C Supervisory

Destination Address

Address 1: 0

Address 2: 0

Address 3: 0

Address 4: 0

Alarms

Graphic Trigger

Tagname

Input 1 Mode Control

IDC's have two independent supervised digital inputs. Each input has an individually configurable "Mode Control" setting which determines if the input will report as an Alarm, Trouble, Supervisory or Other.

Alarm: Creates a "Fire Alarm" signal which is indicated on the logic controller by both audible and visible means.

Trouble: Creates a "Trouble" signal which is indicated on the logic controller by both audible and visible means.

Supervisory: Creates a "Supervisory" signal which is indicated on the logic controller by both audible and visible

means.

Other: Has no visible or audible indication.

Regardless of which mode the input is operating in, it may be used in user configured logic to do a variety of functions.

Update Rate: Displayed and set in milliseconds, the value in this field determines how often the IDC will send its periodic reports. The default value is 5000 (5 seconds) and is typically adequate. A change of state in one of the input channels is always sent immediately.

Contraction of the local division of the loc	
at 10. 22	DET
	POWER
	ALARM
	TROUBLE
Contraction of the second	GROUND FAULT
	SUPERVISORY
1 1 1 1 2 3 X 1	
	ACKNOWLEDGE
	ACKNOWLEDGE
	SILENCE
1. 4	•
	PROGRAM
	ISOLATE
	Contrast of
	TAGLE QUANTUM"
	EAGLE QUANTUM
	NORMAL
	RESET
	PROGRAM
	ISOLATE
	Bulling

Destination Address: IDC's can be configured to send their diagnostic and status information directly to as many as four different Logic

Controllers on the same LON.

18-2

Enter the LON address of the destination logic controllers in the supplied address fields on the "Configure IDC" dialog box.

Common Settings: The bottom of the "Configure IDC" dialog box contains buttons for setting all of the common settings on the device.

Refer to chapter 10 of this users guide for details on these features.

 Alarm Trouble Supervisory Other 	Alarm Trouble Supervisory Other
C Supervisory	C Supervisory
C Other	C 04
	t Uther
Address 1: 0 Address 2: 0 Address 3: 0 Address 4: 0	New Rate: 1000 Enter time in milliseconds. (1000-10000)

Completing Configuration: When all parameters have been set, select the OK button to return to the LON configuration screen.

Download the new configuration to the IDC, or configure other devices.

FIELD DEVICE CONFIGURATION • EQ2200IDC



Ultraviolet (UV) Optical Flame Detector

The EQ220UV Series UV Flame Detector contains a UV sensor module and control circuitry in an explosion proof, watertight enclosure. The detector is equipped with both automatic and manual optical integrity test capability.

Adjustable parameters for this detector include the Processing Mode, Optical Integrity (Oi) Mode, Latching Mode, Arc Rejection, Sensitivity, and Time Delay.

Processing Mode: Select either Standard or Arc Rejection.

<u>Standard Mode</u> is recommended for applications where background electrostatic energy has been verified to be absent.

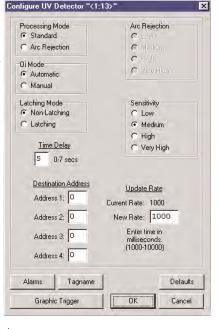
<u>Arc Rejection</u> enables the detector to prevent nuisance fire alarms caused by UV from short-duration electrical arcs or

electrostatic discharge, while maintaining the ability to

reliably detect the UV given off by a flame. The arc rejection mode is not recommended unless these false alarm sources are present within the application to be protected.

Oi Mode: The Oi system uses an internally generated UV test signal to determine the relative condition of the detec-

tor and its optical surfaces. If automatic Oi testing is selected, the Oi test is automatically performed once every minute. The automatic Oi test







OiMode Automatic

C Manual

FIELD DEVICE CONFIGURATION • EQ2200UV

does not generate an alarm output or interfere with normal detector operation.

The manual Oi test is initiated using a button on the Point Display screen on the S³ Operator Interface Station (OIS). The manual test can be used in addition to the automatic Oi to verify correct operation of relays, LEDs and field wiring.

Note: The Point Display screen can be accessed from within the configuration environment by selecting the point on the LON schematic and then selecting the Point Display button on the Command Bar at the bottom left of the screen.

Processing Mode	Arc Rejection
 Standard 	C Low
C Arc Rejection	C Medium
Oi Mode	C High
Automatic	C Vegitligh
C Manual	
Latching Mode	_ Sensitivity
Non-Latching	C Low
C Latching	Medium
	C High
Time Delay	C Very High
Destination Address Address 1: 0	<u>Update Rate</u> Current Rate: 1000 New Rate: 1000
Address 2: 0 Address 3: 0 Address 4: 0	Enter time in milliseconds. (1000-10000)
Address 3:	milliseconds.

Latching Mode: When latching mode is selected, the fire alarm signal is cleared by removing input power for a minimum of 0.1 seconds, or, by selecting the "Reset Output" button on the devices Point Display.

Sensitivity: Whether the Standard or Arc Rejection mode is selected, the sensitivity setting must always be programmed. The selected sensitivity level determines the fire alarm threshold setpoint. The higher the sensitivity level, the greater the detection range, but the possibility of false alarms will be increased. Four sensitivity levels are selectable.

The sensitivity setting must be appropriate for the anticipated fire size at the required distance from the detector.

Time Delay: An time delay, adjustable from 0 - 7 seconds, can be applied and depending on the processing mode will perform as follows;

Standard Mode - A fire output is generated only if the fire signal exceeds the sensitivity setting for the entire duration of the programmed time delay.

Arc Rejection Mode - If the fire signal meets the programmed arc rejection requirements, the time delay begins. A fire output is generated if the fire signal continues for the duration of the time delay.

FIELD DEVICE CONFIGURATION • EQ2200UV

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Destination Address: UV detectors can be configured to send their

diagnostic and status information directly to as many as four different Logic Controllers on the same LON.

Enter the LON address of the destination logic controllers in the supplied address fields on the "Configure UV Detector" dialog box.

Common Settings: The bottom of the "Configure UV Detector" dialog box contains buttons for setting all of the common settings on the device.

Refer to chapter 10 of this users guide for details on these features.

Processing Mode • Standard	Arc Rejection
C Arc Rejection	C Medura
C Arc nelection	
Oi Mode	C Hell
 Automatic 	n Veiy High
C Manual	
Latching Mode	Sensitivity
Non-Latching	C Low
C Latching	Medium
	C High
<u>Time Delay</u>	C Very High
Destination Address	Update Rate
Address 1: 0 Address 2: 0 Address 3: 0 Address 4: 0	Current Rate: 1000 New Rate: 1000 Enter time in milliseconds. (1000-10000)
Address 2: 0 Address 3: 0	Current Rate: 1000 New Rate: 1000 Enter time in milliseconds.

Completing Configuration: When all parameters have been set, select the OK button to return to the LON configuration screen.

Download the new configuration to the UV detector, or configure other devices.

FIELD DEVICE CONFIGURATION • EQ2200UV



Signal Audible Module (SAM) Dual supervised output circuits

The EQ2500SAM series Signal Audible Module (SAM) provides two indicating circuits for controlling UL Listed 24 vdc polarized audible/visual indicating appliances. The device is located on the LON/SLC and is controlled by programmable logic in the Eagle Quantum's Logic Controller.

	<u>Control</u>	
✓ Latch	n Enable	
Destination Address	<u>Update</u>	Rate
Address 1: 0	Current Rate:	5000
	New Rate:	5000
	Enter ti millisec (1000-1	onds.
Alarms Tagname		Defaul
Graphic Trigger	OK	Cance

Each output circuit is independently

programmable to allow annunciation of separate events. In release applications, signal outputs can be programmed to provide signaling for prerelease, release or post-release. Each output can be individually activated for any one of the following pre-defined coded outputs:

- 1. Continuous until reset
- 2. 60 beats per minute
- 3. 120 beats per minute
- 4. Temporal pattern.

These coded outputs are only accessible in user created logic, within the Eagle Quantum Logic Controller.

Destination Address: A SAM can only report to and be controlled by a single Logic Controller. Enter the address for the logic controller designated to control the SAM in the field provided (Address 1).

Mode Control: SAM outputs can be latching or non-latching. Nonlatching follows the condition of the user programmed logic. Latching requires a keyswitch reset of the logic controller it reports to. 

Agent Release Module (ARM) Supervised release output circuit

The EQ2500ARM Series Agent Release Module (ARM) is located on the LON/SLC and provides agent release capability for the Eagle Quantum system.

The device is controlled by programmable logic in the Logic Controller and can be programmed for "Single," "Cross" or "Counting" Zone Style initiation.

Optional time delay, abort and manual release sequences allow the output to be programmed for use in unique applications.

Mode Control	<u>Release Time</u>
C Squib	O
C Timed	0 = Continuous 1-65,000 seconds Used only with
Continuous	timer mode
C Non-Latching	
Destination Address	Update Rate
Address 1: 0	Current Rate: 5000
	New Rate: 5000
	Enter time in milliseconds. (1000-10000)
Alarms Tagname	Defaul
Graphic Trigger	OK Cancel

The Agent Release Module can monitor and control two output devices (rated for 24 vdc), which are energized together. The release circuits are compatible with a variety of solenoid or initiator (squib) based suppression systems. The release circuit is supervised for open circuit conditions. If a trouble condition occurs (open circuit or solenoid supply voltage less than 19 volts), it will be indicated at the LCU.

Destination Address: An ARM can only report to and be controlled by a single Logic Controller. Enter the address for the logic controller designated to control the ARM in the field provided (Address 1).

Mode Control: ARM outputs can be latching or non-latching. Nonlatching follows the condition of the user programmed logic. Latching requires a keyswitch reset of the logic controller it reports to.

FIELD DEVICE CONFIGURATION • EQ2500ARM



Ultraviolet (UV) / Infrared (IR) Optical Flame Detector

The EQ2200UVIR Series Flame Detector is designed to provide reliable fire protection in applications where the use of either ultraviolet (UV) or infrared (IR) detectors alone can result in false alarms.

The microprocessor based EQ2200UVIR combines both a UV and a single frequency IR sensor in a single detector and requires simultaneous response of both sensors to generate a fire alarm. These two detecting elements monitor different portions of the radiation spectrum and have virtually no common sources of false alarms. This enables the detector to respond to a real fire while ignoring potential false alarm sources such as arc welding, x-rays, or hot vibrating objects.

Microprocessor based circuitry located inside the detector junction box continuously monitors the two sensors, evaluating the signal(s) with fire and fault algorithms to determine the current status of the detector. When both sensors simultaneously detect the presence of fire, the microprocessor generates a fire signal, which is immediately sent over the LON/SLC to the logic controller in the Local Control Unit (LCU).

Detector Output: The output of the device is a status message that is sent to the gateway and logic controller in the LCU along the communication loop. System response to the message is determined at the time of configuration. The detector supports ANSI/NFPA 72 Class A, Style 7 communication with the LCU.

The UVIR detector is a very sophisticated unit with a variety of adjustable parameters for each of its main sensors, in addition to its combined and common settings. These adjustable parameters are all accessible through the "Configure UV/IR Detector" dialog box, shown below.

UV S	ettings		IR Settings	
Processing Mode Standard Arc Rejection	Sensitivity C Low C Medium C High	Oi Sensitivity C Low ⓒ Medium C High	Sensitivity C Low C Medium C High	
Arc Rejection	C Very High		C Very High	
C High		Oi Test Frequency 1 Minute 1 Hour	C 2 Hours C 4 Hours	
Combine	d Settings			
Di Mode • Automatic • Manual	Latching Mode Non-Latching Latching			
Destination Address Address 1: 0	Time Delay 0 0-7 secs <u>Update Rate</u> Current Rate: 1000			
Address 2: 0 Address 3: 0 Address 4: 0	New Rate: 1000 Enter time in milliseconds. (1000-10000)			
Alarms Tagnar			Defaults	

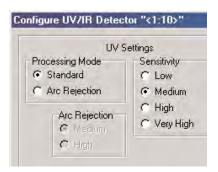
Processing Mode: The UV portion of the detector offers a choice of two different types of logic that can be used for processing fire signals — either standard or arc rejection.

<u>Standard Mode</u>: In the standard processing mode, the UV sensor output (measured in counts per second) is compared to the fire threshold (the "sensitivity" setting as described below). If the radiant energy level from the fire exceeds the selected alarm threshold level, the time delay

UV S	Settings
Processing Mode	Sensitivity
Standard	C Low
C Arc Rejection	Medium
-Are Detection	C High
Arc Rejection	C Very High

FIELD DEVICE CONFIGURATION • EQ2200UVIR

begins (if a time delay is selected). If the radiant energy level from the fire remains above the selected sensitivity level for the duration of the time delay, a fire alarm signal is generated. In every application, it is crucial to ensure that the radiant energy level from the expected fire at the required distance from the detector will exceed the selected sensitivity level.



Standard signal processing is recommended for applications where background electrostatic energy has been verified to be absent.

<u>Arc Rejection Mode</u>: The arc rejection mode enables the detector to prevent nuisance fire alarms caused by short-duration electrical arcs or electrostatic discharge, while maintaining the ability to reliably detect a flame. The arc rejection mode is not recommended unless these false alarm sources are present within the application to be protected.

Typical applications that benefit from arc rejection logic include any uncontrolled environments where transient radiation sources can be present, such as many typical outdoor applications.

The arc rejection algorithm examines the radiant energy level detected within a specified unit of time (timed gate). The output of the detector is determined by three variables:

- sensitivity level
- gate length
- number of consecutive gates required.

Different combinations of these variables allow for various levels of transient arc rejection capability. There are two arc rejection levels (medium and high) that are selectable for the detector through the OIS. The proper arc rejection setting for a given application must be determined through testing.

It is recommended that each detector be thoroughly tested at the programmed arc rejection setting within the ambient conditions that will be present during normal operation. This will help to ensure that the selected arc rejection setting is proper for the application.

Sensitivity: Whether the Standard or Arc Rejection mode is selected, the

sensitivity setting must always be programmed. The selected sensitivity level determines the fire alarm threshold setpoint. The higher the sensitivity level, the greater the detection range, but the possibility of false alarms will be increased. Four sensitivity levels are selectable.

(Sensitivity levels for UV and IR are selected separately.)

The sensitivity setting must be appropriate for the anticipated fire size at the required distance from the detector. Refer to the "Specifications" section of the Det-Tronics Eagle Quantum instruction manual for additional information.

Time Delay: A time delay from 0 to 7 seconds is selectable.

<u>Standard Mode</u>: A fire output is generated only if the fire signal exceeds the sensitivity setting for the entire duration of the programmed time delay.

<u>Arc Rejection Mode</u>: If the fire signal meets the programmed arc rejection requirements, the time delay begins. A fire output is generated if the fire signal continues for the duration of the time delay.

Automatic or Manual oi: The EQ2200UVIR is equipped with the Optical Integrity (oi) feature. The oi test is performed on both the UV and IR sensors to check the cleanliness of the detector optics, as well as the proper functioning of the sensors and electronic components of the detector.

If a problem should occur, it is quickly detected. The detector is user programmable (from the OIS) for automatic oi testing. If automatic testing is selected, the oi test is automatically performed on each sensor.

The rate for the UV sensor test is once per minute. The rate for the IR sensor is field selectable from once a minute to once every four hours.

If a fault is detected, a trouble signal is sent to the LCU over the LON/SLC. A fault condition is indicated at the logic controller and the gateway and also by the LEDs on the detector's UV sensor.

The automatic oi test does not generate an alarm output or interfere with normal detector operation.

The manual oi test is initiated using a button on the point display screen at the OIS.

A successful test is signaled by the OIS. The manual oi test can be used in addition to automatic oi to verify correct detector operation.

NOTE The manual oi test does not generate an alarm output or actuate any system outputs.

Fire Output Latching: When latching operation is selected, the fire alarm signal is present until cleared by a reset command from the OIS.

Destination Address: UV/IR detectors can be configured to send their diagnostic and status information directly to as many as four different Logic Controllers on the same LON.

Enter the LON address of the destination logic controllers in the supplied address fields on the "Configure UV/IR Detector" dialog box.

Common Settings:

The bottom of the "Configure UV/IR Detector" dialog box contains buttons for setting all of the common settings on the device.

UV	Settings		IR Settings
Processing Mode Standard Arc Rejection Arc Rejection Medium	Sensitivity C Low C Medium C High C Very High	OiSensitivity C Low I Medium C High C Very High	Sensitivity C Low C Medium C High C Very High
C High		Oi Test Frequency 1 Minute 1 Hour	C 2 Hours C 4 Hours
Combin Di Mode © Automatic © Manual	Latching Mode		
Destination Address Address 1: 0 Address 2: 0	Time Delay 0 0.7 secs Update Rate Current Rate: 1000 New Rate: 1000		
Address 3: 0	Enter time in milliseconds. (1000-10000)		

Refer to chapter 10 of this users guide for details on these features.

Completing Configuration: When all parameters have been set, select the OK button to return to the LON configuration screen.

Download the new configuration to the UV/IR detector, or configure other devices.



Digital Communication Unit (DCU) For gas detectors and other analog inputs

DCU's are analog input modules for the Eagle Quantum LON. S³ provides for variations of software support for DCU's, as follows:

DCU Ex: Used with catalytic bead combustible gas detectors.

DCU O2: Used with electrochemical oxygen depletion cells.

DCU Universal: Used with any standard 4-20ma analog input. Allows user configurable units and ranges.

DCU Pointwatch: Used with

Detector Electronics PointWatch infrared point hydrocarbon detectors.

From a configuration standpoint, they all have the same basic adjustable parameters; Alarm 1, Alarm 2, and Calibration gas concentration (Cal Level).

The DCU Universal also has a field for input of the engineering units for the attached sensor.

Engineering Units:	*	4 Character	rs max
Ingineering Range:	0.0	to 10	0.0
		Min	Max
Alarm 1:	50.0	20	100
∆larm 2 [,]	20.0		100

Engineering Units:			
Engineering Range:	0-100%	<u>Min</u>	Max
Alarm 1:	50.0	10	60
Alarm 2:	20.0	5	40 %LFL
Cal Level:	50.0	20	100
Destination Address		<u>Update</u>	Rate
Address 1: 0	Curr	ent Rate:	5000
Address 2: 0	N	ew Rate:	5000
Address 3: 0		Enter ti millisec (1000-1	onds.
Address 4: 0			
Alarms Tagname	,		Defaul
Graphic Trigger	1 -	ОК	Cance

18-18EAGLE QUANTUM

Destination Address: UV detectors can be configured to send their diagnostic and status information directly to as many as four different Logic Controllers on the same LON.

Enter the LON address of the destination logic controllers in the supplied address fields on the "Configure DCU" dialog box.

Common Settings: The bottom of the "Configure DCU" dialog box contains buttons for setting all of the common settings on the device.

Refer to chapter 10 of this users guide for details on these features.

Completing Configuration: When all parameters have been set, select

the OK button to return to the LON configuration screen.

Download the new configuration to the DCU, or configure other devices.

Engineering Units:	%LFL			
Engineering Range:	0-100%	Min	Max	
Alarm 1:	50.0	10	60	
Alarm 2:	20.0	5	40	%LFL
Cal Level:	50.0	20	100	
Destination Address		<u>Update</u>	Rate	
Address 1: 0	Curr	ent Rate:	5000	
Address 2: 0	N	ew Rate:	500	0
Address 3: 0		Enter ti millisec (1000-1	onds.	
Address 4: 0				



FlexSonic[®] Acoustic Leak Detector



X3301 Multispectrum IR Flame Detector



PointWatch Eclipse[®] IR Combustible Gas Detector



FlexVu[®] Universal Display with GT3000 Toxic Gas Detector



Eagle Quantum Premier® Safety System

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Det-Tronics manufacturing system is certified to ISO 9001 the world's most recognized quality management standard.





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