



Software designed for safety systems and the people who use them



95-8560-6.0

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INTRODUCTION

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. S³ 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. On screen point and click icons allow convenient navigation through the application with easy access to the various features.

The S³ 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.

User Guide

Depending on the application or system, it is very unlikely that all the features offered in S³ will be utilized, or some features may be used more than others. The S³ user guide has been developed to assist experienced operators in understanding the vast capabilities of this robust safety system software.

New users with no prior S³ knowledge will have difficulty following this guide. It is strongly recommended that a new user attend the EQP Systems Advanced Technical Training class (Course 102). Further information is available through our website or contact us by telephone.

INTRODUCTION

- 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.
- SIL-2 compliant logics also available.
- 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.
- 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.

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 Windows Vista/XP Professional. Computers operating on a 64 bit platform are fully supported; as with many modern programs, the faster the machine, the better the performance.

A hard drive with at least 50 MB of available space 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. S³ is designed to utilize up to ten high speed serial ports, all running at up to 115.2 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 coprocessor. 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. S³ is designed to work with a serial version of the Okidata ML490 four color, tractor feed, dot matrix printer.

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.

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.
- 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.

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.

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, and servicing remote access requests.

Installation Options

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

Operations Installation Selection

This installation is designed for full time 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.

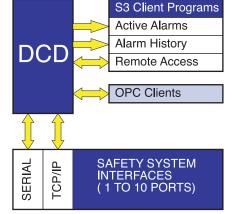
If the "Operations" selection is used for installation, the system will be configured as a secure stand-alone OIS with tight security restrictions installed at the lowest levels of the operating system.

The user must be logged into Windows 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.



Development

The "Development" installation does 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

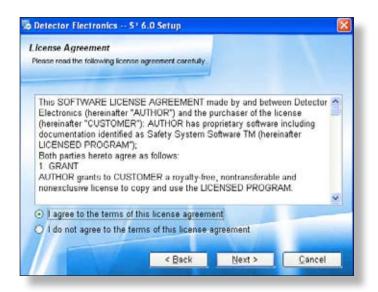
If S³ software is currently running, return to the System Overview screen and quit S³ before installing the software. It is highly recommended to uninstall any previous versions of S³ before installation.

Installation Procedure

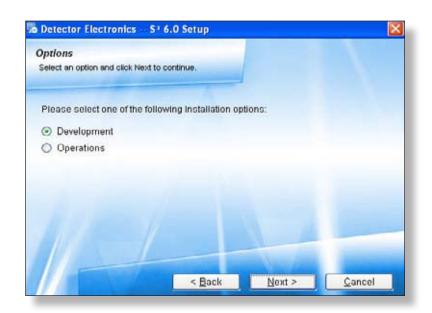
 Insert the S³ CD into the CD-ROM drive. Open the CD drive icon and double click on "Install." This will open the "Setup" dialog box with important instructions on how to continue. Clicking on the "Next" button will advance to the license screen.



2. This step presents Det-Tronics' software license agreement. Read the agreement and choose the appropriate radio button. Use the "Next" button to continue.



3. Choose one of the two types of installations and click the Next button. A "Development" install is required when S³ is being installed for the first time. An "Operations" install would be performed after all logics and settings have been created in the Development mode. In Operations mode, no changes can be made to logics or settings, only monitoring occurs in this mode.



4. The next two windows are related to the S³ desktop shortcut. Choose accordingly, then choose Next to continue.

hortcut Folder		
where would you like the shortcuts to	be installed?	
The shortcut icons will be created use the default folder, you can elb from the list. Shortcut Folder.		
S ^a		2
Şı		*
S ^o Install shortcuts for current o		2
Şı		M
S ^a		



5. Verify that all options selected in previous windows are correct, use the Back button to make corrections, choose Next to begin installation.

eady to Install /ou are now ready t	o install Sª 6.0			
The installer now I	has enough inform	nation to insta	II S [#] on your con	nputer.
The following setti	ngs will be used:			
Installation type: Install folder.	Development C.IDECI			
Shortcut folder Desklop Shortcut.	S ³ None			
Please click Next t	o proceed with the	a installation.		
		-		

- 6. During installation there will be a prompt to remove all Alladin USB keys; do so at this time and choose OK to continue.
- 7. The installer will now install all the necessary drivers.
- 8. After the drivers are installed successfully, a confirmation window will appear, choose OK to continue.
- 9. A successful installation window will appear, click Finish.





OK.

- Plug the Aladdin key to a USB port on the computer.
- 11. The system will ask to be rebooted due to the newly installed drivers. Choose Yes, and OK.

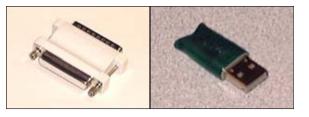
Device Driver Install

Upon successful installation, S^3 automatically creates a desktop shortcut and a folder titled "DEC", where all necessary and related files are stored.

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 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.

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.

While on the main screen (see the next section) in S³, the user is able to view a list of all enabled options available with a key by pressing "K" on the keyboard. The window should resemble the example to the right.

	Key Found:Yes Version: 01 Key ID: 20644 T.O. # : 00006 Part #: 10000 Date: 08-11- Time: 15:24:	10 1 2008		
	Name	State	TA .	
1	DCD/Fluntime	Enabled		
2	Developers	Enabled		
3	Engle Quarkum OPC	Enabled		
4	Exple 2000 OPC	Enabled		
5	Ticon Serial OPC	Enabled		
8	Ticon 15AA OPC	Enabled		
7	MODBUS Marter Serial OPC	Enabled		
8	5º Repeater	Enabled		
9	Eagle Quantum Premier OPC	Enabled		
10	MODEUS Marter TCP/IP OP			
11.				
12				
17			~	

S³ CONFIGURATION



When the S³ application program is started it will display its "MAIN SCREEN". From this screen there is access to all the engineering, configuration and utility programs that make up the S³ application suite.

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

E SY Shell	Start Monitoring	Print Documentation	Logs	E C C
Esckup/Restore	OPC Server	Safety System Software MAN SCREEN	User Log tv/Dut	Graphics Editor
Der Accounts			Versee 10002	STOP Que Register

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.

S³ CONFIGURATION

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 overlay.

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.

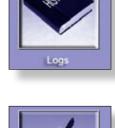
Preferences

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.





Start Monitoring











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.



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.

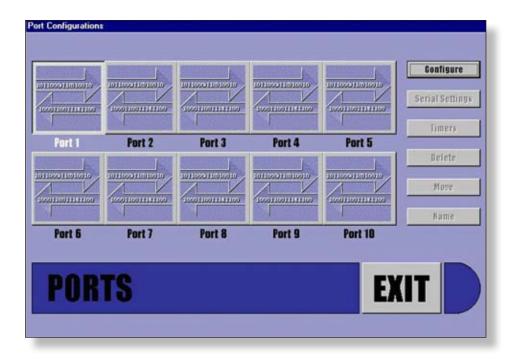
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Basic Port Configuration

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

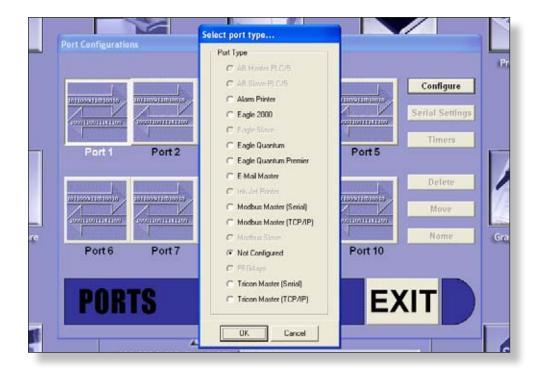
S³ offers ten ports, each of which can be configured to a specific type of system or device.



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 (this is true only when an unused port is selected).

The available choices are based on the S³ hardware key plugged into the computer, and 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 open the main configuration screen for the selected port type. Clicking Cancel will return to the Port Configurations dialog box without any change.

NOTE

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.

NOTE

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.det-tronics.com.



3-2

	101102011010010	1011022011012210	10110220110102010	1011020110010	Configure
E)					Serial Setting
Eagle Premier					Timers
Port 1 FG-CTRL-001	Port 2	Port 3	Port 4	Port 5	
					Delete
			011022011010010		Move
	Geometrines	Geomentines	Teanannno 	ficoncommico	Name
Port 6	Port 7	Port 8	Port 9	Port 10	

Serial Port Settings

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.



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.

The port parameters can be set manually 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:	115,200	-	
Data Bits:	0	-	
Parity:	None	•	
Stop Bits:	1	+	

Timers

3-4

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.

le 2000 timer settings	
Polling Timer	Watchdog Timer
300	5000
(250-10000)	(5000 - 20000)
🔽 Enable	🔽 Enable
	Sound
	None
Enter time	es in milliseconds
OK	Cancel



The "Delete" button allows the removal of a port from the system configuration. Port deletions are **final**, 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.

START MONITORING



Online Operation

The "Start Monitoring" button launches the DCD, which allows the user to access "Online Mode".

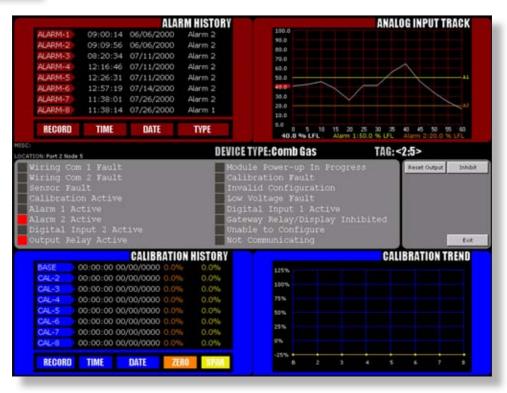
ollector and Distri	butor				
Device Tags NPC	Help				
Device Name		Туре		State	
YGhXkn		Fagle Premier		I naded / Active	
• • • • • • • • • • • • • • • • • • • •			Internation		
Alarms			O		
Peer Port Connections	: Count		0		
lients Connected			0		-
roups			U		~
knowledge Calib	ration Logs	Graphics Editor	Login / Logout	Port Status	
tive Alarms D	isk Log	Information	Point Display	Online Graphics	
	Device Tags OPC Device Name YGhXkn GhXkn Device Name YGhXkn Device Name YGhXkn Device Name NGhXkn Device Nam	Device Tags OPC Help Device Name YGhXkn YGhXkn UGhXkn Device Name Calibration Logs	Device Tags OPC Help Device Name Type YGhXkn Fagle Premier Peer Port Connections Count Fagle Premier Items Fagle Premier YGhXkn Fagle Premier YGhXkn	Device Tags OPC Help Device Name Type YGhXkn Fagle Premier YGhXkn Fagle Premier Image: Second Sec	Device Tags OPC Help Device Name Type State YGhXkn Fagle Premier I narled / Active Poton Fagle Premier I narled / Active Pagle Premier Information I narled / Active Alarms 0 I narled / Active I narled / Active YGhXtexter 0

Online mode provides the operator with continuously updated information about the attached systems.

START MONITORING

Point Display

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



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



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.

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 that shows 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 self-explanatory buttons for navigating the list, none are shown highlighted due to the shortness of the list in the example.

There is a counter at the top right indicating the current number of active alarms. In the lower right there is a page indicator and buttons for Acknowledging alarms or exiting the display.





START MONITORING

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.

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.

			EURRENT LOG
			07 00 00
			07-28-00
			Ten Dens
			Top Page
			1
			Page Up
			. age op
			Provide the second seco
			Page Down
			Stant Deep.
			Last Page
			A 1 1 1
			Select Log
			-
			Page
			rayu
			10
111 Converg LOB Fault	11104100	a1-18-00	12
Online Monitoring Stopped	11:04:30	07-28-00	
Culine Monitoring Started	11:08:19	07-28-00	
Administrator Logged In	11:08:19	07-28-00	
			Acknowledge
			1
			Exit
			EAR

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 S³ and the attached systems.

Port 1	Port 3	Port 4	
Port Type Alam Printer Livers to print 10 Page line count 0 Printer is ready Yes	Part Type Eagle Quarkan Reads Israed 128456 Medic Israed 128456 Wither Israed 19 Water Sociential 19 WaterAdop Timeoutr 0 Senid Ovenum 0 Ener 0	Part Type Trace Market Sensit Reads Issued 226495 Reads Successful 226495 Wites Issued 269 Water Soccessful 269 Water Soccessful 269 Water Soccessful 269 Senid Overvare 0 Exer 0	
Reset Printer	Data Tables		
Form Feed	LON Overview	Data Tables	
Clear Print Queue	Clear Counters	Clear Counters	
Clear Print Guese	Fire and Lable International	Clear Counters	
	Fort 3		
		Acknowled	ge Exit

Each port type has buttons for accessing applicable features. These include a way to 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.

START MONITORING

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.

ddress.	1 Dat	ta 11	Dec	Address	1	Data	16	Dec	Address	1	Data	16	Dec.
2074	0000 0000	0000 0000	0	40116	0000	0000 0000	0000	0	43159	0000	0000 0000	0000	0
2075	0000 0000	0000 0000	0	43117	0000	0000 0000	0000	0	42160	0000	0000 0000	0000	0
3076	0000 0000	0000 0000	0	43110	0000	0000 0000	0000	0	43161	0000	0000 0000	0000	0
3077	0000 0000			43119		0000 0000	0000	0	43142		0000 0000		0
3078	0000 0000			43120		0000 0000	0000	0	421.63		0000 0000		0
3079	0000 0000			43321		0000 0000	0000	D	43164		0000 0000		0
3060	0000 0000			43122		0000 0000	0000	0	43165		0000 0000		0
10001	0000 0000			43123		0000 0000		0	42166		0000 0000		0
0082	0000 0000			43324		0000 0000	0000	0	42167		0000 0000		0
3083	0000 0000			43115		0000 0000	0000	0	43168		0000 0000		0
3004	0000 0000			43126		0000 0000		0	42169		0000 0000		0
0085	0000 0000			43127		0000 0000	0000	0	\$2170		0000 0000		0
3064		D000 0000		43128		0000 0000	0000	D	43171		0000 0000		0
3087	0000 0000			43129		0000 0000		0	43172		0000 0000		0
8800	0000 0000			43130		0000 0000	0000	0	43173		0000 0000		0
3089	0000 0000			42131		0000 0000	0000	0	67176		0000 0000		0
	0000 0000			43132		0000 0000	0000	0	43175		0000 0000		0
13091 13092	0000 0000			43132 43134		0000 0000		ő	42176		0000 0000		õ
13093	0000 0000			40135		0000 0000	0000	ő	43170		0000 0000		ő
3094	0000 0000			43136		0000 0000	0000	ŏ	43179		0000 0000		ő
3095	0000 0000			43137		0000 0000		ő	43180		0000 0000		ő
3095	0000 0000			43138		0000 0000		ő	47101		0000 0000		ŏ
3097	0000 0000			45139		0000 0000	0000	ő	43102	0000			ö
098	0000 0000			63160		0000 0000		ő	43183		0000 0000		ŏ
9999	0000 0000			43141		0000 0000		0	43104		0000 0000		ő
3 100	0000 0000			43142		0000 0000	0000	Ď	43105		0000 0000		õ
3101	0000 0000			43143		0000 0000		ö	43106		0000 0000		0
3102	0000 0000			43144		0000 0000		0	43107		0000 0000		0
3102	0000 0000			45145		0000 0000		0	\$2188		0000 0000		0
3104	0000 0000	0000 0000	0	43146	0000	0000 0000	0000	0	43189	D000	0000 0000	0000	0
3105	0000 0000	0000 0000	0	43147	0000	0000 0000	0000	0	43190	0000	0000 0000	0000	0
3106	0000 0000	0000 0000	0	43140	0000	0000 0000	0000	0	45191	0000	0000 0000	0000	0
13107	0000 0000		0	42149		0000 0000	0000	D					
3100	0000 0000			43150		0000 0000	0000	0					
3109	0000 0000			43151		0000 0000		D					
3110	0000 0000			45152		0000 0000	0000	0					
3111		0000 0000		43153		0000 0000		0					
3112	0000 0000			43154		0000 0000		0					
3113	0000 0000			43155		0000 0000	0000	0					
3114	0000 0000			43156		0000.0000		D					
9115	0000 0000	0000 0000	0	43150	0000	0000 0000	0000	0					
Table 1	Table 2	Table	3	Table 4							A	know	ledge
											(Construction)	CONTRACTOR OF T	AT REAL PROPERTY.

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

This is a specialized diagnostic screen which displays a schematic representation of the addressable Eagle Quantum Premier, Eagle Quantum or EAGLE2000 loop.

804	ADV	10024-1	LCU_1-2	10000-1	1210.0-2					1012010	AT-82014-06
1	1	ACCRET AND A		The second second		100000-01200000	100000000000000000000000000000000000000	137	110	10000	10
NAMES OF A CONTRACTOR	47-82118-04	AT-REPUBLIC	an-excusion	AT-REPUBLICS.	AT-8203A-04		#Y-#201A-02	AT-R201A-01	AT-82018-04	AT-R201A-D4	AT-82018-04
11	E1	1.0	1.9	1.0	17	1000		14	4.8	11	44
10021134-02			AT-#2118-112							AT-109711-04	AT-X8911-01
13	24	11	33 800	100003400000	15 15 15	100000314			1000039	1000140	100041
			ATT-F214APOI								
8.9	1000	11		49	44			48	++	47	42
			WOTTAR-30								
4.5	66	47	68	49	99	78	92	78	74	1000	74
			4100304448								
**	**	**	47	84		82	44	**	7.0	14	11
			ATC#1024-07								
194	1000	944	100	100000	104		194		109	ALC: NO	111
			KINDA-LA								
199	111	111	130	11+	110	117	110	111	114	111	111
1418-14			ATT-DHEAD LAB								
124	1100	116	119	187	164	114	140	194	194	194	Fb4
			No-THEEDECA								
224	266	197	104	114	204	103	164	101	200	199	1.94
			04-0966048								
210	The second second	212	UL-OFFCOM	214	714	716	217	218		110	TIL .
232	111	111	138	12-094110CA	11-094817CA	117	124	121	121-094411024	12-0441124	111
Net Teen:I	Orrgen Seter		(2016/9 - 83)			an facile 1				-	
Les free.	Örpyen Sete					- Fault [for Alain		ar Tote D	- Aum	eyel (a f. Course Ackrewstedge Exa

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. There are five possible conditions/status, Normal, Fault, Alarm, New Fault, or New Alarm.

(AE/AT-K205A/B	- 03) - Main	Compressor	Bldg.	
Normal	Fault	Alarm	New Fault	New Alarm

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

Acknowledge

Either silences an activated alarm while being in the LON overview screen or silences an activated alarm from the Port Diagnostics screen.

Display Type

It displays devices by device name.

		Acknowledge
Display Type	Point Display	Exit

Point Display

Clicking on this button or 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. (Read more about the point display in Section 11-10).

Exit

Takes the user out of the LON overview screen.

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PRINTING



Overview of features

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		Po	ort (Name)
Tagnames (All)		Г	Port 1 (XUTILvZihn
User Module Strin	gs.	L	Port 2 (GwJ)
User Miscellaneo	us Strings	Г	Hort 3
Miscellaneous Pre	eferences	Г	Port 4
User Configuration	ns	Г	Port 5
☐ Sounds		Г	Port S
CPC Server Confi	guration	Г	Port 7
		Г	Hort 8
		Г	Puit 9
		Г	Port 10
		Г	OPC Properties
	Select All	Unselect All	
		onfiguration and I be 1 to 50.000.	selections, the

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.

Filtering data to be printed

Tagnames (All)

5-2

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 includes the graphic grid spacing and polygon tool settings. In the online application it includes whether or not the acknowledge button silences custom sounds first, how may days alarm logs will be kept, whether the alternate language dictionary is configured to be used or not and whether to use a twelve or twenty four hour clock.

User Configuration

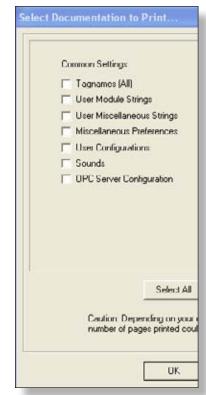
S³ supports up to sixty four (64) unique user accounts, this selection prints all user account information except passwords. This includes whether or not the user can access the configuration programs, initiate send commands to attached devices, access port diagnostics and quit online operations.

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.



Selecting ports to document

Port 1 - 10

S³ 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 right, ports one and three are configured and therefore selectable. The ports not configured 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/Vista 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/Vista default printer.

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

Depending on the default printer installed the dialog box and choices available will vary.

Print Setur)			
Name:	Adobe PDF		•	Properties
Status: Type: Where: Comment:	Ready Adobe PDF Converter My Documents			
Paper			- Orientatio	n
Size: Source:	Letter Automatically Select	•	A	 Portrait Landscape
Network.			OK	Cancel

Port (Name)	
Port (Name)	
F Port 1 (XUTILvZihn)	
Fort 2 (Gwal)	
F Pot 3	
Fort 4	
F Port 5	
Port 6	
Port 7	
F Port 8	
F Port 9	
Fort 10	
C OPC Properties	
select All	
ation and selections, the o 50,000	

NOTE

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

PRINTING

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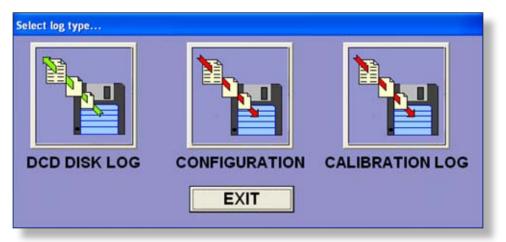
LOGS



Overview of features

S³ 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.



DCD Disk Log's are a chronological list of alarms and events that have occurred 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 queries of the distributed calibration histories of field devices on the network. The user determines what port, what type of device, a time frame and S³ will retrieve the data from the field devices and put it into a report. The daily disk, configuration log and any previous logs from this utility can be viewed or printed.

Alarm Logs (DCD Disk Log)

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.

			DURPENT LOG
			07-28-00
			07-20-00
			0
			Top Page
			Page Up
			Page Down
			Page Down
			100
			Contract of the second s
			Last Page
			cast rage
			Calastias
			Select Log
			Page
			Fays
			10
The determine the Party	TTT OF LOW	E7-28-00	12
nline Monitoring Stopped	11:04:30	07-18-00	
nline Monitoring Started	11:00:19	07-28-00	
dministrator Logged In	11:00:19	07-28-00	The second second
			Print
			and the second second
			-
			Exit

The purpose for the alarm log is to 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 alarm or disk log.

Events can appear in any of four colors:

Red = Alarm Yellow = Fault Green = Alarm/Fault; Return to normal White = Non-critical event

NOTE

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

The log is formatted in three columns, the first contains the event name, the second indicates the time, and date is displayed in column three.

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.

	NFIGURATION LOGS	
00:40:10	10-06-00 S* Configuration Program started.	CLEIFENT LOG
15:46:41	10-06-00 5' Configuration Program started.	10-06-00
15:46:45	10-06-00 Administrator Logged In	10-00-00
15:40:16	10-06-00 Port: 2 Point: 59 <<<&38-510>>>	
	Alarm 1 was: 50.0 now 1s: 60.0 4LFL.	
15148130	10-06-00 Porti 2 Point: 58 <<<&38-509>>>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL,	Two David
15:48:40	10-06-00 Port: 2 Foint: 57 <<<&BH-508>>>	Top Page
	Alarm 1 was: 50.0 now is: 60.0 %LFL.	
15148:50	10-06-00 Port: 1 Point: 54 <<<&3H-507>>>	
	Alarm 1 was: 50.0 now is: 60.0 %LFL,	Page Up
15148150	10-06-00 Porti 2 Point: 56 <<<&3H-507>>>	1 official
	Thusane was: ASB-507 now Ls: ASH-507A.	
15:49:13	10-06-00 Port: 2 Point: 81 <<<08H-501>>>	and the second sec
15:49:18	Alarm 1 was: 50.0 now is: 55.0 to. 10-06-00 Port: 2 Point: 82 <<<00H-502>>>	Page Down
10140110	Alarm 1 was: 50.0 now is: 55.0 to.	
15:49:22	10-06-00 Porti 2 Point: 83 <<<008-503>>>	
DIAPIEE	Alarm 1 was: 50.0 now is: 55.0 to.	Look Deve
15:50:45	Alarm 1 was: 50.0 how 1s: 55.0 to. 10-06-00 Port: 2 Point: 1 <<<#sdatewayLi>>>	Last Page
10100140	Relay 1 start address was: 0 now is: 9.	100 C
15:50:45	10-06-00 Porti 2 Pointi 1 << <rugatewayli>>></rugatewayli>	
10100140	Relay 1 end address was: 0 now 1s: 14.	
15:50:52	10-06-00 Port: 2 Point: 1 <<< msdateway[1>>>	Select Log
	Configuration written to gateway	
15:51:16	10-06-00 Port: 2 Point: 54 <<<&38-5074>>>	
	Configuration written to gateway	
15:51:16	10-06-00 Fort: 1 Foint: 57 <<<438-508>>>	Page
	Configuration written to gateway	
15:51:17	10-06-00 Port: 2 Foint: 58 << <ash-509>>></ash-509>	
	Configuration written to gateway	
15:51:17	10-06-00 Port: 2 Point: 59 <<<(A3H-510>>>	in the second second
	Configuration written to gateway	Print
15:51:36	10-06-00 Port: 2 Point: 01 <<<008-501>>>	Print
	Configuration written to gateway	Contraction of the International Contractional
15151137	10-06-00 Port: 2 Point: 82 <<<088-502>>>	
		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 it can be determined if tagnames were changed, if alarm setpoints were changed in the detector configurations, and 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.

LOGS

The Configuration and Alarm logs can be opened or viewed, and previous logs can be printed by using the "Select Log" button.

1:46:19 10-06-00 3" Configuration Program started. 10-06-00 1:46:14 10-06-00 3" Configuration Program started. 10-06-00 1:46:14 10-06-00 5" Configuration Program started. 10-06-00 1:46:14 10-06-00 5" Configuration Program started. 10-06-00 1:46:15 10-06-00 Fortil 2 Point 39 <<< Alarm 1 was: 50.0 now is: 60.0 41FL. Top Page 1:48:160 10-06-00 Portil 2 Point 34 <<< Alarm 1 was: 50.0 now is: 60.0 41FL. Page Up 1:48:150 10-06-00 Portil 2 Point 54 <<< Alarm 1 was: 50.0 now is: 50.0 top. Page Up 1:48:150 10-06-00 Portil 2 Point 54 << Alarm 1 was: 50.0 now is: 55.0 top. Page Down Alarm 1 was: 50.0 now is: 55.0 top. Alarm 1 was: 50.0 now is: 55.0 top. Page Down Alarm 1 was: 50.0 now is: 55.0 top. Alarm 1 was: 50.0 now is: 55.0 top. Last Page 1:50:151 10-06-00 Portil 2 Point: 1 3 <<<< Alarm 1 was: 50.0 now is: 55.0 top. Last Page 1:50:145 10-06-00 Portil 2 Point: 1 3 <<< Select Log 1:50:145 10-06-00 Portil 2 Point: 1 < Select Log 1:50:152 10-06-00 Portil 2 Point: 1 < Select Log 1:51:16 10-06-00 Portil 2			FURRENT LOG																		
9149114 10-06-00 Poct1 2 Point: 39 Colored State Top Page 9149114 10-06-00 Poct1 2 Point: 58 < Colored State Top Page 9149140 10-06-00 Poct1 2 Point: 57 < Colored State Page Up 9149140 10-06-00 Poct1 2 Point: 54 << Colored State Page Up 9149150 10-06-00 Poct1 2 Point: 54 <<<<>>Colored State Page Up 914913 10-06-00 Poct1 2 Point: 54 <<<<>>Colored State Page Up 914913 10-06-00 Poct1 2 Point: 81 St3-070. Page Up 914913 10-06-00 Poct1 2 Point: 81 St3-070. Page Up 914914 10-06-00 Poct1 2 Point: 82 St3-070. Page Up 914912 10-06-00 Poct1 2 Point: 82 St3-070. Page Up 9150145 10-06-00 Poct1 2 Point: 82 St3-070. Page Up 9150145 10-06-00 Pott1 2 Point: 82 St3-070. Page Up <	1:40:10	10-06-00 S* Configuration Program started.																			
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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 using the month, the day and year, 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.

10-08-08	^ ^
10-24-08	-
10-28-08	
10-29-08	
10-30-08	
10-31-08	
11-03-08	
11-06-08	
11-07-08	
11-10-08	100
11-11-08	
11-12-08	
11-13-08	×

Calibration Logs

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

DH-FD-024 TIR X3301 Fie 343 Tuesday, March 23, 2004, 12:52:09 DH-GD-011 Digital Communication Unit (DCU) Explosive 7 Tuesday, February 22, 2005, 12:33 DH-GD-012 Digital Communication Unit (DCU) Explosive 2147483647 Tuesday, March 1, 2005, 10:00:40 DH-GD-016 Eclpste PIR Explosive 554 Monday, August 25, 2003, 13:41:56 DH-IR0-033 Digital Communication Unit (DCU) Explosive 365 Monday, March 1, 2004, 10:00:40	Tagname	Device Type	Detect	Days	Date/Time
DH 6D-012 Digital Communication Unit (DCU) Explosive 2147483647 Tuesday, March 1, 2005, 10:00:40 DH 6D-016 Eclipse PIR Explosive 554 Monday, August 25, 2003, 13:41:56	0H FD 024	TIR X3301	Fee	343	Tuesday, March 23, 2004, 12:52:09
DH-GD-016 Eclipse PIR Explosive 554 Monday, August 25, 2003, 13:41:56	DH-GD-011	Digital Communication Unit (DCU)	Explosive	7	Tuesday, February 22, 2005, 12:33:2
	0H-GD-012	Digital Communication Unit (DCU)	Explosive	2147483647	Tuesday, March 1, 2005, 10:00:40
DH-IRO-033 Digital Communication Unit (DCU) Explorive 365 Monday, March 1, 2004. 10:00:40	0H-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 where the database file is located. It is viewable from the "Logs" button on the main screen, and the DCD.

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

Printing is supported to any "windows" configured printer. If preferred, the logs can be exported as a text document and opened with a text editing software such as Notepad.

Calibration Log Reporter Filter Options

The options button opens the "Filter Options.." dialog box allowing for the S³ database query 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 highlight all available ports for which logs exist.

Detector Types Eagle 2000	at 10	F Port 10	F Pat 8	E Poil 6			
Eagle 2000 Eagle Quantum F Explorative PW Heavy H2S PW Total CL2 PW Benzene 00 PW Low Sone N113 Other S02 Oxygen H0L Oxygen					F Pat4	Port 2	
Image: First State Image: Fi							etector Types
H2S PW Total Oxygen University CL2 PW Benzene Eagle Quantum Premier Eagle Quantum Premier N113 Other Eclipse X3301 S02 HCL Oxygen X3302			Jantum	Eagle Qu			Eagle 2000
CL2 PW Benzene C0 PW Low Sens N113 Other S02 HCL V3302 V3302	twatch	E Pointwate	plosive	T Ex	PW Heavy	ve. E	Finite Street
CO PW Low Sens N113 Other S02 X3301 HCL X3302	rersal	🔲 Universal	ligen	F 0	PW Total	Г	F H2S
F CU F PW Low Sens F N13 F Differ F S02 F Explosive F HCL F X3301					PW Benzane	Г	CL2
Г NII3 Г Отег Г S02 Г HCL Г X3301A С Худен Г X3302					PW Low Scns	Г	C CO
Г HCL Г Хиреп Г X3302				22250	Other	Г	IT NH3
T HCL		Survey and the		Ser.			F \$02
		C		1			F HCL
E HCN E X5200		A CONTRACTOR		2004			T HON
E Loso E Vision	an	F X3800					E Loson
Citygen			200	E X2		1	🗖 Öxygen
aue					45		Daye

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.



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.

Project

Shown below, 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".

Preferences	Project
Project	Project: Remote Access
Drawing	Delete
Elock User Strings	Duplicate
Graphics	New
Loge	Select
DCD Screen Prints	
Screen Frinks	
Button User Levels	
Sounds	

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.

Drawing (Unsupported Feature)

7-2

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

Preferences	Drawing
Project	
Drawing	Close Polygons
Clock	T Arc Wedge
User Strings	DEC Tagname Always
Graphics	
Loge	
DCD	
Screen Prints	
Screen Saver	
Button User Levels	
Sounds	
	ΟΚ

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.

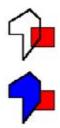
Arc Wedge

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.

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

DEC Tagnames Always

By default, this check box is de-selected. This means that when a project with graphics is opened in the graphic editor, all devices represented will not have a Det-Tronics tagname associated with them. When selected, a series of Det-Tronics tagnames will appear beside the various devices represented in a graphic project.





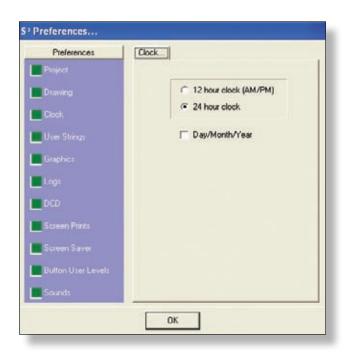


Clock

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.



Date

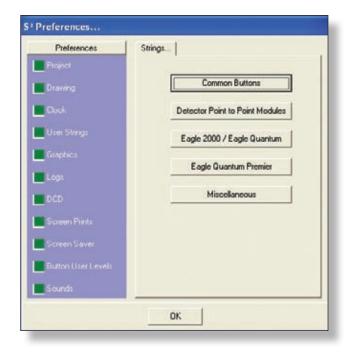
A check box is provided to format the date using the "Day/Month/Year" method. The default is "Month/Day/ Year".

These time and date settings apply to all logs and printouts created by S^3 .

7-3

User Strings

The "User 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.



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.

Common Buttons

Substitutes for all operator interface buttons found in the online application of S³.

Detector Point to Point Modules

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

Eagle 2000 / Eagle Quantum

The default device event descriptions can be substituted by the user in various languages.

Eagle Quantum Premier

Factory names for each item may be configured by creating or importing a replacement name.

Miscellaneous

Substitutes for a variety of text descriptions found throughout the S³ 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	Factory	
Falle del Puerto LON Superior	Uter Eagle 200	0
Lower Transceiver Fault		12
Falla del Puerto LON Inferior	Gateway	
Galeway Fault	Digital Communication 1	Nodule
Falla Gateway		
Relay 1 Active	Relay Node	
Rele 1 Activado		
Relay 2 Active	Engle Quant	
Relé 2 Activado	Eagle Quant	
Relay 3 Active	Main Gateway (Stat	n 1)
Relé 3 Activado	Main Gateway (State	- 71
Relay 4 Active	Han Galering (Star	at al
Relé 4 Activado	Signal Audble Module	(SAM)
Fault Relay Active		10425-02-1
Falla de Relé Activado	Agent Release Module	[ARM]
LON Master	Logic Controller (Stat	ue 11
LON Principal		
LON Fault	Logic Controller (Stat	us 2)
Falla LON	Initiating Device Circuit	inci
Invalid Configuration		(jinc)
Configuración Inválida	EQ2200 UV Detec	tor
Not Test Fack		
Falla de Extensor de Red	Digital Communication U	nit (DCU)
Slave PLC Status	EG2200 UV/IR Delt	schor
Estado de PLC Esclavo		
Galeway Relay/Display Inhibited	Auitay Gatevia	<u> </u>
Relé de Gateway/Pantalla Inhibida	Power Monitor	
Unable to Configure	- Anna Process	
Configuración Permitida	Digital Communication Unit Sp	pecial (DCU
Not Communicating Sin Comunicación		ncel

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 a substitute description can be entered. 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.

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

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	Ira	
Help		
Home	Inicio	
Last Page	Última página	
Login/Logout User	Contraseña de Usuario	
OK	OK	
Page	Página	-

"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.

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.

Active Alarms: Alarm	Alarmas Activadas:	1000
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	-

Graphics (Unsupported Feature)

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.

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.

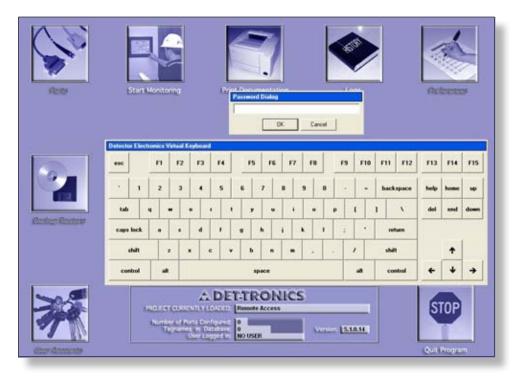
Preferences	Graphics
Project	Miscellaneous
Drawing	🖂 Use "User" strings
Clock	Use "Cyrillic" font
User Strings	Use "Virtual" keyboard
Graphics	Visual Object Error Settings
Logs	Use settings Edit
DCD	l.
Screen Prints	Color Depth C 16 C 24 @ 32
Screen Saver	Screen Resolution
Button User Levels	1024×768 Select
Sounds	

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.

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 S³ 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 touch-screen as the operators primary interface.

Custom Overview (Unsupported Feature)

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.

7-9

Visual Object Error Settings (Unsupported Feature)

This checkbox selection enables an online feature that changes the color of any dynamic object that is tied to data that has been flagged as invalid by S³.

/isual Object Error	Settings
Z Use settings	Edit

To change the "error" color select the "Edit" button and S³ will display the color selection dialog box. The default error colors will initially be 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.

S ³ Preferences	
Preferences Graphics	
Online Graphics Visual Object E	Fror Selections
Foreground Color	Background Color
Brush Style	
	C Opaque
Solid) opaque
	Cancel
0	к

Color ? × Basic colors: Preference Г Custom colors: For Define Custom Colors >> 0K Cancel Solid 0K Cancel OK

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.

Color	? ×
Basic colors:	
	•
	A DESCRIPTION OF A DESC
	Hug: 120 <u>B</u> ed: 0
	Sat: 240 Green: 255
Define Custom Colors >>	Color(Solid Lum: 120 Blue: 255
OK Cancel	Add to Custom Colors

NOTE Custom colors will not be saved.

7-12

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 graphics.

16 bit = 65,636 colors 24 bit = 16, 777, 216 colors 32 bit = True color 16 bit is the default and minimum requirement.



Screen Resolution

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

ie ie	Screen Saver	Screen Resolution	Select
n		OK.	

Resolution Selector

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

- 2048 X 1536
2040 X 1525
- 2048 X 1536
- 1920 X 1440
- 1920 X 1200
- 1920 X 1080
- 1856 X 1392
- 1792 X 1344
- 1680 X 1050
- 1600 X 1200
- 1600 X 1024
- 1600 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
lesolution: 1024×768

At the bottom of the dialog box the project resolution is displayed along with the screen resolution of the computer S^3 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. At XGA resolution the task bar must be configured to "Auto Hide" otherwise 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 constantly adding support for additional screen sizes.

Logs

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

S ³ Preferences	
Preferences	Logs
Project	
Drawing	Retain alarm logs for 0 days.
Clock	
User Strings	
Graphics	
Logs	
DCD	
Screen Prints	
Screen Saver	
Button User Levels	
Sounds	
	ОК

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.

7-14

DCD

The Data Collector and Distributor application program has five configurable parameters that can be used to modify its behavior.

S ³ Preferences	
Preferences	Screen Prints
Project	Screen Capturing / Printing
Drawing	Capture Enabled
Clock	Finiting Enabled
User Strings	Destination
Graphics	C Local C Remote
Logs	Host: 0.0.0.0 Edit
DCD	
Screen Prints	
Screen Saver	
Button User Levels	
Sounds	
	ОК

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 S³ client machines. In this situation the configured sounds play and are acknowledged by the remote clients and the local machine does not play sounds.

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

In addition to capturing screens in S^3 , the captured screens 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
Project	Screen Capturing / Printing
Drawing	Capture Enabled
Llock.	Printing Enabled
User Strings	Destination
Graphics	C Local C Remote
Logi	Host 0.0.0 0
DCD	EOL
Screen Prints	No.
Scienn Saver	
Button User Levels	
Sounds	

Remote Printing

If "Remote" is selected as the destination, a "Host Address" for another $S^{\rm 3}$ workstation that is running the DCD must be specified by its TCP/ IP address.

Destir C Lo		Remote	
	Host: I	0.0.0.0	
	E	dit	

Specifying a Printer

Clicking the "Edit" button will allow the TCP/IP address to be entered.

nter the lf	⁹ address/name of the S ^a print server
	192.168. 1 . 1
Use Hostnam	•

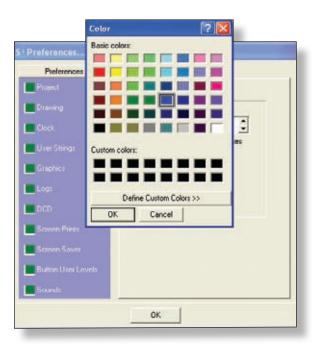
NOTE Local and remote computers must all be on the same side of firewalls.

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.

Pielerences	Scieen Saver
Project	
Drawing	Screen Saver
	Touchacteen
Clock	Touchscreens
Uner Strings	menues
Graphics	16:18:09
Loga	10.10.00
	Color
DCD	
Screen Prints	
Science Saver	
Bullan User Levels	
Bunan Usin Leves	
Sound	

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 the standard "color picker" dialog box that allows the selection of any of the 48 pre-set colors.

Button User Levels

This feature allows the DCD application program's user interface buttons to be assigned a "User Level" for security or operational control purposes.

Preferences	Location : Button Name	User Level	~
Preferences	Active Alarme : Acknowledge	0	
Preferences	DCD : Acknowledge	0	
Project	Disk Log Viewer : Acknowledge	0	
D	MM Point Display : Acknowledge	0	
Drawing	Online Graphics . Acknowledge	0	
Clock	Online Graphics : Calibration Log Reporter	0	
	Online Graphics : Home	U	
Hiser Strings	Online Graphics : Point Display	0	
	Port Diagnostics : Acknowledge	0	
Liraphics	Quantum LON Overview : Acknowledge	0	
Logs	Quantum LON Overview : Relay Override	0	
		0	
DCD		0	
		U	
Screen Prints		0	
Screen Saver		0	
		0	
Button User Leve		0	
		0	
Sounds		n	
		0	v

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.

7-18

Sounds

The sounds tab allows access to the custom sounds database and integrated sound editor.

Sound Editor	
Sound Names	
1 Warning 2 3 4	Delete
5 6 7 8	Import
9 10 11	
12 13 14 15	
16 17 18	
19 20 21 22	Exit
	Electronics

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

S³ supports up to sixty four sounds that can be attached to events in the system. One sound, "Warning," is included with S³ 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".

7-19

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.

	Seconds	5
	I Stop I Play Record	
	Warning	

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

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

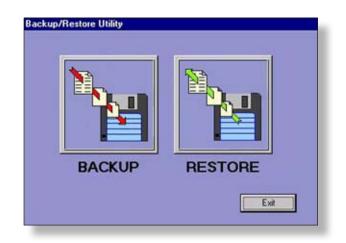
HCW-001 1	LC-DOLA B	4 4	7	100-164	AHH-001 9	WIR-001 10	K	11	11		+1/125 42			
Alarm	Editer							_		_				
Enable	hane	P - P	rinter D -	Daily Log	File V - E	vent Window					lear		Actor	Name
P	Viring Com 1	Fault.					P	P	P	Г	None	1	Red	· Green ·
P	Viring Cos 3	Fault					P	P	P	Г	None		Red	Green .
P	Input 1 Open	9					P	R	P	٢	None	٠	Red	• Green •
9	Input 2 Open	9					P	R	9	٢	None	*	Red	• Green •
P	Input 1 Acti	ive					P	P	P	٢	None	*	Red	· Green ·
P	Input 2 Acti	lve					P	P	P	٢	None	٠	Red	· Green ·
-	Switch 1 Sta	stus					9	P	P	r	None		Red	· Green ·
128	Courses & Frank						200	-	-	-	la.		Terra a	

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Overview of features

This button provides access to S³'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.



Selecting the "BACKUP" button will open the "Select Project" dialog box prompting for a selection.

EQP Regress 1-Cnt 6xx Controller Only	^
EQP Regress 3-Cnt 6xx All Attributes	
EQP Regress 3-Cnt 7xx All Attributes	
EQP Regress 4-Max Memory and Gates	
EQP Regress 4b-SIL Logic Gates	
EQP Regress 5a Maximum Time with Medians	
EQP Regress 6a-Ctlr 6xx Static Logic-1	
EQP Regress 6b-Ctlr 6xx Static Logic-2	
EQP Regress 7-Online S3-51xx	
EQP Regress 8c MultiGate Flt Dbl	
EQP Regress 8c MultiGate Int Bool	
	3

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

Backup

8-2

Once the project is selected a dialog box will be displayed allowing for browsing of the file system in order to select a destination for the backup.

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

NOTE We suggest storing the backup elsewhere rather than on the S³ computer

8	Deskt	op y Computer	S	
		314 Floppy (C:)	(A:)	
) (D:)) (E:)) (G:)		
	18 🛃 N	etwork Neig y Briefcase	hborhood	
	-			

NETLOGON NotesClient	-
 🕀 🧰 Notesid	
 E CJT Shared	
 Classroom MNP Shared	
 B Chris.0	
 E Crop Box	
 🖲 🦾 Fsi_demo	
Presentations R+d	- 1

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.

 $\rm S^3$ will begin the backup process automatically 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 floppy disk, or flash drive.

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.sec	In Queue	
Graphics\P6.fgc	In Queue	
Graphics\P6.drc	In Queue	
Graphics\P6.bgc	In Queue	•
Status: Select continue to compress the		Cancel

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

Féervanie	State	
Prels.pd	Copied	10
Port 1VP1.otp	Copied	
Port 1VP1.inp	Copied	
Port 1\P1.def	Copied	
Port 1VP1.chs	Copied	
Port 1VP1 OutTags.tgs	Copied	
Port 1\P1 InTags.tgs	Copied	
Part 3/P3P5.nvv	Copied	
Port 3/P3P5.lio	Copied	
Port 3\P3P5.lgc	Copied	
Port 3/P3.olp	Copied	
Port 3VP3.inp	Copied	
Port 3VP3.del	Copied	
Port 3\P3 OutTags.tgs	Copied	
Port 3VP3 InTags.tgs	Copied	
UD ata opt	Copied	
Tags.tag	Copied	100
OPCPoss opc	Copied	

Click on the "Done" button to return to the Backup/Restore main dialog box.

Backing up to Floppy Disk

If the "A" drive was selected as the destination, there may be a prompt 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.

In most cases, a floppy disk should be erased and this is the default choice. Select "Yes" and the program will open a prompt asking for a formatted disk to be inserted into the "A" drive. If a flash drive is selected, choose "No".

Jackup / Restore Utility
Confirm
This drive is removable. Erase disk before copying files?
Yes No Cancel
- DACKOF HESTORE
Exit

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

Filename		State		
Prefs.pd		Compre	essed	
Port 1\P1.otp		Compre	bessed	
Port 1\P1.inp		Compre	based	
Port 1\P1.def		Compre	essed	
Port 1\P1.chs		Compre	essed	
Port 1\P1 OutTags	file Option		t i	
Port 1\P1 InTags.h	officers.		4	
Port 3\P3P5.nvv	File(s)		đ	
Port 3\P3P5.lio	G Single	C Multiple	±	
Port 3\P3P5.lgc	10 0000	and a second and	±	
Port 3\P3.otp			đ	
Port 3\P3.inp	OK	Cancel	8	
Port 3\P3.def	Lange and the second se	Carcer	±	
Port 3VP3 OutTags	<i>p</i> :	Comple	meti	
Port 3VP3 InTags.tgs		Compre	essed	
UD at a opt		Compre	essed	
Tags.tag		Compre	bessed	100
OPCPoss.opc		Compre	essed	
ags.tag		Compre	essed	

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 for additional disks as required.

Filename	Joined	-
Graphics\A1.bgc	Joined	10
Piels.pd	Joined	
Port 1VP1.otp	Joined	
Port 1VP1.inp	Joined	
Port 1\P1.def	Joined	
Port 1VP1.chs	Joined	
Poit 1VP1 OutTags.lgs	Joined	
Port 1VP1 InTags.tgs	Joined	
Port 3VP3P5.rwv	Joined	
Port 3VP3P5.lio	Joined	
Port 3VP3P5.lgc	Joined	
Port 3VP3.olp	Joined	
Port 3VP3.inp	Joined	
Port 3VP3.def	Joined	
Port 3VP3 OutTags.tgs	Joined	
Port 3VP3 InTags.tgs	Joined	
UD at a opt	Joined	100
Tags.tag	Joined	1

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.

Restore

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

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

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

Restore selection... Restore the files to a new project or an existing project? Existing New Cancel

NOTE

If "Existing" is selected the restore function will overwrite the existing project with the "Restored" information. The existing project info will be deleted.

EQP Regress 1-Cnt 6xx Controller Only	
EQP Regress 3-Cnt 6xx All Attributes	
EQP Regress 3-Cnt 7xx All Attributes	
EQP Regress 4-Max Memory and Gates	
EQP Regress 4b-SIL Logic Gates	
EQP Regress 5a Maximum Time with Medians	
EQP Regress 6a-Ctlr 6xx Static Logic-1	
EQP Regress 6b-Ctlr 6xx Static Logic-2	
EQP Regress 7-Online S3-51xx	
EQP Regress 8c MultiGate Fit Dbl	
EQP Regress 8c MultiGate Int Bool	
C	15
	101

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.

nter ne	w project nam	IP	×
1			
	OK	Cancel	

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

8-6

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

Save As	? 🛛	
Save in: 🔁 DEC	• 🗄 🖆 💌	
Alarm Logs	EQP Regress 4b-SIL Logic Gati	
BINS	EQP Regress 4-Max Memory a	
Configuration Logs	EQP Regress 5a Maximum Tim	
EQP Regress 1-Cnt 6xx Controller Only	EQP Regress 6a-Ctlr 6xx Stati	
EQP Regress 3-Cnt 6xx All Attributes	EQP Regress 6b-Ctlr 6xx Stati	
EQP Regress 3-Cnt 7xx All Attributes	EQP Regress 7-Online S3-51x;	
File name:	Save	
Save as type: S ³ Backup	Cancel	

When the source has been chosen select the "Save" button to begin the restoration procedure. As files are restored they will show up in the "Filename" column of the dialog box with their state displayed to the right.

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

ilename	State	^
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1PT	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1PT	1 Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Crit 6xx All Attributes/Port 1/P1PT	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnl 6xx All Athibutes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnl 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Ent 6xx All Attributes/Port 1/P1PT	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnl 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1PT	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Port 1/P1P1	1. Uncompressed	
EC/EQP Regress 3-Crit 6xx All Attributes/Prefs.prf	Uncompressed	
EC/EQP Regress 3-Cnt 6xx All Attributes/Sounds/1.w	av Uncompressed	1
EC/EQP Regress 3 Cnt 6xx All Attributes/UD ata opt	Uncompressed	×

NOTE

Use the "Restore" feature for situations where a S³ project created on one workstation needs to be opened on a secondary workstation.

OPC SERVER



S³ 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 in S³

The OPC option for S³ 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 S³ becomes a "Version 2.03 Data Access Server" to make available, under user configuration, any information being tracked by the S³ event handling database.

The S³ 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.

Rots	C Server Configurat	/ Type		(Pot.	Point	10	Dumel	State	-	references
	Controller	COP Complex			1	1	255	Inactive	0	
	Cth-Ing-1	EQP Controller Input		1	1	1	1	Inactive		
	Cth-live-2	EQP Controller Input		3	1		2	Inactive		
	Cth-ing-3	EQP Controller input		1	1	1	3	Inactive		
	Cti-log-4	EQP Controller Input			1		4	Inactive		
	Ctilling-5	EQP Controller Input		1		1.	5	Inactive		
	C0-Irg-6	EQP Controlles Input		- 1			6	Inactive		
	Cit-lag-7	EQP Controller Input		1	1 C		7	Inactive		
	C0-ing-8	EQP Controller Input		1	1	1	0	Inactive		200
	603,45-25	Point IR Gas Detector/PIREC	1,654.	1	25	1.1	255	Inactive	1.9	100 A 10
	EDID-5-24	8 Channel EDIO SIL		1	.24	1	255	Inactive		
	EDIO-5-27	8 Channel EDIO 58.		1	27	1	255	Inactive		and a state of the
	EDID-5-28	8 Channel EDIO 54L		1	28		255	Inactive .		Contraction of the local division of the loc
Sackup/Restore	EDID-5-29	0 Channel EDIO SIL		1	29		255	Inactive		aphics Editor
STATE CALCULATION.	Clarsh Open	A A Ment OIG3		1	24		1	Inactive	10	ALL A LOCAL
	ClassA Open 5	A A tugel OIG3		1	24		3	Inactive		
	E Classik-UnMon	EDIO Input A A		- 1	24	- 10		Inactive		
	3-Classill-Open	EDIO Inext		1	24		5	Inactive	141	
) Classill Open S	EDIO Input		,	.24			Inactive	10	
	Pier	Properties Activate	D	eactivate	1	1	04.	Cancel	11	
-		∆ DE1	TR	ONI	CS			12		STOP

NOTE

For the S³ server to function, the S³ hardware key must have the OPC server function enabled.

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 S³ tag name database. All of the points in this tag name database are automatically set up by S³ 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. To make a tagname available to OPC Clients, select the tagname and click on the "Activate" button.

Tagname	/ Type	Port	Point	1/0	Channel	State	
Controller	EQP Controller				255	Inaclive	1
Dir-Inp-1	EQP Controller Input	1	1	1	1	Inactive	
Oth-Inp-2	EQP Controller Input	1	1	1	2	Inactive	
Ctk-Inp-3	EQP Controller Input	1	1	1	3	Inactive	
Ctl-Inp-4	EQP Controller Input	1	1	1	4	Inactive	
Ctk-Inp-5	EQP Controller Input	1	1	1	5	Inactive	
Ctk-Inp-6	EQP Controller Input	1	1	1	6	Inactive	
Ctk-Inp-7	EQP Controller Input	1	1	1	7	Inactive	
Cli-Inp-8	EQP Controller Input	1	1	.1	8	Inactive	
ECL-S-25	Point IB Gas Detector(PIRECL)SIL	1	25	1	255	Inactive	
EDIO-5-24	8 Channel EDIO SIL	1	24	1	255	Inactive	
EDIO-S-27	8 Channel EDIO SIL	1	27	1	255	Inactive	
EDIO-S-28	8 Channel EDIO SIL	1	28	1	255	Inactive	
EDIO-5-29	8 Channel EDIO SIL	1	29	1	255	Inactive	
I-ClassA-Open	EDIO Input A-A	1	24	1	1	Inactive	
I-ClassA-Open-S	EDIO Input A-A	1	24	1	37	Inactive	
I-ClassA-UnMon	EDIO Input A-A	1	24	1	7	Inactive	
I ClassB Open	EDIO Input	1	24	1	5	Inactive	
ClassB-Open-S	EDID Input	1	24	1	6	Inactive	

In the example to the left, the EQP Controller is selected. Its tagname is "Controller", it originates at S³ port 1 point 1, is an "I" (input), and has an OPC State of "Inactive".

This is a "top level" view of the devices and their status. In the above example this single point "Controller" 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.

Extension	Description	Variant Type	Item ID	^
DECS	DEC Device State	VT_14	6501	
ITD	Item Description	VT_0STR	101	
TIMEDATE	Current Date/Time	VT_DATE	6536	
FA	Fire Alarm	VT_BOOL	5058	
QL1T	Trouble	VT_BOOL	5076	
FIRSTSCAN	First Scan	VT_800L	6537	1
HGASALA	High Gas Alam	VT_800L	6503	
LGASALA	Low Gas Alarm	VT_BOOL	6504	
QL1A	Acknowledge	VT_BOOL	5078	18
QL1SIL	Silence	VT_800L	5079	
QL2PMA	Program Mode Active	VT_800L	5005	
QL1S	Supervisory	VT_800L	5077	
EXTRADEVICE	Extra LON Device	VT_800L	6539	
LERRNUM	Logic Error Reference Number	VT_14	6540	
WRGDEVTPE	Wrong Device Type	VT_BOOL	6538	
LERRCODE	Logic Error Code	VT_14	6541	
MEMFAULT	Memory Fault	VT_800L	6515	
RTCFAULT	Real Time Clock Fault	VT_BOOL	6542	
LONGFAULT	LON Ground Fault	VT_BOOL	6543	*
Print	Esport		OK	_ 1

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

These properties were configured automatically by S³ 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 devices will have far less available data.

NOTE

Individual properties of an "Active" device cannot be made inactive.

NOTE

OPC Clients: In order for OPC clients to be able to connect to the S³ OPC Server, S³ must be installed on the client machine, but not running and no hardware key is necessary.

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USER LOG IN & OUT/ACCOUNTS 10-1



Security

These buttons are part of the S³ security system. The "Log In/Out" button is used to log in or change users, the "User Accounts" button allows the system administrator to create or modify user accounts. User accounts are specific to each project and multiple users can have access to one project.

S³ 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 S³ system administrator.

1
1
Exit

Selecting the "User Log In/Out" button will display the user selection screen. The administrator account is automatically created by the system and cannot be deleted.

10-2 USER LOG IN & OUT/ACCOUNTS

Administrator Privileges

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 password for his/her own account.

NOTE

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.

User:	Administrator
	Configure system enabled
	Quit "Online" operations enabled
	Port Diagnostics" viewing enabled
	F Restricted Access enabled
	User Level 65535 0 - 65535
Nev	v Select Delete
Passw	ord Change Name

To set up or modify user account parameters, click on the "User Accounts" button on the main screen. This will open the "User settings..." dialog box. 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 he/she is able to access diagnostics or configuration utilities and a "restricted access" mode for viewing but not changing configuration data.

Creating User Accounts

To create a new user, select the "New" button from the "User Settings" dialog box (see previous page). The user selection screen will appear, then select any blank button to be configured as a new user

Administrator		
		-
		-
		_
		_
		- 3
		_
		-
		_
f		
	Exit	

This will display a dialog box for entering the new users name. Enter the name of the new user, in the example below "Operator" was chosen.

User settings		
User:	Administrator	
Enter us	er name	
Øperat	OK Cancel]
Ne	w Select	Delete
Pass	vord	ange Name
	ок	

10-4 USER LOG IN & OUT/ACCOUNTS

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

User:	Administrator
	Configure system enabled
	🔽 Quit "Online" operations enabled
	Port Diagnostics'' viewing enabled
	Firestricted Access enabled
	It I Frence a const
	User Level 65535 0 - 65535
Nev	v Select Delete
Nev	V Select Delete
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 S³ 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 S³ 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 S³ main screen for access to the various engineering and maintenance utilities.

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.

ser settings	EQP View Only
0361.	
	Configure system enabled
	☑ Quit "Online" operations enabled
	"Port Diagnostics" viewing enabled
	Restricted Access enabled
	User Level 0 0 - 65535
New	Select Delete
Passwo	Change Name
	ок

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 S³ features.

10-6 USER LOG IN & OUT/ACCOUNTS

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

User:	EQP	View Only	1	
	🔽 Config	gure system ena	bled	
	🔽 Quit "	Online'' operati	ons enabled	
	T "Port	Diagnostics" vi	ewing enabled	
	🔽 Restri	icted Access er	abled	
	User Le			
	User Le	vei lo	0 - 65535	
Nev	, 1.	Select	Delete	8
				iii ooso
Passw	ord		Change N	ame

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.

Passwords

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.

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.

Password Dialog		
Enter password		
J		
Verify password		
	K Cancel	

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.



EQP Configuration

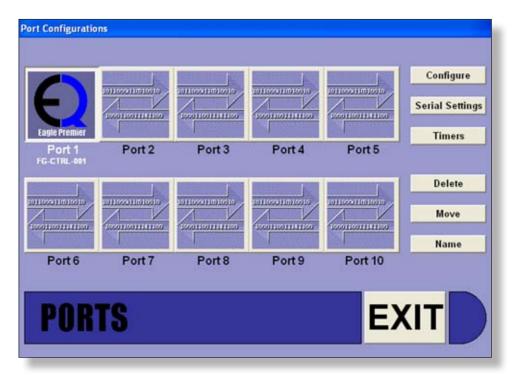
One of the supported communication port types is for the Detector Electronics Corporation "Eagle Quantum Premier" fire & gas system.

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.

NOTE

Prior to configuration, ensure communication with the Eagle Quantum Premier controller is established. Reference the "Ports" (Section 3) area of this users guide on establishing serial communications.



Enter the Eagle Quantum Premier 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 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™) on which all of the field devices reside and the lower area which contains context sensitive buttons for accessing features and performing functions.

	n.								
		Scisper-6 X23			W/IR-10		CO-LL MAR		LOUIS CO
Titals.	COLUMN STATE			ALTI-22	40 	11	12 1 9600-19 88-		18 ch 000-14 Auto
	Le contra de la co		23	11	44	20	19 1		14
									Configuration
vices Faurd	Get Revision) Globafs	Point Display	Reset Module		Алтапде	Οιερίαγ Τηρε	Pasta	Сол.Га учигия з
vices Fixed	Get Kevision Get RTC	Globals LON Diagnostic		Reset Module Set RTC		Arrange Copy	Display Type Find	Pasta Point Celor	Const S gran an 3

On a new loop, as represented in the sample above (in blue), 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 create, query or directly manipulate LON devices.

The Configuration Bar is used to create, duplicate or delete devices and to reconcile their physical and logical LON addresses.

Devices Found Get Revision Reset Module Globals Point Display Download Get RTC LON Diagnostic Point Address Set RTC Get Voltages Edit Upload Outputs Print

Arrange Copy

nfiguratio **Display Type** Paste Point Color Find Delete New Device Controller Log Exit

The functionality of each button is described on the following pages.

Command Bar Overview

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 S³ to be displayed.

evices 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.

Tegrater Maceloneous Text	Device Type	
Crit EQP R 7 Online S3/51xx 2007/	Controller Kov 23/2008 Apr 04	CH 6.62
D00-5	DCIO EQ3700	
Ecigoe-6	PIREOL	
x3301-7	MR X3301	
Pw/Supply-B	PSM E0,2100	
UV-9	UV E02200	
UV/IR-10	UMR EQ2200	

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11-4 EAGLE QUANTUM PREMIER CONFIG.

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.

700	0010-5	Scispse-6	00001-7 Pers		007718-100					1010125-010
Strole .	4		7	• •	40	11	42	13	24	28
	42	41	40 11	H-23 AIM-22	21	20	18 9600-19	1901		DCU-16 Auto
		09355-27	40	£8		10		_	11	II
		27								
_										
		Revisions.								
		Status	Consided revision	milecton \$/23/200814	4.03 PM					
		Point #	Tagname		Revisi	0/9	Version	1		
		1	Cnt		Crit 61	62	6.620			
L										
L										
								100		
			Piet	Export		OK.	Canal			
										Configuration
Devices Found	Get Revisi	on Globals	Point Disp	lay Reset Module		Arran	ge Displa	у Туре	Paste	
Download	Get RTC	LON Diagno	stic Point Addr	ess Set RTC		Cop	r r	nd.	Point Color	
Edit	Get Voltag	es Outputs	Pyint	Upload		Delet	New I	Device	Controller Log	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.

NOTE All devices have revision values, but not all devices will have version values

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.

Tagnase No:	itored Type	TAD	INCENTITY &
		SCHROE	
		UNITS	
		MISC	ACTION
		TYPE.	And the state
		MALLE	
		0000	AUTO CLEAR
		ACTIVE COLOR	ALARM WINDOW
		INACTIVE COLOR	PRINTER
6			TRIGGER
EDIT	DELETE SEARCH CHECK		EXIT

NOTE

Global memory points **cannot** 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.

			Cicibal Tags		
	Tagolane Rocen-Fabol	MON Restored Ti Pooless	Tapare Tapare MCOPFARE MCOPFARE	Tee Booleen Booleen	
roises found	Cet Revision	Globale	Point Display	Reset Hodyle	DK Caroli Arrange C
Duwnload	Get RTC	LON Diagnostic	Point Address	Set RTC	Copy

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11-6 EAGLE QUANTUM PREMIER CONFIG.

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.

MCOP-FA001	Change	Contine	Tier Point No	unber 1 OK
: Main Crude Oil Pag	Roos - 115-200 Fee-Disch Alem Condition (* Transition Co	₽ Pinter (* Logio Diak	Acher Nama Stack I Stack Sound	3
	C Transition Of Name (RCOP-FACOL	FR200 FreAlaca		
	Accesses in a			

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.

	Range -32768_1 Units T	2767				
Indian Name		Analog Comparison Sek	Range - 32768 32767	G EL Sound	Activa	Name
None		C = Equil		T Tune		· Black 3
None		C O Not Equal	Value M	- F Sone	• Black	. Black
None		C > Greater than		- None	· Black	· Black
None		⊂ [] In Bange ⊂ 11 Out Bange	Value D	T None	· Black	. Black
None		, If on wards		- [Sone	· Black	. Black
		Heb	OK Cancel	[
		-		-		

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.

The event configuration consists of selecting where the event is to be tracked (Printer, Disk, Alarm Window), whether it will automatically 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.

Printer	Active	Normal
Log to Disk	Black I	Black 💌
Alarm Window	Sound	
Auto Clear	None	-
Trigger Fault		10 miles

There is also an option to allow the event to "trigger a fault".



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11-8 EAGLE QUANTUM PREMIER CONFIG.

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.

gname:	MCOP-PDA-1	Cha	nge	Previo	us <u>N</u> ext	
Misc:	MCOP Pre-Discha	rge Elapsed	Time			
		Range :	-32768 32	2767		
		Units	X			
				Analog Comparison Sele	ction	×
Condi	tion Name			Comparison	Range: -32768 32767	L.
Non				C = Equal		F
Non	e			C O Not Equal	Value	-
Non	e			C < Less than C > Greater than		-
Non	e			C [] In Range	Value 0	-
	e			C][Out Range		1

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.

The logical operators for comparison are self explanatory and selected by radio button. Most have a single value entry field.

The "In Range" and "Out Range" operators have two value entry fields to define the desired range.

Comparison • None	Range: -32768 32767
a Equal	
ି <> Not Equal	Value
C < Less than	
> Greater than	
🤉 [] In Range	Value 0
][Out Range	0.000

Once the event name is entered and the comparison configured, the event tracking configuration is set up using the check boxes and menus to the right of the event name.

The five checkbox selections are defined below:

- P: Printer (Tractor feed event printer)
- D: Disk (Daily log file)
- W: Window (One line FIFO display)

AC: Auto Clear (Event directly tracks the "raw" data state and doesn't require operator acknowledgement)

P D W AC FL Sound Active Normal * Red • Green • V V V V V Warning • Black • Black • FFFF None · Black · Black · None FFF · Black · Black · None - -· Black · Black · ГГГГ None

FL: Fault (Designates the event to be considered a fault instead of an alarm).

kog		1										
name MC	OP-PDA-1 Overge Brevious	Jet.				P	tint Number 2		_		DH:	
Mac Mco	F Fre-Discharge Elapsed Time											
	Plange: 32768_32767 Units (11)											
Condition	Name	,	0	W	AC.	FL.	ined		Actor		Name	
328	50 Seconde remaining						Warning		Ded	•	Green	
None			r	r.	т.	e)	Rine	*	Black	•	Black	
None			г	-	Г	-	None	*	Black	•	Black	
None		r	٢	г	F	-	None	*	Black	•	Black	
None	1	r	г	г	F	-	None		Black		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 event will automatically clear.

Selecting a "Monitored Global" display its associated configuration data in the "Configuration" pane to the right of the globals list.

# Tagnase 1 NCOP-FAO 2 HCOP-FDA 3	AD SOURCE UNTS MSC	MCOP-PDA-1 INTEGER % BANGE MCOP Pre-Discharge Elap	-32768 32767 ved Time	
5 6 7	TIPE VALUE SOUND	GREATER THAN 29.0 WARNING	AUTO CLEAR	1 of
8- 9 10 11		E COLOR TVE COLOR		111

This provides "at a glance" a complete configuration overview of the selected global.

11-10 EAGLE QUANTUM PREMIER CONFIG.

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 device point display, select the device from the LON schematic by single clicking on it. It will highlight 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 the following example, a Point IR Gas Detector (PIRECL) is selected.

		INP	UT TRAC	KING				ALA	RM LOG	s
100						ALARM 1				
10						ALARM 7				
						ALAIM3				
2						ALARM I				
-						ALAIMS				
4						ALARM 6				
						ALAUM T				
						ALAIME				
10 10 10 10 10 10 10 10 10 10 10 10 10 1	1.2.1		en es la	45. (62)		RECORD	TIME	DATE	THREE	
HIDC: LOCATION: Purt HAUNES IN			Cour Pearine		E TYPE:	Eclipse		TAG:Eclips	ie-6	
Close a Remarked			ON A CAMPAGE CON			Manual Come	1700			
Then Flams		1.0	oni III Essente Cell Nati a Cellera			Warning		~ ~	ALC: NO	
Writing Device Table						Ciper Lines LON CPU Me		1.4	level in	164
Menary Fault		- 23	100		1.1	Ripper Gerre #		Def	alle store	100
Ten Det			ermin Field. Alteration Active							
Read Configuration									ALLACE	ab de
7.62			ellen anne 1° ann anne Viel age 1° a Ma Castara						1	14.111
Challe to Cardgee										
	CA	LIBRAT	ION HIST	TORY				TEMP	ERATURE	E
CAL-1										
CAL-2										
CAL 3						0/	0	01		
CAL-4							0	0		
CAL-5										
CAL-6						°(-4	15	-1	5	
CAL.7										
CAL.B										
RECORD	TIME	DATE								

Both configuration and dynamic information for the device are 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 no "watchdog timeout" will be displayed for the selected point. Simulated data is only displayed if no hardware key is installed.

In the example below Node 1, the Controller (EQ3001) is selected.



When the "Point Display" button in the command bar is selected a point display template specific to the controller is brought up.

Point displays are very useful in determining the status of the device, for resetting faults, inhibiting functions, checking calibration and alarm histories, and in the case of the controller, the faceplates' scrolling text display is simulated.

CATENL	DED DIAGNOSTICS		DISPLAY
LON A COUNTER LON 8 COUNTER LOGIC ERROR REFERENCE NUMB LOGIC ERROR CODE USER LOGIC SCAN TIME (m) REDUNDANCY FAULT CODE	BER 2000 2000 2000 2000 2000 2000 2000 20	Tere Alarm Trouble brit High Gae Cristi TR Dulput Low Gas LOR Fault Achore Cancel Enter Next Previous TR	whibit Supervisory
: EOP R. 7-Online S3-S1ck 2007-Nov-25/ VIION: Port Port1 Node 1 Extra LON Device Annory Fault RTC Fault ON Ground Fault	Prepareit controller data & DEVICE I Device Download Active Power Fail 1 Logic Engine Fault	(PE: Controller TAG	Cnt
invalid Configuration:	Redundancy Fault RS405 Ground Fault Communication Option Bland Fault Lon Overload Fault Wong Device Type LOR Pattern Test		Ed
LON B Interface Fault Option Board Fault would Configuration Program Mide LON Fault	R5405 Ground Fault Communication Option Board Fault Lon Ownfroad Fault Wrong Derice Type LON Pattern Test INPUTS		RELAYS
LON 8 Interface Fault Option Bound Fault Program Mode LON Fault InputReset	R5405 Ground Fault Communication Option Board Fault Lon Owned Fault Wrong Derice Type LON Pattern Test NPUTS INFUTS Pride	RelayFire	RELAYS
LON Bitterface Fault Option Board Fault Program Mole LON Fault InputReset InputReset InputReset	R5455 Ground Fault Communication Option Board Fault Lon Overload Fault Wong Danice Type LON Pattern Test NPUTS INPUTS Intellifto Indu	RelaySuper DIACTIVE	RELAYS IVID
LCN B Nord Fault Optim Bourd Fault Program Mole LON Fault InputReset BAAC InputReset MAC InputSilence MAC	RS455 Ground Fault Communication Option Based Fault Lon Overload Fault Wrong Davice Type LONR Patterm Test RVPUTSS CTVVE INVESTIGN Proba Type Bitter Piete Total Type Bitter Piete	RelaySuper DUACTIVE RelayLowGes DUACTIVE	RELAYS Print Price Print Price Print Price Print Price
LCN B Interface Fault Option Bourd Fault Insuid Candynation Program Mede LON Fault InputReset RAC InputReset RAC InputSilence MAC InputSilence RAC	RS455 Ground Fault Communication Option Based Fault Lon Overload Fault Wrong Davice Type LONR Pattern Test INPUTS INPUTS Investmitre Inv	RelaySuper DUACTIVE RelayLowGas DUACTIVE RelayHighGas DUACTIVE	RELAYS Internet Protection Internet Protection Internet Protection
LCN B Interface Fault Option Bower Fault Program Mede LCN Fault InputReset PAC InputSilence PAC InputSilence PAC InputSilence PAC	RS455 Ground Fault Communication Option Based Fault Lon Overload Fault Whong Dance Type LOR Pattern Test Probe TWO Problem Test Problem CTWE Problem Test Problem CTWE Problem CTWE Problem	RelaySuper INACTIVE RelayLowGas INACTIVE RelayHighGas INACTIVE RelayInhibit INACTIVE	RELAYS Bridd Brid Bri
LCN B hiterlace Fault Option Bower Fault Program Mede LCN Fault InputReset PAAC InputReset PAAC InputReset PAAC InputReset PAAC InputReset PAAC InputReset PAAC	RS455 Ground Fault Communication Option Based Fault Lon Overload Fault Woong Dence Type LOR Pattern Test ELOR Pattern Te	RelaySuper INACTIVE RelayLawGas INACTIVE RelayInghGas INACTIVE RelayInghBit INACTIVE RelayOutputnihibit INACTIVE	RELAYS Brian
LON B htterface Fault Option Bourd Fault Program Mode LON Fault InputReset PARA InputReset PARA InputReset PARA InputReset PARA InputReset PARA InputReset PARA InputReset PARA InputReset PARA InputReset PARA	RS455 Ground Fault Communication Option Based Fault Lon Overload Fault Woong Dence Type LORE Pattern Test Internet CTVC Internet CTVC Internet	RelaySuper INACTIVE RelayLowGas INACTIVE RelayHighGas INACTIVE RelayInhibit INACTIVE	RELAYS Bridd Brid

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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	Cet 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.

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.

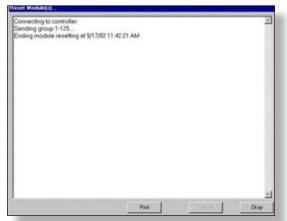
To send configuration data to the devices on the LON, choose "Download". This will cause S³ to sequentially download the configuration of all nodes, starting with LON address 1 and ending with the last configured node.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Get RTC

Requests the "Real Time Clock" data from the controller.

					Get Module Real time clock
Devices Found	Get Revision	Globals	Point Display	Reset Module	Starting RTC collection at Tuesday, September, 17, 2002,11 31-18.132
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Connecting to controller. Beginning collection. Fletured Time: 9/17/2211.32:17 AM
Edit	Get Voltages	Outputs	Print	Upload	Ending RTC collection at Tuesday: September, 17, 2002,11:31.18:302
to its internal of the S ³ stati	clock. Verition for accurate version for accurate version of the set RTC content of the set RTC content of the set set set set set set set set set se	e current date fy this date a acy. If it is no ommand desc	nd time aga ot the same a	inst that is the S ³	Pet



LON Diagnostic

Displays a graphic "LON Schematic" displaying dynamic information about the LON and the devices residing on 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

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.

	-964 196-618	11 EQ-111	W18-811 848-814	AMPRIL PROPERTY	WHE-ALL CONTENTS
_					
-					
1					
0					
L					
8					
L					
0					
L					
E Com 1 Fault		LON A COUNTER	E88888888		
Com 2 Fault LON A, Device	Ottine	LON B COUNTER	68888888	6	
ELON B, Device Device Offine	Offline	Tagramer		Distant Tram	14
		Hicolannar -			

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 number (LON address) displayed in the lower section.

EQP-CTR-001	FGI0-005	IDC-010	H2S-011	EXE-012	UVIR-
1	5	10	11	12	13

Using the "Display Type" button the node number in the lower section can be replaced with the device type.

teset Module
Display Type
)isplay Type

NOTE Use of this display requires proper setup of the "LON ORDER" screen prior to the use of this display.

IDC-001	SAM-001	ARM-00
IDC	SAM	ARM

This button is a "toggle" and will change name following activation to indicate what its function will be on its next activation.



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Diagnostic data is displayed to two ways on the display, through the color of the rectangle defining each node, and through indicators and counters at the bottom of the screen.

2 00	EXE-012	H2S-011	IDC-010	FGI0-005	EQP-CTR-001
	12	11	10	5	1
	12	11	10	5	1

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 processing 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 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.



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 highlighted, click on the "Point Address" button and the "Enter new point address" dialog box will appear. Enter the desired new node number and the click on the "OK" button.

System Coefig	CONTRACTOR OF THE OWNER OF THE OWNER OF	THE REAL PROPERTY AND	manufacture all	and the second second				W. HIL STONE	_101
Trodis	519-5 8e 5 		i-1 Perlegai		09/19-10 10 X1200-21 0 23	190-11 B 11 Mot200-20 18 20	12 438- 12 17 900-19 95-1 19 18		800-15 0x 13 5 000-14 Auto 16
				r new point addre		-			
				nge 5-250					
				05	Cancel				
									Configurati
							Statute and and	20025 01	
vices Found	Get Revision	Globals	Point Display	Reset Module		Arrange	Display Type	Paste	
evices Found Download	Get Revision Get RTC	Globals LON Diagnostic	Point Display Point Address	Recet Module Set RTC		Arrange Copy	Find	Paste Point Color	

Set RTC

Sends the current date and time of the S³ 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 is important to verify the proper time on the PC and then match the clock used by S³ station for event monitoring and tracking.

evices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

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Edit

Selecting the "Edit" button displays the detailed configuration data for a single selected node. To enter the edit mode for a particular node double-click on the rectangle representing the node on the LON schematic.

Devices Found	Get Revision	Globals	Point Display	Reset Module
Download	Get RTC	LON Diagnostic	Point Address	Set RTC
Edit	Get Voltages	Outputs	Print	Upload

Below is an example of the controller configuration screen. Detailed examples of node editing, for each device, will be shown in the Premier Device Configuration section of this document.

MISC: EQP R	egress 3-Cnt 6xx Al	1 Attributes 200	7-Hay-18	
Configuration Port Baud Rate 115.200	Senal Port Protocol Baud Rate	MODBUS Slave •	cs Eagle Quantum Premier	Option Board Type ControlNet 💌
Parity None Redundancy	Paily Addess Miscelane Beepe	0dd ▼ 2 ± out		ControlNet 15 Pitmary Mac Address N/A Secondary
Communication Option Box	ed	User Parameters	Display Traditional	I ^{GF} SIL Controller
Type Type A	Senal Port Photocol Baud Rah Parity	MODBUS Master	Senial Port 3 Protocol SP Baud Rate 230,400 Parky Even Addoms 1	Senial Port 4 Protocol MODBUS Slave Baud Rate 38,400 Parity Odd Addess 3
		, 2		

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.

Rep-CTR-001 PC10-005 E1C-010 H28-0	011 0 001-012 00718-013 0 04H-014 13.64 12: 27.17 13 14: 27.56	ARM-015 ECL-014 UWFD-022 TIB-024	-
		AT	
			_
			_
r			
			_
<u></u>			
		Country of National L	
		Pres	
	Wite executed	2.8	-
	Tagrame Mocelaneoux	Ci	

Certain previous generation Eagle Quantum field devices may not be compatible with this command.

EXE-012 12: 23.19	UVIR-013	SAM-01	4	AR	1-015	ECI	L-016	UVFD-022
12: 23.19	13	14: 23.	. 60	15:	23.42	16:	22.95	22

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 are older styles, therefore a UVIR and UV optical flame detector cannot support this feature and only display their node number.

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Outputs

Tags linked to commands to be sent to the controller or field devices on the LON are configured here.

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 "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.

Attack of the Party of the Part	UV-8 9 10 10 12 12 11 11 11 11 11 11 11 11 11 11 11	BC-11 PC9- 11 11 998/2260-28 18 910 20 19	10-10 III III	348-14 14 Pt. Week 17	300-15 88 35 000-16 Auto 16
Taginame Source Taginame		0 RCE MARD TO HISTORI	ACTON	IGURAT	
10 31 EDIT COPY PASTE DELETE SEARCH O	U CHECK				Ехит

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.

fing is		235974-45 6 1919451878 80	7 7 8000-00 10	2001200230 0 12000230 23		07/13-10 10 	10C-11 D 11 0W1206-20 18 20	CU-12 ART- 12 13 5000-13 57-1 15 18	14 18	200-15 0x 15 h 200-16 Auto 16
	1	put fator agname	2Yeard						GÚR,	ATION
# 1 2 3 4 5 6 7 8 9 10 11 11	Ingnase	type C Sir III C Trapic III C SerVate C SerVate C Ant Use			ontroller igital inguts tobal Booken tobal Foot kobal Inseger tobal Inseger tobal Inseger of H elays		Exp	nge All ngl All		EXIT
								Cav	od _	
vices Found	Get Revision	Globals	Per	nt Display	Reset Module		Arrange	Display Type	Pasta	Configuratio
Download	Get RTC	LON Diegn	ostic Poir	it Address	Set RTC		Серу	Find	Foint Color	
Edit	Get Voltages	Outputs		Print	Upload		Delete	New Device	Controller Log	Exit

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 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.

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Below is the Output Editor dialog box just after opening. A random, unique tagname is generated by default by S³.

Jutput Editor		
Tagname: 27esuv Misc:		
Type C Set Bit C Reset Bit C Toggle Bit C Set Value C Set Value C Ask User N/A	Controller Digital Inputs Global Boolean Global Double Global Float Global Integer Global Integer Global Time/Date LON Relays	Collarpe All Expand All
		Log to History
		DK. 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 to the right, 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.

Controller	^
 Activate Acknowledge 	
Activate Silence	
Reset	
 Digital Inputs 	
🛨 Global Boolean	
- Global Double	
- Global Float	
主 Global Integer	
- Global Time/Date	
- IC Boolean	
- IC Double	
- IC Float	
- IC Integer	
-IC Time/Date	
+ LON	
1	×

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.

Tagname: md			
Misc:			
Log to History	Controller Activate Acknowledge Activate Silence Reset Global Boolean Global Float Global Integer Global Itime/Date IC Boolean IC Double IC Float IC Integer IC Time/Date IC Time/Date IC Time/Date IC Time/Date		Collespe All Expand All
1 Log to History	₽ LON	~	

Next, create the tagname and miscellaneous comments and select "Log to History" to complete the configuration.

Fagname:	Ack-CTR-0	01	
Misc:	Acknowled	ge Cmd. to Controller	
₩ Log	to History	Controller Activate Acknowledge Activate Silence Reset Digital Inputs Global Boolean Global Float Global Float Global Integer Global Integer IC Boolean IC Double IC Float IC Float IC Integer IC Time/Date IC Integer IC In	Collaspe All Expand All

When the configuration is complete, select the "OK" button in the lower right of the dialog box.

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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.

Tagname Source Tagname Akknowledge	TRO Ack-CTR-001 MEC Acknowledge Cmd. to Controller
2	MISC Advantations Cred to Controller
	SOURCE EQP-CTR-001 Activate Acknowledge
4	
5	Arrest
6	LOG TO HISTORY TRUE
7	Loss romania mar
9	
10	
11:	

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.

Tagname:	FkuPaPaYWF	
Misc:		
[[™] Log t	Controller Digital Inputs Global Boolean Global Ploat Global Integer IC Boolean IC Double IC Float IC Float IC Float IC Time/Date Relays o History	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.

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:	FkuPaPaY	(F	
Misc:			
☐ Log t	o History	IC Double IC Float IC Integer IC Time/Date ARM-015 ECL-016 ECL-016 ECL-016 ECL-012 FGID-005 H2S-011 ECL-010 SAM-014 TIR-024 UVFD-022 UVFR-013 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".

Tagname:	FkuPaPaY	NE		
Misc:	1			
	to History	IC Double IC Float IC Integer IC Time/Date LON Perice Removed Reset ECL016 ECL016 ECL016 ECL012 FGI0-005 H2S-011 H2S-011 ECL010 SAM-014 TIR-024 UVFD-022	~	Collaspe All Expand All

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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.

MISC: Reset Cmd. to ARM-015	-	-		
IC Double IC Float IC Integer IC Time/Date E LON ARM-015 Device Removed EECL-016 E ECL-016 E ECL-016 E ECL-016 E EXE-012 E FGI0-005 E H2S-011 E IDC-010 E SAM-014 E IDR-024	Tagname:	Rst-ARM-015	5	
IC Float IC linteger IC Time/Date LON ARM-015 Device Removed Reset # ECL-016 # EXE-012 # FGI0-005 # H2S-011 # IDC/010 # SAM-014 # IB-024	Misc:	Reset Cmd.	to ARM-015	
I Log to History UVFD-022	I⊽ Logt	o History	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	

Then select the "OK" button in the lower right of the dialog box to complete the configurations entry into the database.

	Tegname	Source Tagname	6	the second s	ENTRY .
	Ack-CTR-001	EQP-CTR-001.Activate Acknowledge	TAG	Rst-ARM-015	
2	Ret-ARM-015	ARM-015.Repet	MSC:	Reset Cmd. to ARM-01	5
			SCURCE	ARM-015 Reset	
					and a second sec
6			LOG TO H	STORY TRUE	
7				CITATIN THAT	
e					
9					
10					
11					
		PASTE DELETE SEARCH CHE			EXIT

This completes the configuration of the first two output "slots".

Example 3 involves creating an output to initiate a manual Optical Integrity (Oi) test on a UVIR optical fire detector. This output will be configured in output slot #3.

Tagname: Misc:	01-UVIR-013					
	Manual Oi Test UVIR-013					
F⊽ Log	to History	IC Integer IC Time/Date E LON # ARM-015 # ECL-016 # EXE-012 # FGI0-005 # H2S-011 # IDC-010 # SAM-014 TIR-024 # UVFD-022 # UVIR-013 Device Removed Reset Start Manual D/ Test		Collaspe All Expand All		
[₽ Log I	to History	TIR-024 UVFD-022 UVIR-013 Device Removed Reset		ОК		

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.

	Tegname	Source Tagname	6	CONTRACTOR OF CONTRACTOR
	Ack-CTR-001		TAG	Oi-UMR-013
	Rat-ARM-015		MSC	Manual Oi Test UVIR-013
	01-0VIR-013	UVIR-013.Start Manual Oi Test	SOURCE	UVIR-013 Start Manual Or Test
				A PROVIDENCE
			100701	STORY TRUE
			2000 TW 1	Saluty Hot.
			. · ·	
i7	COPY	PASTE DELETE SEARCH CHEC	× .	EXI

The three examples for output tags are now complete and the configuration information is displayed on the "Outputs Configuration" screen.

11-26 EAGLE QUANTUM PREMIER CONFIG.

Output Configuration Screen Details

The left hand pane uses a scrolling list with three columns to display the configured outputs and allow for their editing.

				001	PUTS
ŧ	Tagname	Source Tag	name		^
1	Ack-CTR-001	EQP-CTR-00	1.Activat	e Acknowle	dge 🧾
2	Rst-ARM-015	ARM-015.Re	eset		
3	O1-UVIR-013	UVIR-013.5	Start Manu	al Oi Test	
4					
5					
6					
7					
8					
9					
10					
11					*
E	OIT COPY	PASTE	DELETE	SEARCH	CHECK

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 S³ 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 highlighted 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 erases a slots configuration. This function is not "reversible" so use with caution.

Search allows for locating matching text strings to quickly find a desired slot for viewing or editing, since thousands of outputs can be configured.

Check is primarily used following editing of the LON configuration to verify that all configured outputs are still linked to valid items in the database.

Print

Allows for the select printing of configuration information for the controller, field devices and database for documentation purposes.

evices Found	Get Revision	Globals	Point Display	Reset Module
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.

			inter antiqui	and particular states			Sinte attac	i and the second	Hitelate H Hitelate H
	Subject 15	e pometo to print,.						*	
	238 238 238 238 238 239			Dates		Uniter			
		10 00000000000000000000000000000000000		Sec.4]_Deeler.10	1	na Al Denina	<u>M</u>	
					·				Independent
Devices Paulod	Get Revision	Orden	Point Display	Reast Module		Anange	Display Type	Parts	
Dowitted	Get Witages	UDA Diegnostic Ovtputs	Post Address Post	Set KTC United		Citor Delete	Field New Device	Fort Calor Controller Log	0.0

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 "PDF" format by using the checkbox in the lower left of the dialog box.

11-28 EAGLE QUANTUM PREMIER CONFIG.

Upload

Queries the controller for its configuration and if a complete configuration was properly stored, it will be uploaded and saved to a newly created project (refer to section 8-5 in regards to creating a new project). 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

The "Upload" command is typically used when attaching an S³ station to an existing system for which there is no existing database on the S³ station.

Configuration Bar

The configuration bar has eight buttons, each of which is used in the configuration of the LON and creation of LON devices.

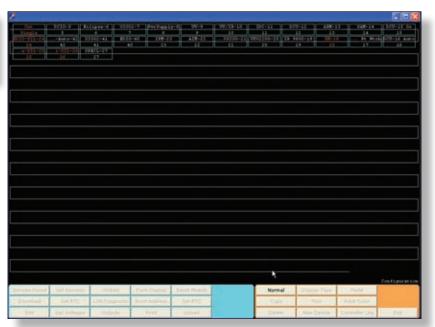
Arrange	Display Type	Paste	
Сору	Find	Point Color	
Delete	New Device	Controller Log	Exit

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.

IC	Arrange	Display Type	Paste
	Серу	Find	Point Color
Г	Delete	New Device	Controller Log

This must be done to optimize the functionality of the LON diagnostic screen. On the example network schematic shown on the right the node order is shown numerically. Node 1 being the controller, followed sequentially by nodes 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.



EAGLE QUANTUM PREMIER CONFIG. 11-29

The "Arrange" button allows movement of 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.

Tingle Bill-Silv-14	42	11400000 - 12120 1212-01 - 1012	-40	ALAL	LT NEADERLE IN	11 11 10 10 10 10	0-12 AND-1 AZ AD 001-13 INCL 19 IN	14 11 Pr. Mr.	11 11 12 12 13 14 14
41	al a	12:32-17							
						*		_	Configuration
Eddenis Provid	Gat Agenden	United in the second se	Robert Display	Added Produce		Normal	Doublet Tape 1	April Caller	T.
100	Gat entraper.	-DVDUN	-	- Lanced		Determina	Der Denis	Constanting	2.0

To use the "Arrange" function, click on the "Arrange" button and drag the nodes into their desired locations. To move a node, click and drag it over the area between the two nodes at the new location, 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.

Arrange	Display Type	Paste	
Сору	Find	Point Color	
Delete	New Device	Controller Log	Exit

Normal	Display Lype	Paste	
Copy	Find.	Point Color	
Delete	New Device	Controller Log	Exit

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.

Arrange	Dis	play Type	Pa	ste	
Сору		Find	Point	Color	
			8		
Delete	Ne	w Device	Contro	ller Log	Exil
Delete	Ne	w Device	Contro	ller Log	Exit
Delete		W Device		ARM-O(Exit

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.

11-30 EAGLE QUANTUM PREMIER CONFIG.

Copy/Paste

	Paste	Display Type	Arrange
	Point Color	Find	Сору
Exi	Controller Log	New Device	Delete

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.

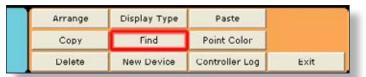
To copy a node select it by single clicking on the device then choose the "Copy" button. The "Paste" button will produce a new device

FGI0-005	IDC-010	H2S-011	EXE-012	UVIR-013	SA
5	10	11	12	13	

with all of the configuration from the copied node, just enter the new tag name and miscellaneous text.

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.



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.

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.

Select	
C Agent Release (ARM)	 Initiating Device Circuit (IDC)
CCCTV	C IR Detector (X9800)
C Controller	C IR Hydrogen Flame Detector (X3302)
C DCU (EQ2200)	C Multispectrum IR Detector (X3301)
C Eclispe (Point Infared)	C MIR Automotive Detector (X3301)
C 8 Channel Analog Input (EQ3710)	C Power Supply Monitor
C 8 Channel DC I/O (EQ3700)	C Signal Audible Module (SAM)
C 8 Channel ED I/O (EQ3730)	C UV Detector (EQ2200)
C 8 Channel IPM (EQ3740)	C UV Detector (X2200)
C 8 Chennel Pulse Input	C UV/IR Detector (EQ2200)
C 8 Channel Relay (EQ3720)	C UV/IR Detector (X5200)
C 8 Channel ED I/O SIL	C Eclipse SIL
C X3301 SIL	
C Point Number.	
@ Text	
Searches lagran	nes and miscellaneous text

EAGLE QUANTUM PREMIER CONFIG. 11-31

Point Color

If at anytime a field device becomes difficult to view above the black background, the "Point Color" button enables the user to choose a new background color to help the device stand out for better viewing.

Arrange	Display Type	Paste	
Сору	Find	Point Color	
Delete	New Device	Controller Log	Exi

Delete

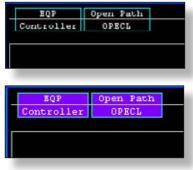
Removes a selected node from the LON configuration.

Arrange	Display Type	Paste	
Сору	Find	Point Color	
Delete	New Device	Controller Log	Exit

Select a node or multiple nodes on the LON Schematic and then select the "Delete" button to remove them from the database.

Constitution D		PIRSCE MIR	AL-7 Peringpi		UV18 202100	IDC-13	AFRICA		DCU-15 0#
	CONTRACTOR DI	18 20302 8020 8020	-40		Man Karconzal	19952200=20 II	\$900-19 BEEL		PCT UNLY A
		098CL-27	1077-702 1018 1027	and an and a second of	OTTAL NAMES	OF PARTY I		FIERFACE	These serves as
		97858							
			Warning			8			
-			A 40	you sure you want	to delete the selects	of scientist?			
-			- <u></u>						
r				Yes 1	Cancel				
r									
									Configuration
Devices Found	Get Revision	Globals	Point Display	Reset Module		Arrange	Display Address	Paste	
Dewnload	Get RTC	LON Diagnostic	Point Address	Set RTC		Copy	Find	Particolar	
Edit	Get Voltages	Outputs	Print	Upload		Delete	New Device	Control For Log	Ext

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 a new device can be added to the LON.

Arrange	Display Type	Paste	
Сору	Find	Point Color	
Delete	New Device	Controller Log	Exi

In the example below, "Initiating Device Circuit (IDC)" has been selected.

Tingle T Tingle Constants	Select point type	9 40		12 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	14	100-15.0x 13 6.001-16.Auto 16
	0172C-17 23 Device Types - Input/Outputs - Input/Outputs - III Device Types - IIII Device Types - IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	0) C MR H 0) C MR F dule (PM) C Autom 13720) C UV Fu	ne Detector (*19800) 2 Flame Detector (*1300) ame Detector (*1300) olive Milli Flame Detector (*13 ene Detector (£12200)	άτ)		
	Gast Gast Gast Gast Gast C Dight Communication Point IR Gas Detector IP C Open Path ExtendedPE		ne Detector (#2200) Fame Detector (#22200) Fame Detector (#5200) Supply Monitor (#5M)			
	Point Number 20	C Part	veel EDHO SRL A Gain Devector (PIRECL) SIL anno Devector (PCIDOT) SIL			
Devices Found Get Revisio	n Gia	OK Cancel		Туре	Pasta	Configuration
Download Get RTC Edit Get Voltage	LON Diagnostic Paint Address Outputs Print	Set RTC Upload	Copy Delete	Lyfind New Device	Point Color Controller Log	Ext

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 svection 12.

NOTE

Verify the proper LON address for the new device is shown in the "point number" window; correct if not.

EAGLE QUANTUM PREMIER CONFIG. 11-33

Controller Log

S³ keeps a log of every event ever excecuted by the controller, logs which cannot be edited or deleted.

Arrange	Display Type	Paste	
Copy	Find	Point Color	
Delete	New Device	Controller Log	Exit

Once the "Controller Log" button is selected a new window will appear requiring the "Fetch" button to be selected in order for the logs to populate the screen.

	Fingle Quantum	Premier Central	Her Log Collector					1	23
	ie Edit	_							
	Collection. Loga								
	Clasted controller Connecting to the Connected to cert Reading lay inform Controller log coun- beret tog last erro Requesting fort to log count 1100 Total Log Count 1 Completed control	controller notion et: 1174 et: No Emor 9- 174							
	Fetch	-							
					_			_	Destigated
10000000000	Get Revision	Globals	Funt Display	Reset Module		Arrange	Display Type	Paste	
nies Found									
rices Found Inventoad	Get RTC	LON Disgnostic	Point Address	Set RTC		Copy	find	Point Color	

Clicking the "Logs" tab displays the controller logs with more detailed infomation, and the user is able to export the info to Excel or PDF formats. This is done by going to the File menu and choosing "Export".

File Edit							
Collection. Logo							
Date/Time /	Point #	Channel #	Alarm Type	Tagname	Event Test	Value	10
4/4/2007 10:02:34 484	1	218	No Alam (Event)	to#	Reset - Pacingkalar Button	TRUE	
4/4/2007 10:02:34 444	1	255	No Alarn (Event)	1QP	Reset - Faceplate Button	19(8)	
4/4/2007 L0-52-35 AM	1	255	No Alam (Event)	tQ#	Reset - Faceplate Button	191.8	
4/4/2007 L0:82:37 AM	5	258	Trouble	10001	Internal Cores Pault	FAUE	
4/4/2007 10:52:37 AM	5	258	Trouble	10001	CPUFadt	PALIE	
1/4/2007 10/02:51 AM	3	255	Fire Harts	10081	Fire Alarts	THE	
4/4/2007 10:52:58 AM	5	258	Fee Alarts	83308	Piré Alami	PAUX	
4/4/2007 10-05-07 AM	1	255	No Alaris (Event)	DOP	Reset - Faceplate Button	TRUE	
4/4/0007 10:00:05 #M		265	Fee Alers		Freikland	14.6	
4/4/2007 10:53:21 AM	5	255	Fee Alarts	13301	Pire Alam	FALSE	
424/2007 LO-00; 44 AM	5	255	Trouble	12001	OUTed	THE	
4/4/2007 10-84-80 AM	5	255	Trouble	13001	Internal Caret Pault	THE	
4/+/2007 10:20:08 AM	1	295	No Alam (Event)	10P	Reset - Paceptate Button	TRUE	
4/4/2007 10:20:15 AM	5	255	Trouble	12004	Enternal Caren Fault	PASE	10
4/4/2007 10-20-25 AM	5	258	Trouble	13304	OUFeR	PAUE	
4/4/2007 10:20:16 AM	1	255	No Alam (Event)	DOP	Reset - Paciplate Button	TRUE	
4/4/2007 10:20:35 AM			Fee Avers		Fee Alam	10.6	
4/4/2007 10:20:45 AM	5	255	Fee Alarts	10004	Fire Alarm	PAGE	18
4/4/2007 L0:20:48 AM	1	294	No Alam (Crent)	EQF:	Reset - Faceplate Button	191.6	

11-34 EAGLE QUANTUM PREMIER CONFIG.

PAGE LEFT BLANK INTENTIONALLY



Controller

NOTE

This Section is dedicated to the EQP controller and key field devices it supports. Please be aware that the controller will encounter compatibility issues with some field devices if it's firmware is not up to date and does not match the correct version of the S³ software. Refer to marketing bulletin 78-1006 for more information.

The "Controller" is the first device on any Eagle Quantum Premier Local Operating Network (LON). This device is used to perform the user logic, it 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.

The node rectangle is divided in half horizontally with the tag name in the top and controller configuration in the bottom. In the example to the right, S³ has assigned "T1" as a temporary tag name. This tagname is randomly generated and can be replaced by the user assigned tag name. The bottom half will contain the controller configuration default of "Single" signifying a single "non-redundant" arrangement.

ngle
ngle

12-2 EAGLE QUANTUM PREMIER DEVICES

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.

NOTE

This section of the user guide deals with the hardware configuration of the controller only.

Tagname: Smutcollien Misc:			
	Detector Electronics	Eagle Quantum Premier	
Configuration Post Based Rate 115,200 Party None	Send Port 1 Polocol Not Used Disc Flass Party Party Athree Party	Ingula / Relays	Coton Road Type Rome I Consultant Han Anderer Rome Total Consultant
Redundency I Enable	Macelaneous Beeper Volume Off	Uner String Display (Mark 42 Cham) Display Mode	IC 61508
Communication Option Board	Serial Part 2	Secial Post 2	Secial Port 4
Type Nore .	Provide State Stat	Prenet Not Used 9 East Press Not Used 9 Press Note 9 Address 1	Provent Northand S SealProve North Party North S Addated T
Loge	Abama	Uses Level	OK

Tagname

This field provides room for a 24 character tagname which will be used to reference the controller throughout the S³ global database. This tagname is used in the logic editor, OPC server, and all printed documentation. Upon device creation in the database S³ assigns a randomly generated tagname.

Misc

The "Miscellaneous" field provides room for an optional 42 character description to be used as desired.

outrouse (r.Q.	3001) Editor	
Tagname:	Controller	
Misc:		

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.

Port 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". There are no other adjustable parameters for the configuration port.

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 arrangement 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 three additional serial ports for user configuration.

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.

	Postantes Destantion	Contra Charachara Denemias	
Configuration Plot Baud Rate 115,200 • Party None •	See Part Peterson Advertised	Eagle Quantium Premier Inputs / Relays	Option Board Type None • Contraction Primary Primary
Redundancy (** Enable	Macelaneout Beeper Volume [D#] Une Parameters	C Use Storg Display (Max 42 Chars) Display (Traditional)	ICC 81506
Communication Option Board Type Norm •	Senial Port 2 Press of Port Doort Control of Port Broat States (1900)	Senal Post 3 Pressure Bacel Faces	Send Port 4 Premore First Used at 1
$\mathcal{T} := (a_1 a_2 b_3 b_4) \in \mathbb{C}_{2n-1} (a_2 b_3 b_4)$	Farty Farty Street	Tety Time 3	Baar Nater Talay Prove P Autors 1

NOTE Port 3 can be used for configuration.



Taghame Scenario	
Mide	
Galiparia Pal	1 Parts
Saut Nay [115,30 -	
Pady [Barn]	
Redundance	Made
	B
IT Endle	
Conversion Option Town	Conta
Type Nove 💌	
E total to to to to to	
E Seld The Stellensburger	

12-4 EAGLE QUANTUM PREMIER DEVICES

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 2 use the RS-485 standard, 3 and 4 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 drop down menu allows the selection of either "Not Used", "MODBUS Slave" and "MODBUS Master". Port 3 can also be set as a configuration port, or a second S³ monitoring port.

Option Board 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.

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. Addresses above 1 are typically used in multidrop systems.

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.

Beeper Volume 011 💌	(Max 42 Chars)
User Parameters	Deplay Traditional

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.

User String Display

Check the "User String Display" to allow the descriptor entered in the "Misc" field to be displayed on the controller.

User Parameters

This button opens the "User Parameters..." dialog box allowing for their values to be set. 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 without having detailed knowledge of their operation.

WARNING Inappropriate use of these parameters could cause unintended results in controller operation.

#	Parameter
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

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. All sixteen of these I/O points are accessible by the controller's user programmable logic.

puts / Relays	
Inputs	Relays

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.

The functions of the static logic functions are self explanatory and mirror the functionality of the controller's faceplate buttons.

Tagname	Description	Static Logic Enabled	Static Logic Inverted	Static Logic Name		
Hatt		X		Reset		
2 Ack		×		Acknowledge		
3 Silence		×		Silence		
Esta				N/A		
5 Enter		×		Enter		
Cancel		×		Cancel		
7 Next		×		Next		
Previous		X		Previous		

12-6 EAGLE QUANTUM PREMIER DEVICES

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	Static Logic Inverted
1	cth-1		Other	and the second se
z	ctir-2		Trouble Low Gas Alarm	
3	ctir-3		High Gas Alarm Supervisory Other	
4	ctr-4		Reset	
5	ctk-S		Other	
6	ctir-6		Other	
7	ctir-7		Other	
8	air-8		Other	

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		
1 Fire Martin		12		Fire Alam		
2 Supervisory		×		Supervisory		
3 Low Gat		×		Low Gas Alam		
4 High Gas	****	×		High Gas Alam		
5 Inhibit		×		Inhibit		
6 Output Inhibit	1	×		Output Inhibit		
7 LON Fault	***************************************	×	m	LON Fault		
8 Beeper		×		Beeper		

The functions of the static logic functions are self explanatory and mirror the functionality of the controller's faceplate LEDs and beeper. 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).

Option 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" drop down 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.

The ControlNet Mac address can be set in a range from 1 to 99.

IEC 61508

The Eagle Quantum Premier Controller fully supports IEC 61508 SIL 2. Do not check unless the EQP has SIL 2 firmware.

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 Alama User Level	OK
------------------------	----

This button launches the S³ Logic Editor for the Eagle Quantum Premier controller. See section 13 for more

Logic

details.





12-8 EAGLE QUANTUM PREMIER DEVICES

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 S³. 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. Refer to section 10 of this User's guide for details on user level settings.

		Darr Level Editor		
Configuration	Pot	Ration Action	Uver Level	
Real Pare	195,200	Advantation		1.
Party	New	Field	0	a Relays
		Silencia	0	nice ratio
Inia Past		briefst input 1	0	
Passad	MODBUS 14	Intradial lingual 2	0	Controllier +
Eastflate	19,200	heldel heput 3	0	
Pate	New	beider beginnt få beider beginnt få		In we
Attes		Installed Impact II		市 土
Address	下出			All Location
			DK. Caned	
		been input 7	0 💌	

ОК

Closes the "Configure a controller..." dialog box when finished.

Every field device on the LON as well as the controller has 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 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.

121	47 61 00101-17	40		23		- 12	<u>= 11</u>	20		48 47	16	
na ta	Honitor										×	
abled	Nation	Printer	File	Window	Auto Cear	Sound	Active Color	Normal Color	Graphic Trigger Group	Modelanous		
×	Device Removed	(R	X	1X	E	Waning	Red	Oreen	Alarm	Device Renoved	ed	
×	Control Message Fault	1X	IX	×	Г	Waring	Red	Oreen	Fad	Control Message Fault		
R	Wrong Device Type	(X	R	×	E	Waning	Red	Oreen	Fad	Wrong Device Type		
R	Mencey Fault	X	(X	×	•	Waning	Red	Green	Fed	Memory Fault		
x	Invalid Configuration	IX	×	×	E	Waning	Red	Oreen	Fad	Invalid Configuration		
×	Fault	1X	R	R.	п	Waning	Red	Oreen	Fed	Fad		
x	Unable to Conligure	x	x	×	П	Warring	Red	Green	Fad	Unable to Configure		
x	LON A Device Offine	(X	x	1X	П	Warring	Red	Oreen	Fad	LON A Device Office		
×	LON B Device Offine	×	×	۶.		Warring	Red	Oreen	Fait	LON 8 Device Offine		
x	Device Offine	x	R	×	E	Warring	Red	Green	Fad	Device Offine		
×	Com 1 Fault	×	×	×	E	Warring	Red	Orean	Fed	Con 1 Fault		
×	Con 2 Fault	R	R	×	Е	Warning	Red	Oreen	Fed	Con 2 Failt		
	Match all rows to the top row ->	н	н	M	H	. H	н	н	M			
a.t.	Custom Factory								OK.	Cancel		
									Language	hereitenen h		
ound	Get Revision Globals	Pa	int D	isplay	Res	et Module		Arrange	Display	Type Paste	Contigura	
ed.	Get RTC LON Diagno	atie Per	-	ódress		et RTC		Copy	Fie	d Fairt Cala		

In the descriptions for configuring each type of field device, any unique attributes pertaining to that devices event tracking will be presented.

Alarms

Allows for the configuration of the alarm and event monitoring for the device. These alarms and events are used by the S³ 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	Nate	Pade	File	Stinder	Autor Conse	Sound	Autive Cultar	NamaColor	Graphic Tagger Group	Histoffanissi
*	Feedlan	(K)	IX.	ж	-	Varia	Red	Green	Aire	Fee Alaem
	Tendes		×	×	m	Warne	Fed	Gram.	Faid	feadle
•	First Scient	×	R	ĸ	-	Wares	Feed	Graen	tene	Fast Scan
	High-Alam	×	×	×	•	Warmy	Fed	(rem	-	High Alam
80	Lon-Alare	×	ĸ	×	1	Watery.	Fed	Grant.	Awn	Lon Alam
=	Acknowledge \$100 State)	×	×		1	Wanning	Fed	Green	Tere .	Automatelys LED Valet
•	Silence (LED State)	×	R.	×	=	Waray	Fed	Gram	Three .	Silver (LED State)
=	Propan Histe	×	×	×	-	Wareg	Fed	Graen	TOTA	Pogan Hule
•	Activisiedge Batus	×	ĸ	×	-	Watery	Feel	(mage)	-	Ach running p Dutys
=	Since Bates	×	×	×	-	Warny	Fed	Green	Rose	Silence Batter
•	Reat Editor:	×	×	ж	-	Waray	Ped	Green	These .	Read Bullon
R.	Saming	×	×	×	m	Varag	Sed	Graent	TRUE	lapering
	Match all over to the top row	- M	84		H				<u></u>	

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.

Delauts	Custom	Factory	OK.	Cancel	

Custom

Selecting this button will replace all of the names with those in the second language database. Refer to "User Strings" in the preferences section (Section 7) of this users guide.

Factory

Restores the factory default values to **all** fields and settings.

ΟΚ

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.

-	201 202	Let	-			1.	La la cal	Lu	In all	Laboration and the second seco	
Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	1
x	Fee Alarm	57	x	(X	E	Warring	Fied	Oreen	Alarn	Fee Alam	
1	Trouble	W	IV.	IV	E	Warner	Red	Ormen	Ind	Trouble	

12-10 EAGLE QUANTUM PREMIER DEVICES

The definitions of the eleven columns in the "Alarms to Monitor..." dialog box are as follows:

Enabled

Turns an event on or off. If disabled, no other settings do anything.

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 S³ 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 S³ for storage in the daily log.

Window

When selected, sends the event to the "Active Alarms" module of S³. 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 Section 4.

Auto Clear

This 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 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 is 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".

Sound

Each event may have a sound attached to it which plays when the event occurs, until the Acknowledge button is actuated.

Enabled	Name	Peter	File	Window	Arts Gear	Sound	Active Date	Normal Color	Graphic Trigger Group	Neislaneue	1
ĸ	Fre Alem	R	IX.	R	1	Hareg .		Orean.	Inne	Fee Alam	
R	Truble	R	R	×		Vices and	Fed	Green	line	Tinuble	
-	Feet Scare	×	×	×	0	2	Fed	Green	time.	Feet Scan	
×	High Gas Alam	R	×	ĸ	-	ę	Fed	Orset	tione	High Gao Alam	
IK.	Low Ges Awn	×	ĸ	×	•	8	Ped	Oreen	have	Los Gas Nam	
E	Acknowledge EED Statel	×	ĸ	×	E	10 11 12	Ped.	Graen	lare	Acknowledge (LED State)	
-	Sterce (LED State)	×	×	×	•	10	Red	Green	Name	Silence (LED State)	
E	Pogen Note	14	18	×	E	Harring .	Part	Ormer	tone	Program Mode	

The sound 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

Select one of four different colors for recording when events become "Active" or return to "Normal".

Enabled	Name	Printer	Fie	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Mscelanou
X	Fire Alarm	x	X	X		Warning	Red	Green	None	Fire Alarm
x	Trouble	X	X	x		Warning	Black Blue	Green	None	Trouble
	Finit Scan	x	x	x	E	Warning	Green	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.

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.

12-12 EAGLE QUANTUM PREMIER DEVICES

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X3301

Multi-Spectrum Infrared Flame Detector

The MIR X3301 is located on the LON/SLC and provides Multi-Spectrum Infrared Optical Flame detection capability for the Eagle Quantum Premier system.

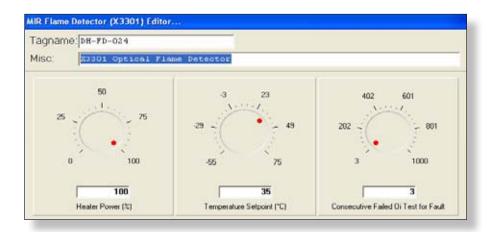
It provides unsurpassed detection of fires from light to heavy hydrocarbon fuels combined with the highest degree of false alarm rejection.

The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

The MIR 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.

Tagname

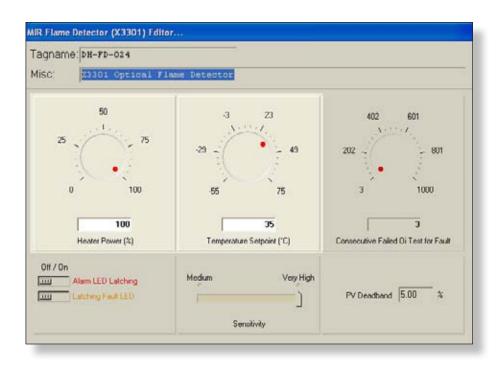
The tagname at the top of the dialog box refers to the flame detector. Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.



12-14 EAGLE QUANTUM PREMIER DEVICES

Heater Optics

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.

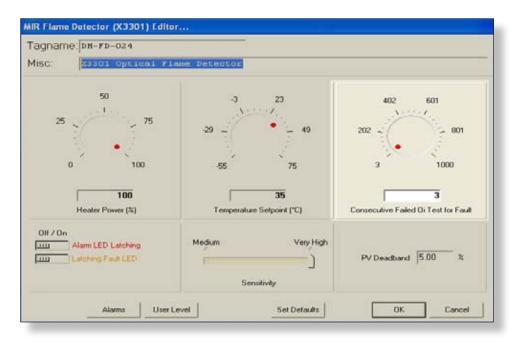
Automatic Oi

The MIR 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 evident locally by the yellow 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 yellow. 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 will change to red, and the analog signal displayed in the tracking area of the S^3 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.

12-16 EAGLE QUANTUM PREMIER DEVICES

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 yellow 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.

0 100	-55 75	3 1000
100 Heater Power [%]	35 Temperature Setpoint (°C)	3 Consecutive Failed Di Test for Fault
Dif / On Alarm LED Latching Latching Fault LED	Medium Very High	PV Deadband 5.00 %
Alarms User	Level Set Defaults	OK. Cancel

Detector Sensitivity

The sensitivity of the detector can be adjusted between medium and very high using the sensitivity slider control in the center bottom area of the configuration dialog box.

Heater Power (%)	Temperature	e Setpoint (*C)	Consecutive Failed Oi Test for Fault
If / On Quick Fire Enabled IIII Alam LED Latching IIII Latching Fault LED	Medium	Very High	PV Deadband 5.00 %
	Sen	altivity	
Alarms User	Level	Set Defaults	OK Cancel

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.

Heater Power (%)	Temperature Setpoint ("C)	Consecutive Failed Di Test for Fault
Off / On Alarm LED Latching Latching Fault LED	Medium Very High	PV Deadband 5.00 %
AlarmsUser	Level Set Defaults	OK 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.

Alam LED Latching	Medium	Very High	PV Deadband	.00 %
	Ser	naitivity		
Alarms User Leve	a (Set Defaults	ОК	Cancel

There are 31 alarms and events that pertain to the status and diagnostics for the MIR X3301.

inabled	Name	Printer	File	Window	Auto	Sound	Active Color	Nomal Color	Graphic Trigger Group	Mocellanous	1
×	Device Resources	1X	X	X	E	None	Red	Oreen	Faut	Device Removed	
R	Fire Alarm	R	×	x		None	Red	Green	Alarm	Fire Alam	
IX.	Temperature Out of Range	(X	IX.	IX	-	None	Red	Oreen	Fast	Temperature Out of Range	
x	CPU Fault	(X	R	X		None	Red	Green	Fast	CPU Fault	
x	Wrong Device Type	×	X	IX		None	Red	Green	Fmd	Wrong Device Type	
x	Inhibit Status	×	x	X		None	Red	Green	Fast	Inhibit Status	
X	Invalid Configuration	x	x	X		None	Red	Orsen	Feat	Invalid Configuration	
x	Fault	×	x	x		None	Red	Oreen	Fact	Fad	
(X	Unable to Configure	×	x	x	E.	None	Red	Oreen	Fed	Unable to Configure	
×	LON A, Device Offine	R	x	IX	-	None	Red	Oreen	Feat	LON A, Device Offine	
IX.	LON B. Device Offine	R	×	IX.		None	Red	Green	Fait	LON B, Device Offine	
IX.	Device Offine	×	×	x	E	None	Red	Green	Feat	Device Ottine	
	Match all rows to the top row ->	н	н	M	м	м	н	н	н		

12-18 EAGLE QUANTUM PREMIER DEVICES

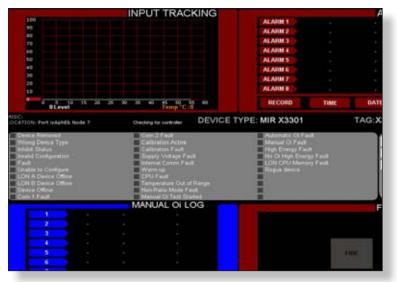
User Levels

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. The default value is "0" and provides access to all users.

Change these values to match a user account configuration and security needs.



Point Display

The MIR 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.

OK

Cancel

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.

Manual 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.



X3302

Multi-Spectrum Infrared Flame Detector

The MIR H2 X3302 is located on the LON/SLC and provides Multi-Spectrum Infrared Optical Flame detection capability for the Eagle Quantum Premier system.

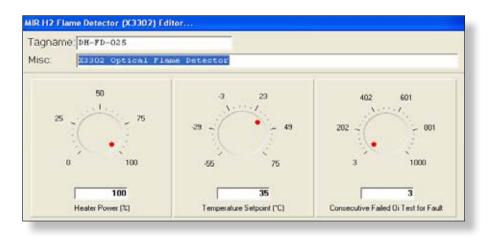
It provides unsurpassed detection of invisible hydrogen flames and hazardous materials that produce mostly water vapor, and little or no CO₂ in the combustion process. The detection capability of the X3302 is double that of traditional UV and UVIR detectors. At the same time, it attains complete solar resistance and insensitivity to artificial lights, lightning, and "blackbody" radiation, which still plague other detection technologies.

The X3302 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.

The detector has Division and Zone explosion-proof ratings and is suitable for use in indoor and outdoor applications.

Tagname

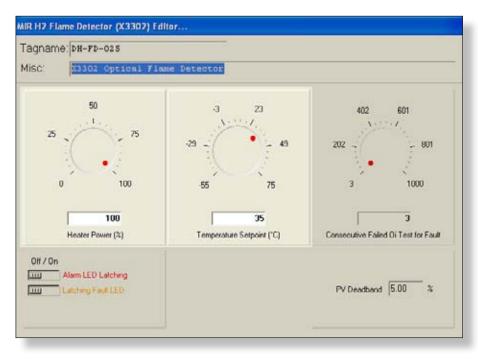
The tagname at the top of the dialog box refers to the flame detector. Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.



12-20 EAGLE QUANTUM PREMIER DEVICES

Heater Optics

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.

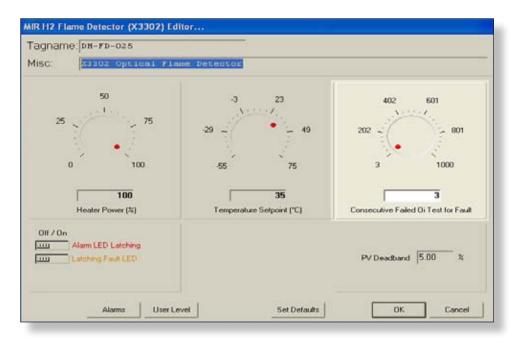
Automatic Oi

The MIR X3302 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 evident locally by the yellow 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 yellow. 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 will change to red, and the analog signal displayed in the tracking area of the S^3 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.

12-22 EAGLE QUANTUM PREMIER DEVICES

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 yellow 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.

0 100	-55 75	3 1000
100 Heater Power (%)	35 Temperature Setpoint (°C)	3 Consecutive Failed Di Test for Fault
Off / On Alam LED Latching Latching Fault LED		PV Deadband 5.00 %
Alarms User Le	velSet Defaults	OK Cancel

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.

Heater Power (%)	Temperature Setpoint ("CJ	Consecutive Failed Di Test for Fault
Off / On Alarm LED Latching Latching Fault LED		PV Deadband 5.00 %
Alarms User Leve	el Set Defaults	OK 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.

Enabled	Name	Printer	File	Window	Auto Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Missellanous	1
x	Device Renoved	IX.	1X	×	E	None	Fled	Oreen	Fault	Device Renoved	
IX	Fee Alam	IX.	R	IX	Г	None	Red	Oreen	Alarm	Fire Alam	
IX.	Temperature Out of Range	IX.	1X	1X	-	None	Red	Oreen	Fast	Temperature Out of Range	
(X	CPU Fault	x	×	R	-	None	Red	Green	Fault	CPU Fault	
IX.	Wrong Device Type	(X)	R	IX	-	None	Red	Green	Fast	Wrong Device Type	111
x	Inhibit Status	x	x	x	-	None	Red	Oreen	Fad	Inhibit Status	
x	Invalid Configuration	×	x	×		None	Red	Orsen	Fast	Invalid Configuration	
x	Fad	x	x	×		None	Red	Green	Feat	Fault	
x	Unable to Configure	X	×	R	E	None	Fled	Oreen	Fed	Unable to Configure	
×	LON A, Device Offine	IX.	R	x	-	None	Fied	Oreen	Fault	LON A, Device Offine	
R	LON B. Device Offine	IX.	IX.	IX	-	None	Fied	Oreen	Faul	LON B, Device Offine	
19	Device Offline	IX.	1X	IX		None	Red	Oreen	Fast	Device Offine	
	Match all rows to the top row ->	м	м	н	н	м	м	м	н		

There are 31 alarms and events that pertain to the status and diagnostics for the MIR X3302.

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. The default value is "0" and provides access to all users.

Change these values to match a user account configuration and security needs.

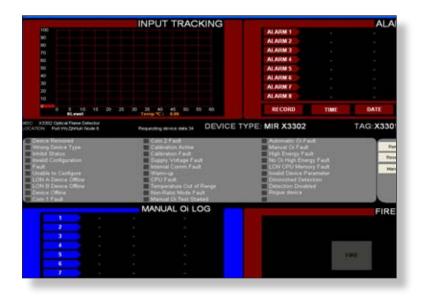
Latching Fault LED		Button Action	UserLevel
		Acknowledge	0
		Remove	0
	Sensitivity	Manual Di	0
		Inhibit	0
		Reset	0
Alarms User	Level Set Defau	Manual Di (FIRE)	0
			OK Cance

12-24 EAGLE QUANTUM PREMIER DEVICES

Point Display

The MIR X3302 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.

Manual 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.



X9800 Infrared Flame Detector

The IR X9800 is located on the LON/SLC and provides Infrared Optical Flame detection capability for the Eagle Quantum Premier system.

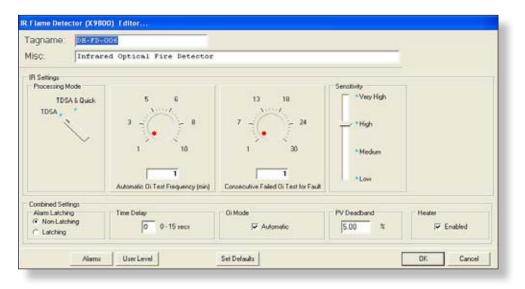
The IR X9800 meets the most stringent requirements worldwide with advanced detection capabilities and immunity to extraneous sources, combined with a superior mechanical design.

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.

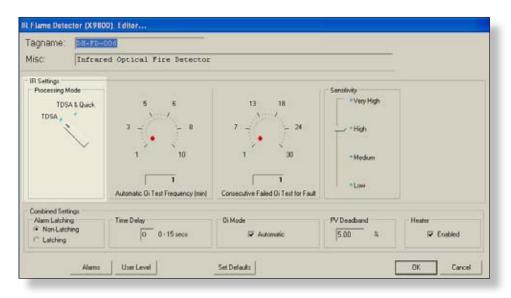
Until a tagname is entered the detector is not available in the S³ database for programming, monitoring or dynamic graphic purposes.



12-26 EAGLE QUANTUM PREMIER DEVICES

Configuration

Enter the tagname for the detector, a miscellaneous description and then adjust the IR Settings.



Processing Mode

The IR X9800 features signal processing options.

These options determine the type of logic that the detector will use for processing fire signals to customize the IR X9800 to the application.

Two signal processing options are available for the IR 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 IR 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 IR X9800 signals a fault condition when less than half of the detection range remains. This is indicated by the yellow 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.

12-28 EAGLE QUANTUM PREMIER DEVICES

Oi Configuration

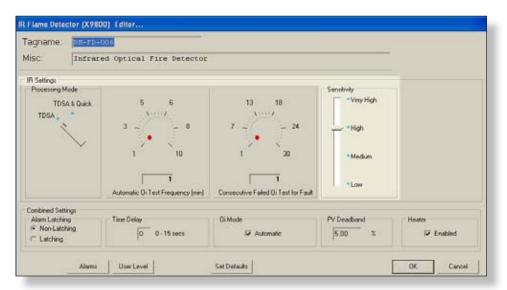
The frequency of Oi testing can be adjusted between once a minute as maximum and up to once every ten minutes as a minimum. There is also a checkbox for automatic operation.

igname: Diero SC: Infra	ed Optical Fire Detector	6		
R Settings Processing Mode TDSA & Quick TDSA &	5 6 3 5 6 1 10 Automatic O(Text Frequency (min)	13 18 7 - 24 1 30 T Consecutive Faled Oi Text for Fault	Sensibility *Very High *High *Medum *Low	
Combined Settings Alarm Latching IP Non-Latching IP Latching	Time Delay	Di Mode	PV Deadband 5.00 %	Heater F Enabled

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.

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 non-latching 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 **uninterrupted** 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.

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.

Non-Latching Latching Alarms

Combined Settings Alarm Latching

Time Delay	0 - 15 secs
User Level	1

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	Enabled
DK	Cancel

12-30 EAGLE QUANTUM PREMIER DEVICES

Alarms

Selecting this button opens the "Alarms to Monitor..." dialog box.

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×	Fire Alam	x	R	1¥	-	Warring	Red	Oreen	Alarm	Fire Alam	
×	Temperature Out of Range	(X	(X	1X		Warring	Red	Oreen	Fast	Temperature Out of Range	
×	OPU Fault	X	x	X	-	Warring	Red	Green	Fast	CPU Fault	
IX	Wrong Device Type	(X	(X	IX		Warring	Red	Green	Fast	Wrong Device Type	
x	Inhibit Status	x	x	x	-	Warning	Red	Oreen	Fast	Inhibit Status	
x	Invalid Configuration	×	(X	x	-	Warring	Red	Oreen	Fast	Invalid Configuration	
×	Fad	X	x	x	•	Warring	Red	Oreen	Fait	Fad	
1X	Unable to Configure	X	x	×	•	Waning	Red	Oreen	Fait	Unable to Configure	
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This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³. There are 28 alarms and events that pertain to the status and diagnostics for the IR X9800.

User Levels

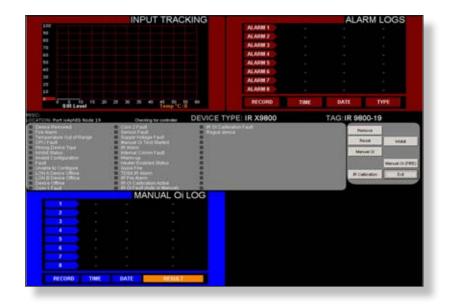
The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", "IR Calibration", "Manual Oi (FIRE)" and "Reset" buttons for the module which are accessible from the devices point display. The default value is "O" and provides access to all users.

Change these values to match a user account configuration and security needs.

O 0 - 15 secs Button Action User Level Acknowledge 0 User Level Remove 0
User Level Set Defaults Remove 0
Manual Oi 0
Inhibit 0
Reset 0
IR Calibration 0
Manual OI (FIRE)
IR Calibration 0

Point Display

The IR 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.

Manual 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.

12-32 EAGLE QUANTUM PREMIER DEVICES

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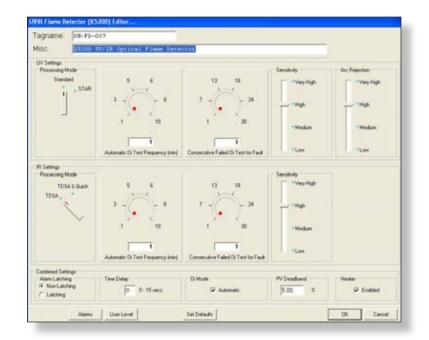
X5200

Ultraviolet (UV) / Infrared (IR) Flame Detector

The UVIR X5200 is located on the LON/SLC and provides UVIR Optical Flame detection capability for the Eagle Quantum Premier system. The UVIR 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.

Tagname

Configuration of the detector is through the "UVIR Flame Detector (X5200) 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 programming, monitoring or dynamic graphic purposes.



12-34 EAGLE QUANTUM PREMIER DEVICES

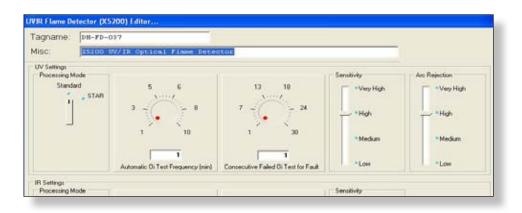
The optional description entered in the miscellaneous text field can be used for further describe where or how the detector is being used and can be helpful in troubleshooting.

WIR Flame De	itector (X520	0) Editor					
Tagname:	DH-FD-037	,					
Misc;	X5200 UV/	IR Optica	1 Finne Dete	etor			
UV Settings Processing M	ode					Sensitivity	Arc Rejection
Standa	be	5	6	13	18	Very High	Very High

The UVIR 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 UVIR X5200 to the application.

UV Flame Detector Options

The UV flame 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 flame 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 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.

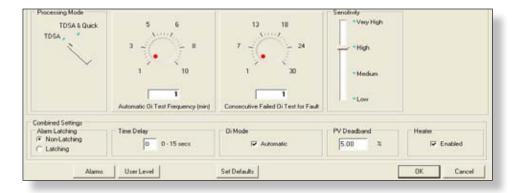
IR Detector Options

The IR detector in the UVIR 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 randomly in order to recognize it as a fire condition.

Using TDSA signal processing, the UVIR 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.

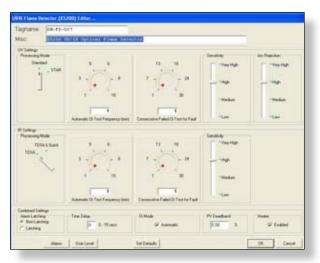


However, in the presence of a regularly chopped signal, the unit is more susceptible to false alarms due to sporadic IR that functions as a trigger when occurring in conjunction with the regularly chopped signal.

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.

12-36 EAGLE QUANTUM PREMIER DEVICES



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 UVIR 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 yellow 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 yellow. The EQP Controller and S³ software will also annunciate this fault.

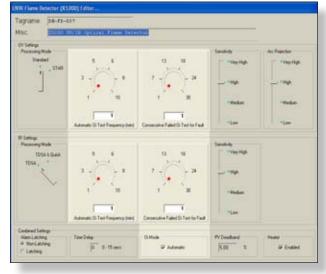
In certain environmental conditions like very heavy rain, Oi test failures can occur even though the hardware is not faulty. To compensate for this the number of failed Oi tests required to generate the fault can be adjusted upward to a maximum of 30.

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 UVIR X5200 instruction manual 95-8546.

Automatic Optical Integrity (Oi)

The UVIR 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.



Oi Mode

The UVIR X5200 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 deadband adjustments that apply to the whole detector as opposed to a specific sensor.

Alam Latching	Time Delay	Di Mode	PV Deadband	Heater
 Non-Latching Latching 	0 0 · 15 secs	Automatic	5.00 %	I Enabled
Alama	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.

Alam Latching	Time Delay	Oi Mode	PV Deadband	Heater
Non-Latching Clatching	0 0 · 15 secs	P Automatic	5.00 %	P Enabled
Alam	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 **uninterrupted** 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.

Alam Latching	Time Delay	Oi Mode	PV Deadband	Heater
Non-Latching Latching	0 0-15 secs	Automatic	5.00 %	🖓 Enabled
Alams	User Level	Set Defaults		.0K. Cancel

12-38 EAGLE QUANTUM PREMIER DEVICES

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. There are 33 alarms and events that pertain to the status and diagnostics of the UVIR X5200.

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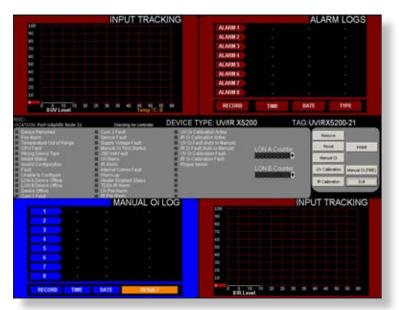
User Levels

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 "O" and provides access to all users. Change these values to match a user account configuration and security needs.

Conbined Setting: Alam Latching (* Non-Latching (* Latching	Time Delay	Di Mode	e PV Deadband	Heater IF Enabled
Alam	s User Level	Set Defaults	User Level Editor	
			Button Action	User Level
			Acknowledge	0
			Remove	0
			Manual Di	0
			Inhibit	0
			Reset	0
			IR Calibration	0
			UV Calibration	0
			Manual Di (FIRE)	0

Point Display

The UVIR X5200 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

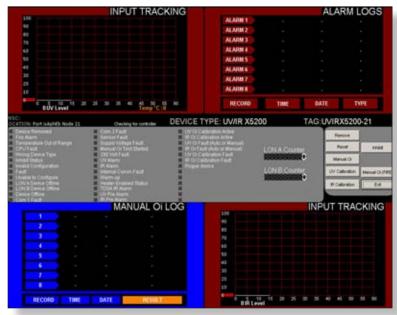
The bottom left quadrant of the point display shows the detectors manual Optical Integrity (Oi) log. The last eight manual tests are shown with the date, time and a PASS/FAIL indicator.

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.



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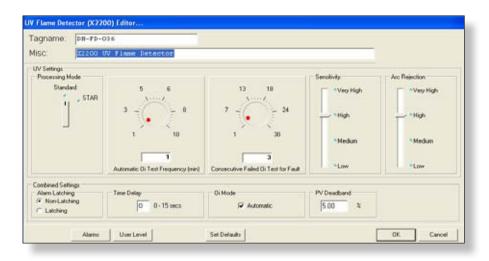


X2200 Ultraviolet (UV) Flame Detector

The UV X2200 is located on the LON/SLC and provides Multi-Spectrum Infrared Optical Flame detection capability for the Eagle Quantum Premier system. The UV 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.

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.



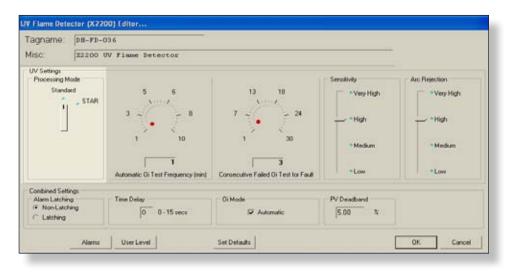
12-42 EAGLE QUANTUM PREMIER DEVICES

Signal Processing Options

The UV flame 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 UV X2200 can be programmed for "Arc Rejection" or "Standard Signal Processing".

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.



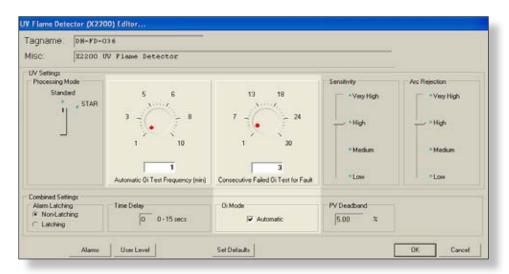
Typical applications that benefit from arc rejection logic include electrostatic coating processes and uncontrolled environments where transient UV sources can be present, such as many typical outdoor applications. Most false alarm sources have short transient UV signatures, while fire creates a long 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 UV 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 UV 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 yellow 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.

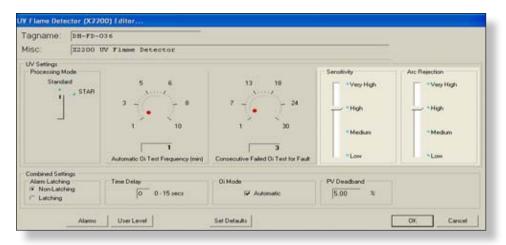
Oi Test Fault

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 yellow. 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.

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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 UV X2200 instruction manual 95-8549.

Combined settings

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.

	Automotic Di Test Frequency (sin)	Consecutive Failed Di Test for Fault	*Low	Low
Combined Settings Alam Latching (* Non-Latching (* Latching	Time Delay	Di Mode	PV Deadband 5.00 %	
Alamo	User Level	Set Defaults		OK. Cancel

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 **uninterrupted** 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.

mbined Settings				
Alam Latching	Time Delay	0i Mode	PV Deadband	
Non-Latching Latching	0 0 - 15 secs	🔽 Automatic	5.00 %	
Latching				

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

Enabled			P	inter	Fin	Window	Ait: Dea	Sand		Active C	iska .	Normal Coles	Graphic Trigger Group	Miscellareau		0		
N.	Device Removed			×	×	14	E	Warring		Fied		Oreen.	Alarm	Davice Renewed				
R	Fee Alam	Alarms 1	e Menth	Ten I														1
R	Tenperature Out of Ro	Endie	Name		-			Parts	r fin	Window	Auto Dew	Sound	Active Color	Numal Criter	Disphic Traper Group	Micellan	nut	6
×	OPUTer	R	Device	Office	t:		_	×	R	SX.		Warrang	Red	Oreen.	Fait	Device C	Mex	
×	Wrong Device Type	×	Can1f	-				R	R	R	E	Warring	Hed	Orean	Past .	Cim 1Fr	al -	
R	Inhibit Shahas	R	Can 24	-				×	R	R	E	Warring	Red	Green;	Fed	Om 2F	al .	
ĸ	Invalid Configuration	×	Senar	in.R				(K	R	×	-	Warrang	Red	Green	Fed.	Seres F	ad .	
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×	Unable to Configure	-	Manual	Di Te	e Sta	/ml		×	R	×	-	Warring	Red	Green	North	Manual	3 Test Stated	
ĸ	LON A. Device Office	R	290 Vol	Fad				×	R	×	-	Warring	Red	Great	fet	290.548	Fad	
R	LON B. Device Office	R	UV Aler					×	R	×	-	Warning :	Red	Green	Alam	UV Alam		
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		Delado		dan.	1	Factor	. 1								OK.	1.	and	

There are 25 alarms and events that pertain to the status and diagnostics of the UV X2200 detector.

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

and the set of the set			Button Action	User Level
Combined Settings Alam Latching	Time Delay	Di Mode	Acknowledge	0
(Non-Latching			Renove	0
C Latching	0 0 · 15 secs	Automatic	Manual Di	0
11/2-0000-000-00			Inhibit	0
		communication of	Reset	0
Alam	User Level	Set Defaults	UV Calibration	0
			Manual Oi (FIRE)	0

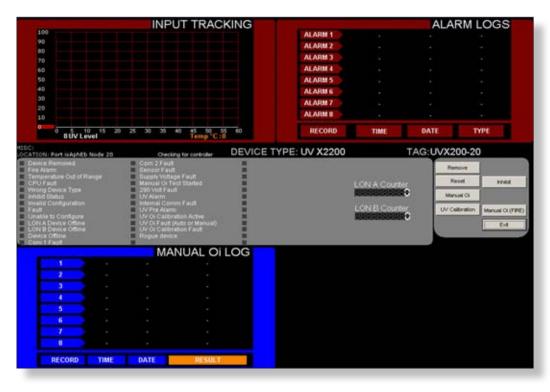
module which are accessible from the devices point display. The default value is "0" and provides access to all users. Change these values to match a user account configuration and security needs.

inhibit	
Reset	ő
UV Calibration	0
Manual Oi (FIRE)	0
	OK Cancel
	on care

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Point Display

The UV Flame Detector (X2200) 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.



EQ2200UV Ultraviolet (UV) Flame Detector

The UV EQ2200 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.

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.

agname:	DH-FD-022				
lisc:	EQ UV Optical Fis	wme Detector			
	G Stand C Arc R Latching G Non-I C Latch Oi Mode I♥ Autor Time De	dard (Rejection (Latching (matic (Rey (7 unt)	ac Rejection 7 Low 7 Medium 7 Medium 7 Very High 8 Medium 7 High 8 Very High 8 Very High 9 Very High 9 Very High		
	Alarms User Level	s	et Defaults	ОК	Cancel

12-48 EAGLE QUANTUM PREMIER DEVICES

The UV flame 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 flame detector can be programmed for "Arc Rejection" or "Standard Signal Processing".

lagname:	DH-FD-022		
lisc:	EQ UV Optical Flame Detecto	z.	
	Processing Mode Standard Arc Rejection	Are Rejection	
	C Latching Mode	C High C VeryHigh	
	Di Mode	Senativity C Low	
	Time Delay 5 0 · 7 secs	C High C Very High	
	PV Deadband	5.0 %	

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.

Optical Flame Detects Processing Mode © Standard	Arc Rejection	
Standard	Arc Rejection	
C Arc Rejection	C Low C Median	
Latching Mode (* Non-Latching C Latching	C High C Marg (high	
Di Mode	Sensitivity	
Time Delay	← High ← Very High	
PV Deadband	5.0 x	
	 ✓ Non-Latching ✓ Latching Or Mode ✓ Automatic Time Delay 5 0 - 7 secs 	Image: Construction of the second

Oi Mode

The UV EQ2200 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 UV EQ2200 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 S³ 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 **uninterrupted** for the specified time. This programmable delay can be used to filter out spurious events.

12-50 EAGLE QUANTUM PREMIER DEVICES

PV Deadband

A field is provided to enter the desired PV (Process Variable) Deadband.

Tagname:	DH-FD-022		
Misc:	EO UV Optical Flame Detecto	3	
	Processing Mode (* Standard (* Asc Rejection Latching Mode (* Non-Latching (* Latching Oi Mode (* Automatic Time Delay 5 0-7 secs	Arc Rejoction C Lon C High C High C High Sensitivity C Low C High C Very High	
	PV Deadband	5.0 %	

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. 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	Sound	Active Color	Normal Color	Graphic Trigger Group	Mocellanous	1
x	Device Renoved	1X	X	X	E	None	Red	Oreen	Fault	Device Renoved	
IX.	Fire Alarm	R	x	X	F	None	Red	Green	Alarm	Fee Alam	
(X	Wrong Device Type	(X	IX.	x	E	None	Red	Oreen	Feat	Wrong Device Type	
x	Inhibit Status	(X)	R	X	-	None	Red	Oreen	Fault	Inhibit Status	
x	Invalid Configuration	×	X	x		None	Red	Green	Fault	Invalid Configuration	
x	Fault	×	x	X		None	Red	Green	Fault	Fault	
×	Unable to Configure	×	x	X		None	Red	Öreen	Feut	Unable to Configure	
x	LON A, Device Offine	(X)	X	X		None	Red	Oreen	Fault	LON A. Device Offine	
X	LON 8. Device Offine	1X	X	x	E	None	Red	Green	Fed	LON 8, Device Offine	
x	Device Offine	×	x	X		None	Red	Oreen	Fed	Device Offine	
x	Con 1 Fault	×	1X	X		None	Red	Green	Fault	Con 1 Fault	
x	Con 2 Fault	x	1X	X		None	Red	Oreen	Fad	Con 2 Fault	
	Match all rows to the top row ->	н	н	м	м	м	м	м	н		

There are 21 alarms and events that pertain to the status and diagnostics for the UV EQ2200.

User Level

V Deadband

User Levels

The "User Level Editor..." provides a means for limiting accesstothe "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.

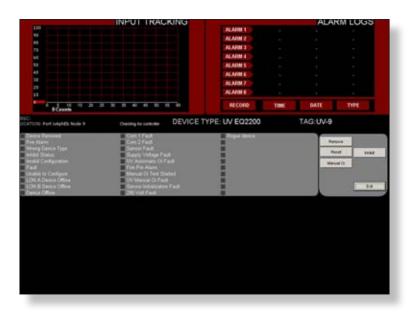
Change these values to match a user account configuration and security needs.

emove 0 Ianual Di 0 eset 0	emove 0 Ianual Di 0 Ieset 0	utton Action	User Level
fanual Di 0 leset 0	tanual Oi 0 leset 0	cknowledge	0
leset 0	leset 0	lemove	0
		fanual Oi	0
nhibit 0	nhibit 0	Reset	0
		Inhibit	0

Point Display

The UV EQ2200 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.

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EQ2200UVIR

Ultraviolet (UV)/Infrared (IR) Optical Flame Detector

The UVIR EQ2200 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 "UVIR EQ2200 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.

agname:	DH-FD-013			
lisc:	EQ UV/IR OF	tical Flame Det	ector	
- UV	/ Settings		IR Settings	
- A	Nocessing Mode Standard FArc Rejection Rejection Low Medium	Sensilivity C Low Medium C High C Very High	Oi Threshold ⊂ Low G Medium C High C Vey High Oi Test Frequency G 1 Minute C 1 Hour	Sensitivity (* Low (* Medium (* High (* Very High (* 2 Hours (* 4 Hours
-1	ombined Settings Latching Mode Non-Latching Latching	0i Mode I⊽ Automatic	Time Delay	PV Deadband

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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.

Tagname:	DH-FD-013
disc:	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			
SC:	EQ UV/IR OF	otical Flame Det	ector	
UV	/ Settings		IR Settings	
-	Processing Mode Standard Arc Rejection	Sensitivity C Low (* Medium	Oi Threshold C Low Medium High Very High	Sensitivity (* Low C Medium C High C Very High
	Low Medium	C High	Oi Test Frequency © 1 Minute C 1 Hour	C 2 Hours C 4 Hours
0	ombined Settings			
0	Latching Mode Non-Latching Latching	0i Mode	Time Delay	PV Deadband 5.00 ≈

UV Specific Settings

The UV flame 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 UVIR flame 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
IB	Medium		55	75	45
in	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 deadband adjustments that apply to the whole detector as opposed to a specific sensor.

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.

Latching Mode	0i Mode	Time Delay	PV Deadband
Non-Latching	Automatic	0 0 · 7 secs	5.00 %
C Latching			
- Lacing			

12-56 EAGLE QUANTUM PREMIER DEVICES

Automatic Oi

The UVIR EQ2200 includes the Automatic Optical Integrity (Oi) feature — a performance test that is automatically performed to verify complete detector operation capabilities.

Latching Mode	Oi Mode	Time Delay	PV Deadband
Non-Latching	Automatic	0 0 · 7 secs	5.00 %
C. Lataking			
C Latching			

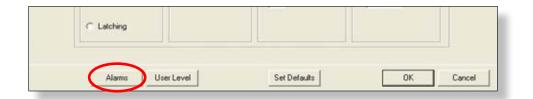
No testing with an external test lamp is required. The detector automatically performs the same test that a maintenance person with a test lamp would perform —once every minute, 60 times per hour. However, a successful automatic Oi test does not produce an alarm condition. While the default Oi test frequency 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 S³ 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 **uninterrupted** 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

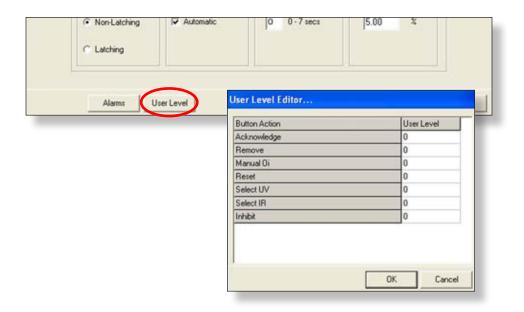
Selecting this button opens the "Alarms to Monitor..." dialog box. This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

ublec	Name		Parte	File	Window	A# On		nt		Active D	skoi	Nomel Color	Graphic Trigger Group	Macelanous		1		
N.	Device Reneved		(X	R	×	E	W	req.		Fiel		(tree)	Note	Device Reneved				
R.	Fire-Alarte		197	18	12	E	140	-		Red .		Green	tern	Fee Alam				_
R.	Wrong Device Type	Marries In	Merritar.	÷.														E
IN.	Inhibit Status	Enabled	Name					Parter	File	Window	Aitu Des	Sound	Active Colo	r Nomal Color	Graphic Trigger Group	Hiscal	anoui	0
x	Invalid Configuration	1¥	UV Automa	ic Gi	a.d			R.	R	197	E	Waring	Red	Oreen	None	UV Au	funatic Oi Fault	
R	Fad	(M)	HAdonat	e O.f	**			100	R	IK.	F	Waring	Red	Orem	Note	RAA	omatic Di Fault	
R	Unable to Configure	DK.	UV Manual	0.Fm	*			R.	ĸ	R	E	Warang	Ref	Great	None	UVM	mur Di Fault	
R	LDN A, Device Office	1X	(R. Manual)	SFad	e.			×	×	(R	П	Waring	Rel	Green	None	HMa	nuel Di Fault	
IN.	LON B. Device Office	1X	Here UV	Tube	Fault			×	R	R	E	Warring	Fed	Orems	hore	Mining	pUV1ubeFault	
R	Device Office	DT.	HongR	loduk	Fait			×	R	R	Е	Waring	Fied	Orean	None	Huning	p IT Module Fault	
R.	Con 17 mit	R	290 Volt Fa	4				R	R	R	-	Waring	Red	Green	Note	290 V	d Fad	
R	Con 2 Fast	R	UV Fail					×	×	×	E	Waring :	Ref .	Green	Norme	UVFa	ul.	
	Match all mere to the t	N	RFad					×	R	R	E	Warwy	Red	Green	hone	H.Fa.		
		p	UV Alam					×	×	191	E	Warring	fied	Green	None	UV AM	-	
14.81	Custon	R	(fl. Alarn					R	R	ĸ	E	Warring	Ped	Orean	None	37.Ala	•	
		-	Match all	owe to	the top ro			н		н	н	H	м	н	н			2
								20			-		-					

There are 27 alarms and events that relate to the status and diagnostics of the UVIR EQ2200.

User Levels

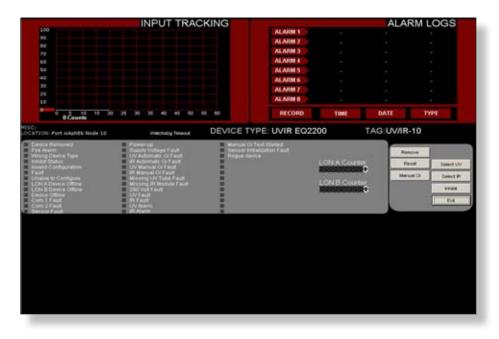
The "User Level Editor..." provides a means for limiting access to the "Acknowledge", "Remove", "Manual Oi", "Inhibit", Manual Oi (FIRE)" and "Reset" buttons for the module which are accessible from the devices point display. The default value is "0" and provides access to all users. Change these values to match a user account configuration and security needs.



12-58 EAGLE QUANTUM PREMIER DEVICES

Point Display

The UVIR EQ2200 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 UVIR" 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.



PIRECL Point IR Gas Detector

The 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% LFL.

The Point IR Gas Detector has integral communication hardware and resides on the EQP communication network without the need for external interface modules.

agname:	DH-GD-016			1				
Misc:	Eclipse IR H	lydrocarbo	n Det	ector				
	and the first	thane	2	-				
	Gas Type Sa	me as Measured	5 _		hod	Standard		
	Units:	*LEL	4 Cha	racters mai	e [Special Gas S	Settings	
			Min	Max		Coefficien	There was a second of the seco	
	High Alarm:	50.00	5	60		Alpha	0,811659991	
	Low Alarm:	20.00	5	40 211		Beta	0.407420005	
	Calibration Gas	50.00	20	100		Deta	0	
	Concentration: Calibration	150.00		150 mm		Gamma	0.000322000	
	Cuveti Langth	-				Eta	1,613600015	
	PV Deadband:	5	*			1		
5	Low Alarm Latching	g I⊽ Hi	gh Alarm	Latching		Volume At LEL	5.00	

The first step in configuring the PIRECL detector is to enter the tagname and any miscellaneous text in the appropriate fields at the top of the dialog box.

12-60 EAGLE QUANTUM PREMIER DEVICES

Gas Type

After entering the desired tagname and miscellaneous information, select the gas type the detector is being installed to primarily monitor from the pull-down list.

There are six common hydrocarbon gases that are available in 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.

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.

agname:	DH-GD-016			
lisc:	Eclipse II	R Hydrocarbo	n Detector	
	Gas Type	Methane	¥	
	Calibration Gas Type	Same as Measured	Calibration Method	Standard 💌
	Un	the second	<i>4 Characters max</i> Min Mas	Coefficients
	High Ala	terre terreterre	5 60 5 40 %LEL	Beta 0.407420005
	Calibration G Concentratio	at 50.00	20 100	Delta Germa 0.000322000
	PV Deadba	19 <u>1</u>	1 1101 mm	Eta 7.61360001*
	Low Alarm Late	thing 🕼 Hig	h Alam Latching	Volume 5.00

Once the gas type has been selected, a calibration gas type and method must be chosen.



Calibration Gas: Type and Concentration

PIRECL 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.

PIRECL 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.

agname:	DH-GD-016		
disc:	Eclipse IR Hydrod	arbon Detector	
	Gas Type Methane Calibration Gas Type Same as Me	Calibra	
	Methane Ur Ethane	sterr marc	Special Gas Settings
	High Alarm: 55.0	<u>Min Max</u> 5 60	- Coefficients
	Low Alarm: 25.0		Beta 0.407420005 Delta 0
	Calibration Gas 50.0 Concentration: 50.0 Calibration 150		Gamma 0.000322000
	PV Deadband 5.00	x	Eta 1 613600015
1	Low Alarm Latching	T High Alarm Latching	Arter 5.00

Once the calibration gas type is set, the concentration must be set. The default value of 50% LFL can be changed between 20% LFL and 100% LFL to match the gas being used.

12-62 EAGLE QUANTUM PREMIER DEVICES

Alarm Setpoints

The High and Low gas alarm setpoints can be changed by entering new values in the fields provided on the dialog box.

lagname:	DH-GD-016								
Misc:	Eclipse I	R H	drocarbo	n De	tect	tor			
	Gat Type	Meti	nane		•				
	Calibration Gas Type	Sam	e as Measured		•	Calibration Method	Standard	•	
	U	nits:	+LEL	40	wacter	с так	Special Gas	Settings	
				Min	Ma	1	Alpha	0.811659991	
	High Al	ann:	50.00	5	60		Beta	0.407420005	
	Low Al	sent:	20.00	5	40	%LEL	Delta	0	
	Calibration Concentration		50.00	20	100			0 000322000	
	Colbration Covett Lon	gth	150.00	4	150		Gamma	-	
	PV Deadba	and	5	x			Eta	1.613600015	
1	✓ Low Alarm Lat	ching	I⊽ Hiş	jh Alan	m Latci	ing	Volume At LEL	5.00	

The default values are 50% LFL for the High Alarm and 20% LFL for the Low Alarm.

The High alarm can be adjusted within a range of 5% LFL and 60% LFL.

The Low alarm can be adjusted within a range of 5% LFL and 40% LFL.

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 "PIRECL 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.

Enabled	Name	Pieter	File	Window	Clear	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellanous	1
X	Device Removed	x	X	X		Warning	Red	Green	Fault	Device Removed	
R	High Gas Alam	R	x	X	-	Warring	Red	Green	Alarm	High Gas Alam	
1X	Low Gar Alam	IN.	R	IX	-	Warring	Red	Green	Alem	Low Gas Alam	
IX.	Wrong Device Type	×	X	X		Warring	Red	Green	Fast	Wrong Device Type	
x	Memory Fault	×	x	x		Warring	Red	Green	Fast	Mamory Fault	
x	Inhibit Status	×	x	x		Warning	Red	Oreen	Fact	Inhibit Status	
x	Zees Dell	x	x	x		Warning	Red	Oreen	Fad	Zero Dali	
x	Invalid Configuration	×	x	x		Warring	Red	Oreen	Fad	Invalid Configuration	
×	Fault	R	x	x	•	Warring	Red	Oreen	Fad	Fault	
×	Unable to Configure	R	R	IX	-	Warning	Red	Oreen	Fad	Unable to Configure	
R	LON A, Device Offine	×	R	1X		Warning	Red	Green	Fait	LON A, Device Offine	
x	LON 8, Device Offine	×	1X	X		Warring	Red	Green	Fast	LON 8, Device Office	
	Match all rows to the top row ->	н	н	м	M	н	м	н	м		

There are 25 alarms and events that relate to the status and diagnostics of the PIRECL.

	Paste	Display Type	Arrange	Reset Module	Point Display	Globais	Get Revision	Devices Found
	Paint Color	Find	Серу	Set RTC	Point Address	LON Diagnostic	Get RTC	Download
tica p	Controller Log	New Device	Deleta	Upload	Print	Outputs	Get Voltages	Edit

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.

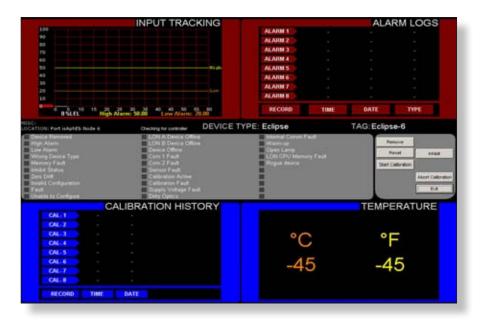
NOTE

The Download command will send **all** configurations. Individual nodes cannot be downloaded as is the case with earlier generations of Eagle products (i.e. EAGLE2000 & Eagle Quantum).

12-64 EAGLE QUANTUM PREMIER DEVICES

Point Display

The Eclipse 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.



OPECL Open Path Eclipse Gas Detector

NOTE

Controller Firmware 7 is required in order for the OPECL to function with the EQP controller.

The OPECL is an open path infrared gas detection system that provides continuous monitoring of combustible hydrocarbon gas concentrations in the range of 0 to 5 LFL-meters, over a distance of 5 to 120 meters.

The Open Path Eclipse Gas Detector has integral communication hardware and resides on the EQP communication network without the need for external interface modules.

The first step in configuring the OPECL detector is to enter the tagname and any miscellaneous text in the appropriate fields at the top of the dialog box.

12-66 EAGLE QUANTUM PREMIER DEVICES

Gas Type

After entering the desired tagname and miscellaneous information, select the gas type the detector is being installed to primarily monitor from the pull-down list.

There are 5 common hydrocarbon gases that are available in the detectors memory.

There is one "Special" field which if selected allows a unique hydrocarbon gas to be defined and downloaded to the detector.

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.

Tagname:	OPECL-18			
Misc:	Open Path			
	Gas Typ	e Methane		
	Units: LFL	Methane Ethane Propane Propylene Butane M Special		
		ull Scale: 5.00	Min	M
	High Alarm	2.00	0.25	3
	Low Alarm:	1.00	0.25	3

Tagname:	OPECL-18			-3			
Misc:	Open Path	Generative					
	Under LFL	ul Scale 5.0 2.00 1.00 60 5.00	<u>Min</u> 0.25 0.25 60 %	Max 3.0 3.0 3600	- Special Gas S Coefficien Alpha Beta Delta Germa Eta	te 0.011659991 0.407420005 0	
	Alarms Use	er Level		Set	Defaults	OK.	Cance

Alarm Setpoints

The High and Low gas alarm setpoints can be changed by entering new values in the fields provided on the dialog box.

lagname:	OPECL-18			1			
Miso:	Open Path		_				
	Gas Typ	eMethane		•			
	High Alarm: Low Alarm: Beam Block Delay(s) PV Deadband:	ul Scale: 5.00 2.00 1.00 60 5.0	Min 0.25 0.25 60 *	Mas 30 30 3600	Special Gas Coefficier Alphn Bets Delta Romma Eta	100.00	
	Cow Alarm Latching	IT Hig	h Alarm	Latching			

The default values are 2% LFLM for the High Alarm and 1% LFLM for the Low Alarm at a full scale of 5.00 LFLM. The High and Low alarms can be adjusted within a range of 0.25% LFL and 3% LFLM.

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 "OPECL Editor..." dialog box contains buttons for setting all of the common settings on the device.

12-68 EAGLE QUANTUM PREMIER DEVICES

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	Fie	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscellancus	10
X	Device Removed	R	x	X	-	Warning	Red	Green	Faut	Device Removed	
IX.	High Gas Alam	R	×	X	-	Warring	Red	Green	Alam	High Gas Alam	
(X	Low Gas Alam	IX.	x	1X	-	Warring	Red	Green	Alarm	Low Gaz Alam	
x	Wrong Device Type	R	×	x		Warring	Red	Green	Fat	Wrong Device Type	
x	Memory Fault	1X	x	X		Warring	Red	Green	Fad	Memory Fault	
×	Inhibit Statue	x	X	x		Warring	Red	Oreen	Fm.d	Inhibit Status	
x	Zero Dall	×	x	x		Warning	Red	Oreen	Fait	Zero Dult	
x	Invalid Configuration	x	x	x		Warning	Red	Oreen	Fast	Invalid Configuration	
x	Fault	X	x	x	•	Warning	Red	Green	Fed	Fast	
R	Unable to Configure	R	R	IX	П	Warring	Red	Oreen	Fat	Unable to Configure	
R	LON A, Device Offine	R.	R	IX		Warning	Red	Green	Fault	LON A, Device Offine	
x	LON 8. Device Offine	(X	(X	IX		Warring	Red	Green	Fast	LON B. Device Offline	
	Match all rows to the top row ->	н	н	м	м	н	м	м	м		

Completing Configuration

When all parameters have been set, select the OK button to return to the LON configuration screen.

Devices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Download	Get RTC	LON Diagnostic	Point Address	Set RTC	Сору	Find	Point Color	
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device	Controller Log	tich .

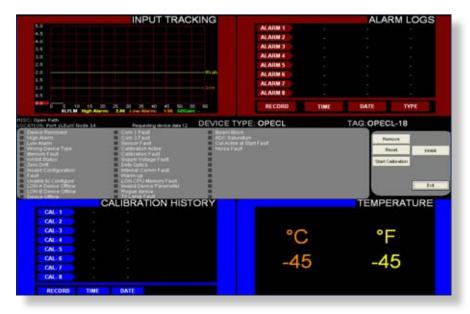
From the Command Bar Download the new configuration to the controller, or configure other devices.

NOTE

The Download command will send **all** configurations. Individual nodes cannot be downloaded as is the case with earlier generations of Eagle products (i.e. EAGLE2000 & Eagle Quantum).

Point Display

The Open Path Eclipse 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.

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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 PointWatch

Used with Detector Electronics "PointWatch" PIR9400 series infrared point hydrocarbon detectors.

Tagname:	08-00-011		-			
Misc:	-		_			
		Equito	w.	Depgen		
		Univ	ental Plutonia	elic Calibration(
		Un	COLUMN STREET	el Celbration)		
			Porte	ech .		
		Links	SLR.			
		Range	0-100			
				Mo Mar		
		High Alarm	50.00	10 60		
		Low Alarm	25.00	5 40 TLFL		
		Callevel	50.00	20 100		
		PVDeathand	5.00	2		
		Gas Mode	Gas Deta	• •		
		Calibration	Algoithm	c		
		Celbation	Method	Adonatic		
	Alams	User Level		Set Defaults	OK:	Cancel

NOTE

*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.

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From a configuration standpoint, all DCU's have the same basic adjustable parameters; Alarm 1, Alarm 2, and Calibration gas concentration (Cal Level).

Tagname:	DH-GD-011		1		
Misc:	1				
		Explosi	ve		Dxygen
		Univ	ersal (Automa	tic Calibra	tion)
		Uni	versal (Manu	al Calibrati	on)
			Pointw	atch	_
		Units:	XLFL		
		Range:	0 - 100		
				Min	Max
		High Alarm:	50.00	10	60
		Low Alarm	25.00	5	40 %LFL
		Cal Level	50.00	20	100
		PV Deadband	5.00	x	
		Gas Mode:	Gas Deter	ctor 💌]
		Calibration	Algorithm	С	
		Calibration I	Method	Auton	natic

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.



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 OK button to return to the LON configuration screen.

nabled	Name	Printer	File	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Mocelanous	1
×	Device Removed	×	X	R		Warring	Red	Oreen	None	Device Removed	
x	High Gas Alam	×	R	1X	E	Warring	Red	Oreen	None	High Gai Alam	
x	Low Gas Alam	x	(X	X	•	Waning	Red	Oreen	None	Low Gar Alam	
x	Wrong Device Type	x	(X	IX	•	Warring	Red	Green	None	Wrong Device Type	
×	Inhibit Status	×	R	IX		Warring	Fled	Oreen	None	Inhibit Status	
x	Invalid Configuration	x	x	X	-	Warning	Red	Orsen	None	Invalid Configuration	
x	Fault	x	x	X	-	Waning	Red	Green	None	Fault	
x	Unable to Configure	×	X	X		Warring	Red	Oreen	None	Unable to Configure	
x	LON A, Device Offine	X	x	x	•	Warring	Red	Green	None	LON A, Device Offine	
x	LON B. Device Offine	X	x	x	E	Warning	Red	Oreen	None	LON 8, Device Offine	
R	Device Offine	x	x	x		Warring	Fled	Oreen	None	Device Offine	
×	Con 1 Fault	(X	R	1X	•	Warring	Red	Oreen	None	Con 1 Fault	
	Match all rows to the top row ->	н	м	H	м	м	м	м	н		

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 Diegnostic	Point Address	Set RTC	Copy	Find	Point Color	
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device	Controller Log	Exit

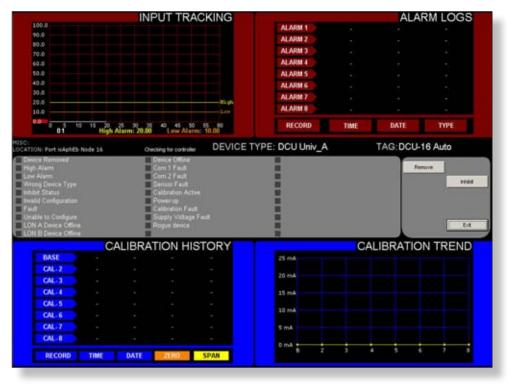
NOTE

The Download command will send **all** configurations. Individual nodes cannot be downloaded as is the case with earlier generations of Eagle products (i.e. EAGLE2000 & Eagle Quantum)

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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 accessed from the configuration area. The point display in the online monitoring mode does not include the LON A & B Counters.





Discrete IO (DCIO)/ Enhanced Discrete IO SIL (EDIO)

Flexible 8 channel input/output modules for 24 Vdc discrete field devices

DCIO's and the newer EDIO'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 or EDIO is configured by double-clicking on its selection rectangle on the LON schematic.

This opens the "8 Channel DC or ED I/O Editor..." which provides fields for the entry of any user changeable parameters.

agname:	DM-10-007									
éisc:	@ Channel DC	n Module					1			
Tegrate		Description	Type		Supervision	ŝ	Activation	Static Logic Mode Browt		1
MAC-007-1		Manual Activation of Fee Alarm	legal.	٠	Opero/Shorts	٠		Fee Alam	٠	
PSL 007-2		Fee Man Pleasan Low	Input	٠	None	٠		Trouble	٠	
PSLL 007-3		Main Gas Header - Low Alam	Input	٠	None			Low Gas Alam	٠	
PSHH-007-4		Main Gas Header - High Alam	Input		None			High Gas Alam	٠	
\$14007-5		FH-200 Release	Output .		None	•				
V8-007-6		Voble Alem - Fee Alem	Dutput		None Doctor Opens/Shorts		1			
AA-007-7		Auddin Alam - Fee Alam	Output		None		1			
AA-007-8		Audble Alam - Gas Release	Output		None				11	

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 or EDIO module 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.

The example above is for a DCIO. Note that the configuration of the DCIO and EDIO are the same, however the EDIO also supports 2-wire smoke detectors and "Class-A" inputs and outputs so it has additional choices in the "Type" pull down menu.

It also provides buttons for accessing other configurable items such as alarm and event tracking for the unit and user levels settings.

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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.

lagname:	DH-10-007									
Misc:	8 Channel DCIO	Rodule								
Tagname		Description	Type	1	Supervision	3	Activation Time	Static Logic Mode (Input)		
1 007-1		Spare	liquit	•	None	٠		Other	٠	
2 PSL-007-2		Fire Main Pressure Low	Input	•	None			Trouble	٠	
3 PSLL 007-3		Main Gas Header - Low Alarm	Input		None			Low Gas Alam	٠	
PSHH-007-4		Main Gas Header - High Alam	hout	•	None				•	
5 SV-007-5		FM-200 Release	Output		None			Fire Alam Trouble Low Gar Alam		
6 VA-007-6		Vioble Alam - Fee Alam	Output	•	None		1	Low Gar Alam Hon Gar Alam Supervisory		
7 AA-007-7		Audble Alam - Fire Alam	Output		None		1	Other		
8 AA-007-8		Audble Alam - Gan Release	Output		None		1		- 1	

Туре

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. 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.

lag	name:	DH-10-030					
Misc	8)	Enhanced Digit	al I/O Module		_		
Ta	igname		Description	Туре	Supervision	Activation Time (Sec)	Static Logic
1 50	A1-000-LA		Smoke Detectors	Class A Input A	Opens/Shorts		Other
z				Class A Input B			
3 144	AC-000-34		Notification Appliance		None		Other
•				Dirbut Output Smoke Detector	None		Other
5				Class A Input A	None		Other
6				Input	None		Other
7				Inext	None		Other
8				Input	None		Other

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.

7 AA-007-7	Audble Alam - Fee Alam	Oulput V None V	1
8 AA-007-8	Audble Alam - Gas Release	Output 🔻 None 🖛	9
	Alama	Level	OK Cancel

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Enabled	Name Device Renoved		_		Window	Auto Dear	Sound	1	Active	ake	Norval Color	Graphic Tripper Group	Micelanoui			
×	Device Netscred		12	19	(X	E	None		Fied		Oreen	tione	Device Removed			
×	Control Message Fisual	Alarms 1	a Meniter													18
×	Wrong Device Type	Enables	dName	-			Partes	File	Window	Arts	Sound	Active Color	Normal Color	Griphic Tripper Griske	Miscellanoui	6
×	Memory Fault	(X	Manual Fo	e Alian	5		(X	R	N.	E	Nore	Hed	Oreen.	Alam	Overvel1 OvervelActive	
×	Invalid Configuration	×	CharvelS	horled			1X	×	×	E	Note	Red	Ocean	tane	Overnei 1 Overnei Shorted	
×	Fad	ĸ	Chavel 0	pen			×	R	R	E	Nore	Red	Green	Non	Overnel 1 Duarnel Open	
×	Unable to Configure	×	week Sta	-			×	×	×	-	Non	Ret	Green	None	Channel 1 Inhibit Status	
R	LON A, Device Office	×	Fed				×	×	×	-	None	Red	Green	hore	Ownel1Fail	
×	LON B. Device Office	×	DavelA	cline			×	R	×	-	Nove	Red	Green	None	Overvel 2 Overvel Active	
x	Device Office	×	Cherrel S	horted			×	×	52	E	None.	Red	Oreen	None 1	Orannel 2 Drannel Shoted	
×	Cim1 Fed	×	Chanel 0	pen			R	R	(X	E	Now	Red	Great	tune .	Ovarrel 2 Durvel Open	
×	Cm2Fe#	×	inter the				×	×	ĸ	-	Nove	Red	Orean.	ture.	Charvel 2 Inhibit Status	
	Hatch all rows to the	×	Fait				×	R	F	F	Nove	Red	Orean	Nume	Overvel 2 Fault	
	Custom	×	ChavelA	dire.			×	R	1×		None	Fled	Orean	None	Overnel 3 Overnel Active	
		R	DurvelS	horised			×	R	×	•	Nove	Red	Oreen	None	Orannel 3 Orannel Shorted	
			Hatch all	reside th	the top ro	e-)	H	ж	H	94	н	м	м	н		

The first 13 alarms pertain to the status and diagnostic for the overall module.

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

7 AA-007-7	Audble Alarm - Fire Alarm	Output	• 1	lone 🔻 1	
8 AA-007-8	Audble Alarm - Gas Release	Output	• 1	User Level Editor	
	Alama	User Level		Button Action	Uses Level
				Acknowledge	0
				Renove	0
	devices point display			Intribut Input 1	

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 a 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.

Button Action	User Level
Acknowledge	0
Remove	0
inhibit Input 1	0
inhibit Input 2	0
C tuget 3	0
inhbit Input 4	0
Inhibit Input 5	0
Inhibit Input 6	0
rihibit Input 7	0
inhibit Input 8	0

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.

EXTEN		STICS			
Device Removed Control Message Fault Wrong Device Type	Creating for controller LON B Device Off		E: DCIO EQ3700		5
Memory Fault Invatid Configuration Fault Unable to Configure LON A Device Offline	Com 2 Fault Supply Voltage Fi Rogue device	sa i			Eat
Inf.FireAlarm				CH tritt Input	IANNELS
In2-Trouble				reast leput	
In3-LowGas In4-HighGas				initi laput	
In5-Supervisory			8 8 8	tree Input	
In6-Other				reat Input	
Out7-Time13			8 - F	aved Output	
Outll-Time32767				tried Output	
CHANNEL TAGNAME	ACTIVE	SHORTED OPEN	FAULT	INHIBIT 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. It also provides for "Inhibiting" the channels.

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Intelligent Protection Module (IPM) 8 channel input/output module for 24 Vdc discrete field devices

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.

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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.

1	agname:	DH-	IPM-001								
M	isc:	Int	elligent Pro	tecti	on Module					_	
	Abort M	ode:	Mode 1	•	Control Mode	Back-up Mode	• (Detectio	n Circuit Delay: 3	• •	Ľ.
	Zone M	ode:	Single Zone	•		Manual Release D	lelayed				
		0	nannel 6 (Signal Circ	uit - Bell/	/SAM)						
		0	ne Zone Bell Tone:	Continu	uous	Two Zone Bell T	one: 01		~		
	Tagname			Descrip	ption		Ту	pe	Supervision		Activatio Time
1	DH-CPR-AR			Manua	Abort Release	(AR) Input	Ing	sut.	Opens/Shorts	•	
2	DH-CPR-MR			Manua	l Release Input		ing	sut.	Opens/Shorts		
3	DH-CPR-SI			Superv	risoty Input		Ing	tuc	Opens/Shorts	•	
4	DH-CPR-1SA			Zone 1	Smoke Alarm		Ing	put	Opens/Shorts	٠	
5	DH-CPR-2SA			Zone 2	2 · Smoke Alarm		Ing	tuc	Opens/Shorts	•	
1	DH-CPR-AA			Bell - A	udible Alarm		0.	Aput	Opens	•	
6				Releas	e Output - Main		0.	Aput	Opens	•	90
	DH-CPR-R1			Release			AAAAAA# 77	tput			p

Туре

The channel type on the IPM 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	1/O Editor					
Tagname:	DH-IPM-03	5				
Misc:	Intelliger	nt Protection Module	2			_
Abort	Mode: Mode 1	Control Mode	Back-up Mode	Detection	on Circuit Delay: 30	1
Zone	Mode: Mode 2		Manual Release Del	ayed		
	and the second second	ignal Circuit - Bell/SAM) ell Tone: Continuous	▼ Two Zone Bell Ton	e: Ott	-	
Tagname		Description		Туре	Supervision	Activation
1 DH-CPR-AR		Manual Abort Release	(AR) Input	Input	Opens/Shorts	
2 DH-CPR-MR		Manual Release Input		Input	Opens/Shorts	

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.

NOTE 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	I IPM I/O E	ditor				
Tagnan	ne: DH-	IPM-035				
Misc:	Int	elligent Pr	otecti	on Module		
	Abort Mode:	Mode 1	-	Control Mode:	Back-up Mode	
	Zone Mode:	Single Zone	-		Manual Release Delayed	
		Cross Zoned				

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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 re limited as follows:

Single Zone Mode

The signaling circuit can be configured to any standard SAM selection.

Tagna	me:	DH-	IPM-035			
Misc:		Int	elligent Pro	tecti	on Module	
	Abort I	Mode:	Mode 1	*	Control Mode:	Back-up Mode
	Zone	fode:	Single Zone			Manual Release Dela
		C	hannel 6 (Signal Circ	uit - Bell/	SAM)	-
		0	ine Zone Bell Tone:	Continu	ious ,	Two Zone Bell Tone
				Control 60 BPN		-
Tag	ame			120 BP Tempor Trouble	M	
DHC	PR-AR			Supervi		Input

Signal Circuit in Cross Zoned Mode

In this mode the user must make two selections.

A standard SAM selection for when a single detection circuit is in alarm and another selection for when both detection circuits are in alarm.

Tagname:	DH-	IPM-035							
Misc:	Int	elligent Pr	otecti	on Module	R				
Abo	t Mode	Mode 1		Control Mode	Back-u	p Mode		Detection C	icuit Delay. 30
Zory	e Mode:	Cross Zoned	•		☐ Mar	ual Releas	e Delayed		
	0	hannel 6 (Signal Cir	cuit - Bell/	SAM)					
	0	ne Zone Bell Tone	Continu	ious	• Te	io Zone Bel	Tone:	ant .	•
							0	II ontinuous	
Tagname			Descrip	tion			1	0 EPM 20 EPM emporal	-
DH-CPB-AR		Manual Abort Release (AR) Input					rouble	1000	

Control Mode

The IPM has 3 operation modes, Controller Only, Back-up Mode, Embedded Only.

Tagname:	DH-	IPM-035				
Misc:	Int	elligent Pr	otecti	on Module		
Abort	Mode:	Mode 1	•	Control Mode:	Back-up Mode	•
Zone	Mode:	Single Zone	•		Embedded Logic Only Controller Only	
					Back-up Mode	

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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			
Misc:	Intelligent Pr	otection Module		
Abor	t Moder Mode 1	Conitol Moder	Back up Mode	Detection Circuit Delay: 30 +
Zone	Mode. Single Zone	-	F Manual Release Delayed	
		0 10 20 30	Second Seconds Seconds Seconds	
		40 50	Seconds 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
	Alarma	User Level		0K.	Cancel

Enabled	Name	Poster	File	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Mocelanous	1
x	Device Removed	×	x	X		Warning	Red	Green	Alarm	Device Renoved	
x	Control Message Fault	×	x	X		Warring	Red	Oreen	Fast	Control Message Fault	
×	Wrong Device Type	x	x	X		Warning	Red	Green	Fast	Wrong Device Type	
x	Memory Fault	×	R	X		Warning	Red	Green	Fed	Memory Fault	
X	Invelid Configuration	×	R	X	-	Warning	Red	Green	Fault	Invalid Configuration	
X	Fault	x	X	IX	E	Warning	Red	Green	Faut	Fault	
R	Unable to Configure	×	x	IX	E	Warring	Red	Green	Fault	Unable to Configure	
R	LON A. Device Office	×	R	x	E	Warning	Red	Green	Fault	LON A, Device Offine	
IX.	LON B. Device Office	IX.	×	IX		Warring	Red	Green	Fast	LON B. Device Offine	
12	Device Offine	×	×	X	-	Warring	Red	Green	Fast	Device Offine	
R	Com 1 Fault	R	R	R	-	Warring	Red	Green	Fast	Con 1 Fault	
x	Com 2 Fault	x	x	x		Warring	Red	Green	Fast	Com 2 Fault	
	Match all rows to the top row ->	м	м	м	м	н	м	м	м		

The first 14 alarms pertain to the status and diagnostic for the overall module.

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

DH-CPR-R2	Release Ouput - Reserve	Output	Opens 🔻 90				
		User Level Editor	User Level Editor				
	Alarms User I	Button Action	User Level				
		Acknowledge	0				

Channel "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 a user account configuration and security needs.

on Action	User Level
rowledge	0
ove	0
et	0
it Input 4	0
t Input 5	0
et input 5	

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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.

	DIAGNOSTICS	0	EMBEDDED ABORT TIMER
Device Removed LO Control Message Fault De Wrong Device Type Co Memory Fault Co	Ing for controller DEVICE TYPE Acce Offline Acce Offline In 1 Fault D Fault	: IPM EQ3740	TAG:IPM-23
🖬 Fault 📰 Ma	ply Voltage Fault nual Reset Required gue dovice		CHANNELS
IPM23.4	ADORT ACTIVE		INPUT
IPM23-2	MANUAL RELEASE ACTIVE		INPUT
IPM23.3 IPM23.4	SUPERVISIORY ZONE 1 ALARM		INPUT
	JOHE 7-ALAIM		INPUT
IPM03-5		The subscription of the local division of th	
IPM23.5 IPM23.6	SIGNAL ORIGUIT ACTIVE		OUTPUT
	SIGNAL ORIGIIT ACTIVE RELEASE ORGIIT FACTIVE		OUTPUT
IPM23-6			

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.



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.

g Input Modu	le				
Moc. Wind	Speed			PVD	eatband 3.00 %
Туре	mA Range	Out of Range	Engineering Range	Low Alam	High Alam
C Explosive	Low 4.00	3.00	Low 0.00	SP: 60.00	SP. 00.00
	High: 20.00	21.00	High: 150.00	DB: 3.00	DB: 0.00
Oriversal				Faling Trigger	Faling Trigger
Miec				PVD	eatband 3.00 %
Туре	mA Range	Out of Range	Engineering Range	Low Alam	High Alam
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
(* Universal				Faling Trigger	F Faling Trigger
Misc:				PVD	eadand 9.00 %
Type	mA Range	Out of Range	Engineering Range	Low Alam	High Alam
C Explosive	Low 4.00	3.00	Low 0.00	SP 20.00	SP \$0.00
	High: 20.00	21.00	High: 100.00	DB: 3.00	D8: 0.00
Universal Universal				F Faling Trigger	F Faling Trigger
	Mac Wind Type C Esploive C Universal Mac C Esploive C Esploive Mac Type C Esploive C Esploive	C Esplosive Lorc 4.00 High: 20.00 High: 20.00 Misc: Type mA Range C Esplosive Lorc 4.00 High: 20.00 High: 20.00 Misc: Lorc 4.00 High: 20.00 G Universal Lorc 4.00 High: 20.00 Misc: Type mA Range C Esplosive Lorc 4.00 High: Z0.00 High: 20.00 Lorc 4.00	Mac. Wind Speed Type mA Range Out of Range C Explosive Low 4.00 3.00 Hgh: 20.00 21.00 G Universal Mac. 100 Misc. Misc. 3.00 Misc. Low 4.00 3.00 Misc. Misc. 3.00 G Universal Universal 3.00 Misc. Misc. 3.00 Misc. Type 0ut of Range Misc. 100 100 Misc. Misc. 100 Misc. Misc. 100 Misc. 100 100 Misc. 100 100 Misc. 100 100	Mec: Wind Speed Engineering Range Low: 6.00 3.00 Low: 0.00 High: 150.00 High: 100.00 High: 100.00 High: 100.00 High: 100.00 High: Iow: Iow:<	Minc: Find: Speed PV D Type mA Range Out of Range Low: 0.00 Hann C Explosive Low: 4.00 3.00 High: 150.00 DB: 3.00 G* Universal Misc: Falling Trigger Falling Trigger Falling Trigger Misc: mA Range Out of Range Engineering Range Low Alam C* Universal Low: 9.00 Engineering Range Low Alam Misc: F Engineering Range Low Alam Low Alam SP: 20.00 G* Universal SP: 20.00 21.00 High: 100.00 DB: 3.00 G* Universal Core: 4.00 3.00 Engineering Range Low Alam Misc: Misc: Misc: PV D DB: 3.00 F Falling Trigger Misc: Misc: Low: 0.00 SP: 20.00 DB: 3.00 F S

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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.

Tagnam	DH-VI_006					
Misc:	8 Ch. Analo	g Input Modul	le			
Tagname:	DH-AV-001	Misc Vind	Speed		PVD	eadband 3.00 %
1	INTER (Non Gail) -	Type C Explosive C Universal	mA Range Out of Range Low: 4.00 3.00 High: 20.00 21.00	Engineering Range Low: 0.00 High: 150.00	Low Alam SP: 60.00 DB: 3.00	High Alam SP: 00.00 DB: 0.00
Tagname:	[Misc			PVD	eadband 3.00 %
	Non Gail •	Type C Explosive C Universal	mA Range Out of Range Low: 4.00 3.00 High: 20.00 21.00	Engineering Range Low: 0.00 High: 100.00	Low Alam SP: 20.00 DB: 3.00 Faling Trigger	High Alarm SP: 50.00 DB: 3.00 Falling Trigger
Tagname:		Micc			PVD	eadband 0.00 %
	Other (Non Gat)	Type C Explosive C Universal	mA Range Dut of Range Low: 4.00 2.00 High: 20.00 21.00	Engineering Range Low: 0.00 High: 100.00	Low Alam SP: 20.00 DB: 9.00	High Alam SP: 50.00 DB: 3.00

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.

	PV Deadband:	3.00	ž	
Low Alarm	High /	Alarm		
SP: 60.00	SP:	80.00		
DB: 3.00	DB:	3.00		
Falling Trig	ger F	alling 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.

Gas Mode

Each channel can be configured to be used with a "Gas Detector" or "Other (Non Gas)" instrument.

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.

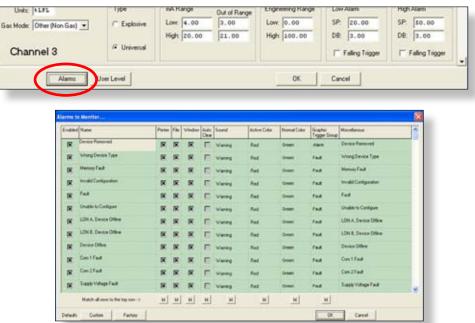
Common Settings

The bottom of the "AIM Editor..." dialog box contains buttons for setting all of the common settings on the device.

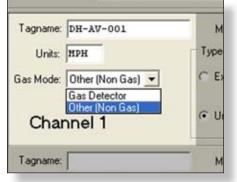
Alarms

Selecting this button opens the "Alarms to Monitor..." dialog box.

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.



	PV Dea	dband:	3.00 %
Low Alarm		High	Alarm
SP: 20.00		SP:	50.00
DB: 3.00	-	DB:	3.00
Falling Trig	oger	EF	alling Trigger



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Enabled			P	a der	Fin	Window	Auto Dew	Sound		Active (istar (Normal Criter	Graphic Trigger Group	MiceBanout		0	
R	Denice Resoned			R	R	×	E	Warring		Red		Green.	Amm	Device Removed	i -		
×	Whang Device Type			R	ĸ	×	E	Warring		Red		Oreen	feet.	Wong Device T	C*		
R	Menoy Fault	Alarms 1	e Marella	in.													ß
×	Invalid Configuration	Endied	Name					Parter	Fin	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Micellanoui	6
×	Fait	(X	High-Ada					1¥	1	(F	F	Waning	Fied	Oneen	Aiarm	Channel 1 High Alarm	1
R	Unable to Configure	×	Low Ala	•				×	R	IN.	E	Warring	Red	Oreen	Aiam	Overvel 1 Law Alam	
R	LON A. Device Office	×	syde St	-				×	R	R	Г	Warning	Red	Grean	feat	Overvel 1 Inhibit Status	
R	LON E. Device Office	×	Fail					×	×	R	-	Warrang	Red	Green	Fed	Davel 1 Fail	
×	Device Office	×	Out of B	aripe	LowF	**		×	R	IX.	-	Warring	Fied	Grawn	Fed	Overvel 1 Out of Flange Low Fault	
×	Con 1 Fault	×	Out of R	nge	High I	ed (×	R	1X	E	Warring	Red	Oreen	Fad	Overret 1 Out of Flange High Fault	
R	Con 2 Feat	R	High-Ala	•				×	R	19E	-	Warring	Red :	Orees	Alwrit.	Darvel 2Hgh Alam	
R	Supply Votage Fault	1X	Low-Ala	•				×	×	1¥	-	Waning	Fied .	Orean	Alwm	Channel 2 Low Alam	
	Match all core to the	×	beader St	-				×	×	×	-	Warring	Red	Orest	Faid	Durvel 21444 Status	
Delado	Cuitan	×	Tak					ĸ	×	R	-	Warrang	Field	Oreeth	Fad	Diavel2Fail	
(CAM)	Contrain	×	OuterR	nige	LonF			×	×	IX.	E	Warring	Fied	Green	Fast	Channel 20ut of Range Low Fault	
		×	Dust	mpe	High F	-		×	R	(R	E	Warring	Red	Green	Fed	Overrel 2 Out of Range High Fault	
		-	Hete	d 100	n far Pr	e hop rove	-9	н	н	-	н	H	м	м	н		
		Delado		August 1	T.	Factor	1								OK.	Canad	

The first 12 alarms pertain to the status and diagnostic for the overall module.

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.

The default value is "0" and provides access to all users. Change these values to match	Unit: 11FL Gas Mode: Other (Non Gas)	C Explosive C Universal	Low 4.00 High 20.00	0ut of Range 3.00 21.00	Low 0.00 High 100.00	SP: 20.00 DB: 3.00	Ngh Alam SP: 50.00 DB: 3.00
a user account configuration and security needs.	Alarma	Juer Level			Uner Level I Button Action Acknowledge Remove Inhibit Input 3 Inhibit Input 2 Inhibit Input 4 Inhibit Input 5 Inhibit Input 5 Inhibit Input 7 Inhibit Input 7		User Level 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

OK Cancel

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	Foint Address	Set RTC	Copy	Find	Point Color	
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device	Controller Log	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. The point display provides a single window view of all available real-time data for the device.

	INPUT TRAC	KING			
100.0		Concession of the local division of the loca			
60.0		2			
70.6		3			
60.0		11 ch			
50.0		Hards and			
40.0		5			
30.0		6			
20.0		7			
10.0					
0 5 10 15 20 25	m: 50.00 Low Alarm:	77.00			
ATION: Port is AphEb Node 22	Checking for controller	DEVICE TYPI	E: AI EQ3710	TA	G:AIM-22
Device Removed	Con 2 Fault		8		
Wrong Device Type	Supply Voltage Fa				Renove
Memory Fault	Rogue device				
	Hogus bevice				
And in concerning the second second					
			8		
Unable to Configure LON A Device Offline	1		1		
ON A Device Office ON A Device Office ON B Device Office	i		1		
Instite to Configure ON A Device Office ON B Device Office Ievice Office			1		EA.
Instite to Configure ON A Device Office ON B Device Office Ievice Office					E4
Instite to Configure ON A Device Office ON B Device Office Ievice Office					CHANNELS
Instite to Configure ON A Device Office ON B Device Office Ievice Office	0.00			trice	
Instite to Configure CN A Device Office CN B Device Office Device Office Com 1 Fault	0.00			traine traine	
Jostie to Configure JON & Device Office JON & Device Office Device Office Con 1 Fault Ch-1					
Jostie to Configure JON & Device Office Device Office Device Office Con 1 Fault Ch-1 Ch-2	0.00			HAN	
Instile to Configure CN A Device Office ON B Device Office Jerice Office Som 1 Field Ch 1 Ch 2 Ch 3	0.00			ivita ivita	
Instile to Configure CN A Device Office Device Office Janice Office Ch-1 Ch-2 Ch-3 Ch-3 Ch-4	0.00			NADA NADA NADA	
Instite to Configure CN A Device Office Device Office com 1 Fault Ch-1 Ch-2 Ch-3 Ch-4 Ch-5	0.00 0.00 0.00 0.00			inis inis inis inis	
Institute to Configure CN-A Device Office Device Office Ion 1 Fault Ch-1 Ch-2 Ch-3 Ch-4 Ch-5 Ch-5 Ch-6	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0			hiter hiter hiter hiter hiter	

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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Relay Module 8 channel relay module

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 yellow LED indicates a LON communication fault.

For each channel, one red LED indicates channel activation and the other yellow LED indicates a fault condition.

T	agname:	DH-RM-001		
м	lisc:	8 Ch. Relay Module		
	Tagname	Description	Comm Fail Mode	Normally Energized
1	DH-R0-001	Fielay output 1	Failed Off 🔹 🔻	
2	DH-R0-002	Relay output 2	Failed On 🔻	
3	DH-R0-003	Relay output 3	Hold Last State 🔻	
4	DH-R0-004	Relay output 4	Failed Off 🔻	
5	DH-R0-005	Relay output 5	Failed Off 🛛 🔻	

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.

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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.

lagname	DH-RM-001				
disc:	8 Ch. Rela	ay Module			
Tagname		Description	Comm Fail Mode		Normally Energized
DH-RO-00	1	Relay output 1	Failed Off	•	
2 DH-RO-00	2	Relay output 2	Failed On	•	
3 DH-RO-00		Relay output 3	Hold Last State	•	
DH-R0-00	4	Relay output 4	Failed Off	•	
5 DH-RO-00		Relay output 5	Faled Off	•	
DH-R0-00	6		Hold Last State	•	
7 DH-RO-00	7		Hold Last State	•	
DH-RO-00	9		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.

This scrolling list displays the alarms and events related to the device that can be configured to be monitored by S³.

7 DH-R0-007		Hold Last State	•	
8 DH-RO-008		Hold Last State	•	
	Alarms User Level		OK	Cancel

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	2500 S		Plater	File 1	Viridani	Auto Clean	Sound	- 3	Acti	re Color	Skar	nal Color	Graphic Tripper Group	Micella	noui.			
R	Device Rancord		R	×	×.	E	Warring	ř.	Fiel	É)	Gre	en (Alem	Device	Emerad			
×	Control Hercage Fault		×	ĸ	R	E	Warring	c.	Field	6	- 0+4	en i	Fast .	Coreol	Herrage Fault			
×	Winnig Device Type	Allarma t	e Ment	ar				_								_		-1
R	Manup Fault	Enabled	Name	1	-		3	Pinter	Tie	Window		Sound	Active	Color	Nomal Color	Graphic	Histellanous	1
R	Invold Configuration	DR C	Com 2	Faid .			_	R	DK:	R	Ces	Wareng	Fied		Orman	Tagger Group	Con 2 Fault	-
×	Fast	IN	Supply	Voltage	140			×	R	IN.	F	Warring	Red		Green	Fault .	Supply Voltage Fault	
×	Unable to Conligues	IN.	-	1.5.20				×	R.	R.	-	tularang.	Rat		Green	Alwm	Oramet 1 Diareel Active	
R	LON A, Device Office	DK.	herees	Datus				*	IN.	DK.	F	Warmy	Field		Orean	red.	Overvel 1 Inhibit Statue	
R	LON B. Device Office	IN	Fait					×	R	1K	E	Warny	Red		Green	Fed	Ourrel 1 Fault	
R	Device Office	IN	Dave	Actes				R	R	R	-	Waring	Red		Green	Awn	Diamet 2 Diamet Active	
R	Con 1 Fed	DE .	INNERS	later .				×	IX.	R	E	Warra	Feel		(hear	feet	Drawel 21/hbit Status	
×	Con 2 Fed	IN.	Fast					R	IN.	18	E	Warning	Flat		Green	Fast	Ownel2Fad	
	Match all rows to the top ro	IN	Durn	Active				x	X	IN.	F	Waring	fied		Green	Alwn	Damel 3 Damel Active	
Defailti	Custum Fact	IN.	Weets	later				×	R	R	-	Warmy	Red		Green	Fast	Channel 3 Inhibit Statue	
		IK	Fait					×	R	R	E	Wannes	fied		Orean	Fed	Ouvel1Fs.#	
		IX	Dam					ST.	R	SK.	-	Waring	Ret		Green	Alam	Dunnel 4 Dunnel Active	
		-	Match	-	to the to	10 10 1	a.c 1	м	н	н	н	н	1	н	M	н		
		Defails		attas		Factory		, manual ,		(second))	- sharef	1 1 1000		and .		OK	Carol	

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-R0-007		Hold Last State	•	
8 DH-RO-008		Hold Last State	•	
	Alarm: User Level	User Level Editor	~	1
		Button Action		User Level
		Acknowledge		0
e is "0" and p	rovides access to all users.	Renove		0
luce to match	a user account configuration	T luquO fidrini		0
		Line and Change 2		

The default value is "0" and provides access to all users. Change these values to match a user account configuration and security needs.

Auton Action	Uper Level
cknowledge	0
lenove	0
rihibit Output 1	0
nhibit Output 2	0
nhbit Output 3	0
nhibit Output 4	0
nhibit Output 5	0
which Output 6	0
rihibit Output 7	0
nhibit Output B	0

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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.

EXTEN	DED DIAGN					
CATION: Port is AphEb Node 5	Checking for control		E TYPE: DCIC	EQ3700	TAG:DC	:10-5
Device Removed Control Message Fault Wrong Device Type Memory Fault Invalid Configuration Fault Unable to Configure LON A Device Offline	LON B Device Device Offine Com 1 Faut Com 2 Faut Supply Votag Rogue device					Resource
						CHANNELS
Int FireAlarm					inhibit Int	
in2-Trouble In3-LowGas					initiat initiation	
Inst-HighGas					initia ini	
In5 Supervisory		-			inter In	
			1		track In	
In6-Other		a di seconda di second				
Un6-Other Out7-Time13					initia Out	քան
					inter Our	

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.



Agent Release Module (ARM)

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. The Agent Release Module can monitor and control two output devices (rated for 24 Vdc), which are energized together.

Tagname:	DH-DO-015				
Misc:	Agent Rele	ase Module			
		Mode Control C Squb C Timed C Continuous R Non-Latching	Release Time 0 0 = Continuous 1 - 32,767 Seconds Used only with timed mode.		
	Alarms	User Level	Set Defaults	OK	Cancel

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.

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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.

Tagname:	DH-DO-015		1		
Misc:	Agent Rele	ase Module			
		Mode Control	Release Time 0 0 = Continuous 1 - 32,767 Seconds Used only with timed mode.		
	Alarms	User Level	Set Defaults	OK	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	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscelanous	13
x	Device Renoved	×	(X	1X		Warring	Red	Oreen	None	Device Removed	
×	Channel Active	×	X	X	-	Warring	Red	Oreen	None	Channel Active	
×	Control Message Fault	(X)	(X	X		Warning	Red	Green	None	Control Message Fault	
×	Channel Open	×	R	IX	-	Warning	Red	Green	None	Channel Open	
×	Channel luciated	×	R	IX	-	Warning	Red	Green	None	Charvel Isolated	
x	Wrong Device Type	×	x	IX	-	Warring	Red	Oreen	None	Wrong Device Type	
x	Inhabit Statue	x	R	IX.		Warning	Red	Green	None	Inhibit Status	
×	Invalid Conliguration	×	IX.	IX	-	Warning	Red	Green	None	Invalid Configuration	
x	Fad	×	x	IX	-	Warring	Red	Oreen	None	Fault	
x	Unable to Configure	×	x	X		Warring	Red	Oreen	None	Unable to Configure	
×	LON A. Device Offine	×	R	IX	-	Warring	Red	Green	None	LON A. Device Offine	
X	LON B. Device Office	(X)	R	X	-	Warring	Red	Green	None	LON 8, Device Offine	
	Match all rows to the top row ->	м	н	H	м	м	эн	н	н		

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 Section 10.

ОК

Closes the "Agent Release Module Editor..." dialog box when finished.

lagname:	_	Button Action	User Level
Misc:	FM-200	Acknowledge	0
		Recove	0
		Reset	0

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 Disgnostic	Foint Address	Set RTC	Copy	Find	Point Color	
Edit	Get Voltages	Outputs	Print	Upload	Delete	New Device	Controller Log	E:

The point display provides a single window view of all available real-time data for the device.

EXTE	NDED DIAGNOSTIC	S		ALA	RM LOGS
		ALARM 1			
		ALARM 2			
		ALARM 3			
		ALARM 4			
		ALARM 5			
		ALARM 6			
		ALARM 7			
		ALARM 8			
		RECORD	TIME	DATE	TYPE
ISC: SCATION: Port isAphEb Node 13	Checking for controller DE	VICE TYPE: ARM		TAG:ARM-	13
Device Removed	LON A Device Office	8			nove
Channel Active Control Message Fault	LON B Device Office Device Office			No	00/18
Channel Open	Com 1 Fault				inter
Channel Isolated Witang Device Type	Com 2 Fault Supply Voltage Fault				
Inhibit Status	Low Aux Power Fault				
Invalid Configuration Fault	Regue device				1.4
Unable to Configure					Lot Lot

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EAGLE QUANTUM PREMIER DEVICES 12-103



IDC

2 channel Initiating Device Circuit (IDC) module

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).

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Tagname

The tagname at the top of the dialog box refers to the entire module.

Each of the two input 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-DI-010		
Misc: 2 Chi. IDC 1		t Module	
Tagname		Description	Static Logic Mode (Input)
1 DH-DI-010A		Manual Alarm Call box	Fire Alarm 🔻
2 DH-DI-0108			Fire Alarm 🔻

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.

EAGLE QUANTUM PREMIER DEVICES 12-105

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.

Tagname: DH-DI-010		DH-DI-010		
MiSC: 2 Chi. IDC Input M			at Module	
-	Tagnatie		Description	Static Logic Mode (Input)
1	DH-DI-010A		Manual Alarm Call box	Fire Alarm 🔻
2	DH-DI-0108			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, resulting in a total of 17 alarms and events that can be enabled and monitored by S³ for this module type.

Enabled	Name	Printer	File	Window	Auto	Sound	Active Color	Normal Color	Graphic Trigger Group	Miscelanous	1
×	Device Removed	(X)	R	x	E	None	Fled	Oreen	Fault	Device Removed	
×	Wrong Device Type	×	x	1¥		None	Red	Oreen	Feat	Wrong Device Type	
×	Invalid Configuration	X	IX.	X		None	Red	Oreen	Fast	Invalid Configuration	
×	Fail	×	x	x	E	None	Red	Green	Fast	Fast	
x	Unable to Configure	×	1X	1X		None	Red	Orsen	Fmit	Unable to Configure	
X	LON A. Device Offine	×	x	X		None	Red	Oreen	Fault	LON A. Device Offine	
x	LON 8, Device Otline	×	X	x		None	Red	Green	Fast	LON B. Device Office	
x	Device Office	x	x	x	E	None	Red	Oreen	Fast	Device Offine	
X	Con 1 Fault	(X)	x	1X	E	None	Red	Green	Fed	Com 1 Fault	
x	Con 2 Fault	(X	x	1¥	E	None	Red	Oreen	Fait	Con 2 Fault	
1X	Supply Voltage Fault	×	R	IX	Г	None	Fled	Oreen	Fait	Supply Voltage Fault	
×	Channel Active	×	IX	x	E	None	Red	Oreen	Alarm	Overnei 1 Overnei Active	
	Match all rows to the top row ->	н	м	м	м	м	м	м	м		

12-106 EAGLE QUANTUM PREMIER DEVICES

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.

DC Editor				
Tagname: DH-DI-010				
Misc: 2 Chi. IDC I	nput Module			
Tagname	Description		Static Logic Mode (In	put)
1 DH-DI-010A	Manual Alarm Call box	User Level Editor		
2 DH-DI-0108		Button Action		User Level
		Acknowledge		0
	in the second	Remove		0
Alams	User Level	Inhibit Input 1		0
		Inhibit Input 2		0

Point Display

The IDC 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.

EXTE	NDED DIAGNO	STICS	State and to see the		ALA	RM LOGS
			ALARM 1			
			ALARM 2			
			ALARM 3			
			ALARM 4			
-			ALARM 5			
			ALARME			
			ALARM 7			
1.1			ALARME			
			RECORD	TIME	BATE	TYPE
NSC: OCATION: Port is Aphills Node 11	Velociting Terrout	DEVICE TYPE	IDC		TAG:IDC-1	1
Wrong Device Type Invalid Configuration Fault Unable to Configure LON A Device Offline LON B Device Offline LON B Device Offline	Com 2 Fault Supply Voltage F Rogue device					
IBCOM IBCO2		=	=	878		INPUTS
CHANNEL TAGNAM	ACTIVE	OPEN		DEFEIST		

The bottom half of the point display provides a data display area and annunciator for the two input channels.

Cancel

Inhibit Buttons

0K

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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Signal Audible Module (SAM)

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 pre-defined 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.

12-108 EAGLE QUANTUM PREMIER DEVICES

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.

'agname:		ame:	DH-DO-034	
Misc	2.		2 CHL SAM Module	
Γ	Tagnan		10	Description
	1	DH-DO-	034A	Rotating beacon on LB2
	2	DH-DO-	034B	Spare channel

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.

	Nate		Parter	File Win	dos Auto Cese	Sound		Acts	e Ca	ka .	Normal Color	Graphic Tropper Group	Micellanout		2	
R	Contraction of the		(X	R 5	E	Waning	1	Red	1		Oreen.	None	Device Reneved			
R	Whing Device Type	Alarms 1	Meniler.													1
R	Control Message Fault	Enabled	Nate			Pa	ter få	W	vitre	Att		Active Colo	Normal Colleg	Graphic Topper Group	Micolarout	-
×	Invested Configuration	1X	Com 2 Feat			5	2 15	1 8	R	E	Waning	Fied	Oreen.	None	Con 2 Fed	
×	Fait	R	Supply Volla	op Fad		5	K (8		R	E	Warrang	Red	Oreen	Tarse .	Supply Voltage Fault	
R	Unable to Configure	R	Low Aur Po	mfait		0			ĸ	E	Warring	Red	Green	None	Lon Aus Power Fault	
×	LON A, Device Office	×	Channel Act			5	e 19	E 8	R.	Г	Warrang	Red	Green	None	Overvel 1 Channel Active	
R.	LON E. Device Office	×	Durvel Sh	beto		5	2 15	2 8	R	-	Warrang	Red	Orean.	Note	Durvel 1 Durvel Shated	
×	Device Office	R	Oursel Op	en (0	R (8		ĸ	•	Waning	Red	Oreen	None	Duarvel 1 Diarvel Open	
ĸ	Con 1 Fault	R	Ivhbit Dan			5		1	R	Г	Warning	Red	Green	None -	Overvel 1 Inhibit Status	
R	Con 2 Feat	R	DavelAc	ive		5			R	П	Warning	Red	Green	tere	Overrel 2 Diarrel Active	
ĸ	Supply Votage Fault	×	Charvel Sh	orted		5	E 18	t 8	ĸ	E	Waring	Fied	Green	hone	Overvel 2 Channel Shorted	
	Match all rows to the I	IX.	Channel Op	-		8	E (8		×	E	Waning	Red	Oreen	None	Overnel 2 Channel Open	
(ad)	Cuitum	R	hebbel Stanu	27		8	R (8	C 0	R	П	Warring	Red	Orean	None	Overvel 2 Webbi Status	١,
		1	Hatchall	over the Print Inc	pisse -1		1 1	1	1	н	н	н	н	н		3

There are 13 alarms and events that pertain to the status and diagnostics for the module plus 4 per output channel.

EAGLE QUANTUM PREMIER DEVICES 12-109

User Level

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.

The default value is "0" and provides access to all users. Change these values to match a user account configuration and security needs.

	User Level
cknowledge	0
Remove	0
nhibit 1	0
nhibit 2	0

Point Display

The SAM has a custom "Point Display" that can be accessed from

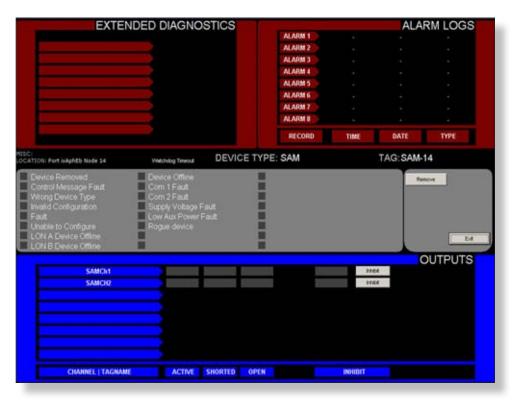
either the Point Display button on the Command Bar or from the Online Mode.

DH-DO-034B

Alarms

2

The point display provides a single window view of all available real-time data for the device.



12-110 EAGLE QUANTUM PREMIER DEVICES

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.

EXTER	NDED DIAGNOSTICS	S		ALA	RM LOGS
		ALARM 1			
		ALARM 2			
		ALARM 3			
		ALARM 4			
		ALARM 5			
		ALARM 6			
		ALARM 7			
		ALARM 8			
		RECORD	D TIME	DATE	TYPE
MISC: LOCATION: Port isAphEb Node 14	Watchdog Timeout DEV	/ICE TYPE: SAM		TAG:SAM-	14
Control Message Fault Wrong Device Type Invalid Configuration Fault Unable to Configure LON A Device Offline LON B Device Offline	Com 1 Fault Com 2 Fault Supply Voltage Fault Low Aux Power Fault Rogue device				
SAMON SAMOR			inho inho	C	
CHANNEL TAGNAM	E ACTIVE SHORTE	D OPEN	INHIBIT		

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).



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:

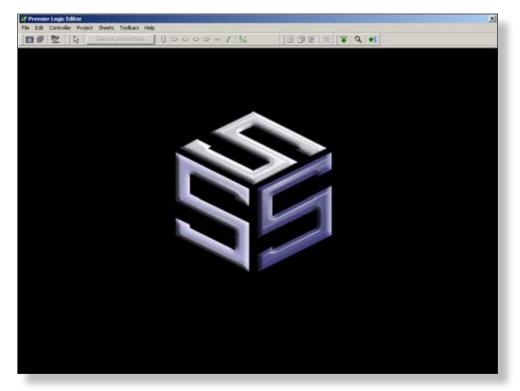
- An IEC-61131-3 style logic editor for developing logic.
- A logic simulator for testing and debugging the logic.
- The ability to download the program to the controller.
- The ability to monitor the operation of the logic "online".
- The ability to create printed documentation of the user program.

MiSC: EQP Regres	s 3-Cnt 6xx All Attributes 200	77-Bay-18	
	Detector Electron	ics Eagle Quantum Premier	
	Serial Post 1 Postool M0008U5 Starse Bind Rate 57.600 Parky Odd Addecs 2		Option Bload Type ControlNet T ControlNet 15 - Presay Nac Address 15 - Second
Redundancy I Enable	Miccellaneous Benger Volume Cit	Uner Steing Display (Mari 47 Chart) Display Traditional +	FC 61508
Communication Option Roard	Seriel Part 2	Senal Post 3	Serial Port 4
Type A	Plotocol MODBUS Marker Baud Rate 19,200 Paily None	Potocol 97 Baud Rate 230,400	Protocol MODBUS Slave Protocol Baud Plate Rate Rate Addecc

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".

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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.



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 can be customized, but in the examples above and below it is shown in its default configuration.



Sheets Toolbars Help

Select Function Block

File Edit Controller Project

Printer Setup...

Print Reports...

Print Preview... Print...

Save

Quit

File Menu

This menu contains the standard "Windows" routines for setting up to print to a network printer and then printing selected reports.

Print Reports

Calls up the "Select reports to print..." dialog box which

presents ten check boxes to select what portions of the controllers configuration are to be assembled into a report for printing.

Ctrl+P

Ctrl+O



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.

1 2000 - 1 1 56

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, a prompt will ask to save changes prior to exiting the logic editor.

ionfigure a con	troller_			1
Tagname:	Ent			
Misc:	EQP Regress 3-C	nt 6xx All Attributes 2007	-May-18	
		Detector Electronic	s Eagle Quantum Premier	
	ort 115.200 💌	- Senal Post 1 Photocol MODEUS Stave * Baud Rate 57,600 * Party Odd * Address 2 *	Inputs / Relays	Option Board Type ConnoNet ControNet 15 Mac Address Film
Redundancy	Enable	Miscellaneous Beoper Volume Off	Display (Max 42 Chars) Display Mode	IEC 61508
Communication	Option Board	Serial Pot 2	: : Secial Port 3	Serial Port 4
Туре	Туре А 💌	Photocol MODBUS Marker Baud Rate 19,200 Parky None	Pistocol 57 Baud Rate 220,400 Patty Even	Protocol MODEUS Slave Baud Rate 30.400 Party Odd
Serial	Port 3 for Downloading	Addens 1 +	Alden 1	Address D +
Logic		Algen	u UterLevel	OK.

13-4

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".

ile	Edit Controller	Project Sheets	Toolbars Help
	Undo Redo	Ctrl+Z Shift+Ctrl+Z	nction Block
	Cut	Ctrl+X	
	Copy Paste	Ctrl+C Ctrl+V	
	Duplicate	Ctrl+D	
	Find	Ctrl+F	
	Select All	Ctrl+A	
	Preferences	10	

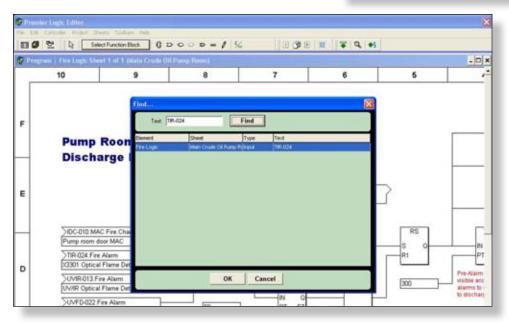
Find

This command will open the "Find" dialog box which provides a Text entry field and a Find button.

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.

Test		Find		
lenert	Sheet	Type	fed .	
_	-	-		



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, the input block "TIR-024 Fire Alarm" is on the left side of the logic page partially behind the "Find..." dialog box.

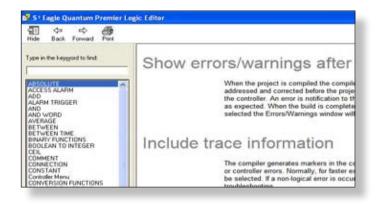
Preferences

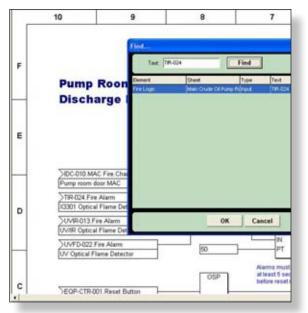
This selection opens the "Preferences..." dialog box which contains a number of checkbox selections pertaining to the visual display of the logic editor, compiling (Build) options and a Simulator selection.

The example below shows the logic editors default configuration. Each of these selectable options are described in detail below.

Visual	Build
Show grid lines	J ✓ Show errors/warnings after build
Show line marks	T Include trace information
Show full paths	Compress and D/L project
°	Un-terminated line warnings
Simulation ▼ Minimize I/O windows on start	Suppress user function unterminated line warnings
Help	OK Cancel

Use the "Help" function for additional information on how each checkbox affects the look and feel of a project.

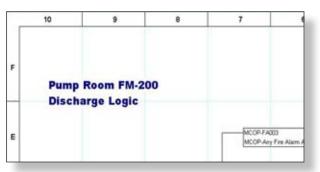




Show grid lines

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.

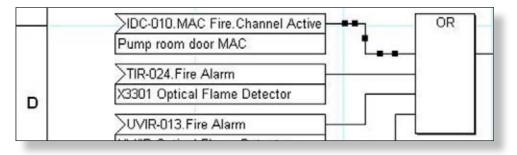


Show Line Marks

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.

	DC-010.MAC Fire.Channel Active	OR
	Pump room door MAC	_
	TIR-024.Fire Alarm	
D	X33D1 Optical Flame Detector	
-	UVIR-013. Fire Alarm	

Selecting "Show Line Marks" as in the example below, will display an additional three visual indicators spaced between the beginning 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

MAC Fire. Channel Active	
Pump room door MAC	
TIR-024.Fire Alarm	1
X3301 Optical Flame Detector	

In the example to the left, an IDC which is tagged IDC-010 has two channels. One channel is "MAC Fire".

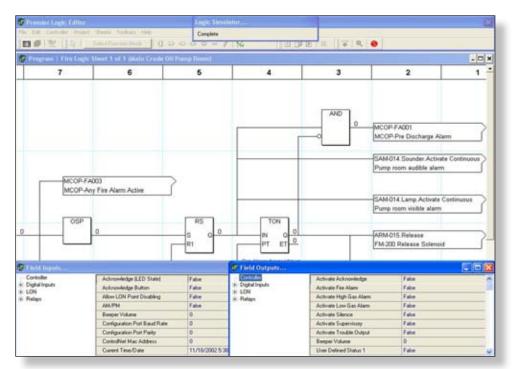
When "Show Full Paths" is enabled the channel tagname is to be shown to the left of the tagname, as shown in the example to the right. It now reads; "IDC-010.MAC Fire".

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.

SIDC-010.MAC Fire.Channel Active		OR
Pump room door MAC		
TIR-024.Fire Alarm	9	-
X3301 Optical Flame Detector		-

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.



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. Selecting one of the errors will close the viewer and display the section of logic containing the problem.



The list can be printed 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-logical 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 section 8 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 **impossible** for an S³ station without the original project file to view, edit or troubleshoot the program in the controller. An attached S³ 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.

Un-terminated line warnings

With this checked a warning will be generated when a missing pin is present on a function block. The warning is placed in the "Error/Warnings Viewer". If unchecked, the warning will not be visible in the "Error/Warnings Viewer".

Controller Menu

This menu provides access to a variety of memory management functions for internal program variables and for the configuration 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.

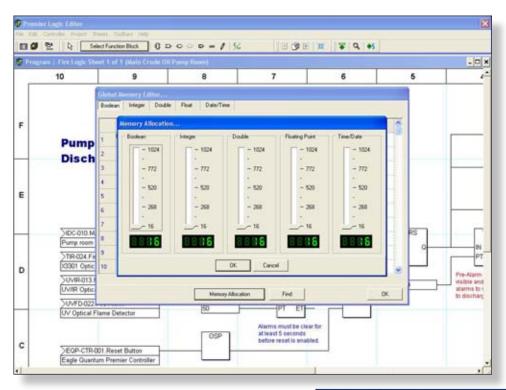
	Tagiane	Description	Protected	Value
1	HCOP/FA001	MCOP-Pre Discharge Alam		
2	MCOP-FA002	MCOP-FM200 Discharge		
3	MCOP-FA003	MDDP Any Fee Alam Active	1	
4				
5				
5				
7				
8				
9				
10	C244444444444444			-

To create a global 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 global memory point will be available in the logic editor for use as an input to or output from logic elements.

Memory Allocation

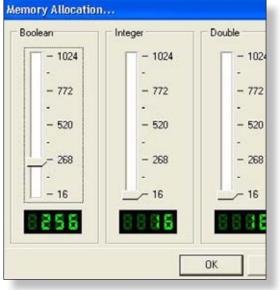
The amount of memory set aside for each of the five types is adjustable. Clicking the "Memory Allocation" button at the bottom of the local memory editor dialog box will open the Memory Allocation dialog box.



This dialog box provides five "slider" type adjustments to change the memory allocation for each type. The default setting is 16 and is adjusted 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.

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 no points created yet.

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.

	Tagname	Description	Protected	Value	1
1					
2					
3		******			
4					
5		······G·······			
6					
7					
8					
9					
10					

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 six 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 it 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.

Memory Export/Import

Global and local memories can be exported as an excel spreadsheet (CSV), or a text file which can be opened in a text editing program. Nothing will be exported if the memory editor is not populated.

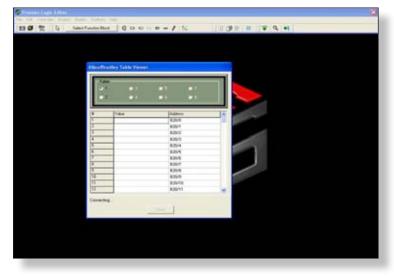
AB Export/Import

This selection allows the AB (Alan Bradley) settings created to be exported or imported to and from MS Excel or a text editing program.

loolean	Integer	Double	Floating Point	Time/Date
- 1024	- 1024	- 1024	- 1024	- 1024
		+		+
- 772	- 772	- 772	- 772	- 772
÷	-	+ 1		14
- 520	~ 520	- 520	- 530	- 520
	-	+	-	1
- 260	- 268	- 268	- 260	- 268
1	1			÷
- 16	16	16	16	16
8858	8886	8888	8886	8888
	_	OK Care		

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.



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.

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.

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.

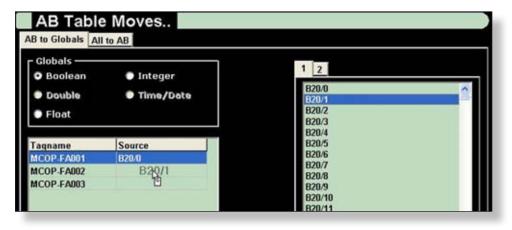
On the right side of the dialog box is a tabbed scrolling list representing configured data tables. In the example above, there are two tabs, one for each configured AB table (see previous page). There can be up to eight tabs representing the maximum number of configured data tables.

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.

Globals Boolean Doubles Float	● Integar ● Tims/Date	1 2 820-0 820-2 820-2 820-2 820-2 820-3	9
O Boolean O Double	Source R200 B350/1	828:5 8204 5 8206 7 8200 7 8200 9 8200 9 8200 10 8200 10 8200 11 8200 12 8200 13 8200 14 8200 15 8200 16 8200 16 8000 16 800000 16 8000 16 8000 16 8000 16 8000 16 800	
		829/23 829/24 Clear	

13-12

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 "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 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.

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.

E) Digital Inputs	1 2		-
 Bobal Boolean Global Double 	Source	Destination	- 0
- Global Float	1	820.0	
E Global Integer		820/1	
 Global Time/Date 		820/2	
- IC Boolean		820/3	
- IC Double - IC Float		820/4	
- IC Integer		820/5	
- IC Time/Date		820/6	
- Local Boolean		820/7	
- Local Double		820/8	
- Local Float		820/9	
Local Integer		820/10	
-Local String -Local Time/Date		820/11	
-Local Timer		B20/12	
E-LON		820/13	
E Fielays		820/14	
		B20/15	
		820/16	
		820/17	
		B20/18	×
Collapse All Expand Al		Clear	1

B to Globals Al	to AB
Globals Boolean Double Float	 Integer Time/Date
Tagname	Source
MCOP-FA001	B20/0
MCOP-FA002 MCOP-FA003	B20/1

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.

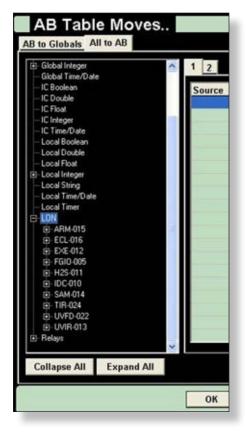
In the example to the right, the "LON" item has been expanded by clicking on the "+" sign and now shows ten subordinate items, each of which is a field device.

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.

In the example below, the "Channel Active" point is in the process of being moved to the selected destination address "B20/0" in the AB table.

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.

AB Table Moves			
ARM-015	<u>1</u>		
- ARM Output Mode	Source	Destination	
Channel Active Channel isolated	han pl Active	820/0	1
- Channel Open	10	B20/1	
- Com 1 Fault		820/2	
- Com 2 Fault		820/3	

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

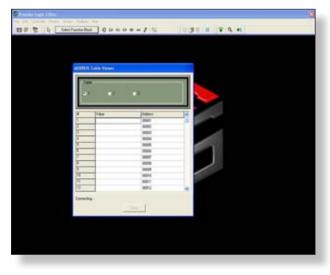
In the example above, table 1 is configured for binary data which will be stored in file 20. The table will be 128 words (16 bit registers) long and therefore support 2048 discrete "bits" of information.

MODBUS Export/Import

This selection allows the MODBUS settings created to be exported or imported to and from MS Excel or a text editing program.

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.



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 to the right, the viewer has just been activated and is attempting to establish communication with the Premier controller.

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.

Globals Boolean Double Ti Float Tagname Source MCOP-FA001 MCOP-FA002 MCOP-FA003	e	00005 00006 00007 00008	
		00009 00010 00011 00012 00013 00014 00015 00016 00017 00018 00019 00020 00021 00022 00022 00023 00024 00025 Clear	

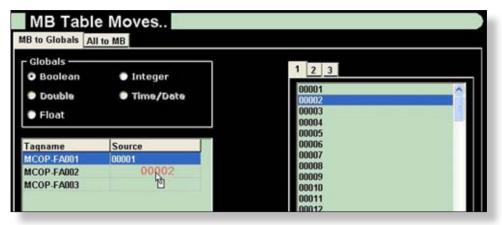
- Data to be moved from the MB system into the Premier controllers memory is configured under the "MB to Globals" tab.
- Data that will move from the Premier controller to the MB system is configured under the "All to MB" tab.

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.

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.

13-16

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 "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.

MB Table Moves.. MB to Globals All to MB Globals Boolean Integer Double Time/Date Float Tagname Source MCOP.FA001 00001 MCOP.FA002 00002 MCOP.FA003

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.

The three available Modbus data tables are accessed by the three tabs at the top of the right hand side of the dialog box. Select the table desired by clicking on the appropriate tab.

1 2 3 00001 00002 00003 00004 00005	
	00002 00003 00004

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.

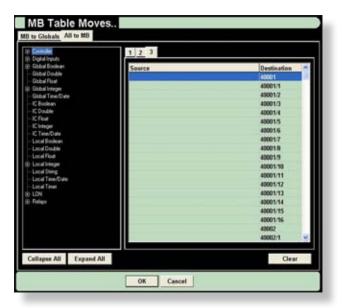
Registers can be used either as a whole "16 bit" word to move an integer value, or as sixteen individual "bits", into which boolean "ON/OFF" data can be moved.

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.

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.

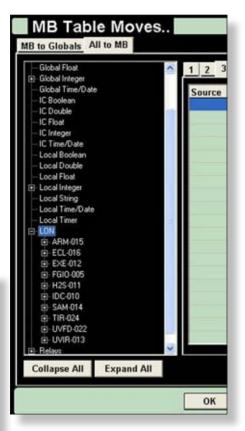
In the example to the right, the "LON" item has been expanded by clicking on the "+" sign and now shows ten subordinate items, each of which is a field device.

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 UVIR 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.

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.

B to Globals All to MB			
UVIR-013 290 volt lault	<u>12</u> 3		
- Com 1 Fault	Source	Destination	>
 Com 2 Fault Descriptor 		40001	
	Fire Alarm	40001/1	
- Device Offine		40001/2	
 Device Offline Device Removed 	75]	40001/2	

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.

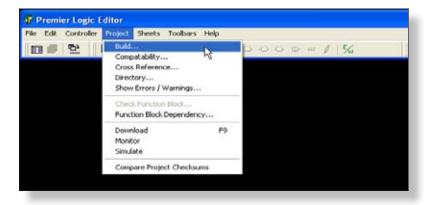
There are three register types, Coil, Input and Holding each of which are for the exchange of a different type of data. The default "Count" for each register type is 0.

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.

	Register Type	Count
1	Coll	150
2	Input	150
3	Holding	150

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.



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 creation, 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.

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.

ame	Туре	Enabled	Description	New
re Logic	Program	True	Fire Algorithims	
as Logic	Program	True	Gas Algorithims	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 highlighted.

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	1
Gas Logic	Program	True	Gas Algorithims	
Fire Logic	Program	True	Fire Algorithims	

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".

Element type selection	J		
Name: Description:			
	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	1
		Language	Type Program
		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.

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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 highlighted.

lame	Type	Enabled	Description	New
ire Logic	Program	True	Fire Algorithims	
as Logic	Program	True	Gas Algorithims	Open
lew 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.

Name:	New Program			
Description:	32 character 10	ong description		
9	gram Enabled First Scan Only	Function Parseond Nome (5 Characters)	Versico GUID GUID	

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".

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.

Name	Туре	Enabled	Description	New
Fire Logic	Program	True	Fire Algorithims	
Gas Logic	Program	True	Gas Algorithims	Open
New Program	Program	True	32 character long description	Settings
	4	<u>Y</u> es		Duplicate Export

13-24

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. Selecting "Cancel" will abort the duplication.

lame	Туре	Enabled	Description	New
ire Logic Bas Logic	Program Program	True True	Fire Algorithms Gas Algorithms	Open
	_	Enter the name		
	-			Delete
		OK	Cancel	Duplicate
				Export
				Import
Move Up	Move Down	1		Import

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.

Look in:	My Documents	• 🗧 💽	🗗 🔟 •
My Music My Picture New Folde			
File name:			Open
File name: Files of type:	Functions & Function blocks	•	Open Cancel

Export

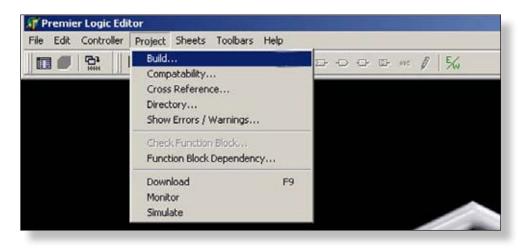
If a function block or function is highlighted in the project directory window, the "Export" button will become active allowing the element to be exported.

Project Di	Save As	2 🛛
Elements Name Fire Logic	Save in: My Documents	₫ .
Gas Logi Mark V L	Project1	ings
	File name: Save as type: Automatic	Save Cancel licate
Move	Up Move Down	Export Import
		ОК

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.



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The build process allocates memory, validates tagnames, validates data types, etc.

Project: EQP F Compiling: Cor	Regress 3-Cnt 6	xx All Attrib	utes	
Mininum Controller Version Required: 6				
Section:	7	Total Sec	tions:	7
Hints	0 Warning	ps: O	Errors:	0

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.

Compatibility

Checks to see compatibility between S³ and controller firmware.



Cross Reference

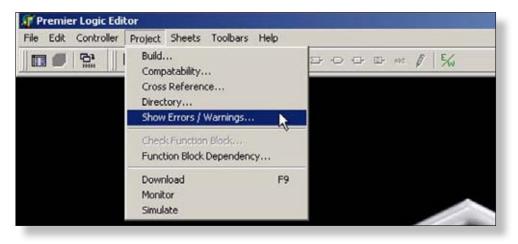
A list is generated to show every instance of tags and where they are used.

Directory

This menu selection opens the viewer and displays any problems found in the project during the last build (compile).

Show Errors/Warnings

This menu selection opens the viewer and displays any problems found in the project during the last build (compile).



When enabled, the logic editor will display the "ERROR / WARNINGS VIEWER" at the completion of a project build listing any problems.

		COMPATIBILITY VIE	
Item Checked	Version	Message	
L			
	Controller Version	a series or	

Selecting one of the errors will close the viewer and display the section of logic containing the problem. The list can be printed using the "Print" button in the lower left of the dialog box.

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Check Function Block

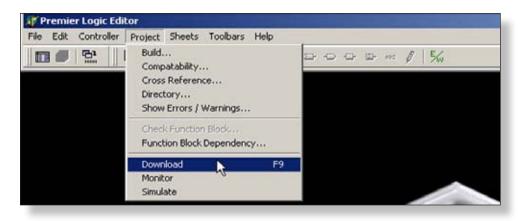
When a function block is open for editing, this menu item becomes available. When selected S³ will check the validity of the program and list any found errors or warnings.

🐙 Premier Logic Edi	tor	
File Edit Controller	Project Sheets Toolbars Help	
Program Simple 10	Build Compatability Cross Reference Directory Show Errors / Warnings	7
	Check Function Block Function Block Dependency	
F	Download F9 Monitor Simulate	

If a function block is not open for editing this feature is not available.

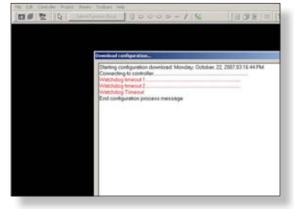
Download

Once the project has been "built" and no errors or warnings were discovered, selecting this menu item will transfer the project to the controller.



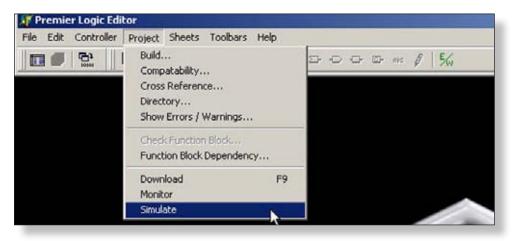
If a valid build is not found when the menu item is selected, S³ will automatically initiate a build and if no errors or warnings are discovered, the program is downloaded to the controller.

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.

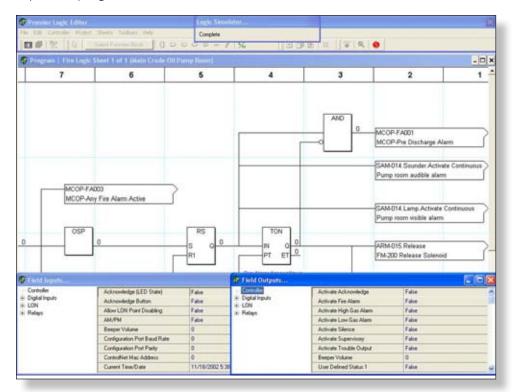


Simulate

If the project has been "built" and no errors were discovered then the program can be simulated within the S³ environment. Simulation allows for program testing and debugging without the need for an actual Eagle Quantum Premier controller being attached to the S³ workstation.



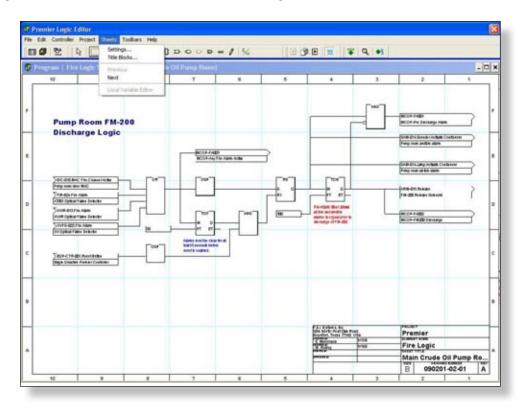
Below is an example of a program in the "simulation" mode.



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.

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.



The "Sheets" menu provides access to features determining the layout of the logic pages along with the information in the title block.

ile Edit Controller Project	Sheets Toolbars Help	
	Settings Title Blocks] ⊐ - ⊂ © m / 5‰
🍞 Program Fire Logic	Previous	e Oil Pump Room)
10	Next	8
	Local Variable Editor	

NOTE

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. 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.

A-Landscape A-Portrait B-Landscape B-Portrait	•
A-Landscape A-Portrait B-Landscape B-Portrait	•
A-Landscape A-Portrait B-Landscape B-Portrait	
B-Portrait	
C-Landscape C-Portrait D-Landscape D-Portrait	

Size

A pull down menu to the right of the sheets title allows for the selection of the logic sheets size and orientation. 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.

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 highlighted 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	
È	Main Crude Oil Pump Room		B-Landscape	T
2	Product Transfer Pump Roo	m	B-Landscape	•
3	Evaporator Room		B-Landscape	
Ар	opend 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.

ОК

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.

File Edit Controller Project	Sheets Toolbars Help	
	Settings	D
	Title Blocks	
📅 Program Fire Logic S	Previous	e Oil Pump Room)
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 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, 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 to be copied to any other selected sheets within the same element (program or function block).

Title	Man Crude Di Puny	I STORE	
	090201-02-01		
Revision	A		
	Action	Te	
	E. Menchace	9/13/2	
Modified By:	M. Poing	9/15/2	
Printed By:			
Approved By:	A.C		
Dest Fr	Top Us I. Systems, Inc.	e Ldi	_
	6 North Post Oak Ro	ed.	
N TOTAL CO.	uston, Texas 77065		_
in the second			
	Botton U	loer Edit	
Line 1:			
Line 2			1
Line 2			

		1296 North Post 0 Houston, Texas 7	ak Road 7065 USA	Pren	nier		
		E. Menchaca	9/13/2	ELEMENT			
		M. Poling	9/15/2	Fire	Logic		
		PRINTED BY		SHEET TO		Local (22	
		YAANGARD MI		Main	Crude O	il Pump R	loom
				B		1-02-01	A
6	5	4	3	1	2	1	

Next/Previous

These menu items become active whenever an element has more than one logic sheet.

File Edit Controller Project	Sheets Toolbars Help	6
	Settings Title Blocks	[===− - = ∞ / 5//
🕼 Program Fire Logic S	Previous	ransfer Pump Room)
10	Next	
10	Local Variable Editor	- °

They change the displayed logic sheet to the next or previous one as is appropriate.

🗿 Premier Logic Editor		
File Edit Controller Project	Sheets Toolbars Hel	p
	Settings Title Blocks]: ⊐ -⊃ ⊕ @ we 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.



This menu selection is only available when a function block sheet is currently active.

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. 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.

Loc	al Variable Editor		
	Tagname	Description	Data Type
1	UV Counts	UV Counts from detector	Boolean N/A Boolean String Tine/Date Double Structure
		Allocation	Find OK

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.

***	N
)24	
Cancel	
	024 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.

<u>13-36</u>

EQP LOGIC 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	1		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. more variables do not become available by simply choosing only boolean types instead of integer or floating point types.

Toolbars Menu

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.

T Prem	ier Logic I	ditor					
File Edit	Controller	Project	Sheets	Toolbars	Help		
				Gates Sheet	t Toolbar Toolbar Toolbar I 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.

File Edit	Controller	Project	Sheets	Toolbars	Help
mdi	6			V Project	Toolbar
	10101			Gates 1	9 TO 9 BUY 1
				Sheet 1	
				Contro	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.

	-	-		
-		-		
		- 11		
			 -	

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 memory, 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.

File Edit Controller Project Sheets	Toolbars Help	
🔲 🕼 📴 💦 Select Fu	✓ Project Toolbar ✓ Gates Toolbar	
	Sheet Toolbar Control Panel Toolbar	

The "Gates Toolbar" provides access to ten logic creation, editing and verification tools.

File Edit	Controlle	r Projec	t Sheets	Toolbars	Help					
		8	Select Fu	Inction Bloc	* 0	D O	00	-	9	E/w



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.

Name	/ Group	Description	
ABS	Math	Absolute	
ACCALM	Misc	Access Alarm	
ADD	Math	Add numeric values	
ALMTGR	Misc	Alarm Trigger	
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	
CTD-SIL	Counter	Down counter	
CTU	Counter	Up counter	
CTU-SIL	Counter	Up counter	
CTUD	Counter	Up/Down counter	
CTUD-SIL	Counter	Up/Down counter	
DBLFLT	Conversion	Double to Float	
DBLINT	Conversion	Double to Integer	
DBLSTR	Strings	Double to String	



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.

unction Select			2
Standard User			
Name	/ Group	Description	
ABS	Math	Absolute	
ACCALM	Misc	Access Alarm	1
ADD	Math	Add numeric values	
ALMTGR	Misc	Alarm Trigger	

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 controller, 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 provide for the transfer of values between sheets of a multi-sheet block and private local storage (local variables).



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.

	French Dents Notes	bot (DOO	D = 1 12		
		Main Crude Oil Pump I			
		R1	PT ET	FM-200 Release Solenoid	
TOF	AND	300	Pre-Alarm timer allows visible and audible	MCOP-FA002	
			alarms to signal prior to discharge of FM-200	MCOP-FM200 Discharge	

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 section.

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Sheet Toolbar

There are four icons which provide shortcuts to menu items having to do with logic sheets.



These four icons from left to right are; Previous Sheet, Sheet Settings, Next Sheet and Fit to Window.

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Previous Sheet

When a multi-sheet logic or function block element is open and a "previous sheet" exists, this button will highlight 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 addition 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 highlight and its selection will open the next sheet.



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.

File Edit Controller Project Sheets	Toolbars Help	
	 Project Toolbar Gates Toolbar Sheet Toolbar 	> C> C> me Ø 5/0
	Control Panel Toolbar	

These three icons from left to right are; Download, Monitor and Simulate.

E/G		🗣 Q, 🔸S	
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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.

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Help Menu

The help menu provides access to the online help system and has two areas; "Standard Functions" and "Main Window".



Standard Functions

This portion of the help system covers all of the available logic operators available for use in the logic editor. Selecting this menu item will open a hypertext linked help window featuring all available logical operators.

S Flagle Quantum Premier Logic Editor	
今回 ゆ ゆ 御 Show Back Forward Print	
STANDARD LIBRARY	
GROUPS	
ABSOLUTE	
ACCESS ALARM	
ADD	
ALARM TRIGGER	
AND	
AND WORD	
AVERAGE	
BETWEEN	
BETWEEN TIME	
BOOLEAN TO INTEGER	
CEIL	
COMMENT	
CONNECTION	
CONSTANT	
DIVIDE	
DOUBLE TO FLOAT	
DOUBLE TO INTEGER	
DOUBLE TO STRING	
DOWN COUNTER	
DOWN COUNTER SIL	
EQUAL TO	
EVENT TRIGGER	
FLOAT TO STRING	
FLOOR	

To access detailed information on a subject, click on a library function and the information will be displayed.

In the example below, the "Absolute" function was selected and the details of how to use this function are shown.

	etan Premier Legic Ed	101			
Prov Back F	event Part				
ABSOL	UTE				
ABS	2				
- ~~	_				
	200				
This function	provides an absolute	e function.			
This function	provides an absolute Parameter	Type LD.E	Description Input	NOT	
		Type			
Input Output The output will The output will	Parameter - - be of the same type as t	Type LD.E LD.E the input.	Input Output	No	
Input Output The output will	Parameter - - be of the same type as t	Type LD.E LD.E the input.	Inpid	No	
Input Output The output will The output will	Parameter - - be of the same type as t be the absolute value of function of maximum d	Type LD.E LD.E the input.	Input Output	No	

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.

Edit Controller Project Sheets Toolbars Help

Select Function Block

🐺 Premier Logic Editor

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File

Main Window

This portion of the help system covers the description and operation of the icons in the logic editors tool bar.



Pictures of the tool bar icons are shown along with a description of their functions.

Sandard Functions...

Main Window

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.

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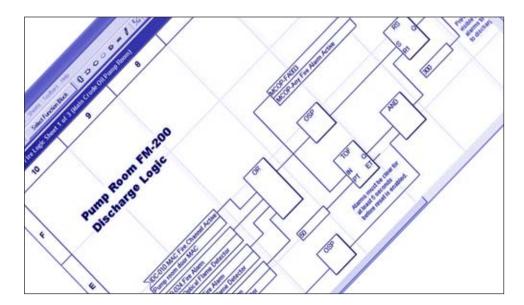


Logic Creation

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.



Definitions

Programs

Programs are the highest-level executable elements within an S³ 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).

TOF IN Q---PT ET---

Functions

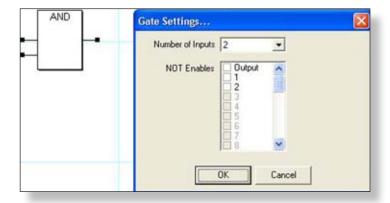
A function is an executable element that yields exactly one result. Unlike function blocks, variables in a function do not persist from one evaluation to the next. An example of a typical function is the boolean "AND" gate. Two or more inputs are evaluated and result in a single output.

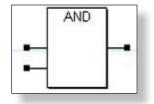
Extensible Functions

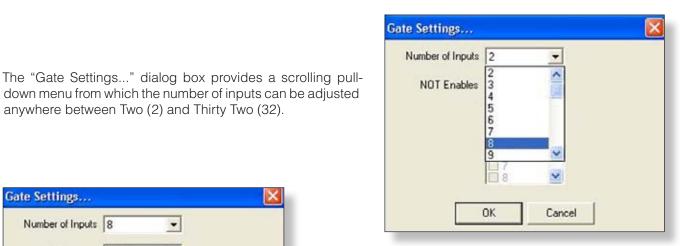
These functions have a minimum of two (2) inputs and can have a maximum of thirty two (32). The number of inputs into the function can be adjusted by double clicking on it.

This will open a dialog box allowing the input number to be set and also may allow inverting any or all of the inputs as well as the output.

In the AND gate example to the right, the default of two non inverted inputs and a 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.







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 corresponding 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 re-configured function appears as in the example to the left.

Note the small circles on the output and input "pins" indicate that these signals are "Inverted" from their normal state.

Non-Extensible Functions

anywhere between Two (2) and Thirty Two (32).

•

Cancel

Gate Settings...

Number of Inputs 8

NOT Enables V Output

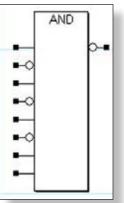
5 4 6

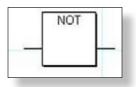
7

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0K

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.

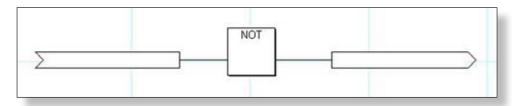




Placing Logic Operators on a Sheet

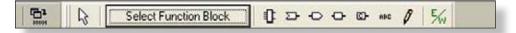
To develop a program the user must be able to use the Logic Editor to place functions, function blocks, variables, inputs and outputs on a sheet within an element and then connect them together into viable networks.

Below is an example of one of the simplest networks possible, a non-extensible function with a single input and a single output.



To create this network open a sheet within a created element and place the three logic operators on the sheet and connect them together.

1. All logic operators are selected via the icons on the "Gates Toolbar" shown above and described earlier in this section.



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 the name of the desired operator is known, it can be located quickly by typing its name. Once typing has begun, 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.

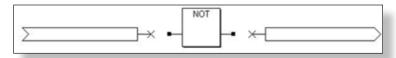
The cursor will return to the "Arrow" symbol and this tool can be used to move the placed function to the desired location on the sheet. It may also be moved using the arrow keys.



8. Click on the "Output Variable" icon on the Gates Toolbar.

The cursor will change to a miniature output variable symbol when positioned within the drawing area of the current sheet.

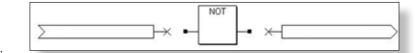
- 9. Place the Output Variable on the sheet by positioning the mouse cursor over the sheet and clicking the left mouse button.



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.

Connecting Logic Operators

Inputs, outputs, constants, functions, function blocks, etc. can be connected to each other either directly or by using "wires".

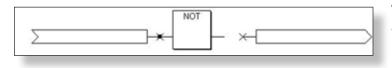


In the example to the right, connections must be made between the input, output and NOT gate.

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.

LOGIC CREATION



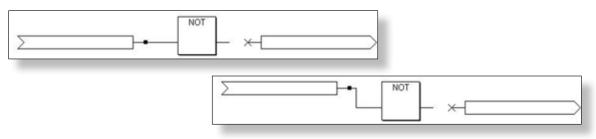
At this point, the S³ has linked the Input Variable to the input of the NOT gate and moving the Input Variable away with the mouse will automatically create a "wire" to keep the connection, as shown to the left.



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EQP LOGIC EDITOR

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 to keep the connection.

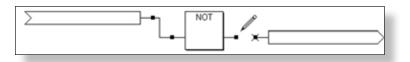


Using Wires

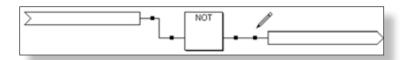
Click on the "Wire Tool" to activate it. The cursor changes to a miniature wire tool or pencil when it is positioned anywhere within the drawing area of the sheet. This means that wires can be drawn from one logic operator to another to connect them.



When active, the wire tool appears as in the example below. Using the wire tool, connect the output of the NOT gate to the input of the Output Variable. This will complete the drawing of this three logic operator network.

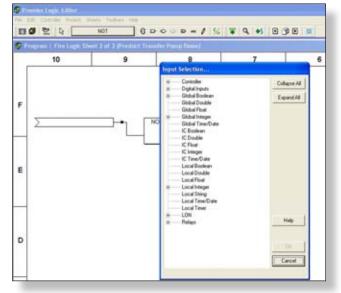


Next, the Input Variable and Output Variable must be "linked" to an appropriate I/O point or memory location in the controller.



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.



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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.

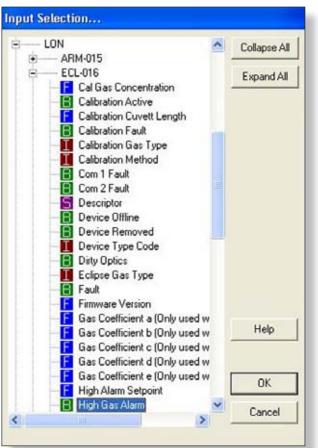
In the example to the right, the "LON" category has been expanded to reveal the field devices and then a Point IR Gas Detector (PIRECL) tagged "ECL-015" has been expanded. The data available for this device exceeds the window length and the list has become "scrolling" to accommodate the expanded data.

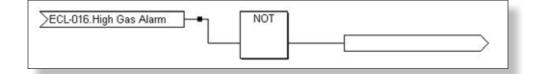
In this example, a "Boolean*" or "Binary" data element named "High Gas Alarm" has been selected by clicking on it with the mouse. Its selection is noted by its text description being highlighted.

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.





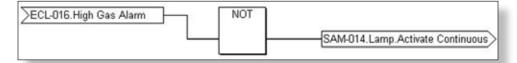
*NOTE For detailed "Data Type" definitions, structures and ranges, refer to section 13-67.

The final step in completing the example network is to link the NOT gates output variable to an appropriate point. Double clicking on the "Output Variable" opens the "Output Selection..." dialog box.

This dialog box presents the database in the same manner as described on the previous page for the input selection process.

For this example, the LON data structure has been expanded, a Signal Audible Module (SAM) with the tagname "SAM-014" has 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.

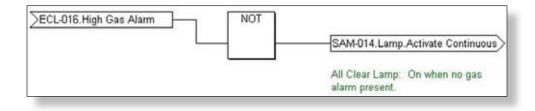
Dutput Selection			
IC Time/Date Local Boolean Local Double Local Float	4	Collapse All Expand All	
Local Integer Local String Local Time/Date Local Timer			
E LON			
ARM-015 ECL-016			
EXE-012			
FGI0-005			
H2S-011			
E SAM-014			
Device Removed			
E Lamp			
Activate 60 bpm		and the second s	
Activate Continuous		Help	
Activate Temporal Sounder			
H TIR-024		OK I	
		00	
UVIR-013		Cancel	



The network is now complete, when the High Gas Alarm for ECL-016 goes "ON" the lamp controlled by SAM-014 goes "OFF".

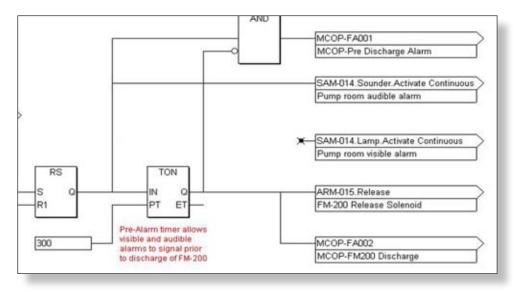
Using the "Comment Tool" a description can be added to explain the purpose of the output.



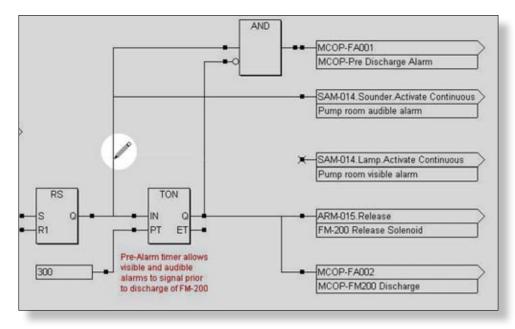


Wire-on-Wire

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.

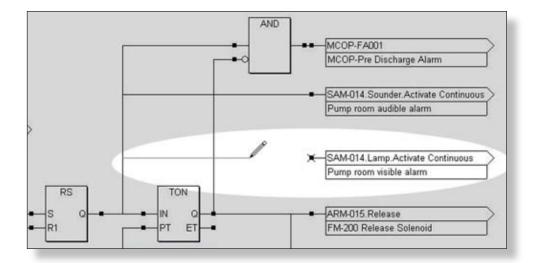


To accomplish this type of connection the "Wire Tool" is used. Select the "Wire Tool" and place it on an existing "wire" where a connection is desired.

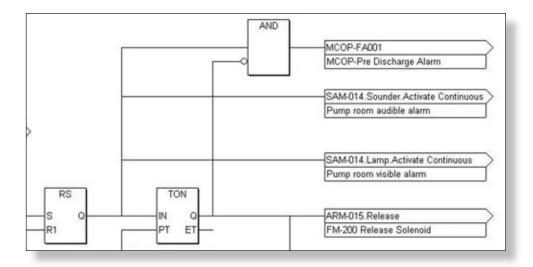
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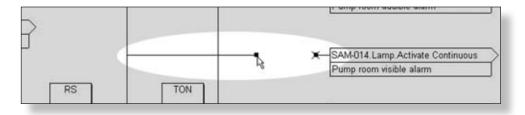
Click to and drag to make the connection and create a wire. Draw the wire from the initial wire-to-wire connection point to the input of the desired variable.



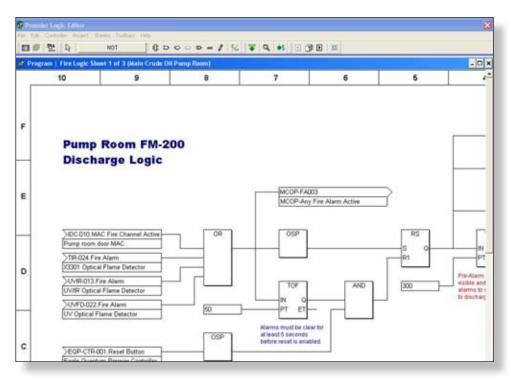
The completed circuit will look like the example below.



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.



Combining the techniques described in the last few pages with the comprehensive standard set of S³ functions and function blocks, virtually any kind or complexity of logic can be created quickly and easily.

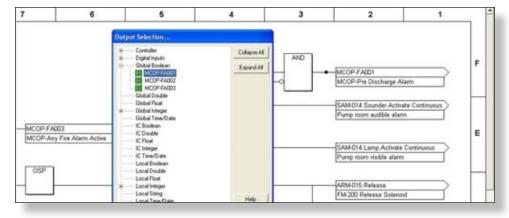


The example above utilizes a binary OR, a One Shot Pulse (OSP), a binary AND, a Reset/Set (RS) and text comments to create a portion of the protection logic for a pump room. In some cases, the complexity of the logic being designed or just the number of logic operators required may use more room than 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.

Sheet-to-Sheet Network Linking

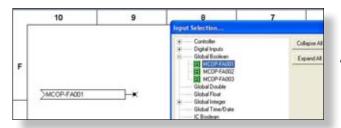
For very complex logic situations. it mav be logic necessary for а network to span more than one sheet. This is fully supported and easy to implement. By assigning an "Output Variable" to а compatible "Global Variable" memory location in the controller, the value can then be accessed on another sheet.



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In the example to the below, an Input Variable was placed and linked to a global memory point "MCOP-FA001".

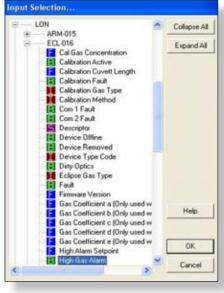


The value for this point was generated on the preceding sheet where it was assigned to the global database. Once placed in the global database, the value of "MCOP-FA001" can be used as an "Input Variable" on any other sheet in the project.

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

			104011
Boolean	Boolean	8 bit value, 1 = True, 0 = False	1000
Integer	Integer	2 bytes, 16 bit value, -32,76832,767	
Double	Double Integer	4 bytes, 32 bit value,2,147,483,6482,147,483,64	47
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	1

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	as an I/O variable)
0	e Undefined	Item ID 1 2 3 4 5	Description Seconds (0-59) Minutes (0-59) Hours (0-23) Day (1-31) Month (1-12)	Data Type Integer Integer Integer Integer Integer
		6	Year	Integer

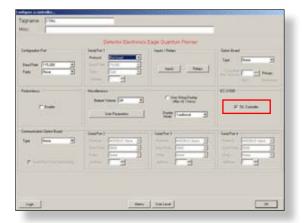
When displayed as a string the format is mm/dd/yyyy hh:mm:ss

Structure Structure A structure that does not have a fixed length.

Creating a SIL 2 project

As specified by IEC 61508 there are 4 levels of safety performance necessary for a safe functioning system. Det-Tronics supports a SIL 2 program when using $S^3 6.x.x.x+$ to build a project and downloading to controller version 6.xx+. Creating a SIL 2 project is similar to any other project in S^3 , with a few extra steps. Follow these steps to create a SIL 2 project.

1. From the "Configure a controller..." screen, check "SIL Controller" as seen below .



2. From the "Select point type..." screen, select the desired devices for a project. Note that the SIL devices are in red.

InputsDutputs	Flame
C 8 Channel Analog Input (EQ3710)	C IR Detector (19800)
C 8 Channel DC I/O (EQ3700)	C IR Hydrogen Flame Detector (C3302
C 8 Channel ED 1/0 (EQ3730)	C Multispectrum IR Detector (K3301)
C 8 Channel IPM (EQ3740)	C MIR Automotive Detector (K3301)
C 8 Channel Relay (EQ3720)	C UV Detector (EQ2200)
C Agent Release (ARM)	C UV Detector p(2200)
Initiating Device Circuit (IDC)	C UV/IR Detector (E02200)
C Signal Audible Module (SAM)	C UV/IR Detector (#5200)
Sau	Power
 CU (E02200) C Eclipse (Point Infared) 	C Power Supply Monitor
	SIL
Point Number 28 💌	C 8 Channel ED I/O SIL
	C Eclipse (Point Infaned) SIL
	C Multispectrum IR Detector SIL

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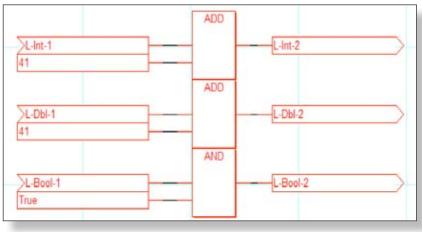
3. Once the controller is set as a "SIL Controller" and a SIL device is chosen, the screen should look similar to that of the figure below. If a devices' name is not in red text, then the project is not SIL 2 compliant, this is also true for the controller.

	Analog-2 3	10-0 10-10-	-lag Analog-	-				
	439							
	Machine (1991)			and the second second second				Configuratio
evices Found	Get Revision	Globals	Point Display	Reset Module	Arrange	Display Type	Paste	
Contract of the second second								
Dewnload	Get.RTC	LON Diagnostic	Point Address	Set RTC	Copy	Find	Paint Color	

If there is difficulty reading red text on a black background, it is possible to change the background color by clicking the "Point Color" button as seen on the example screen above.

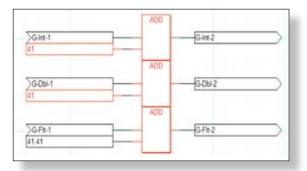
SIL Logic

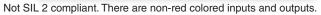
The "Premier Logic Editor" within S³ is designed to make life easy for the user to create and determine if a logic program complies with SIL 2. The program or custom function block will comply with SIL 2 if all the logics in the program are red, with the exception of the connecting paths, comments and user defined functions. Custom user defined functions are always in black regardless whether the function is SIL 2 compliant or not. If the plan is

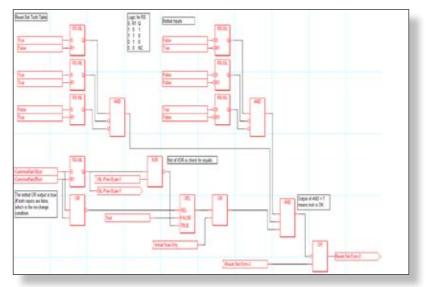


to include a user defined function block in a SIL 2 program, it must be manually verified as SIL 2 compliant. The figure to the left, and on the following page display some examples of SIL 2 and non-SIL 2 logic.

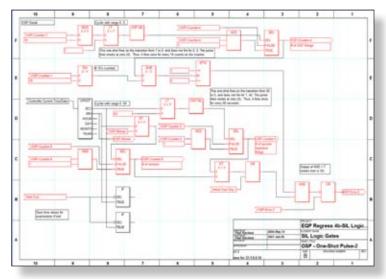
SIL 2 compliant. Everything is red.







SIL 2 compliant, everything is red except comments.



Not SIL 2 compliant, mixed usage of black logic gates with red logic gates.

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EQP LOGIC EDITOR

Categories

The categories have the following meanings:

SIL

This item is SIL by specific design. Always RED

False

This item is not SIL due to a known condition that makes it non-SIL. There is a SIL equivalent. Always BLACK

No

This item is not SIL. It may have characteristics that would require a specific design to be SIL, but it was not designed/built that way. There is no SIL equivalent. Always **BLACK**

Yes

This item is SIL by characteristics. For example, there is no internal storage associated with this item and it only uses OK datatypes. RED if SIL controller, BLACK **otherwise**

Mutable

This item may or may not be SIL, based on the type of inputs and whether or not the inputs/outputs are themselves SIL-certified. RED if SIL controller, BLACK **otherwise**

Not Applicable

A SIL characteristic is not applicable, often because there is no active logic associated with this item. Always **BLACK**

Functions

Gate/Function Name	Logic Function	Category	Notes	
ABS	ABSOLUTE	Mutable		
ACCLAIM	ACCESS ALARM	No	Strings	
ADD	ADD	Mutable		
ALMTGR	ALARM TRIGGER	No		
AND	AND	Yee		
ANDW	AND WORD	Yee		
AVE	AVERAGE	Mutable		
BTW	BETWEEN	Mutable		
BTWT	BETWEEN TIME	No		
BINT	BOOLEAN TO INTEGER	Yes		
CEIL	CEIL	No		
	COMMENT	Not Applicable		
	CONNECTION	Not Applicable		
	CONSTANT	Mutable		
DIV	DIVIDE	Mutable		
DBLFLT	DOUBLE TO FLOAT	No		
DBLINT	DOUBLE TO INTEGER	Yes		
DBLSTR	DOUBLE STRING	No		
CTD	DOWN COUNTER	False		
CTD-SIL	DOWN COUNTER SIL	SIL		
ET	EQUAL TO	Mutable		
EVTTGR	EVENT TRIGGER	No		
FLTSTR	FLOAT TO STRING	No		
FLR	FLOOR	No		
FRAC	FRAC	No		
GT	GREATER THAN	Mutable		
GE	GREATER THAN EQUAL TO	Mutable		
IF	IF	No		
	INPUT	Mutable		
INTBOL	INTEGER TO BOOLEAN	Yes		
INTDBL	INTEGER TO DOUBLE	Yes		
INTFLT	INTEGER TO FLOAT	No		
INTSTR	INTEGER TO STRING	No		
LT	LESS THAN	Mutable		
LE	LESS THAN EQUAL TO	Mutable		
LMT	LIMIT			
MAX	MAXIMUM	Mutable		
MAX	MAXIMOM	Mutable Mutable		
MIN	MINIMUM	Mutable		
MBREAD	MODBUS READ	No		
MBWRT	MODBUS WRITE	No		
MOD	MODULO	Yes		
MOFN	M OF N	Yes		
MOSP	MOSP	No		
MUL	MULTIPLY	Mutable		
MUX NOT	MULTIPLEX NOT	Mutable Yes		

Gate/Function Name	Logic Function	Category	Notes
	NUMBER OF BITS		
ODD	ODD	Yes	Strings
TOF	OFF TIMER	False	
TON	ON TIMER	False	
TOF-SIL	ON TIMER SIL	SIL	
TON-SIL	ON TIMER SIL	SIL	
OSP	ONE-SHOT	No	
OSP-SIL	ONE-SHOT SIL	SIL	
OR	OR	Yes	
ORW	OR WORD	Yes	
OUT	OUTPUT	Mutable	
PACK16	PACK 16	Mutable	
PKDT	PACK DATE/TIME	No	Integers to Date-Time
PULSER	PULSER	No	
RS	RESET/SET	False	
RS-SIL	RESET/SET SIL	SIL	
RTM	RETENTIVE TIMER	False	
RTM-SIL	RETENTIVE TIMER SIL	SIL	
RND	ROUND	No	
SCALE	SCALE	No	
SEL	SELECTOR	Mutable	
SR	SET/RESET	False	
SR-SIL	SET/RESET False		
SQR	SQUARE	No	
SQRT	SQUARE ROOT	No	
STRAPD	STRING APPEND	No	
STRCPY	STRING COPY	No	
STNCPY	STRING N COPY	No	
SUB	SUBTRACT	Mutable	
S ³ MON	S ³ MON	No	
TDSTR	TIME/DATE TO STRING	No	
TRUNC	TRUNCATE	No	
UNPK16	UNPACK16	Mutable	
UPKDT	UNPACK DATE/TIME	No	
СТU	UP COUNTER	False	
CTU-SIL	UP COUNTER SIL	SIL	
CTUD	UP/DOWN COUNTER	False	
CTSU-SIL	UP/DOWN COUNTER SIL	SIL	
XOR	XOR	Yes	

Colorings

- Always RED
- Always BLACK
- Always **BLACK**
- RED if SIL controller, BLACK otherwise
- RED if SIL controller, BLACK otherwise
- Always **BLACK**

Color for the inherently SIL as opposed to the designed SIL

Logic Function	Category	Notes
ABSOLUTE	Mutable	
ACCESS ALARM	No	Strings
ADD	Mutable	
ALARM TRIGGER	No	
AND	Yes	
AND WORD	Yes	
AVERAGE	Mutable	
BETWEEN	Mutable	
BETWEEN TIME	No	
BOOLEAN TO INTEGER	Yes	
CEIL	No	
COMMENT	Not Applicable	
CONNECTION	Not Applicable	Very difficult, run-time data dependencies if try to do. Effectively impossible.
CONSTANT	Mutable	
DIVIDED	Mutable	
DOUBLE TO FLOAT	No	
DOUBLE TO INTEGER	Yes	
DOUBLE TO STRING	No	
DOWN COUNTER	False	
DOWN COUNTER SIL	SIL	
EQUAL TO	Mutable	
EVENT TRIGGER	No	
FLOAT TO STRING	No	
FLOOR	No	
FRAC	No	
GREATER THAN	Mutable	
GREATER THAN EQUAL TO	Mutable	
IF	No	Has storage, perhaps needs SIL equivalent.
IN	Mutable	Datatype, device
INTEGER TO BOOLEAN	Yes	
INTEGER TO DATETIME	No	
INTEGER TO DOUBLE	Yes	
INTEGER TO FLOAT	No	
INTEGER TO STRING	No	
LESS THAN	Mutable	
LESS THAN EQUAL TO	Mutable	
LIMIT	Mutable	
MAXIMUM	Mutable	
MEDIAN	Mutable	

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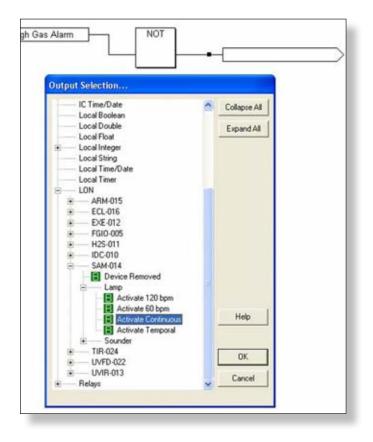
Logic Function	Category	Notes
MINIMUM	Mutable	
MODBUS READ	No	
MODBUS WRITE	No	
MODULO	Yes	See div, not clear.
M OF N	Yes	Why not?
MOSP	No	Complies to multiple one-shots followed by a multiple-input OR.
MULTIPLY	Mutable	
MULTIPLEX	Mutable	
NOT	Yes	Why not?
NUMBER OF BITS	Yes	Complies to a multiple-input boolean add.
ODD	Yes	
OFF TIMER	False	
ON TIMER	False	
OFF TIMER SIL	SIL	Not in S ³ help-file
ON TIMER SIL	SIL	Not in S ³ help-file
ONE-SHOT	No	See TT#548, 549
ONE-SHOT SIL	SIL, in process	See TT#548, 549
OR	Yes	
OR WORD	Yes	
OUT	Mutable	Datatype, device
PACK 16	Mutable	
PACK DATE/TIME	No	Integers to Date-Time
PULSER	No	S ³ -only item, complies to 2 TON gates & others.
RESET/SET	False	
RESET/ SET SIL	SIL	
RETENTIVE TIMER	False	
RETENTIVE TIMER SIL	SIL	
ROUND	No	
SCALE	No	
SELECTOR	Mutable	
SET/RESET	False	
SET/RESET SIL	SIL	
SQUARE	No	
SQUARE ROOT	No	
STRING APPEND	No	
STRING COPY	No	
STRING N COPY	No	
SUBTRACT	Mutable	
S ³ MON	No	Used to monitor S ³ application-onine mode
TIME/DATE TO STRING	No	
TRUNCATE	No	
UNPACK16	Mutable	
UNPACK DATE/TIME	No	Ctr calls it date-time-to-integers.
UP COUNTER	False	~
UP COUNTER SIL	SIL	
UP/DOWN COUNTER	False	
UP/DOWN COUNTER SIL	SIL	
XOR	Yes	

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. When the database is "browsed" to locate the desired variable for a LON device, controller or memory location, a very large array of device "items" will be listed.

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 with older devices.

Device Code	Device	LON Type Code
1	EQ2200DCU	95
2	EQ2200IDC	91
3	EQ2200UV	92
4	EQ2500SAM	93
5	EQ2500ARM	94
6	EQ2200UV/IR	96
7	EQ2100PSM	97
8	EQ3700DCIO	110
9	EQ3720RM	111
10	EQ3710AIM	112
11	8 Point Pulsed Input Module	113
12	PIRECL (Eclipse)	98
13	X3301	99
14	X2200 (UV)	114
15	X9800 (IR)	115
16	X5200 (UV/IR)	116
17	EQ3740IPM	117
18	EQ3730EDIO	118
19	X3302	119
20	EQ3750ASH	120
21	X3301A	121
22	EDIO-SIL	122
23	X3301-SIL	123
24	Eclipse-SIL	124
25	Open Path	125
100	EQ3000 (Premier Controller)	200
500	EQP Controller Relay	
501	EQP Controller Digital Inputs	
502	User Event	

Item 8 - Tag Name

User defined 20 character null terminated string.

Item 9 - Descriptor

User defined 42 character null terminated 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
* Default rate	

Default rate

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	Туре
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

Name of the user that was logged into S³ when the project was built.

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.

Baud Rate Codes	
Code	Speed
1	2400
2	4800
3	9600
4	19.2K
5	38.4K
6	57.6K
7	115.2K

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.

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EQP LOGIC EDITOR

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 device channels. See Section EQ37EDIO-SIL for more details.

Value	Definition
1	Input
2	Output
3	Smoke Detector
4	Class A Output A (First of the pair)
5	Class A Output B (Second of the pair)
6	Class A Input A (First of the pair)
7	Class A Input B (Second of the pair)
8	Solenoid Output
9	Class A Solenoid Output A (First of the pair)
10	Class A Solenoid Output B (Second of the pair)
11	Class A Smoke Input A (First of the pair)
12	Class A Smoke Input B (Second of the pair)

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 Mode	Star Mode
1	Low	96 cps	96 cups
2	Medium (Default)	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. This item is typically used to adjust the amount of time a fire must persist before it is deemed to be an actual fire.

Item 41 - UV Arc Rejection

UV Arc Rejection		
Value Definition Gate Len		Gate Length
1	Low	0.250
2	Medium (Default)	0.125
3	High	0.0625
4	Very High	0.0625

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 output.

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.

Item 47 - IR Sensitivity

The IR for UVIR flame detectors always uses 0.125 second gate length for sampling the counter. The signal is compared to the threshold 0.5 second.

IR Sensitivity				
Value	Definition	UV/IR		X3301
		Counts per gate	Effective counts per second	
1	Low	8	64	Low (not used)
2	Medium (default)	6	48	Medium
3	High	4	32	High (not used)
4	Very High	2	16	Very High (Default)

Item 48 - IR Oi Threshold

The Oi test will run for a maximum of five seconds.

IR Oi Threshold		
Value Definition Counts per Secon		Counts per Second
1	Low	64
2	Medium (Default)	48
3	High	32
4	Very High	16

Item 49 - IR Oi Test Frequency

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.

IR Oi Test Frequency	
Value Definition	
1	1 minute (Default)
2	1 Hour
3	2 Hours
4	4 Hours

Item 50 - Full Scale Value

The Engineering unit full scale value can be configured 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.

Mode	Definition
1	No Supervision
2	Monitor for opens
3	Monitor for opens and shorts

Item 53 - Eclipse Gas Type

This field allows the PIRECL 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	Mode
Same as Measured (Default)	1
Methane	2
Propane	3

Item 55 - Calibration Method

Description	Code
Standard (Default)	1
Cuvett	2

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 LFL

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 of the controller I/O points has a predefined alternate function. When the alternate function is enabled for a relay, 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.

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 is set while the Controller is in program mode, else it is cleared.

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. This item also goes TRUE when digital input 1 is configured for the reset function and is activated, or the activate reset item is set from S³. This item is latched by the Controllers static logic until the current logic scan is complete. If the faceplate-reset button is still pressed at the end of the scan, the variable will be held TRUE for the next scan.

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 Error Code	
0	No Error
1	Unknown Instruction Type
2	Unsupported Address Mode
3	Unsupported Data Type
4	Unsupported Instruction
5	A parameter error was detected
6	Too many items on the stack for this opera- tion
7	User Program is too large
8	First Scan Program Too Large to Complete
9	Initial CRC was Incorrect
10	Failed Background CRC test
11	Instruction Pointer Error

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

The 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.

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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.

Value	PV Value
1	UV Signal
2	IR Signal

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

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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.

Calibration Log Format	
Description	Data Type
Seconds	Int
Minutes	Int
Hours	Int
Day	Int
Month	Int
Year	Int
Zero Reading	Int
Span Reading	Int

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 inhibit the device or channel associated with this item. Clearing the item will remove the inhibit.

Inhibit control and status resides in the controller, not the field devices. Only the primary alarm or input status is affected. Inhibits do not trigger a fault condition. When a device or a channel is inhibited, the controller will illuminate one of two LEDs. When inputs are inhibited the Inhibit led will be activated and when an output channel is inhibited the Out Inhibit led will be activated. Inhibits can be controlled from S³, user logic or from the faceplate.

To change the inhibit state from the faceplate, navigate to the "Control Inhibit" property for the device or channel and press the enter button, inhibit control will toggle. Resetting the controller or field device will not change the inhibit state. Inhibits will persist through a download as long as the same device type remains at the address. Inhibits will be lost during a loss of power or after a watchdog reset.

There are no built in time-outs for inhibit. An "Actual State" variable was added to show the state of an inhibited input but S^3 does not currently display it. The "Actual State" variable is used by the controller when the inhibit is removed. This allows the alarm or active condition to reactivate before the next status message from the device arrives.

For SIL rated devices the master inhibit control must be enabled to allow inhibits to activate. See static logic function for controller digital input #4 for more information.

Device	What is Inhibited
DCU	Low and High Gas Alarm
IDC	Input Active
UV_Detector	Fire Alarm
SAM	Output
ARM	Output
UV/IR	Fire Alarm
PSM	
DCIO	Input Active or Output
Relay Module	Output
Eclipse	Low and High Gas Alarm
X3301/2/Automotive	Fire Alarm
X2200	Fire Alarm
X9800	Fire Alarm
X5200	Fire Alarm
Controller Relay	Output will not activate
Controller Digital Input	Input Active
AIM	Low and High Alarm
EDIO	Channel Active, Input or Output
EDIO_SIL	Channel Active, Input or Output
X3301_SIL	Fire Alarm
ECLIPSE_SIL	Low and High Gas Alarm

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

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Setting this control item instructs the controller to sendrelease 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 UVIR flame detector to send the UV or the IR signal.

Value	PV Value
1	UV Signal
2	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 fielded 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 non-ratio 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 to 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 lds. The lds are used to address the device when getting network diagnostic information. The neuron lds 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 $\frac{1}{2}$ 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 ¼ 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	

* 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.

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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 285.

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.

Code	Description
0	No Fault
1	Alarm below threshold
2	No Comm From other controller
3	Parse Error
4	Ack Comm Error
5	Standby Fault
6	Program Flow Error
7	LON A Interface Fault
8	LON B Interface Fault
10	Application Memory Error
11	User Logic Error
12	Invalid Configuration
13	No Lon communication between controllers
14	Error in Response

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	Beeper Test (Active during lamp test)	
2	Gas Alarm	
3	Trouble	
4	Supervisory	
5	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	Туре А

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)

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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.

Baud Rate Codes	
Code	Speed
3	9600
4	19.5K
5	38.4K
6	57.6K
7	115.2K
8	230.4K

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". Refer to the data type section of this document for the parity data values.

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 allowed selections are listed below.

Baud Rate Codes	
Code	Speed
3	9600
4	19.2K
5	38.4K
6	57.6K
7	115.2K
8	230.4K

Item 318 - Serial Port 3 Parity

Serial port 3 parity is set with this variable. The default parity is "None". Refer to the data type section of this document for the parity data values.

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 allowed selections are listed below.

Baud Rate Codes	
Code	Speed
3	9600
4	19.2K
5	38.4K
6	57.6K
7	115.2K
8	230.4K

Item 322 - Serial Port 4 Parity

Serial port 3 parity is set with this variable. The default parity is "None". Refer to the data type section of this document for the parity data values.

Item 323 - Serial Port 4 Address

The address field is reserved for future use.

Item 324 - Master Controller

This item is set true when the controller controls the LON outputs, master mode. A controller in standby mode (hot back-up) will clear this item.

Item 325 - RS485 Ground Fault

This item is used to signal a ground fault on the RS485 port on the communications option board.

Item 326 - Communication Option Board Fault

This item is used to signal a fault with the communications option board. This fault is true when the communications option board is missing or the wrong board type is selected/installed.

Item 327 - Invalid Device Parameter

This item is used to signal that a device configuration is invalid. First used with the X3302 detector.

Item 328 - Diminished Detection

This item is used to signal that a detector has diminished detection ability. First used with the X3302 detector.

Item 329 - Detection Disabled

This item is used to indicate that a detectors ability to detect a fire is disabled. First used with the X3302 detector.

Item 330 - Start Calibration

This control item is used to initiate calibration of a device.

Item 331 - Abort Calibration

This control item is used to abort the calibration sequence.

Item 332 - Calibration Step

This item is used to indicate the calibration step. Each device type can define the meaning of each step.

Item 333 - Lon Overload Fault

This item is used to indicate that user logic is attempting to write more data to LON output devices then the LON can accommodate.

Item 334 - User String Display Enable

When this configuration item is true the controller descriptor text (item 9) will be displayed on the controller faceplate while in normal mode (scrolling marque).

Item 335 - Controller Display Mode

European approvals (EN54) and China approval bodies require specific information to be displayed by the controller. Approval requirements also specify specific modes of operation which differ from Premier's traditional operation. This item is used to select the proper mode of operation. This list may grow over time to fulfill requirements from different markets.

Controller Display Mode	
Value	Mode
1	Traditional
2	International

Item 336 - User Alarm

This item is only used internally by the AlarmTrigger logic function and is not associated with a particular device.

Item 337 - First Stage Alarm

First alarm output from a X3301A Automotive detector.

Item 338 - Second Stage Alarm

Second alarm output from a X3301A Automotive detector.

Item 339 - Config Port Relay Control

This status item is used to control a relay that switches the configuration port serial line from a primary controller to a secondary controller. The item goes true when the serial line should be connected to the secondary controller. The serial line is normally directed to the master controller except during the configuration process. In user logic this bit should be connected to one of the controller relays. The normally open contacts of the two relays (one from each controller) should be paralleled together to drive an external relay that switches the Rx and Tx comm lines.

Item 340 - Alarm Hold Timer

First used with the X3301A Automotive detector. Refer to the X3301 Automotive specification for details on this parameter.

Item 341 - Stage 2 Delay Timer

First used with the X3301 Automotive detector. Refer to the X3301 Automotive specification for details on this parameter.

Item 342 - Small Fire DelayTimer

First used with the X3301 Automotive detector. Refer to the X3301 Automotive specification for details on this parameter.

Item 343 - Suppression Timer

First used with the Automotive MIR Flame Detector (X3301). Refer to the AMIR X3301 specification for details on this parameter.

Item 344 - LON Diagnostic Fault

This is a new fault used by SIL field devices. The controller will issue this fault when the percent of missed status messages from a device is greater than 10% from both channels.

Item 345 - SIL Device

When this config bit is set it tells the Controller or field device that it should have compliance with IEC61508 (SIL2) operation. Controllers are configured with the factory test fixture for SIL operation. When the Controller is set for SIL operation extra diagnostics are performed on an ongoing basis. The controller will signal the "wrong device type" if the factory configuration does not match the configuration setting downloaded from S³.

Item 346 - Internal Voltage Fault

This fault bit is set when hardware diagnostics detects a problem with one of the internal power supplies. First used with the EDIO-SIL device.

Item 347 - Hardware Fault

This fault bit is set when hardware diagnostics detects a hardware related problem. First used with the EDIO-SIL device.

Item 348 - PWM Fault

This fault bit is set when hardware diagnostics detects hardware problem with the PWM (Pulse Width Modulator). First used with the EDIO-SIL device.

Item 349 - Rogue Device

This fault bit is set when the controller detects two devices at the same address.

Item 350 - LON Pattern Test

This fault bit is set when the LON pattern message is incorrect or missing.

Item 351 - Watch Dog Timer Fault

This fault bit is set when the power-up test detects that the watchdog timer is not working properly.

Item 352 - Controller Inhibit Mode

In Alarms only mode, the inhibit feature inhibits only the alarms. The Alarms and Fault Mode inhibits all faults that trigger the Controller fault relay as well as alarms. The Alarms and Fault Mode also complies with EN54.

Control Inhibit Mode	
Value	Mode
1	Alarms Only
2	Alarms & Faults (EN54)

Item 353 - Controller Fault

This fault LED is set when the Controller is reset due to a Watch Dog Reset. It may only be cleared by a power cycle.

Item 354 - TX Lamp Fault

This Open path fault is set when the receiver has determined that the transmitter is flashing in the fault mode. This mode indicates that the transmitter lamp B is currently active.

Item 355 - Beam Block

This Open Path receiver has been blocked of all flash events.

Item 356 - ADC Saturation

This Open Path receiver and receiver are too close together.

Item 357 -Cal Active at Start

This fault is active when the switch input, which is pin 13 on the terminal board, is closed during power up. This fault is not active for a reed switch closure at startup.

Item 358 - Noise fault

This is an interference fault. It does not typically occur by itself.

Item 359 - Channel Fault Warning

This is a fault that is associated with each channel of a multi-channel field device. This is activated when there is any fault that affects the channel. The channel may or may not function. This only applies when the Controller Inhibit Mode is set to Fault Inhibit.

Item 360 - Gas Diode Gain

This is the current setting of the programmable amplifier used for the Open Path gas sensors. The setting may be a value from 1 through 7.

Item 361 - Beam Block Delay

The beam block delay is used with Open Path. This is the amount of time that must go by before a blocked beam fault is declared. The delay is configurable from 1 minute to 60 minutes.

Item 362 - Standby Power Fault 1

The standby controller sets this status variable when low voltage is detected on the power input #1.

Item 363 - Standby Power Fault 2

The standby controller sets this status variable when low voltage is detected on the power input #2.

Item 364 - Standby LON Fault

The standby controller sets this item when a Lon fault is detected.

Item 365 - Standby LON Gnd Fault

When this item is true, the standby controller has detected a ground fault.

Item 366 - Standby Controller Fault

This item is true when the standby controller has been reset by a Watch Dog Reset.

Item 367 - HSSL Communication Fault

This item is true when the master controller loses communication with the standby controller.



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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