Instructions   95-8479-02

EagleVision-NT Software

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EagleVision-NT software is a configuration and diagnostic tool for Eagle Quantum™ or Eagle 2000™ systems. The software provides convenient and accurate system configuration, ensures that all vital system status information is quickly and easily accessible to the operator, and provides diagnostic and troubleshooting tools.

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

The EagleVision-NT database contains all the information needed to allow easy and accurate configuration of Det-Tronics products. All pertinent information for the device including user selectable options is displayed on the point configuration screen, where changes can be made as desired.

Point display screens for each node on the network provide detailed status information. The eight most recent alarm events are recorded, and a record of the zero and span calibration values is maintained to allow the operator to track sensor sensitivity trends.

EagleVision-NT offers password protection to keep unauthorized personnel from modifying system configuration.

Two versions of EagleVision-NT are available — standard EagleVision-NT and EagleVision-NT for Wonderware.

Standard EagleVision-NT will run under Windows 95 or Windows NT and is designed as a stand alone application for configuration, diagnostics and event recording.

EagleVision-NT for Wonderware is designed to run with the Wonderware® Intouch HMI (human-machine interface) program version 6.0 or higher, and requires the Windows NT operating system. EagleVision-NT for Wonderware provides two additional features — real time data exchange to and from Intouch, and a tagname export function.

1.2

FEATURES

- 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 without interrupting system operation.
- Alarm and calibration data available online.
- Automatic diagnostics ensures reliable system operation.
- Current device status and alarm logs can be viewed in detail.
- Eagle Quantum logic generation.

SYSTEM COMPATIBILITY

EagleVision-NT can operate on most Intel® based computers (Pentium® processor recommended), running Windows 95® or preferably Windows NT® 4.0 or later. The software can support multiple Eagle loops (up to a maximum of 16) on computers equipped with serial port expansion hardware.

EagleVision-NT is designed to support the Eagle Quantum Fire and Gas Detection/Releasing System and the Eagle 2000 Hazard Event Monitoring System.

EAGLE QUANTUM™ SYSTEM

Eagle Quantum combines a flame detection/extinguishing agent release system with a hazardous gas monitoring system, integrated on a fault tolerant digital communication network. The system continuously monitors analog process signals such as gas concentrations as well as flame detectors and contact closure type devices such as manual fire alarm call boxes and heat detectors. The fire related sensor inputs can then be used by the control unit for executing the fire suppression logic, controlling the extinguishing agent release, signaling and annunciating output actuation.

The Eagle Quantum system consists of three basic components:

1. Local Control Unit (LCU) functions as the "heart" of the system. It contains the fire logic and provides operator interface controls. External host devices that are used for configuration and monitoring of the system interface through the LCU.

2. Local Input/Output Unit (LIOU) is part of the fire detection portion of the system and performs functions such as fire suppression agent release and notification. The LIOU is controlled and supervised by the LCU, and must be located within 25 feet of the LCU.

3. Local Operating Network/Signaling Line Circuit (LON®/SLC) allows intelligent input and output devices to communicate with the LCU. It consists of a fault tolerant, two wire, digital communication network that is arranged in a loop that starts and ends at the LCU.

    Field devices can consist of a combination of Digital Communication Units (DCUs), Initiating Device Circuits (IDCs), Ultraviolet (UV) and Ultraviolet/Infrared (UV/IR) flame detectors, Agent Release Modules (ARMs), Sounders (also referred to as Signal Audible Modules or SAMs), and Network Extenders.

EAGLE 2000™ SYSTEM

Eagle 2000 is a hazard event monitoring system that is used primarily for monitoring relatively large numbers of combustible and/or toxic gas detectors. The Eagle 2000 network can span up to 32,000 feet (10,000 meters) with up to 250 intelligent field devices.

EagleVision-NT can operate on most Intel® based computers running Microsoft Windows 95/NT. Although the software can be used with Windows 95, Windows NT 4.0 or later is the preferred operating program. Windows NT is required for use with Wonderware.

A minimum of 16 megabytes of RAM are required, however, 32 or more megabytes are recommended for optimum performance.

The software requires a color monitor with a minimum resolution of 640 by 480.

A hard drive with at least 10 megabytes free is also required.

The system can utilize any properly installed printer.

1. Insert the EagleVision-NT Disk 1 into the floppy drive. From the Windows Program Manager menu bar, select File, Run and type **a:\setup**.

NOTE
Installing EagleVision-NT does not affect AUTOEXEC.BAT, CONFIG.SYS or any other system files.

2. Follow the directions on the screen.

3. Insert Disk 2 when instructed and continue to follow the directions on the screen.

4. When the installation is completed, double click on the Quantum icon to start the program.

TAGNAME EXPORT FOR WONDERWARE'S INTOUCH PROGRAM

EagleVision-NT exchanges real time data by directly monitoring and updating changes to Intouch tagname values. For this to work properly, EagleVision-NT must know the exact name of all shared tagnames.

EagleVision-NT uses DLLs (Dynamically Linked Libraries) to exchange real time data with Intouch. The DLLs are a part of the EagleVision-NT for Wonderware program and must be loaded and running for the program to operate. When EagleVision-NT for Wonderware starts up, it checks to see if Intouch has loaded the DLLs in memory. If it has, the DLLs will already be running and a connection will be made. If Intouch is not running, EagleVision-NT will automatically load the DLLs from the hard disk. If EagleVision-NT for Wonderware is running without Intouch (for

example, to export tagnames) a search path to the DLLs must be provided to enable EagleVision-NT to find them.

PROVIDING A SEARCH PATH TO INTOUCH DLLS

1. Select "Settings" from the "Start" Menu.
2. Select "Control Panel."
3. Double click on the "System" icon.
4. Select the "Environment" tab. See Figure II-1.
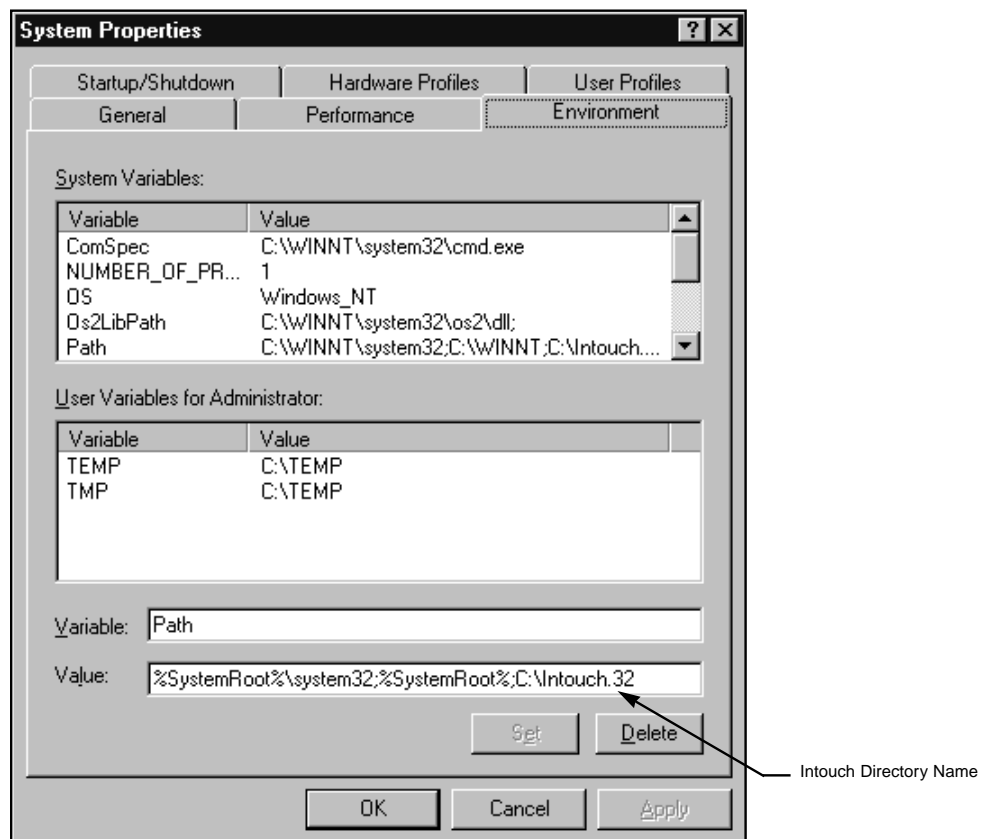
FIGURE II-1

System Properties
Screen

5. Select "Path."
6. Add the Intouch directory name to the existing string. The default Intouch directory is ;C:\Intouch.32. If Intouch is installed under a different directory name, enter this name instead.
7. Press the "Set" button to enable the new settings.

Before building the configuration database, the operator must know exactly what hardware is used in the system.

System type — Eagle 2000 or Eagle Quantum?
How many LONs are being used?
How many and what type of field devices?
    Input devices:
        Flame detectors — UV, UV/IR
        Gas Detectors — DCU with combustible, H2S, PointWatch, etc.
        IDCs
    Output devices:
        SAMs
        ARMs
    Power supply monitors
    Gateways
        Main gateway (required)
        Auxiliary gateways (up to 3)
    Logic Controllers
        Power supplies
        LIOU
            Release boards
            Sounder boards
            Relay boards

After determining the type and number of field devices, each device must be assigned an address.
- Main gateway must be address 1.
- Addresses 2 to 4 are reserved for auxiliary gateways.
- Logic controllers occupy two adjacent addresses. They are assigned an odd address and automatically assume the following even address. For convenience it is recommended to work up from address 5.
- The remaining addresses are available for field devices.

NOTE
The gateway relays are programmed to monitor a "block" of addresses. Take this into account when selecting addresses for field devices.

1. To start a new database, select "New" under the "File" menu.

2. To save the project, select "Save" under the "File" menu. If the file has not been named, select "Save As," name the file, and save.

CONFIGURING SYSTEM HARDWARE

To configure each system device:

1. From the Point Configuration screen, select an address and click on the "Modify Point" button. The "Point not Defined" screen will be displayed. Click on the "Define" button.

2. Select the type of device, and click on OK.

3. Select the desired device parameters. Refer to the appropriate device configuration section of this manual for complete details.

4. Repeat for each device in the system.

5. Save the project.

ESTABLISHING COMMUNICATION

1. To establish communication with the gateway, click on "Config" under the "File" menu. The Port Configuration screen will be displayed. (Refer to "Section IV — Establishing Communications" for complete details.)

2. To download the configuration data to the devices, click on "Download All" or click on "Download One" starting with the lowest address number and working up. Watch the screen for errors. Errors may be generated if a configured device is not present or the wrong device type is selected.

NOTE

Logic controllers must be placed in Reset/Program mode while downloading data.

NOTE

The gateway retains a copy of the configuration data, which can later be used for auto configuration.

3. Check to be sure that all devices are communicating.

4. Select the gateway, then click on "Write EEPROM" to write the data to the gateway EEPROM. Select the logic controller and click on "Write EEPROM" to write the data to the logic controller EEPROM.

NETWORK LOADING CONSIDERATIONS

When designing a system, it is important to realize that increasing the number of nodes on the LON results in a corresponding increase in the amount of time required for a status change message from a detection node to be processed by the gateway. The gateway can handle an average of 50 status messages per second. This means that if a LON consists of 50 devices, all devices could be programmed for a status update rate of 1 second (updates rates are adjustable from 1 to 10 seconds). For a LON with 100 devices, they can all report at a two second

interval. When 250 LON devices are used, the average status update time can be set for 5 seconds. Note that all units do not need to be programmed for the same update rate. Higher priority devices can be set for a shorter time, while lower priority units can be set for a longer time. The important factor is the average time for the entire LON — this must not exceed 50 messages per second.

SYSTEM MONITORING

The color of the tab in the lower left hand corner of the Point Configuration screen indicates the current system status.

> None = Normal operation (No devices in Alarm or Fault)
> Red = Alarm
> Yellow = Fault.

From the Point Configuration screen, click on the Overview button to display the System Overview screen. See Figure III-1. This screen provides an overview of the entire system. Each configured node is represented by a square on the loop, and is identified by its address number. The color of the square indicates the status condition. (This screen is also used for diagnostics purposes. Refer to Section IX - LON Troubleshooting for details.)

> Black = Normal operation
> Red = Alarm
> Yellow = Fault condition.

NOTE
An alarm condition will override a fault condition.

Eagle Vision-NT (Eagle Quantum System)
File   View

1   5 6 7 8 9 10 11 12 13

Lon_1

Network   LON Diag.   Lon Order
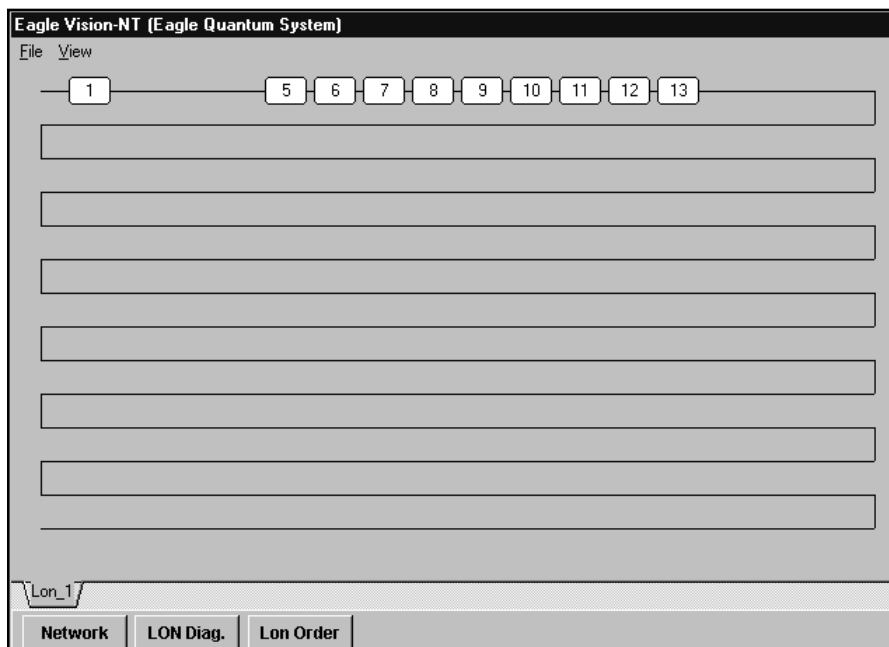
FIGURE III-1

System Overview
Screen

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To further identify a device on the loop, place the cursor on the square, but do not click. The description/identifier that was entered for this device at the time of configuration will be displayed below the square. For complete status information for this node, double click on the square to open the point display screen for the device. (Refer to Section VII or VIII for information regarding Point Display screens.)

EVENT LOG
(FOR EAGLEVISION-NT WITHOUT WONDERWARE)

A complete listing of all system status events is displayed on a window that runs the full width of the screen at its bottom. (The event log window can be moved to any position on the screen by clicking on the title bar and dragging it to the desired location.) To open the Event Log, click on Event Log under the View menu. See Figure III-2.
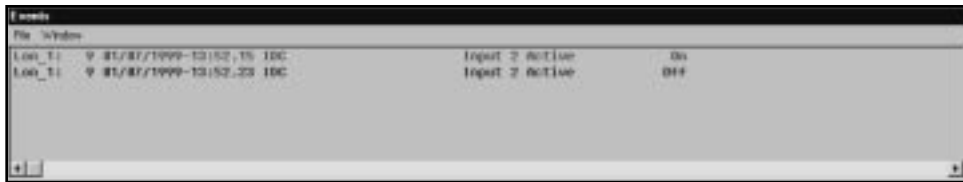
FIGURE III-2

Event Log Window

The event log displays system events as they occur. Each new event that occurs will appear at the bottom of the window and any previous events will move up. Information displayed includes LON number, device address and type, date and time, description of event, and event status (on or off).

IMPORTANT
The event log window must be open for this feature to function. Events that occur prior to opening the event window will not be displayed.

If screen space is at a premium, click on Minimize under the Window menu. The events log window is reduced to a button labeled "Events" in the lower left hand corner of the screen. All events occurring while the event log is "minimized" will be recorded. To view the events log, double click on the button.

Clicking on Maximize under the View menu causes the event log to fill the entire screen.

Events are color coded according to the Trigger configuration for the device type. (Refer to "Device Trigger Configuration" in the Configuration section of this manual for information regarding triggers.)

    Red = alarm
    Yellow = fault
    Blue = return to normal
    Black = other events.

Events are also logged to the computer's hard drive. A separate file is kept for each day. At midnight each day, the existing file is closed and a new file is automatically added. All events present on the Event log are recorded on the hard drive. Daily event files are identified by year, month and day. These files are not automatically deleted from the hard drive. Periodically, the operator must delete any unwanted files.

To obtain a permanent record of the event log, click on Print under the File menu. All data currently listed in the event log window (all events occurring since the last time that the log was cleared) will be printed.

The Operator Interface Station (OIS) must be configured to communicate with the gateway. Select Config under the File menu to display the Communication Port Configuration screen. See Figure IV–1. This screen is used to create and define LON networks as well as serial communication connections.
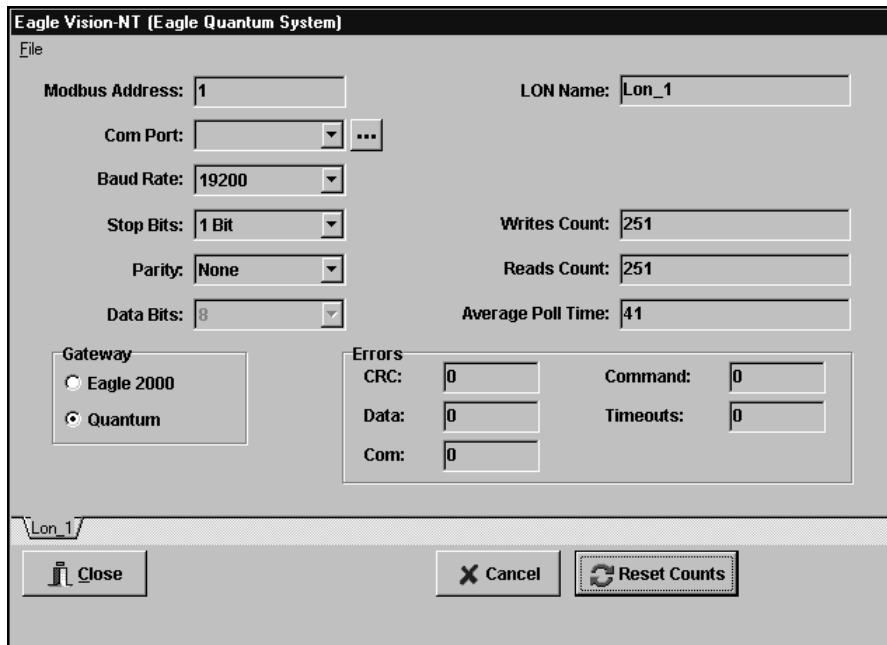
FIGURE IV-1

Communication Port Configuration Screen

Type a tag name for the LON in the LON Name box. This name will appear on the tab in the lower left corner of the screen and is also used as a prefix for the Wonderware tagnames. It should be kept as short as practical.

Select the type of system (Eagle 2000 or Quantum) in the box labeled Gateway.

Enter the desired values in the Modbus Address, Com Port, Baud Rate, Stop Bits, Parity and Data Bits fields. (Refer to the appropriate hardware instruction manual for complete switch setting information — form number 95-8470 for Eagle Quantum or 95-8424 for Eagle 2000.) When Gateway port 2 is used (port 0 for Eagle 2000) the values are fixed at 9600 baud, even parity and one stop bit. When Gateway port 1 is used, the values selected in these fields must match the Gateway DIP switch settings for baud rate, stop bits, parity and data bits.

Modbus Address must match the value set on the gateway Modbus address DIP switches, S7. When gateway port 1 is used, the address is set using the gateway's DIP switches. When port 2 is used (port 0 for Eagle 2000), the address is set using software from the Gateway Configuration screen. The default address is 1.

Com Port defines which PC serial port is connected to the gateway. Clicking on the button next to Com Port initiates a routine in which the software systematically tries all valid combinations of baud rate, data bits, and parity. If a connection is successfully established, the software will fill in the appropriate values.

Writes Count tracks the number of outgoing messages to the gateway.

Reads Count tracks the number of responses. These two numbers should track each other, however, a small disparity does not necessarily indicate a problem.

Average Poll Time is the amount of time for the gateway to respond to the message.

ERRORS

This data indicates communication errors. These values can be helpful in diagnosing communication problems.

CRC (Cyclical Redundancy Check) is an error checking method. This field is incremented when the calculated CRC value is different than the transmitted value. This error is typically caused by incorrect serial communication settings.

Data. This field tracks the number of response messages that have the wrong data size.

Com. This field tracks the number of serial communication errors reported by the operating system.

Command. This field tracks the number of Modbus error responses. This can occur if the gateway is not configured properly. Check the setting of the Main/Aux gateway DIP switch.

Timeouts. This number is incremented each time the gateway does not respond to the message from the OIS.

When correct communication is established, the read and write counts should match, with zeros displayed in the Error boxes.

BUTTONS

Close closes this window.
Add creates a new LON.
Cancel cancels the entry.
Reset Counts resets the counters.
Delete deletes the LON.

Double click on the Quantum icon to start EagleVision-NT. The Point Configuration screen is displayed. See Figure V–1.
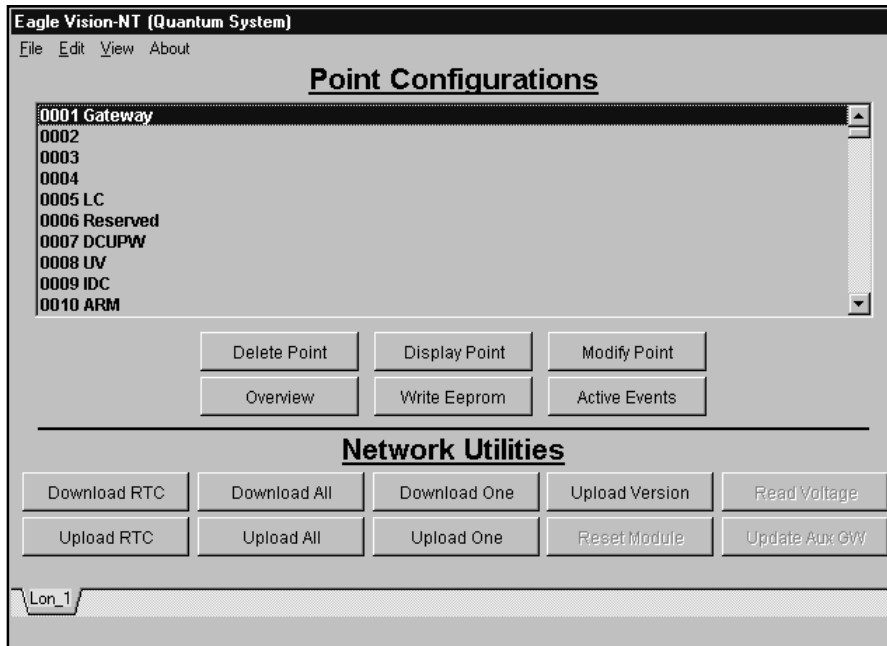
The first step in system configuration is selection of device triggers, as described below.

NOTE
The default trigger lists will ensure correct operation in the majority of applications, and no modifications to the lists are required. If it is determined that changes to the default trigger lists are required or additional trigger lists need to be added, follow the procedure described below.

Each Eagle field device has discrete pieces of status information. Device triggers are the means through which the operator tells the system how to treat each of these pieces of information — which ones constitute an alarm, which constitute a fault, and which are handled simply as system events.

DEVICE TRIGGER CONFIGURATION

Device triggers are used by one of EagleVision-NT's diagnostic features called the "Overview" screen. The Overview screen shows a schematic representation of the loop and its field devices. It then graphically displays the status of each point — whether it is normal, in alarm, or fault.

The conditions that will trigger an alarm or fault are determined during system configuration. A default trigger "list" has been provided for each

device type. The default list can be accepted as is, it can be modified, or additional lists can be created as needed. This feature allows similar device types to respond differently to various input conditions. For example, one IDC can be programmed to trigger a fault condition in response to an active input condition, while a different IDC can be programmed to generate an alarm.

1. Under the Edit menu select Triggers.

2. Select the type of device from the Select Triggers Form.

3. To view or modify the selected trigger list, click on the Modify button. To create a new trigger list, click on the New button. The Edit Triggers screen will be displayed. See Figure V–2.
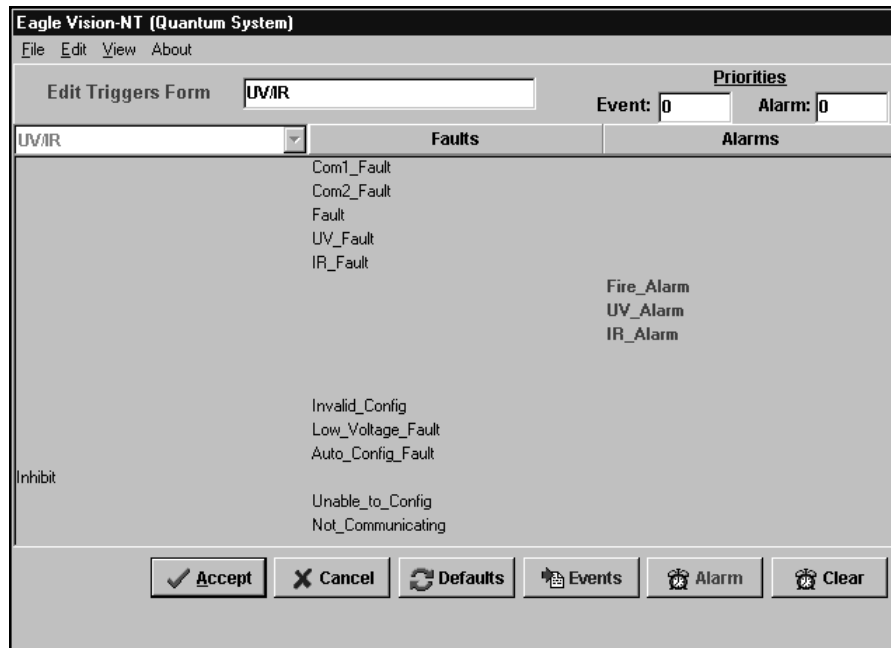
FIGURE V-2

Edit Triggers Screen

4. If a new list is created, enter the new trigger name in the space provided at the top of the screen.

5. Select the device type from the pull down menu.

6. To make modifications to the list, simply click and drag the item to the appropriate column. Right column = alarms. Middle column = faults. Left column = other.

7. If EagleVision-NT is being used with Wonderware, the operator has the option to enable the alarm and event fields in the tagname definition and also assign priorities for the tagnames. Selecting a tag-

name and clicking on the Events or Alarm button enables or disables the event or alarm log control bit in the Wonderware db.CSV export file. The Event or Alarm priority value will also be exported.

To select tagnames, hold the Shift key and click on the tagnames. Then click on either the Events or Alarm button. Tagnames will be color coded on the Edit Triggers screen as follows:

Alarms = Red, Events = Blue, Off = Black.

Enter the desired priority level (0 to 999) in the "Event" and "Alarm" boxes located in the upper right hand corner of the screen.

8. Click on Close to return to the Select Triggers Form screen.

9. Click on Close to return to the Point Configuration screen.

PRINTING TRIGGER DATA

To obtain a permanent record of trigger information for the system, from the Select Triggers screen select Print under the File menu. EagleVision-NT will print a list of trigger data for all devices in the system. This includes both factory default triggers and custom triggers. Printed information includes the type and name for each trigger as well as a complete listing of all events configured under the categories of alarm, trouble and other.

GATEWAY CONFIGURATION

LCU CONFIGURATION

Addresses 1 through 4 are reserved for gateways only. Address number 1 should be used for the main gateway and 2 to 4 for auxiliary gateways (if used).

1. Highlight line 1 on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button. Select the gateway type, then click on OK. The Gateway Configuration screen will be displayed. See Figure V–3.
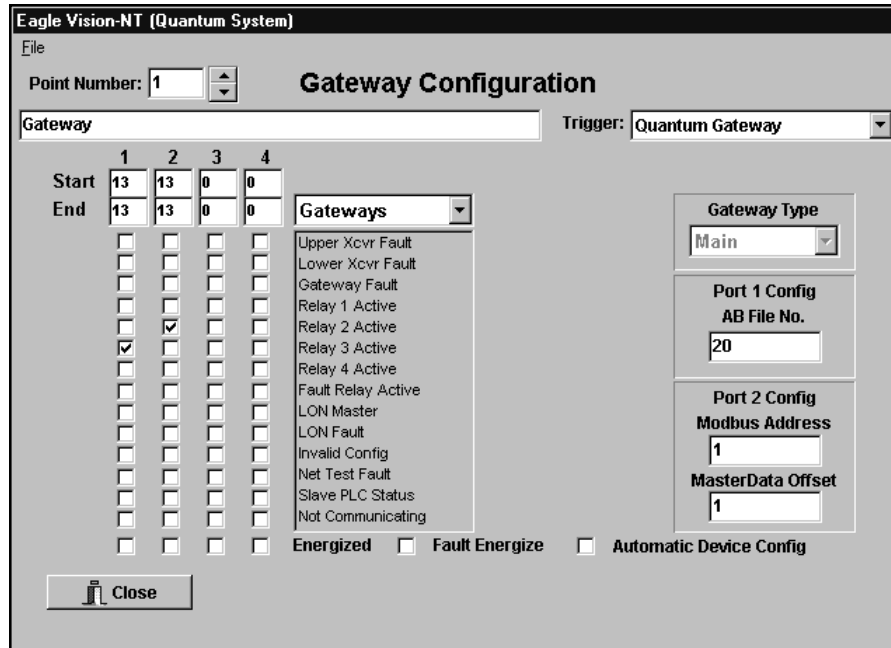
FIGURE V-3

Gateway Configuration
Screen

3. Type a tag name for the point in the space provided.

4. Assign a trigger for the point.

5. Select gateway type and fill in the appropriate port configuration data. These settings are determined in conjunction with the gateway DIP switch settings. (Refer to the hardware manual for switch setting information.)

Port 1. Serial Port 1 on the Eagle Quantum gateway is configured for Allen Bradley DF1 or Modbus RTU protocol using a DIP switch on the gateway. The drop address is also set using a DIP switch on the gateway. The interface uses Allen Bradley PLC5 logical addressing.

Allen Bradley DF1 Mode

EagleVision-NT supports Binary and ASCII addressing modes. It does not support multiple message responses — no more than 120 words with a single request. EagleVision-NT supports full duplex mode as well as the functions listed in Table V-1.

AB Function Number	Definition
0	Word Range Write
1	Word Range Read
26H	Read Modify Write
67H	Typed Write
68H	Typed Read

TABLE V-1

Functions Supported by EagleVision-NT

The "Word Range Write" function will not call control word functions. The "Read Modify Write" or "Typed Write" functions must be used for control words. N:20 and 21 are the default file numbers, and can be changed by entering the desired file number in the AB File No. field under Port 1 Config on the Gateway Configuration screen. The lowest file number (N:20) can be changed in the gateway configuration while the second file number is always one higher.

Refer to Table V-2 for the Allen Bradley memory map.

File Number	Element	Memory Block	Access
N:21	0 to 499	A Configuration	Read / Write (Non-Volatile)
N:20	500 to 749	B Control Words	Read / Write (Gateway will clear the bit)
N/A		C-1 Extended Gateway Status	Read Only
N:20	0 to 249	C-2 Status Words	Read Only
N:20	250 to 499	D Process Variable	Read Only
N:20	750 to 874	E-1 Transfer Buffer from Gateway	Read Only
N:20	875 to 999	E-2 Transfer Buffer to Gateway	Read / Write
N:21	500 to 515	F Last Direction Data	Read Only

TABLE V-2

Allen Bradley Memory Map

Modbus RTU Mode

When Modbus mode is used, the gateway is the slave device.

Port 2. Port 2 of the Gateway can be configured for either Modbus master or slave operation.

As a Modbus RTU master, it actively "feeds" a copy of its datatables to a slave PLC. When set for the master mode, enter the PLC address in the Modbus Address field under Port 2 Config.

When set for the slave mode, enter the gateway address in the Modbus Address field. (The address in the Modbus Address field should be the address of the slave device.)

The Master Data Offset specifies where in the slave PLC's register memory (40,000 registers) the data from the Eagle system will begin.

6. Enter a starting and an ending address for each of the four gateway relays. These numbers identify a specific "block" of addresses that will be monitored by each gateway relay. Then check the appropriate boxes to select the event(s) that will actuate each of the relays. The fault relay will be actuated upon detection of a LON fault (LON open or shorted) or an internal gateway fault (self-diagnostic test failure).

7. Check the appropriate "Energized" button if a normally energized relay coil is desired. The coil will become de-energized when the relay status becomes active.

8. Checking the Automatic Device Configuration box will cause all configuration information to remain in effect after the replacement of an electronic module or an entire field device. This will allow field device replacement or repair without the need for operator initiated re-configuration, however, all DIP switches on the replacement device must be set exactly the same as the original. (This feature is available for Eagle Quantum systems only.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

LOGIC CONTROLLER BASE CONFIGURATION

1. Highlight line 5 on the Point Configuration screen. Click on the Modify Point button. Click on the Define button. Select Logic Controller, then click on OK. The Logic Controller Configuration screen will be displayed. See Figure V–4.
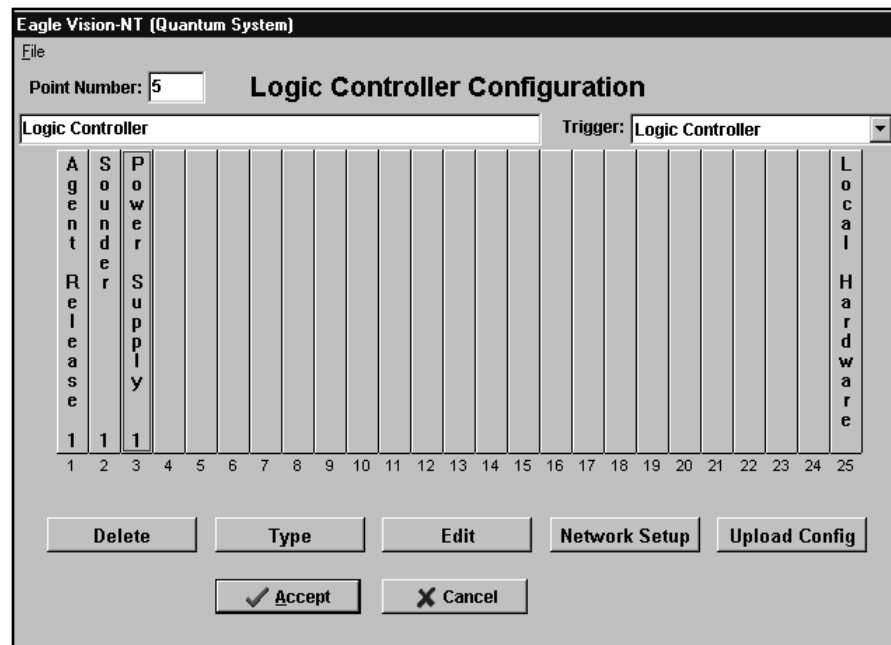
FIGURE V-4

Logic Controller Configuration Screen

eader

The Logic Controller occupies two adjacent addresses. When configuring a Logic Controller, it must be assigned an odd address. It will then automatically use the following even address. A Logic Controller can be assigned any address from 5 to 249, however, address number 5 is recommended. (If additional Logic Controllers are used, they should be assigned to Addresses 7, 9, etc.)

2. Type a tag name for the point in the space provided.

3. Assign a trigger for the point.

4. The Logic Controller communicates over the network with input devices such as flame detectors, DCUs, and IDCs, and output devices such as SAMs and ARMs, as well as all devices in the LIOU. The remainder of the Logic Controller configuration will be covered in connection with the configuration of those devices later in this manual.

5. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

DCU CONFIGURATION

FIELD DEVICE CONFIGURATION

To configure a DCU with combustible gas sensor, O2 sensor, or PointWatch:

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the appropriate button for the type of device being configured, then click on OK. The DCU Configuration screen will be displayed. See Figure V–5.

FIGURE V-5

DCU Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Click on the Defaults button to display the default values for calibration gas, high and low alarm setpoint, and update rate. If other values are desired, enter them in the appropriate boxes.

When a K Factor is Used

If the sensor is calibrated using a gas type that is different than the gas being detected, a calibration "K factor" must be used. (Refer to Det-Tronics Technical Note No. GTN01 for complete information regarding the use of K factors.)

If a K factor is used for sensor calibration, a similar adjustment should be made when entering the calibration gas value at the OIS. Use the following formula to determine the correct value to be entered in the box labeled "Now" under Cal. Range. This will ensure the most accurate gas level reading at the OIS.

$$C \times K = S$$

C = Concentration of calibration gas in % LFL
K = K factor for the gas to be monitored (from Table 1 in GTN01)
S = Corrected calibration output level
(Enter this value in the box labeled "Now" under Cal. Range).

7. Enter the Destination Address(s). The Destination Address is the address of the Logic Controller that will receive messages from this DCU. If the DCU will report to more than one Logic Controller, an address for each Logic Controller (up to a maximum of four) must be entered.

   Since Logic Controllers occupy two addresses, they are able to receive messages at either address. (Do not program a single point to report to both addresses.) To maximize system speed and performance, it is recommended to alternate odd and even addresses during system configuration — i.e. half of the field devices report to the odd address and the other half report to the even address. A convenient way to do this is to have odd numbered field devices report to the Logic Controller at its odd address and even numbered devices at the even address. (Failure to alternate odd and even destination addresses will not compromise system communication.)

8. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

To configure a Universal DCU:

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the DCU Universal button, then click on OK. The DCU Universal Configuration screen will be displayed. See Figure V–6.
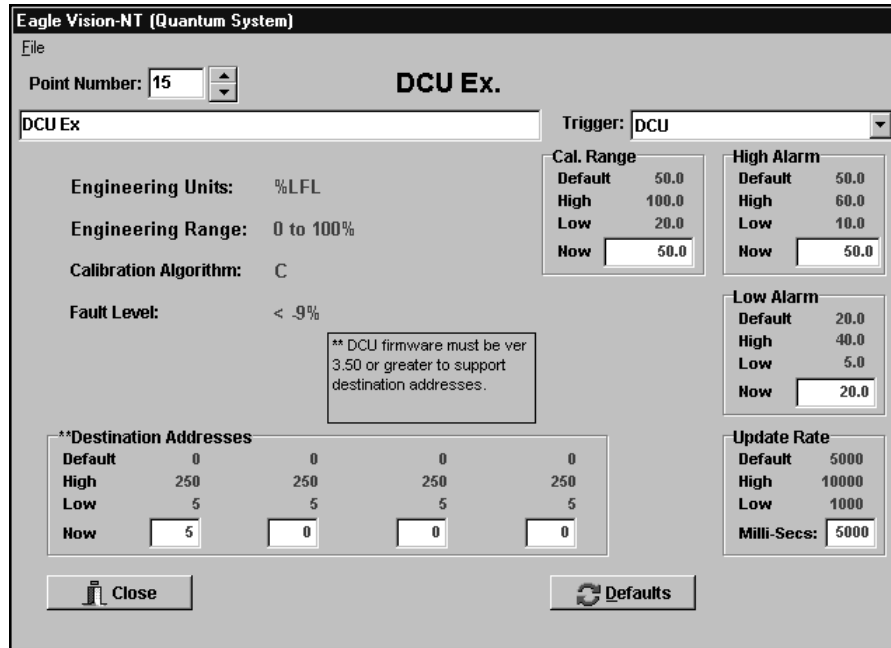

FIGURE V-6

DCU Universal Configuration Screen

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4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Define engineering units and enter the name in the box provided.

7. Enter the full scale value in the "High" box under Engineering Range. The Low value must be 0.

8. Under Calibration Type, select either manual or automatic for the type of calibration that will be used. (Refer to the hardware manual for complete calibration information.)

9. Click on the Defaults button to display the default values for calibration gas, high and low alarm setpoint, and update rate. If other values are desired, enter them in the appropriate boxes. (Refer to "When a K Factor is Used" above if a K factor is being used for sensor calibration.)

10. Enter the Destination Address(s). (Refer to step 7 above for instructions regarding selection of destination addresses.)

11. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

IDC CONFIGURATION

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the IDC button, then click on OK. The IDC Configuration screen will be displayed. See Figure V–7.

FIGURE V-7

IDC Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Select an input mode for each of the two channels.

7. Click on the Defaults button to set the update rate default value. If a different update rate value is desired, enter the value in the box labeled "Milli-Secs" under Update Rate.

8. Enter the Destination Address(s). (Refer to step 7 under "DCU Configuration" for instructions regarding selection of destination addresses.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

UV DETECTOR CONFIGURATION

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the UV Detector button, then click on OK. The UV Configuration screen will be displayed. See Figure V–8.

FIGURE V-8

UV Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Select sensitivity level, signal processing mode, latching/non-latching, time delay, automatic oi, and arc rejection level (if arc rejection is selected). (Refer to the hardware instruction manual for a complete description of the detector's features and options.)

7. Click on the Defaults button to set the update rate default value. If a different update rate value is desired, enter the value in the box labeled "Milli-Secs" under Update Rate.

8. Enter the Destination Address(s). (Refer to step 7 under "DCU Configuration" for instructions regarding selection of destination addresses.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

UV/IR DETECTOR CONFIGURATION

Refer to the "Specifications" section of the Eagle Quantum hardware instruction manual (form number 95-8470) for suggested settings for detecting various fires at specified distances using the Eagle Quantum UV/IR detector. These settings are recommended as a "starting point," with the final settings determined and verified through field tests.

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the UV/IR Detector button, then click on OK. The UV/IR Configuration screen will be displayed. See Figure V–9.

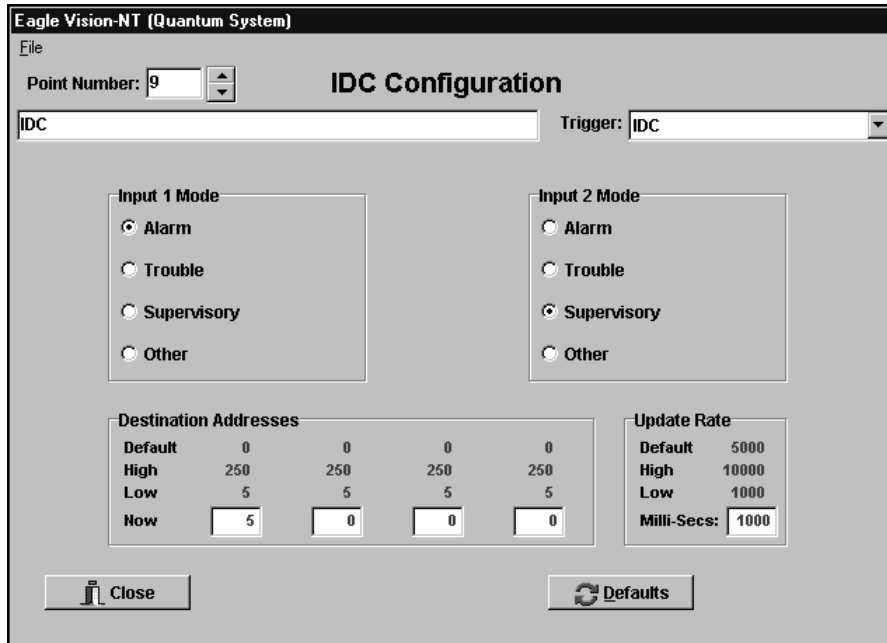FIGURE V-9

UV/IR Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Configure the point by selecting:

Sensitivity level –	UV and IR selected separately
Signal processing mode –	UV only
Arc rejection level –	If arc rejection is selected
Latching/non-latching –	With "latching" selected, fire alarm signal is present until cleared by a reset command from the OIS.
Automatic Oi –	Selecting "manual" disables the automatic Oi test.
Oi sensitivity –	IR only
Time delay –	0 to 7 seconds
Oi test frequency –	IR only (UV fixed at once per minute)

7. Enter the desired update rate value in the box labeled "Now" under Update Rate.

8. Enter the Destination Address(s). (Refer to step 7 under "DCU Configuration" for instructions regarding selection of destination addresses.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

AGENT RELEASE MODULE (ARM) CONFIGURATION

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the ARM button, then click on OK. The ARM Configuration screen will be displayed. See Figure V–10.

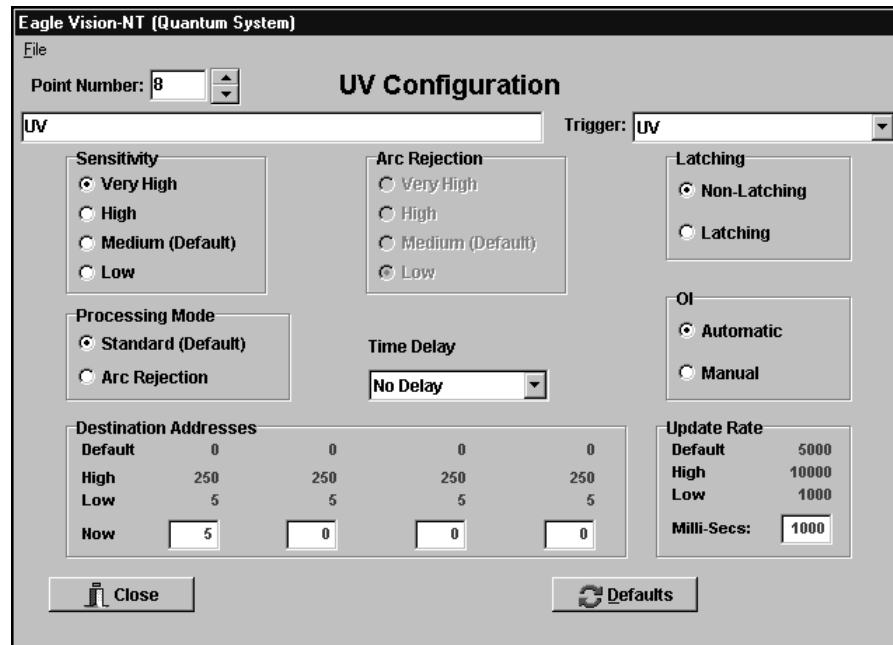FIGURE V-10

ARM Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Select the desired release mode. If "Timed" is selected, the "Release Time" field will be activated.

7. Click on the Defaults button to set the Update Rate and Release Time (if selected) default values. If a different Update Rate or Release Time value is desired, enter the value in the appropriate box.

8. Enter the Destination Address. (Refer to step 7 under "DCU Configuration" for instructions regarding selection of destination addresses.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

SIGNAL AUDIBLE MODULE (SAM) CONFIGURATION

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the SAM button, then click on OK. The SAM Configuration screen will be displayed. See Figure V–11.
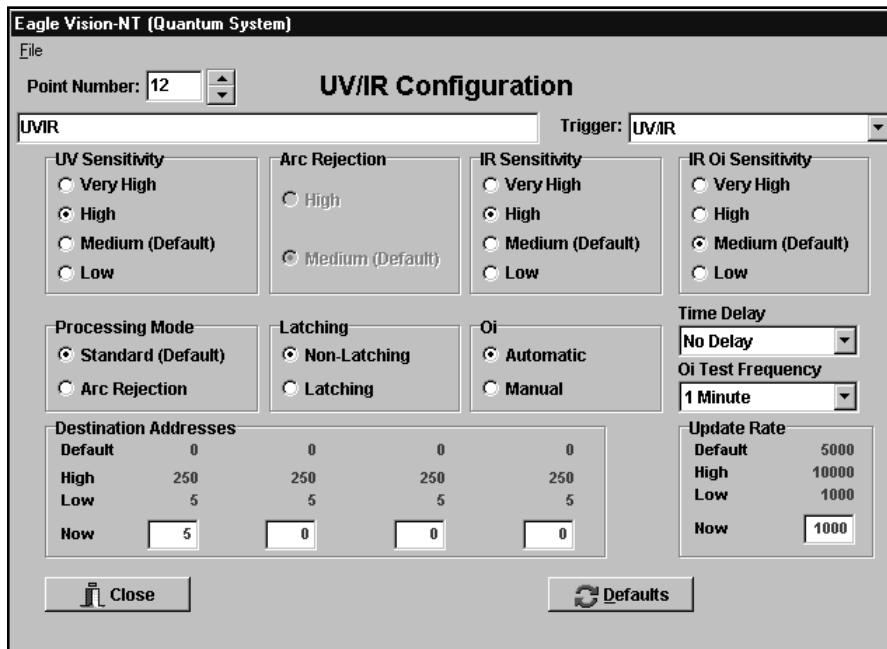

FIGURE V-11

SAM Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. If latching output is desired, check the Latch Enable box.

7. Click on the Defaults button to set the update rate default value. If a different update rate value is desired, enter the value in the box labeled "Milli-Secs."

8. Enter the Destination Address. (Refer to step 7 under "DCU Configuration" for instructions regarding selection of destination addresses.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

POWER SUPPLY MONITOR CONFIGURATION

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the Power Supply button, then click on OK. The Power Monitor Configuration screen will be displayed. See Figure V–12.

FIGURE V-12

Power Monitor
Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Select the power supply input voltage.

7. Click on the Defaults button to set the update rate default value. If a different update rate value is desired, enter the value in the box labeled "Now" under Update Rate.

8. Enter the Destination Address(s). (Refer to step 7 under "DCU Configuration" for instructions regarding selection of destination addresses.)

9. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

1. Highlight the Logic Controller address on the Point Configuration screen. Click on the Modify Point button.

LIOU CONFIGURATION

2. The Logic Controller Configuration screen will be displayed. See Figure V–4.

Each Logic Controller can support up to eight I/O modules of any one type, up to a maximum of 24 modules. If the system uses more than 24 modules or if more than eight of the same device type are needed, additional Logic Controllers are required. Each module is assigned one of the 24 positions on the Logic Controller Configuration screen. While the modules will function normally in any position on the Logic Controller Configuration screen, for the sake of convenience, it is recommended that similar devices be grouped together in numerical order.

MODULE TYPE AND ADDRESS

1. Highlight position number 1 on the Logic Controller Configuration screen.

2. Click on the Type button.

3. Select the type of device under Card Type.

4. Enter the address for the selected module. This number must match the DIP switch setting on the module.

5. Click on OK.

6. Repeat for each module in the LIOU.

Agent Release Module Configuration

1. Highlight the first Agent Release module.

2. Click on the Edit button. The Agent Release Configuration screen is displayed. See Figure V–13.
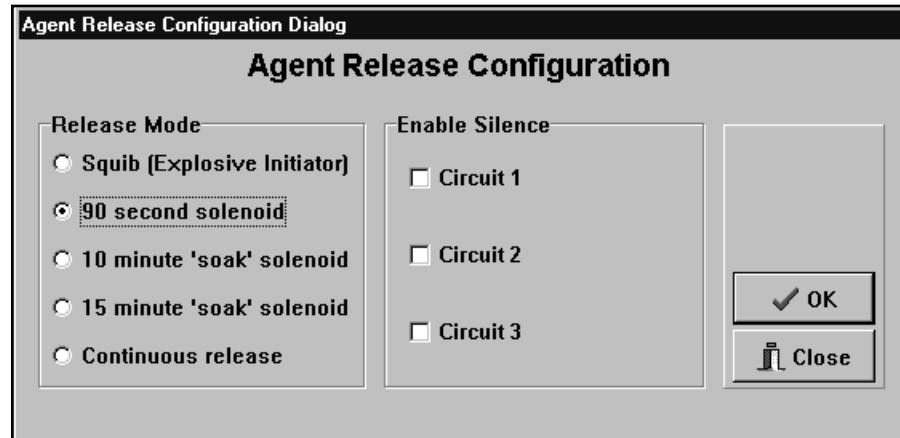
FIGURE V-13

Agent Release
Configuration Screen

3. Select the release mode for the release output.

4. Check the appropriate box if the silence function is desired for the three signaling outputs.

5. Click on OK to return to the Logic Controller Configuration screen.

6. Repeat for each Agent Release module in the LIOU.

Sounder Module Configuration

1. Highlight the first Sounder module.

2. Click on the Edit button. The Sounder Card Configuration screen is displayed. See Figure V–14.

Sounder Configuration Dialog

Sounder Card Configuration

Sounder Circuit Style

	Circuit A	Circuit B
○	2Y	2Y
⦿	2Y	1Z
○	1Z	2Y
○	1Z	1Z

Enable Silence

☐ Circuit 1

☐ Circuit 2

☐ Circuit 3

☐ Circuit 4

✓ OK

🚪 Close
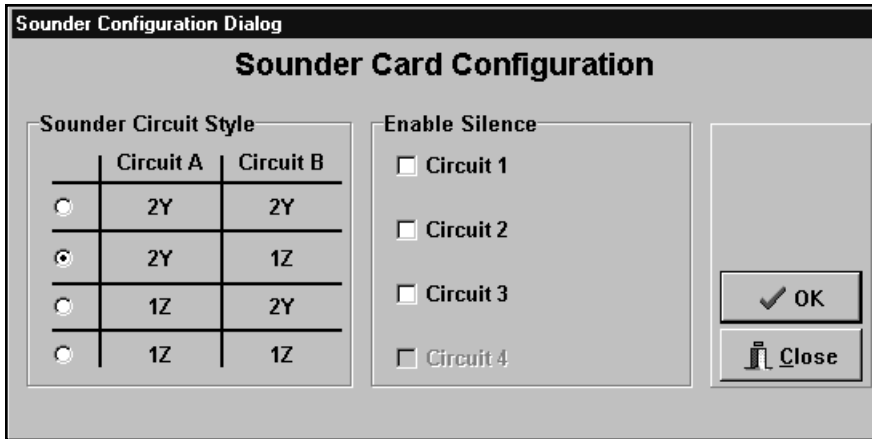
FIGURE V-14

Sounder Card
Configuration Screen

3. Select the wiring style that is being used.

4. Check the appropriate box if the silence function is desired for the four outputs. (This allows the LCU Silence button to silence the device.)

5. Click on OK to return to the Logic Controller Configuration screen.

6. Repeat for each Sounder module in the LIOU.

LCU Power Supply Configuration

1. Highlight the first power supply.

2. Click on the Edit button. The Power Supply Configuration screen is displayed. See Figure V–15.

Power Supply Configuration Dialog

Power Supplies

⦿ One Power Supply

○ Two Power Supplies

✓ OK   ✗ Cancel

FIGURE V-15

LCU Power Supply
Configuration Screen

3. Click on the appropriate button for the number of power supplies being used.

4. Click on OK to return to the Logic Controller Configuration screen.

5. Repeat for each power supply in the LIOU.

NV (NETWORK VARIABLE) CONFIGURATION

The Logic Controller must be configured to look for messages from specific addresses on the network and to ignore the remaining addresses. All devices reporting to the logic controller must be included.

1. Click on the Network Setup button. The Network Variables screen is displayed. See Figure V–16.

Network Setup Dialog ☒

Network Variables

Point	Product	Input	Output	
5	Logic Controller			
6	**Reserved**			
7	**DCU-PointWatch**			
8	UV	Enabled		
9	IDC	Enabled		
10	ARM			
11	SAM	Enabled	Enabled	
12	UV/IR	Enabled		
13	DCU-H2S	Enabled		
14				
15				

✓ OK	⏏ Close	Input	Clear
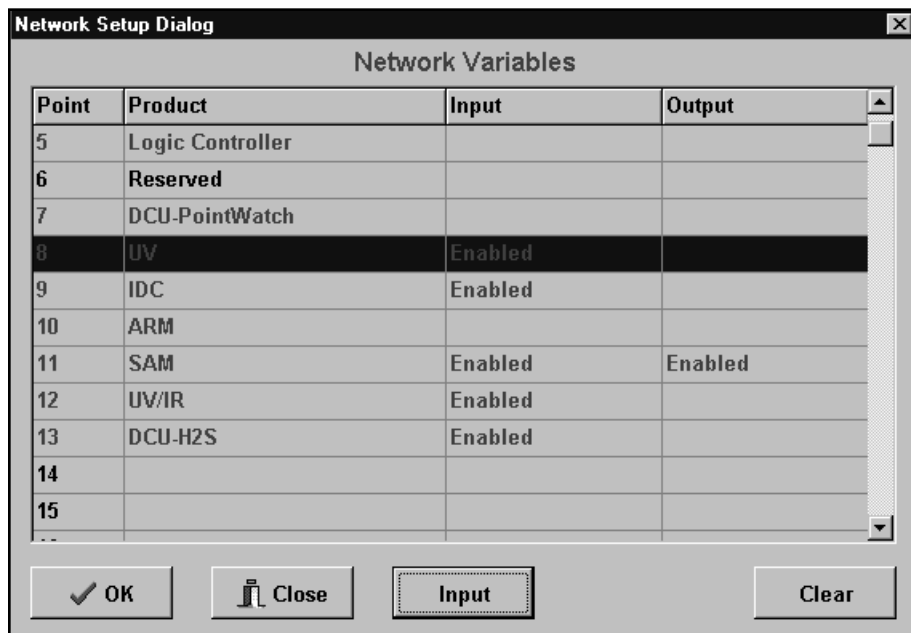
FIGURE V-16

Network Variables Screen

2. The points that can communicate with the Logic Controller (IDCs, UV detectors, SAMs, ARMs, other Logic Controllers) are listed in red, the others in black. Highlight the first red point. To enable the point, click on the appropriate Input or Output button. To disable a point, click on Clear. If a regular message is not received from an enabled address, the NV Communicating trouble bit will be set.

Depending upon the type of device and its function within the system, this procedure can involve input, output or both. The software will automatically select the appropriate function(s).

3. Click on Accept. Click on Close to exit and return to the Point Configuration screen.

After the configuration data is entered and saved in the EagleVision-NT database, it must be downloaded to the gateway. Refer to the Point Configuration screen, Figure V–1.

DOWNLOAD ALL

When all the point configuration data has been entered, select "Download All" to sequentially download the point configuration data from the EagleVision-NT database to the gateway. Status messages appear during the downloading process. The gateway will then transfer the configuration data to the individual network devices.

For the gateway to respond to additions/modifications to the configuration database, the configuration data must be downloaded.

NOTE
Logic controllers must be placed in Reset/Program mode while downloading data.

UPLOAD ALL

Point configuration data can be uploaded from an existing gateway that has previously been configured.

Select "Upload All" to upload the point configuration data from the gateway to replace the data currently in the EagleVision-NT database. Status messages appear during the upload process.

CAUTION
"Upload all" will overwrite the current data files in the EagleVision-NT database.

DOWNLOAD ONE

Select "Download One" to download the configuration data for the selected point to the gateway. Status messages appear during the downloading process. The gateway will then transfer the configuration data to the individual network device.

UPLOAD ONE

Select "Upload One" to upload the selected point configuration from the gateway. Status messages appear during the upload process.

DOWNLOAD RTC

Select "Download RTC" to download the Real Time Clock (RTC) value from the computer to the selected gateway. This synchronizes the gateway clock to the OIS clock.

UPLOAD RTC

Select "Upload RTC" to upload the Real Time Clock (RTC) value from the selected gateway. This allows the operator to view the gateway date/time clock values without affecting the computer's clock.

WRITE EEPROM
(ELECTRONICALLY ERASABLE PROGRAMMABLE READ ONLY MEMORY)

After downloading the configuration data, highlight the appropriate Gateway or Logic Controller address and click on Write EEPROM to write the data to non-volatile memory. This ensures that the data will not be lost in the event of a power loss.

NOTE
Logic controllers must be placed in Reset/Program mode while downloading data.

PRINTING CONFIGURATION DATA

To obtain a permanent record of system configuration data, from the Point Configuration screen select Print under the File menu. EagleVision-NT will print a list of configuration data for each point in the system. Note that while the data contained in the printout exactly matches the data on the point configuration screen for the device, the two formats will be different. Printed information includes the following.

For gateways, printed data includes device type and trigger, starting and ending addresses of monitored nodes for each gateway relay, Modbus address, master data offset and AB file number. The event triggers that can be selected for activation of each of the gateway relays are represented by the numbers 1 to 16 (these numbers correspond to the gateway status bits). An "X" next to a number indicates that the status condition has been selected. Refer to the Gateway Configuration screen (Figure V-3) for identification of the status bits.

For logic controllers, printed data includes device type and trigger as well as type and address of LIOU devices with configuration data unique to each device.

For LON devices, printed data includes device type, trigger, update rate, destination address, as well as any other configuration data applicable to the device type.

DELETE POINT

To delete a configured point, select the point to be deleted on the Point Configuration screen, then click on the "Delete Point" button. A warning box will ask if you want to delete the selected point.

DISPLAY POINT

Click on the "Display Point" button to view the current status of the selected point. Refer to "Section VII - Eagle Quantum Point Displays" and "Section VIII - Eagle 2000 Point Displays" for complete information.

OVERVIEW

Click on this button to display the System Diagnostic screen. This screen provides an overview of the entire system, and allows the operator to access the LON diagnostic screen and other troubleshooting tools.

ACTIVE EVENTS

Clicking on this button displays a list of system events. The event display lists any "true" conditions in the status messages from network devices. These events are not programmable, their message cannot be modified, and they are unrelated to the device "triggers."

RESET MODULE

Select "Reset Module" to initiate the equivalent of a power-up reset. This "re-initializes" the software of the selected module, but does not affect configuration data.

READ VOLTAGE

Select "Read Voltage" to display the supply voltage level measured at the selected module. This feature is helpful in troubleshooting the power distribution system.

UPLOAD VERSION

The "Upload Version" option requests the software version from the field device.

COPY/PASTE

To quickly configure a number of identical points:

1. After configuring the first of a group of identical points, highlight this address on the Point Configuration screen.

2. Select "Copy" from the Edit menu.

3. Highlight the address or group of contiguous addresses where the configuration data will be pasted, then select Paste from the Edit menu. All of these addresses will now be configured with the identical data as the first address.

4. Sequentially select each of the new addresses, click on modify point, assign a tag name to the point, and modify any other configuration data as desired.

CUSTOM LOGIC

EagleVision-NT allows the creation of custom logic using standard gate logic symbols. This logic is then downloaded through the Gateway to the Logic Controller. The system supports up to 32 pages of custom logic, each page containing up to 32 logic elements.

This software should be used only by qualified personnel. Operators should have experience and knowledge of gate logic programming. Contact Detector Electronics Corporation for information on upcoming training.

PROJECT TASKS

1. Define and Configure Field Devices.
    Configure the type and operating parameters for each of the devices on the LON/SLC.

2. Local Input/Output Unit (LIOU) Configuration.
    Configure the type and operational parameters of the I/O cards that are installed in the LIOU following the instructions discussed under "LIOU Configuration."

3. Network Variable Configuration.
    Configure the logic controller to recognize the devices on the LON/SLC that will be used by the programmable logic. This is a part of the supervision mechanism to ensure the integrity of the system.

4. Logic Development.
    Use the logic tools to create custom logic.

5. Logic Tests.
    Download the custom logic to the logic controller, verify its operation, then write the logic to EEPROM in the Logic Controller.

6. Logic Documentation.
    Print out the logic pages for a permanent record.

LOGIC PAGE INFORMATION

From the Logic Controller Configuration screen (Figure V–4), click on the Logic button. The Logic screen is displayed. See Figure V–17.
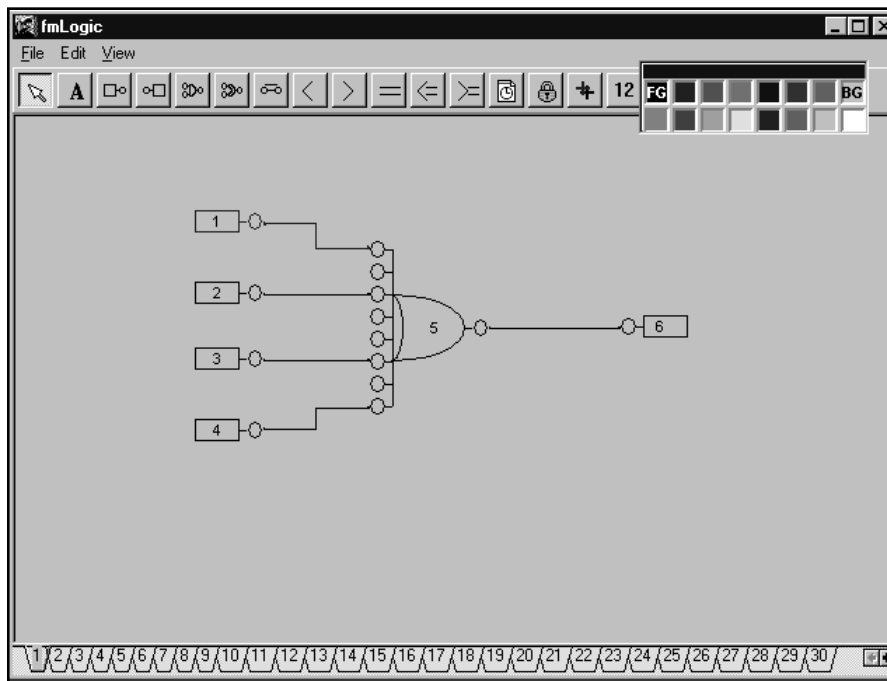
FIGURE V-17

Logic Screen

A variety of information can be entered for each logic page, including title, date, revision etc. Select Page Information under Edit. The Page Information screen appears. See Figure V-18. Complete the fields as necessary for each logic page.

FIGURE V-18

Page Information Screen

CREATING LOGIC

The purpose of this manual is to describe the logic generation tools and their uses, not programming techniques. Only fully qualified and trained personnel should attempt logic generation.

There are 14 types of logic elements available for use in any order or combination desired.

Each logic page can have up to 32 logic elements.

Every element placed on the screen with the exception of connecting lines and descriptive text are counted against the 32 possible elements on a page.

The basic sequence for creating logic is as follows:

1. Place input gates on the page and configure them. To configure a gate, double click on the gate and select the appropriate parameters from the gate edit screen.

2. Place logic gates on the page and connect to the appropriate inputs.

3. Place output gates on the page, configure them, and connect their inputs to the appropriate logic element outputs. To configure a gate, double click on the gate and select the appropriate parameters from the gate edit screen.

4. Verify the logic page.

5. Download the logic page to the logic controller.

DOWNLOADING LOGIC

When all the logic has been created and the network variables are configured, the data must be downloaded to the logic controller.

To upload/download single/multiple logic pages, network variables, and LIOU configuration data:

1. Place the key switch on the Logic Controller in the RESET position. After approximately one second, the Program LED turns on.

2. Select Upload or Download from the File menu.

3. Return the key switch to the Normal position when the procedure is complete.

WRITING CONFIGURATION TO EEPROM

Once the logic and configuration data has been downloaded and checked out, the information should be written to EEPROM in the Logic Controller to allow it to survive a power loss.

To write the logic to EEPROM:

1. Place the key switch on the Logic Controller in the RESET position. After approximately one second, the Program LED turns on.

2. Select Write EEPROM from the File menu.

3. Return the key switch to the Normal position when the procedure is complete.

PRINTING LOGIC PAGES

To obtain a permanent record of all custom logic, from the Logic screen select Print under the File menu. EagleVision-NT will print all logic pages with identification of all logic inputs and outputs.

DRAWING LINES

To connect points on the drawing, place the cross icon on one point, then drag to the other point.

To delete a line, use the pointer tool, click on the end of the line that is an input connection to a gate, then drag the line off the connection and release. The line will be deleted.

COLORING

To color a gate or the box surrounding the text field, select the object to be colored, then select the desired color from the palette in the upper right hand corner of the screen.

RENUMBERING GATES

Each gate is numbered sequentially as it is placed on the logic page. To change gate numbers, select Gate Order under the Edit menu. Place the cursor on the gate to be renumbered, then click. The number to the right of the cursor will be applied to the gate.

DETERMINING GATE STATUS

To determine the current status condition of the gates on a logic page, select Status under the View menu. The input / output status (digital "O" or "1") will be displayed for each gate. Click on Status again to return to the Normal screen view.

LOGIC ELEMENTS

Refer to Figure V-19 for identification of the logic tools.
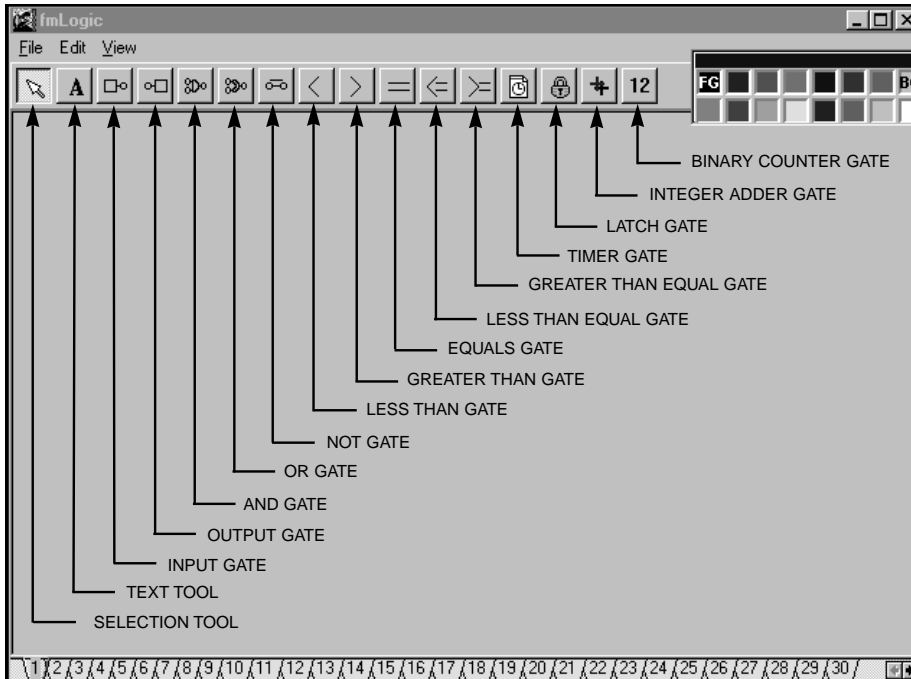
Selection Tool

The "arrow" selection tool (pointer) is used for selecting objects and moving them around the screen. Multiple object selections are made by clicking and dragging the selection rectangle around all objects to be selected, or by holding down the shift key while clicking on each object to be selected. Objects are deleted by first selecting them and then using the "delete" key on the keyboard.

Text Tool

The text (label) tool is used to place text fields on the drawing. To place a text field, select this tool, then click on the location where it will be placed. Double click on the text field. The Label Edit Form dialog box will be displayed. Enter the desired text in the space provided, then click on OK. To change the characteristics of the text, select "Font" under the Edit menu.

Input Gate

Used for assigning physical and LON/SLC inputs to the logic.

To place an Input Gate, select this tool, then click on the location where it will be placed. Double click on the gate to display the Input Gate Edit screen. See Figure V-20. Select the desired input parameters from the pull down menus, then click on OK.
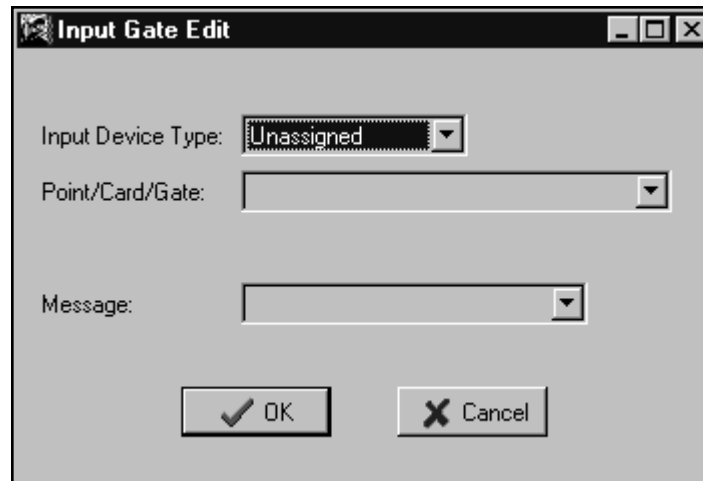
FIGURE V-20

Input Gate Edit Screen

Output Gate

Used for assigning physical outputs.

To place an Output Gate, select this tool, then click on the location where it will be placed. Double click on the gate to display the Output Gate Edit screen. See Figure V-21. Select the desired output parameters from the pull down menus, then click on OK.
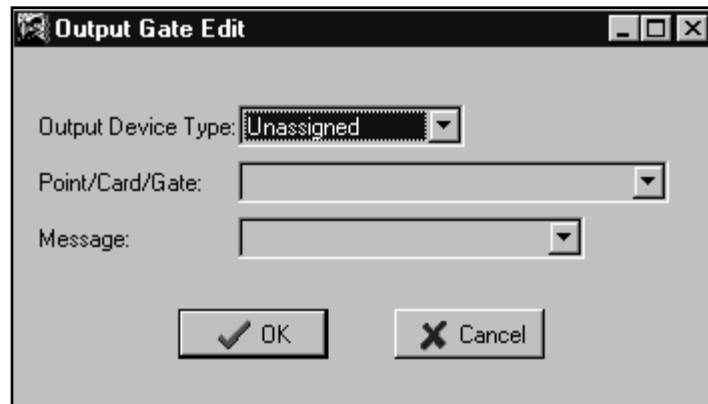
FIGURE V-21

Output Gate Edit Screen

The output defaults to a "0" or "off" condition if there is no input to the gate.

Do not assign an output more than once as unpredictable and undesirable results can occur.

AND Gate

Eight input logical "AND" gate.

To place an AND Gate, select this tool, then click on the location where it will be placed.

Unused inputs are evaluated as a "1."

OR Gate

Eight input logical "OR" gate.

To place an OR Gate, select this tool, then click on the location where it will be placed.

Unused inputs are evaluated as a "0."

NOT Gate

Logical inverter. A "1" in = a "0" out.

To place a NOT Gate, select this tool, then click on the location where it will be placed.

Less Than Gate

Less than "n" gate. Accepts a single integer input from a Binary Adder or Integer Counter, compares it to "n" and creates a binary output.

To place a Less Than Gate, select this tool, then click on the location where it will be placed. To assign a value to "n," double click on the gate, then enter the value in the Preset box.

Greater Than Gate

Greater than "n" gate. Accepts a single integer input from a Binary Adder or Integer Counter, compares it to "n" and creates a binary output.

To place a Greater Than Gate, select this tool, then click on the location where it will be placed. To assign a value to "n," double click on the gate, then enter the value in the Preset box.

Equals Gate

Accepts a single integer input from Binary Adder or Integer Counter, compares it to "n" and creates a binary output.

To place an Equal To Gate, select this tool, then click on the location where it will be placed. To assign a value to "n," double click on the gate, then enter the value in the Preset box.

Less Than/Equal to Gate

Less than or equal to "n" gate. Accepts a single integer input from a Binary Adder or Integer Counter, compares it to "n" and creates a binary output.

To place a Less Than/Equal To Gate, select this tool, then click on the location where it will be placed. To assign a value to "n," double click on the gate, then enter the value in the Preset box.

Greater Than/Equal to Gate

Greater than or equal to "n" gate. Accepts a single integer input from a Binary Adder or Integer Counter, compares it to "n" and creates a binary output.

To place a Greater Than/Equal To Gate, select this tool, then click on the location where it will be placed. To assign a value to "n," double click on the gate, then enter the value in the Preset box.

Timer Gate

To place a Timer Gate, select this tool, then click on the location where it will be placed. See Figure V-22.
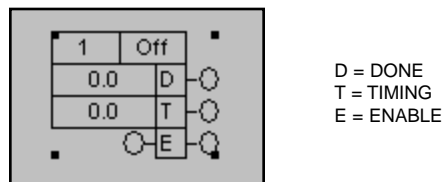
FIGURE V-22

Timer Gate

D = DONE
T = TIMING
E = ENABLE

Double click on the gate. The Timer Preset dialog box appears. See Figure V-23.
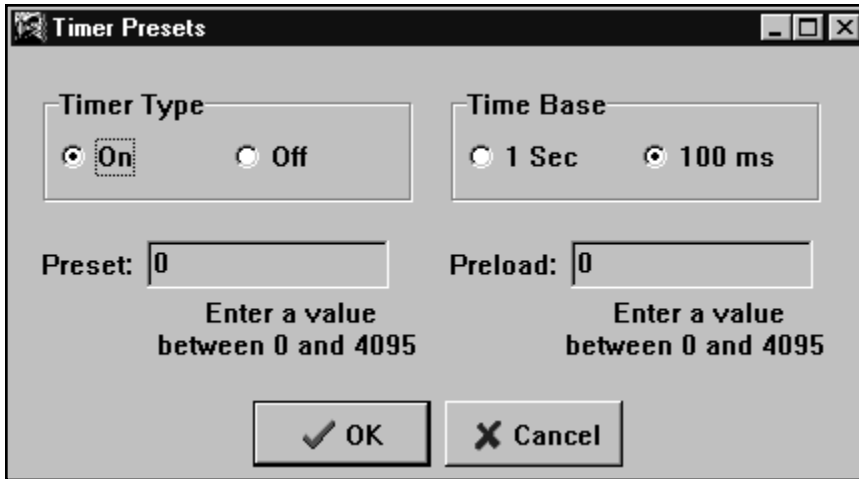
Select the desired timer type and time base. In the Preset box, enter the value that the timer counts to. In the Preload box, enter the value where the timer begins counting.

Latch Gate

To place a Latch/Unlatch Gate, select this tool, then click on the location where it will be placed.

See Table V–3.

Input		Output	
S	R	S	R
0	0	no change	no change
1	0	1	0
0	1	0	1
1	1	0	1

Integer Adder Gate

Accepts up to 8 integer inputs (from Binary Counters) and outputs an integer sum.

To place an Integer Adder Gate, select this tool, then click on the location where it will be placed.

Binary Counter Gate

Accepts up to 8 binary inputs and develops an integer output that is the sum of the inputs.

To place a Binary Counter Gate, select this tool, then click on the location where it will be placed.

To configure the computer running EagleVision-NT for communication with the gateway, select Config under the File menu. The Communication Port Configuration screen will be displayed. See Figure IV–1.

Type a tag name for the LON in the LON Name box. This name will appear on the tab in the lower left corner of the screen and is also used as a prefix for the Wonderware tagnames. It should be kept as short as practical.

Select Eagle 2000 in the box labeled Gateway.

Enter the desired values in the Modbus Address, Com Port, Baud Rate, Stop Bits, Parity and Data Bits fields. When gateway port 0 is used, the values are fixed at 9600 baud, even parity and 1 stop bit. When gateway port 1 is used, the values selected in these fields must match the gateway DIP switch settings for baud rate, stop bits, parity and data bits. Refer to the Eagle 2000 hardware instruction manual (form number 95-8424) for complete switch setting information.

Modbus Address must match the value set on the gateway Modbus address DIP switches, S7. When gateway port 1 is used, the address is set using the gateway's DIP switches. When gateway port 0 is used, the address is set using software from the Gateway Configuration screen. The default address is 1.

Com Port defines which PC serial port is connected to the gateway. Clicking on the button next to Com Port initiates a routine in which the software systematically tries all valid combinations of baud rate, data bits, and parity. If a connection is successfully established, the software will fill in the appropriate values.

Writes Count tracks the number of outgoing messages to the gateway.

Reads Count tracks the number of responses. These two numbers should track each other, however, a small disparity does not necessarily indicate a problem.

Average Poll Time is the amount of time for the gateway to respond to the message.

ERRORS

This data indicates communication errors. These values can be helpful in diagnosing communication problems.

CRC (Cyclical Redundancy Check) is an error checking method. This field is incremented when the calculated CRC value is different than the transmitted value. This error is typically caused by incorrect serial communication settings.

Data. This field tracks the number of response messages that have the wrong data size.

Com. This field tracks the number of serial communication errors reported by the operating system.

Command. This field tracks the number of Modbus error responses. This can occur if the gateway is not configured properly. Check the setting of the Main/Aux gateway DIP switch.

Timeouts. This number is incremented each time the gateway does not respond to the message from the OIS.

When correct communication is established, the read and write counts should match, with zeros displayed in the Error boxes.

BUTTONS

Close closes this window.

Add creates a new LON.

Cancel cancels the entry.

Reset Counts resets the counters.

Delete deletes the LON.

DEVICE TRIGGER CONFIGURATION

Refer to "Device Trigger Configuration" in "Section V — Eagle Quantum System Configuration" for complete information regarding trigger lists.

GATEWAY CONFIGURATION

Addresses 1 through 4 are reserved for gateways only. Address number 1 should be used for the main gateway and 2 to 4 for auxiliary gateways (if used).

1. Highlight line 1 on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button. Select the gateway type, then click on OK. The Gateway Configuration screen will be displayed. See Figure VI–1.

FIGURE VI-1

Gateway Configuration Screen

3. Type a tag name for the point in the space provided.

4. Assign a trigger for the point.

5. Select gateway type and fill in the appropriate port configuration data. These settings are determined in conjunction with the gateway DIP switch settings. Refer to the Eagle 2000 hardware instruction manual (form number 95-8424) for switch setting information.

Port 2 of the Gateway can be configured for either Modbus master or slave operation.

As a Modbus RTU master, it actively "feeds" a copy of its datatables to a slave PLC. When set for the master mode, enter the PLC address in the Modbus Address field under Port 2 Config.

When set for the slave mode, enter the gateway address in the Modbus Address field. (The address in the Modbus Address field should be the address of the slave device.)

The Master Data Offset specifies where in the slave PLC's register memory (40,000 registers) the data from the Eagle system will begin.

6. Enter a starting and an ending address for each of the four gateway relays. These numbers identify a specific "block" of addresses that will be monitored by each gateway relay. Then check the appropriate boxes to select the event(s) that will actuate each of the relays. The fault relay will be actuated upon detection of a LON fault (LON open or shorted) or an internal gateway fault (self-diagnostic test failure).

7. Check the appropriate "Energized" button if a normally energized relay coil is desired. The coil will become de-energized when the relay status becomes active.

8. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

COMMUNICATION MODULE CONFIGURATION

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

2. Click on the Define button.

3. Click on the Communication Module button, then click on OK. The Communication Module Point Configuration screen will be displayed. See Figure VI–2.

FIGURE VI-2

Communication Module
Point Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Refer to the Eagle 2000 System Configuration Matrix (form number 95-8453) to determine the correct configuration number for the device. Use the scroll arrows or type this number in the "Config Number" box in the upper right hand corner of the screen. The operating parameters for the configuration number are displayed in the various fields of the Point Configuration screen. These values will automatically change to match the configuration number that is entered.

7. Click on the Defaults button to display the default values for calibration gas, high and low alarm setpoint, and update rate. If other values are desired, enter them in the appropriate boxes labeled "Now."

   ### WHEN A K FACTOR IS USED

   If the sensor is calibrated using a gas type that is different than the gas being detected, a calibration "K factor" must be used. (Refer to Det-Tronics Technical Note No. GTN01 for complete information regarding the use of K factors.)

   If a K factor is used for sensor calibration, a similar adjustment should be made when entering the calibration gas value at the OIS. Use the following formula to determine the correct value to be entered in the box labeled "Now" under Cal. Range. This will ensure the most accurate gas level reading at the OIS.

   $$C \times K = S$$

   C = Concentration of calibration gas in % LFL
   K = K factor for the gas to be monitored (from Table 1 in GTN01)
   S = Corrected calibration output level
   (Enter this value in the box labeled "Now" under Cal. Range).

8. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

A relay node monitors a specified group of nodes on the loop and generates an output when the selected conditions for output actuation are met.

1. Highlight the desired address on the Point Configuration screen. Click on the Modify Point button.

RELAY NODE CONFIGURATION

95-8479

2. Click on the Define button.

3. Click on the Relay Node button, then click on OK. The Relay Node Configuration screen will be displayed. See Figure VI–3.
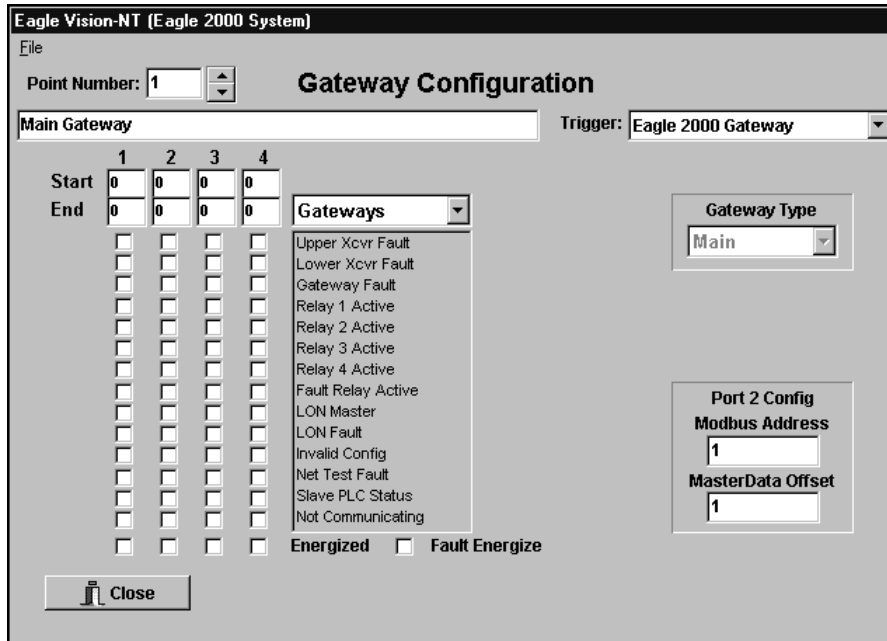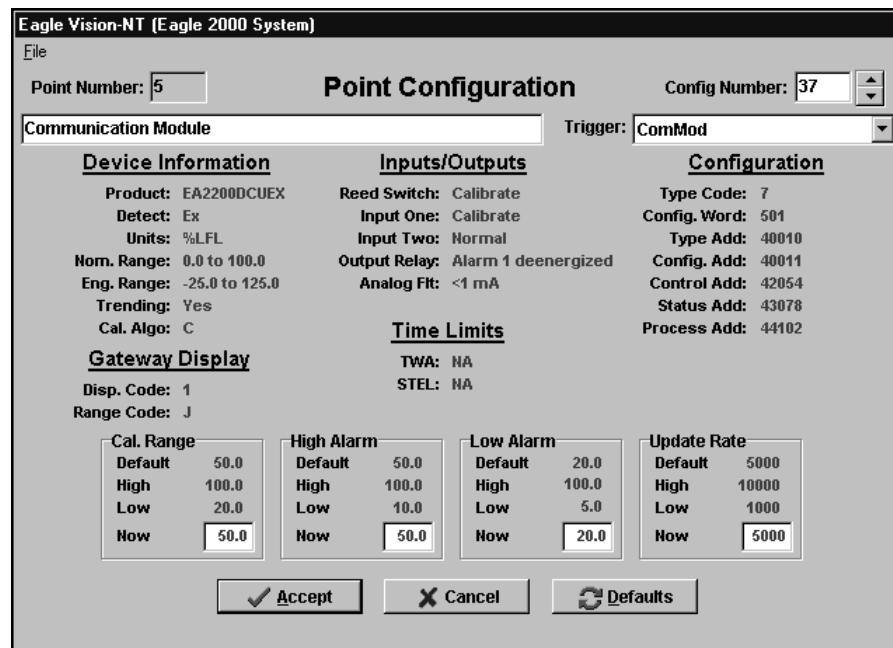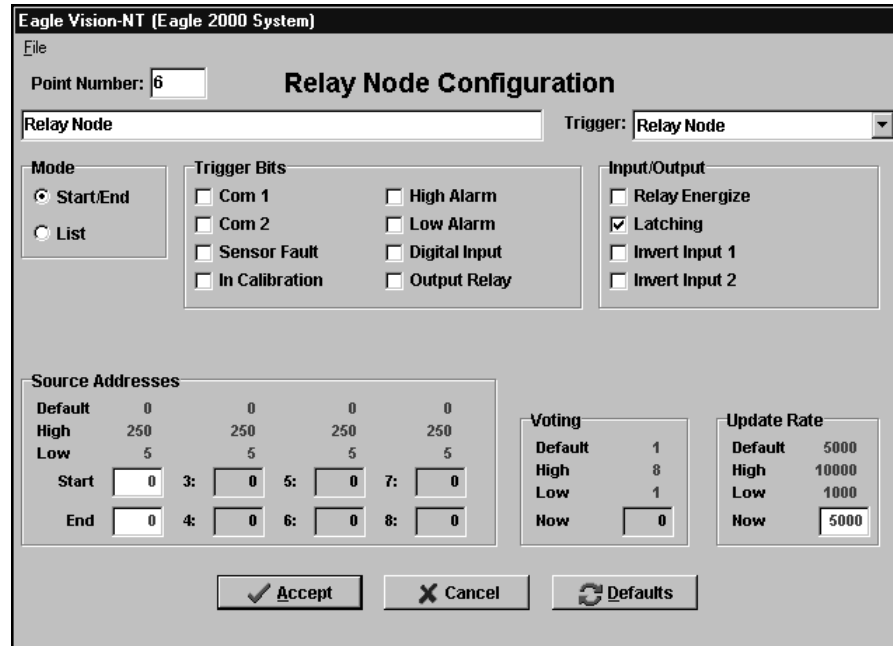
FIGURE VI-3

Relay Node
Configuration Screen

4. Type a tag name for the point in the space provided.

5. Assign a trigger for the point.

6. Select the operating mode.

Start/End mode: Relay node responds to addresses in the specified range. Only the starting and ending addresses are specified. All detectors within the range of contiguous points will be monitored.

List mode: Only messages from device addresses specified on the list will be processed.

7. Enter the addresses to be monitored in the appropriate "Source Addresses" boxes.

NOTE
Clicking on the Defaults button will clear all entered source addresses.

8. Select the desired Trigger bits.

    Trigger bits represent the eight possible communication module status events that can be monitored by the relay module.

Com 1/Com 2 —	Communication fault.
Sensor Fault —	Includes improperly wired sensor, sensor input below the threshold for normal operation, or invalid configuration.
In Calibration —	Calibration in progress.
High/Low Alarm —	Alarm condition.
Digital Input —	Communication module's digital input active.
Output Relay —	Communication module's relay is active.

9. Select the desired I/O conditions in the Input/Output box.

    Relay Energize. Check this box if a normally energized relay coil is desired. The coil will become de-energized when the status of the device becomes active.

    Latching. When Start/End mode is selected, the output relay is always latching. If List mode is selected, check this box if latching relay operation is desired.

    Invert Input. The normal status for the inputs is 0 with the input open (active status is 1 with input closed). This option is provided to allow for the use of a normally closed input.

10. If List Mode is selected, enter in the "Voting" box the number of detectors within the group that must register an active Trigger Bit for the Relay Node to actuate.

11. Enter the desired update rate.

12. Click on Accept. Click on Close to exit and return to the Point Configuration screen, or use the scroll arrows to select the next point for configuration.

Point display screens provide detailed status information for each configured point on the network. Information provided on the point display screens includes:

- current analog value (displayed as bar graph and in engineering units)
- alarm setpoint levels
- communication status
- sensor status
- relay status
- calibration status and history
- alarm status and history.

All point display screens share the following common fields.

COMMON DISPLAY FIELDS

Point Name is displayed in the upper left hand corner of the screen.

LON Name and Point Number are displayed in the upper right hand corner of the screen.

Goto Point, Next Point and Previous Point buttons allow the operator to navigate from one point to another.

Inhibit button toggles the status of the inhibit bit. When a point is inhibited, the gateway relays and display are inhibited from responding to changes in the status of this point.

Close button closes this screen and returns to the previously displayed screen.

Status Indicators are normally black and turn red when active. In a properly operating system with no faults or alarms occurring, all indicators are off with the exception of the LON Master on the Gateway Point Display screen.

From the Point Configuration screen, highlight the gateway, then click on Display Point or select Point from the View menu. The Gateway Point Display screen will be displayed. See Figure VII–1.

GATEWAY POINT DISPLAY
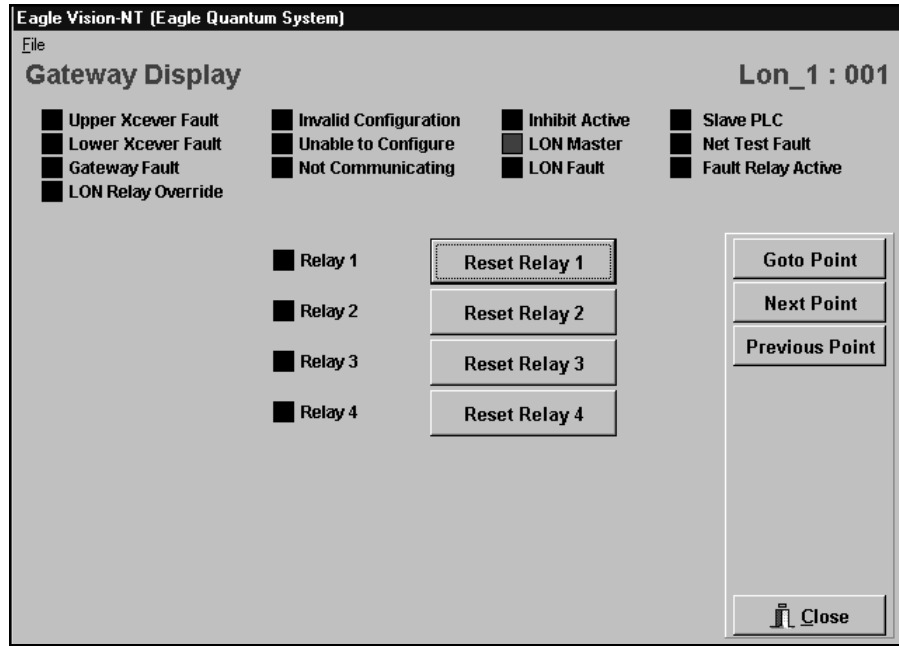
FIGURE VII-1

Eagle Quantum Gateway
Point Display Screen

INDICATORS

Upper Xcever Fault and Lower Xcever Fault. These bits indicate that the self-diagnostic tests have detected a malfunction in one of the LON communication transceivers. Reset the gateway by cycling power. If the fault continues, replace the gateway.

Gateway Fault. This bit is set when the self-diagnostic test has detected an internal problem with the gateway. Reset the gateway by cycling power. If the fault continues, replace the gateway.

LON Relay Override. This bit indicates that the user has overridden the normal function of the gateway's LON relay. The LON relay is used to connect the ends of the network in the event of a LON fault. While troubleshooting, it is helpful to override the automatic function of this relay. However, it is critical to return the relay to the automatic mode after troubleshooting is completed.

Invalid Configuration. This bit indicates that the gateway has not been configured or that the configuration does not match the DIP switch setting.

Unable to Configure. The main gateway was unable to successfully transfer configuration data to an auxiliary gateway.

Not Communicating. This bit is set when any configured gateways fail to report on schedule.

Inhibit Active. This bit indicates that the gateway relays and display are inhibited from responding to changes in the gateway's status word. The status is controlled by the "Inhibit" button.

LON Master. This bit is used to indicate which gateway is currently sending the time and date heartbeat messages. This bit is normally on for main gateways and off for auxiliary gateways. If auxiliary gateways or logic controllers do not hear the heartbeat messages from the main gateway, they will send the heartbeat messages and set this bit.

LON Fault. This bit is set when the time and date message sent out from one side of the gateway is not being received by the other port, indicating the presence of a short or open on the network. This bit is set any time that a short or open condition occurs on the network.

Slave PLC. This bit is set to indicate that an attached PLC is responding.

Net Test Fault. The main gateway periodically sends the time and date heartbeat messages in the opposite direction to test for failed network extenders. This bit is set to indicate a test failure. The bit will remain set until the system passes the test. The test is conducted once every 20 minutes.

Fault Relay Active. This bit is set when the gateway fault relay is active. The relay is triggered when an open is detected on the LON or a gateway fault is detected.

BUTTONS

Reset Relay buttons are used to reset the gateway relays when set for latching operation.

From the Point Configuration screen, highlight the logic controller, then click on Display Point or select Point from the View menu. The Logic Controller Point Display screen will be displayed. See Figure VII–2.

LOGIC CONTROLLER POINT DISPLAY
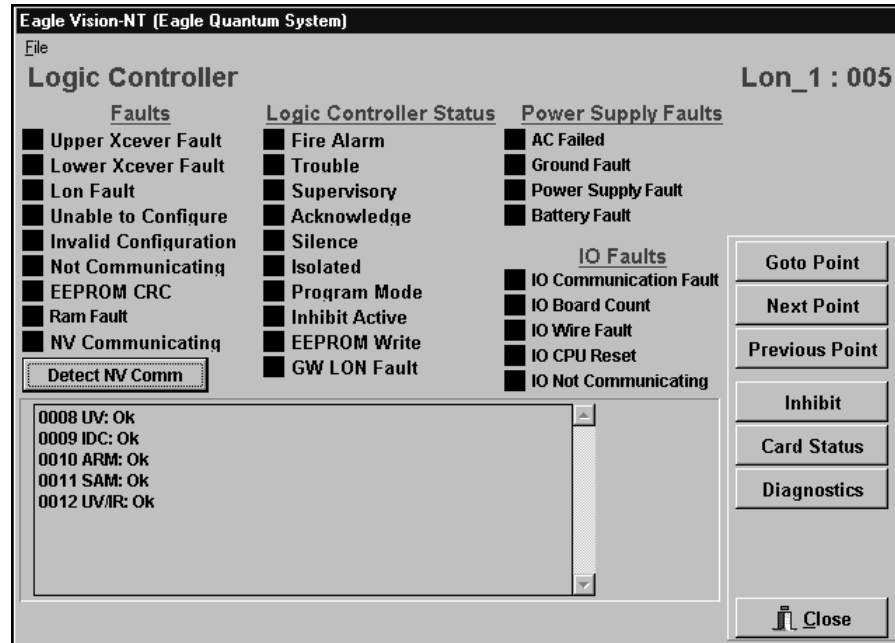
FIGURE VII-2

Logic Controller
Point Display Screen

FAULTS

Upper or Lower Xcever Fault. These bits indicate that the self-diagnostic tests have detected a malfunction in one of the two LON communication transceivers.

LON Fault. This bit is set when the logic controller is not receiving heartbeats from the main gateway.

Unable to Configure. This bit indicates that the main gateway was unable to successfully transfer configuration information to the logic controller.

Invalid Configuration. The invalid configuration status is active until configuration information is downloaded. Changing the logic controller address will cause the invalid configuration status to indicate that reconfiguration is required.

Not Communicating. This bit is set when the logic controller fails to report on schedule.

EEPROM CRC. Using a cyclical redundancy check method, the automatic self-diagnostic test has revealed a problem with the non-volatile memory. The logic controller must be replaced if this error occurs.

Ram Fault. This bit is active after new configuration information has been downloaded but not saved in non-volatile memory. Performing the "Write EEPROM" function will clear this fault.

NV Communicating. This bit is set when a field device is not reporting to the logic controller. The Detect NV Comm button can be used to identify any devices that are not reporting.

Detect NV Comm. This feature is used to identify field devices that are not reporting to the logic controller. A listing of all field devices and their current communication status will be provided in the box in the lower left hand corner of the screen.

LOGIC CONTROLLER STATUS

Fire Alarm. This bit tracks the Alarm LED on the logic controller faceplate. The fire alarm status bit is activated when any enabled fire input is active. This includes all flame detectors and IDC inputs that are configured as alarm type inputs. The bit is latching and will remain active until the logic controller is reset.

Trouble. This bit tracks the Trouble LED on the logic controller faceplate. Once the trouble bit is set, it can only be cleared by resetting the logic controller. The trouble bit is set when any of the following faults are active:

- LIOU Not Communicating
- AC Failed
- Battery Fault
- LIOU Wire Fault
- Power Supply Fault
- Power Trouble
- LIOU Too Many Cards
- Invalid Configuration
- Upper Xcvr Fault
- Lower Xcvr Fault
- LON Fault
- NV Input Not Communicating
- GW LON Fault
- RAM Fault.

Supervisory. This bit tracks the Supervisory LED on the logic controller faceplate. The supervisory status bit is set when any enabled LON input has a supervisory fault. The bit is latching and remains set until the logic controller is reset.

Acknowledge. The acknowledge status bit is set after the acknowledge switch on the logic controller faceplate is activated. It indicates that the operator has acknowledged an alarm condition and silenced the internal beeper. The bit is latching and will remain set until the logic controller is reset.

Silence. The silence status bit is set after the Silence switch on the logic controller faceplate is activated. It indicates that the operator has silenced the external horns. The bit is latching and will remain set until the logic controller is reset.

Isolated. The isolated status bit indicates that the logic controller key switch is in the Isolate position. The Isolate function is provided to aid in maintenance of releasing type outputs. The operator must provide custom logic to send this signal to agent release output devices in the field.

Program Mode. This bit indicates that the logic controller is in the Program mode and is ready to receive configuration information. The fixed fire and operator logic is stopped in this mode.

Inhibit Active. This bit indicates that the gateway relays and display are inhibited from responding to changes in the logic controller's status. The status is controlled by the "Inhibit" button.

EEPROM Write. This bit indicates that configuration information is currently being copied from RAM memory to non-volatile memory. This is initiated by the operator after new configuration information is downloaded in the logic controller.

GW LON Fault. This bit is set when the logic controller receives a LON fault message from the gateway. The gateway will set this bit when the LON is open and clear it when it is closed. This is done to allow the logic controller to signal trouble in the event of a LON fault.

POWER SUPPLY FAULTS

AC Failed. The AC Failed fault bit is set when any of the EQ2100LCUPS power supplies has low or missing AC input voltage.

Power Trouble. The power trouble bit is set when a general power related fault has been detected.

Power Supply Fault. This bit signals a problem with the EQ2100LCUPS Power Supply. The bit is latching and remains set until the logic controller is reset.

Battery Fault. This bit is set when any of the EQ2100LCUPS power supplies has low or missing batteries.

IO FAULTS

All IO Faults relate to the EQ2100LCUPS power supplies or EQ2100LIOU devices.

IO Communication Fault. This bit signals a general fault with the RS-485 communication with the EQ2100LIOU boards or EQ2100LCUPS power supply.

IO Board Count. This bit is set when an EQ2100LIOU board is detected that is not on the list of configured boards. Use the "Detect Cards" feature to locate the problem (accessed by pressing the Diagnostic button).

IO Wire Fault. This fault bit is set when any of the EQ2100LIOU boards have an open or shorted wire. Check the individual card status to locate the cause of the problem.

IO CPU Reset. This fault bit is set when any of the EQ2100LIOU boards has been reset. Check the card status to locate the card that has been reset.

IO Not Communicating. This bit is set when one or more of the configured IO boards is not responding. Check the card status to locate the card that is not responding.

LIOU CARD STATUS

When the Card Status button is pressed, a tabbed notebook is displayed on the lower part of the screen. The tabs are numbered 1 to 24 to represent the maximum number of LIOU boards and LCUPS power supplies. Each page of the notebook displays the current status of the device installed at that location. The last tab is labeled LH (local hardware).

Sounder Board

See Figure VII–3. The Sounder board has open and shorted fault condition indicators for each of the 4 supervised output circuits.

CPU Reset — status is activated for 60 seconds when a board is reset from power-up, by the watchdog timer, or by pressing the reset switch on the board.

Wrong Style Cir — activated when the software configuration does not match the DIP switch setting on the board.

Not Communicating — board is not responding.
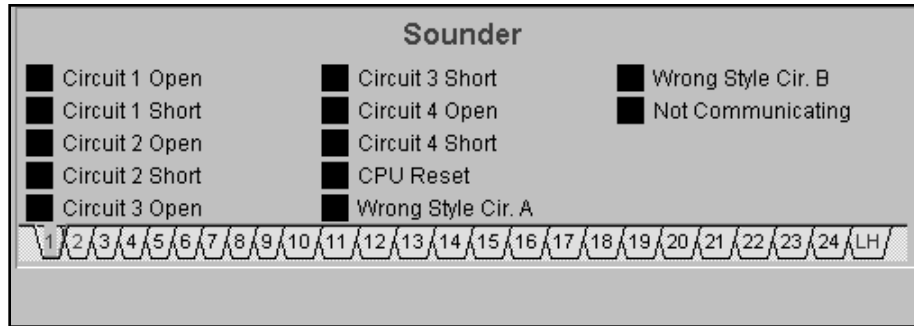
FIGURE VII-3

LIOU Sounder Board
Point Display Screen

Relay Board

See Figure VII–4. Each Relay board has 4 unsupervised output circuits.

CPU Reset — status is activated for 60 seconds when the board is reset from power-up, by the watchdog timer, or by pressing the reset switch on the board.

Not Communicating — board is not responding.
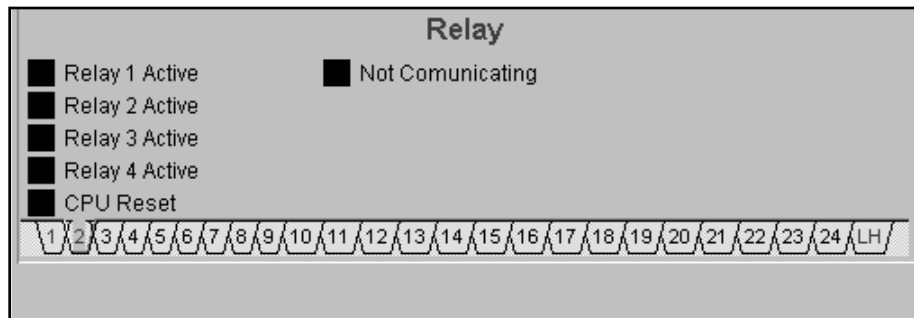
FIGURE VII-4

LIOU Relay Board
Point Display Screen

Agent Release Board

See Figure VII–5. Each Agent Release board has one release output and three supervised signal audible outputs. The first three indicators show the status of the release output — open, active or isolated.

CPU Reset — status is activated for 60 seconds when the board is reset from power-up, by the watchdog timer, or by pressing the reset switch on the board.

Wrong Configuration — the software configuration does not match the S3-1 DIP switch setting on the board (Initiator/Solenoid).

Circuit Open and Circuit Short — open or shorted status of signal audible output.

Not Communicating — board is not responding.
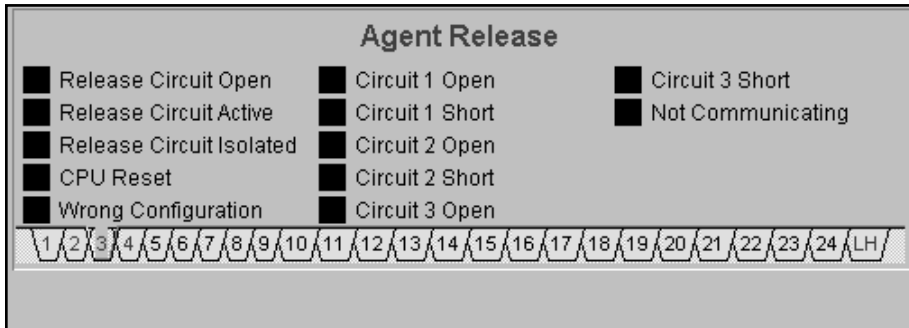
Power Supply Monitor.

See Figure VII–6. The power supply monitor is capable of monitoring up to 2 SMPSs (Switchable Mode Power Supplies) and one battery charging circuit. During the configuration process, the operator selects if one or two supplies are being monitored.
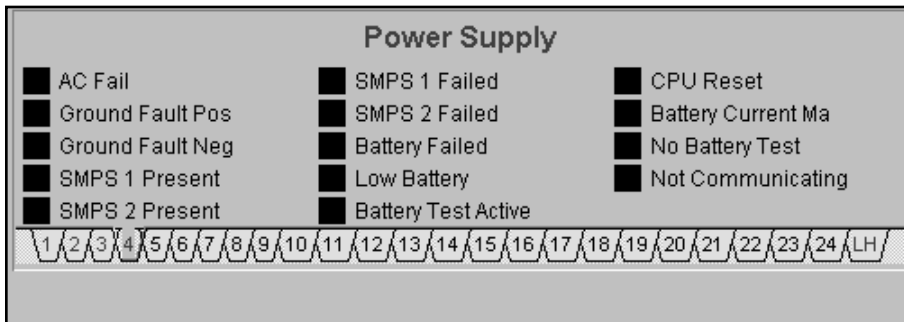
AC Fail — low or missing AC input voltage is detected.

Ground Fault Pos and Ground Fault Neg — a ground fault has been detected in the 24 volt power circuit.

SMPS 1 Present and SMPS 2 Present — the power supplies are present.

SMPS 1 Failed and SMPS 2 Failed — power supply failure.

Battery Failed — battery is missing.

Low Battery — battery voltage is out of tolerance.

Battery Test Active — feature is not supported.

CPU Reset — status is activated for 60 seconds when the board is reset from power-up, by the watchdog timer, or by pressing the reset switch on the board.

Battery Current Ma — less than one ampere of current is flowing between the power supply and batteries.

No Battery Test — too soon to conduct a battery test.

Not Communicating — board is not responding.

Local Hardware.

See Figure VII–7. The Local Hardware display shows the current state of the logic controller's hardware.
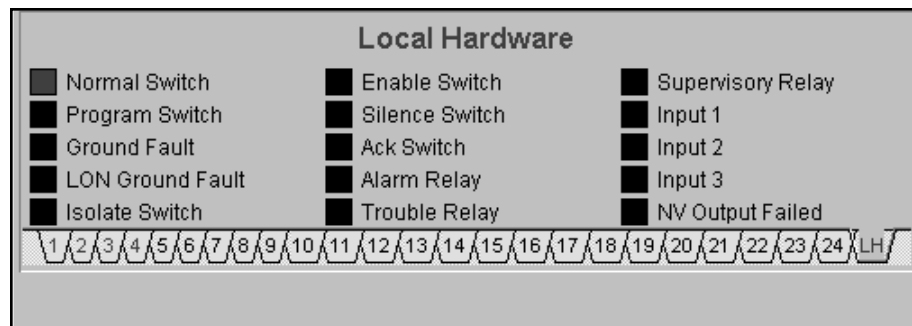
FIGURE VII-7

Logic Controller
Local Hardware
Point Display Screen

Normal, Enable, Program and Isolate — current status of the faceplate key switch.

Ground Fault and LON Ground Fault — faults detected by the LON Isolator module.

Ack Switch and Silence Switch — these bits track the status of the pushbutton switches on the logic controller faceplate.

Alarm Relay, Trouble Relay and Supervisory Relay — these bits track the current status of the relays.

User Switches — these bits track the status of the local digital inputs.

NV Output Failed — logic controller was unable to communicate with a LON output device like a SAM or ARM.

PROCESS VARIABLE DISPLAY

The gas level / process variable is graphically displayed on an analog bar graph. See Figure VII–8. The scaling and engineering units will change depending on the type of gas and configuration settings.

FIGURE VII-8

DCU Point Display Screen

STATUS INDICATORS

Low Voltage. This bit is set when the input power voltage to the DCU is below 17.5 volts. The actual voltage can be read from the "Network" screen. The typical cause of this fault is under-sized wire.

Com 1 and Com 2. One of these bits is set when the DCU's fault isolation circuitry has detected and isolated a wiring fault.

Unable to Configure. This bit is set by the gateway when it is unable to successfully transfer configuration information to the DCU.

Power up. This bit is set during the power-up time delay.

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Not Communicating. This bit is set by the gateway when it does not receive periodic status messages from the DCU. The bit is cleared when a new status update is received.

Inhibit Active. This bit indicates that the gateway relays and display are inhibited from responding to changes in the DCU status. The Inhibit Active status is controlled by the "Inhibit" button.

Sensor Fault. This bit is set when the gas level is below the fault threshold or the Invalid Configuration bit is set.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Auto Config Fault. This bit indicates that the gateway was unable to successfully download configuration information.

CALIBRATION INFORMATION

In Calibration. This bit is active during the sensor calibration procedure.

Calibration Fault. This bit is set when a fault is detected during the calibration procedure.

Calibration History. The DCU stores the baseline and the last seven calibration records (date, time, high and low calibration values). These records allow the operator to spot trends in sensor sensitivity or potential problems. Clicking in the calibration history box will bring up a graphic representation of the calibration history.

ALARM INFORMATION

High and Low Alarm. The alarm indicator is on when the gas concentration exceeds the alarm setpoint and clears when the level returns below the setpoint. The current alarm setpoint values are also displayed. The alarm setpoint values are selected on the point configuration screen.

Alarm History. The DCU stores and displays the last eight alarms (high and low). The display includes the type of alarm and the time and date stamp.

From the Point Configuration screen, highlight the IDC, then click on Display Point or select Point from the View menu. The IDC Point Display screen will be displayed. See Figure VII–9.
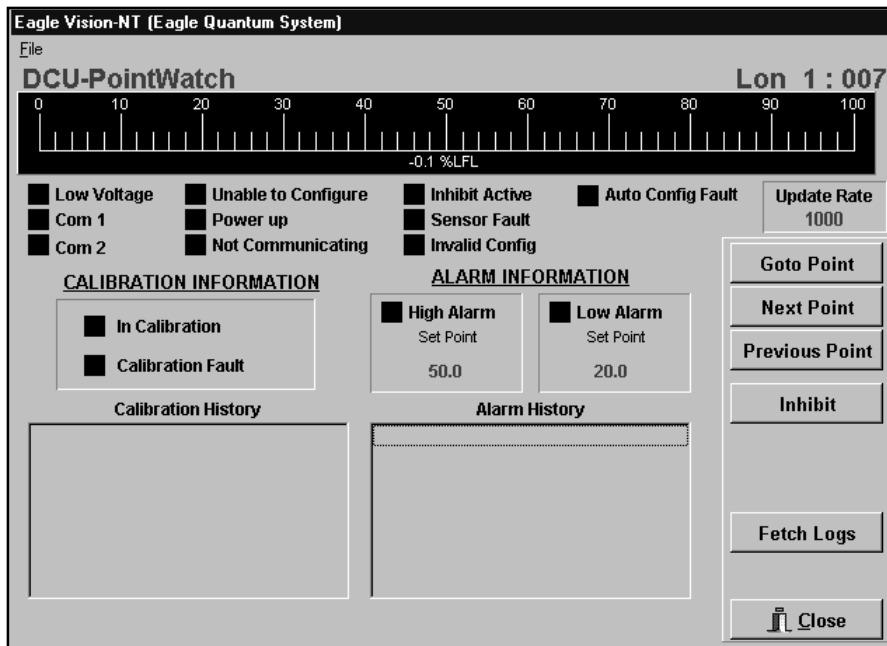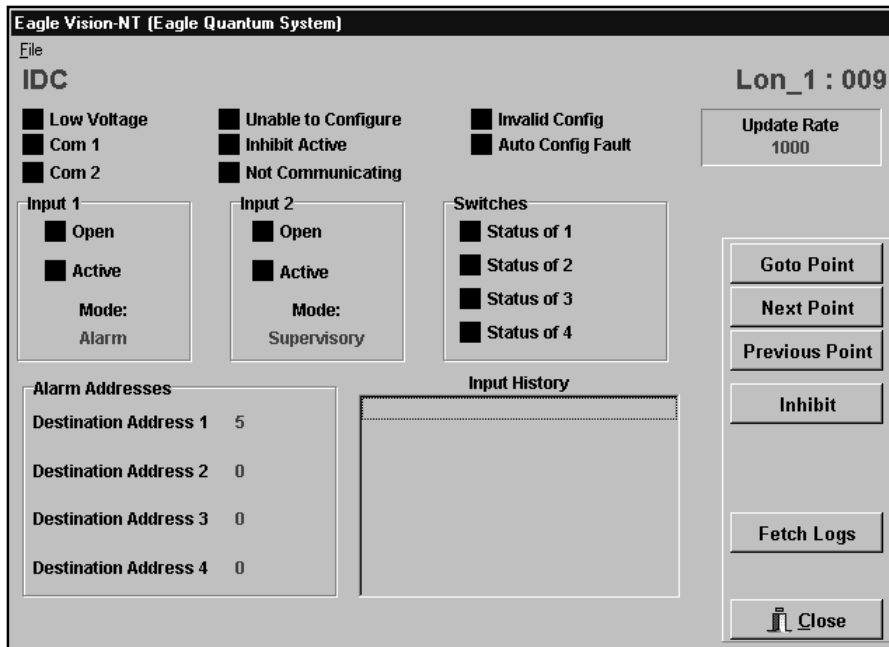
IDC POINT DISPLAY

FIGURE VII-9

IDC Point Display Screen

STATUS INDICATORS

Low Voltage. The low voltage bit is set when the input power voltage to the IDC is below 17.5 volts.

Com 1 and Com 2. One of these bits is set when the IDC's fault isolation circuitry has detected and isolated a LON wiring fault.

Unable to Configure. This bit is set by the gateway when it was unable to successfully transfer configuration information to the IDC.

Inhibit Active. This bit indicates that the gateway relays and display are inhibited from responding to changes in the IDC status. The Inhibit Active status bit is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the IDC. The bit is cleared when a new status update is received.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Auto Config Fault. This bit indicates that the gateway was unable to successfully download configuration information.

INPUT 1 / INPUT 2

The **open** indicator turns on if the input is not properly terminated, if a wire is open, or if the device being monitored is in fault.

The **active** indicator turns on when the input circuit is closed.

The **mode** field shows how the input is configured — Alarm, Trouble, Supervisory, or other. This can be changed on the IDC configuration screen.

SWITCHES

This area shows the current status of the four DIP switches on the IDC CPU board.

ALARM ADDRESSES

This area shows the addresses of the logic controllers that are configured for communication with this IDC. All alarm and trouble status information will be sent to the addresses listed here. The addresses can be changed on the IDC configuration screen.

INPUT HISTORY

The IDC stores the time, date, and input type of the last eight activations. This information is displayed by clicking on the Fetch Logs button.

UPDATE RATE

This field shows in milliseconds how often the IDC will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the IDC configuration screen.

FETCH LOGS BUTTON

This button will retrieve the input activation logs.

From the Point Configuration screen, highlight the UV Flame Detector, then click on Display Point or select Point from the View menu. The UV Flame Detector Point Display screen will be displayed. See Figure VII–10.

Eagle Vision-NT (Eagle Quantum System)
File

UV   **Lon 1 : 008**

0   10   20   30   40   50   60   70   80   90   100

0 CPS   Red 10X

Low Voltage	Unable to Configure	Invalid Config	290 Volt Fault	Update Rate
Com 1	Inhibit Active	Auto Oi Fault	Auto Config Fault	1000
Com 2	Not Communicating	Pre Alarm	Fault	
Man. Oi Fault	Oi Test Started	Sensor Init Fault	Alarm	

Sensitivity   Very High   Detector Mode
Time Delay   No Delay   Processing Mode   Standard
Arc Rejection   Low   Oi   Automatic
                                    Latching   Non-Latching

Alarm Addresses   **Alarm History**

Destination Address 1   5

Destination Address 2   0

Destination Address 3   0

Destination Address 4   0

Goto Point
Next Point
Previous Point
Inhibit
Reset
Start Oi Test
Fetch Logs
Close

FIGURE VII-10

UV Flame Detector Point Display Screen

BAR GRAPH DISPLAY

The bar graph shows the current UV signal in counts per second (cps). Two scales are displayed, a blue bar shows the signal level from 0 to 100 cps and a red bar is 10 times the scale (0 to 1000 cps). In normal operation, the signal should read zero. When an automatic Oi (optical integrity) test is performed, a small signal level is visible. A signal is also visible when a manual Oi test is performed or when an external UV source is detected.

STATUS INDICATORS

Low Voltage. This indicator turns on when the input power voltage to the UV flame detector is below 17.5 volts.

Com 1 and Com 2. One of these bits is set when the fault isolation circuitry in the UV detector has detected and isolated a LON wiring fault.

Manual Oi Fault. This indicator turns on when the UV detector fails a manually initiated Oi test.

Unable to Configure. This bit is set by the gateway if it was unable to successfully transfer configuration information to the UV flame detector.

Inhibit Active. This bit is set when the gateway relays and display are inhibited from responding to changes in the UV flame detector status. The inhibit active status bit is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the UV flame detector. The bit is cleared when a new status update is received.

Oi Test Started. This indicator turns on when a manual Oi test is performed. It is not activated for automatic Oi tests.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Auto Oi Fault. This bit turns on when the UV detector fails the automatic Oi test. The automatic Oi test is performed once per minute. A fault is generated if the detector fails three consecutive tests. The fault is cleared when the detector passes three consecutive tests.

Pre Alarm. This bit turns on upon the first indication of fire or if an alarm is generated by a background source of UV.

Sensor Init Fault. When automatic Oi is turned off, the detector will perform an initial automatic Oi test on power-up. This is done to ensure that the UV tube module is properly installed. The indicator turns on if the detector fails the test. The fault is latching and can be cleared with a successful manual Oi test.

290 Volt Fault. This bit is set when the high voltage power supply for the UV tube module is not within the allowed tolerance.

Auto Configuration Fault. This bit indicates that the gateway was unable to successfully download configuration information.

Fault. This bit is set for all fault conditions and tracks the trouble signal sent to the logic controller.

Alarm. This bit is set when all fire alarm criteria are met.

UPDATE RATE

This field shows in milliseconds how often the detector will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the UV detector configuration screen.

SENSITIVITY, TIME DELAY, AND ARC REJECTION

This area displays the fire response configuration parameters. These parameters are programmable from the UV detector configuration screen.

DETECTOR MODE

Processing mode. This field indicates whether the detector is configured for standard or arc rejection signal processing mode.

Oi. This field shows if the detector is configured for automatic optical integrity testing. Manual Oi testing is always available.

Latching. This field indicates whether the detector's alarm output is configured for latching or non-latching operation. If latching mode is selected, the detector can be reset with the Reset button.

ALARM ADDRESSES

This area lists the addresses of the logic controllers that are configured for communication with this UV detector. All alarm and trouble status signals will be sent to the addresses listed here. The addresses can be changed on the UV detector configuration screen.

ALARM HISTORY

The UV detector stores the time and date of the last eight fire alarms. This information is displayed by pressing the Fetch Logs button.

BUTTONS

Reset. This button resets the alarm condition when latching operation is selected.

Start Oi Test. This button initiates a manual Oi test. The test will run for a pre-determined length of time and will end automatically. If the detector fails the test, the manual Oi fault bit is set.

Fetch Logs Button. This button will retrieve the alarm logs.

UV/IR FLAME DETECTOR POINT DISPLAY

From the Point Configuration screen, highlight the UV/IR Flame Detector, then click on Display Point or select Point from the View menu. The UV/IR Flame Detector Point Display screen will be displayed. See Figure VII–11.
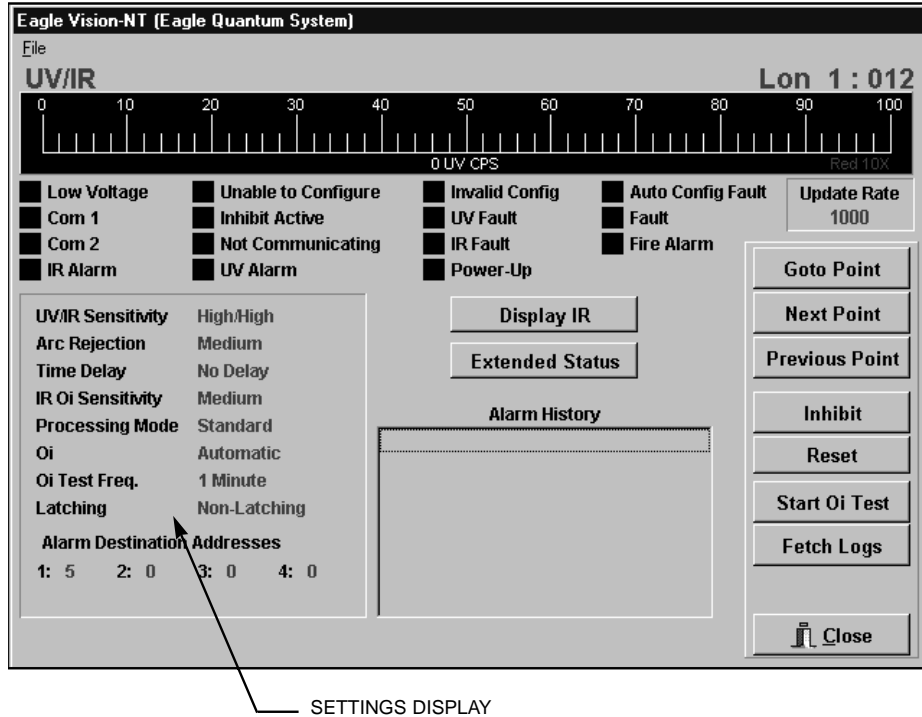
FIGURE VII-11

UV/IR Flame Detector Point Display Screen

SETTINGS DISPLAY

BAR GRAPH DISPLAY

The bar graph display shows the current UV or IR signal in counts per second (cps). The "Display IR / UV" button allows the operator to switch between the two channels. Two scales are displayed for each channel — a 1x (times 1) and a 10x (times 10). In normal operation, the UV signal should be zero and the IR signal should be a low level between 5 and 15 cps. When an automatic Oi (optical integrity) test is in progress, a small signal level is visible. A small signal is also visible when a manual Oi test is performed, or when a background UV or IR source is detected.

STATUS INDICATORS

Low Voltage. This indicator turns on when the input power voltage to the detector is below 17.5 volts.

Com 1 / Com 2. One of these bits is set when the fault isolation circuitry in the detector has detected and isolated a LON wiring fault.

IR Alarm. This indicator turns on when the IR alarm criteria are met.

Unable to Configure. This bit is set by the gateway when it was unable to successfully transfer configuration information to the UV/IR flame detector.

Inhibit Active. This bit turns on to indicate that the gateway relays and display are inhibited from responding to changes in the UV/IR flame detector status. The inhibit active status bit is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the flame detector. The bit is cleared when a new status update is received.

UV Alarm. This indicator turns on when the UV alarm criteria are met.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

UV Fault. This bit is set when a fault relating to the UV sensor is detected. Press the extended status button to locate the source of the problem.

IR Fault. This bit is set when a fault relating to the IR sensor is detected. Press the extended status button to locate the source of the problem.

Power-Up. This indicator is on while the detector is conducting self-diagnostics after re-application of power.

Auto Configuration Fault. This bit indicates that the gateway was unable to successfully download configuration information.

Fault. This bit is set for all fault conditions and tracks the fire trouble signal sent to the logic controller.

Fire Alarm. This bit tracks the fire alarm signal sent to the logic controller, and turns on when both the UV and IR fire alarm criteria are met.

UPDATE RATE

This field shows in milliseconds how often the UV/IR detector will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the UV/IR detector configuration screen.

SETTINGS DISPLAY

UV/IR Sensitivity. This field shows the sensitivity settings for the UV and IR sensors. The UV setting is on the left, while the IR sensitivity is on the right. The sensitivity settings can be adjusted from the UV/IR detector configuration screen.

Arc Rejection. This field indicates whether the UV sensor is configured for standard or arc rejection signal processing mode.

Time Delay. This field shows the selected alarm time delay. The fire must be present for this amount of time to be considered an alarm. The time delay can be adjusted from the UV/IR configuration screen.

IR Oi Sensitivity. This field shows the selected Oi sensitivity setting for the IR sensor. When low sensitivity is selected, the IR sensor will fault with less contamination on the viewing window than when medium or high sensitivity is selected. The IR Oi sensitivity setting can be adjusted from the UV/IR detector configuration screen.

Processing Mode. This field indicates whether the UV sensor is configured for standard or arc rejection signal processing mode. This can be adjusted from the UV/IR detector configuration screen.

Oi. This field indicates if the detector is configured for automatic optical testing. Manual Oi testing is always available.

Oi Test Frequency. This field shows how often the IR sensor will be automatically tested. The setting can be changed on the UV/IR detector configuration screen.

Latching. This field indicates whether the detector's alarm output signal is configured for latching or non-latching operation. If latching mode is selected, the unit can be reset with the reset button.

Alarm Destination Addresses. This area shows the addresses of the logic controllers that are configured for communication with this UV/IR detector. All alarm and trouble status signals will be sent to the addresses listed here. The addresses can be changed on the UV/IR detector configuration screen.

ALARM HISTORY

The detector stores the time and date of the last eight fire alarms. This information is displayed by pressing the Fetch Logs button.

BUTTONS

Reset
This button resets the alarm condition when latching operation is selected.

Start Oi Test
This button initiates a manual Oi test on the selected channel. The test will run for a pre-determined time and end automatically. If the detector fails the test, the UV or IR manual Oi fault bit is set.

Fetch Logs
This button will retrieve the alarm logs.

Display UV/IR
This button toggles the bar graph display between UV and IR.

Extended Status
Pressing this button will retrieve additional fault diagnostic information from the detector. See Figure VII-12. This information can be used to find the source of the problem when the UV or IR fault indicators are on.
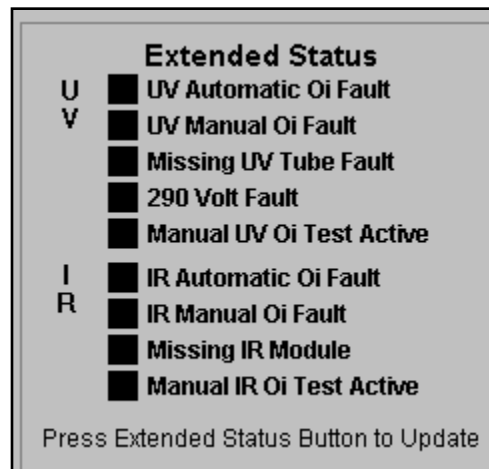
FIGURE VII-12

Extended Status Display

UV Automatic Oi Fault. This indicator is on when the UV detector has failed the automatic Oi test. To correct the problem, clean the detector viewing window and Oi ring. The fault will self-clear after the detector passes three consecutive automatic Oi tests.

UV Manual Oi Fault. This indicator turns on after an unsuccessful manual Oi test. The fault will clear after a successful test is completed.

Missing UV Tube Fault. When automatic Oi is turned off, the detector will perform an initial automatic Oi test on power-up. This test ensures that the UV tube module is properly installed and operating. The indicator turns on if the detector fails the test. The fault is latching and can be cleared with a successful manual Oi test.

290 Volt Fault. This indicator turns on when the UV tube module high voltage power supply is not within the allowed tolerance.

Manual UV Oi Test Active. This bit is set while a manual Oi test is in progress.

IR Automatic Oi Fault. This indicator is on after the IR detector has failed the automatic Oi test. To correct the problem, clean the detector viewing window and Oi ring. The fault will self-clear after the detector passes three consecutive tests. If the fault continues to occur, the IR Oi threshold may require adjustment.

IR Manual Oi Fault. This indicator turns on when an unsuccessful manual Oi test is conducted. The fault will clear after a successful test is completed.

Missing IR Module. On power-up, the detector looks for background signal from the IR detector. This ensures that the IR module is properly installed and operating.

Manual IR Oi Test Active. This bit turns on while a manual Oi test is in progress.

AGENT RELEASE MODULE (ARM) POINT DISPLAY

From the Point Configuration screen, highlight the ARM, then click on Display Point or select Point from the View menu. The ARM Point Display screen will be displayed. See Figure VII–13.

STATUS INDICATORS

Low Voltage. This indicator turns on when the input power voltage to the ARM is below 17.5 volts.

Com 1 / Com 2. One of these bits is set when the ARM's fault isolation circuitry has detected and isolated a LON wiring fault.
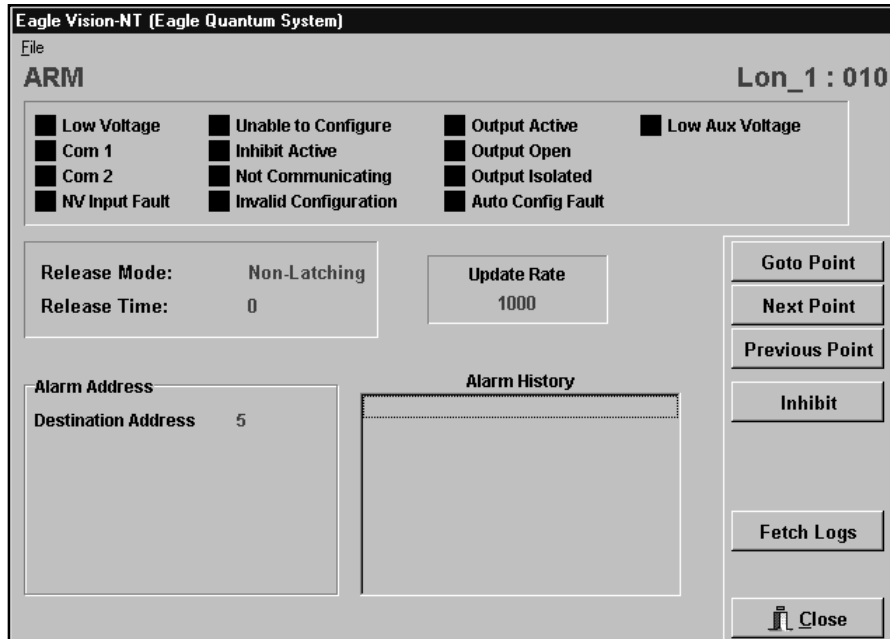
FIGURE VII-13

ARM Point Display Screen

NV Input Fault. The NV (Network Variable) Input Fault indicates that the ARM is not receiving periodic messages from the logic controller. The most frequent cause of this problem is improper logic controller configuration. Logic controllers must be configured to send messages to output devices like ARMs and SAMs. This is done on the Network Variables configuration screen, which is accessed by pressing the Network Setup button on the logic controller configuration screen. Select the ARM in question and press the Enable button, then download the new configuration data to the logic controller. The NV Input Fault bit is automatically cleared when the ARM begins receiving the messages.

Unable to Configure. This bit is set by the gateway when it was unable to successfully transfer configuration information to the ARM.

Inhibit Active. This bit is set to indicate that the gateway relays and display are inhibited from responding to changes in the status of the ARM. The Inhibit Active status bit is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the ARM. The bit is cleared when a new status update is received.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Output Active. This indicator turns on while the output circuit is active.

Output Open. This indicator turns on when the output circuit is not properly terminated. A wire could be open or the device being monitored could be defective.

Output Isolated. This bit is set when the output circuit has been instructed to enter the Isolate mode. In this condition, the ARM output circuit is shorted to ensure that no voltage is present on the output. This mode is utilized when maintenance is performed on the release circuit.

Auto Config Fault. This bit indicates that the gateway was unable to successfully download configuration information.

Low Aux Voltage. This indicator turns on when the auxiliary input voltage is below the specified limit. This fault is self-clearing when the correct auxiliary power input voltage is applied.

RELEASE MODE

This field identifies the output mode that is currently configured.

RELEASE TIME

When timed mode is used, this field shows how long the release will continue.

ALARM ADDRESS

This area shows the address of the logic controller that is configured for communication with this ARM. All trouble status information will be sent to the address listed here. The address can be changed on the ARM configuration screen. It is important to ensure that the logic controller is configured to communicate with this device.

ALARM HISTORY

The ARM stores the time and date of the last eight activations. This information is displayed by pressing the Fetch Logs button.

UPDATE RATE

This field shows in milliseconds how often the ARM will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the ARM configuration screen.

FETCH LOGS BUTTON

This button will retrieve the alarm logs.

From the Point Configuration screen, highlight the SAM, then click on Display Point or select Point from the View menu. The SAM Point Display screen will be displayed. See Figure VII–14.
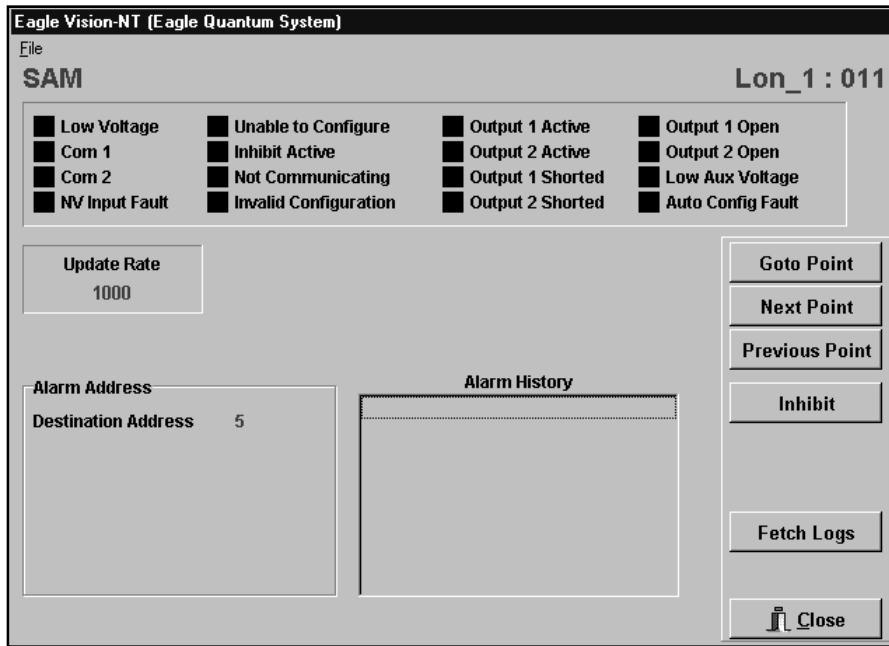
FIGURE VII-14

SAM Point Display Screen

STATUS INDICATORS

Low Voltage. This indicator turns on when the input power voltage to the SAM is below 17.5 volts.

Com 1 / Com 2. One of these bits is set when the SAM's fault isolation circuitry has detected and isolated a LON wiring fault.

NV Input Fault. The NV (Network Variable) Input Fault indicates that the SAM is not receiving periodic messages from the logic controller. The most likely cause of this problem is incorrect logic controller configuration. Logic controllers must be configured to send messages to output devices like SAMs. This is done on the Network Variables Configuration screen, which is accessed by pressing the Network Setup button on the Logic Controller Configuration screen. Select the SAM in question and press the Enable button, then download the new configuration to the logic controller. The NV Input Fault bit is automatically cleared when messages are received.

Unable to Configure. This bit is set by the gateway when it was unable to successfully transfer configuration information to the SAM.

Inhibit Active. This bit turns on to indicate that the gateway relays and display are inhibited from responding to changes in the status of the SAM. The inhibit active status bit is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the SAM. The bit is cleared when a new status update is received.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Output 1 and 2 Active. These indicators turn on while the output circuit is active.

Output 1 and 2 Shorted. These indicators turn on while the output circuit is shorted.

Output 1 and 2 Open. The open indicators turn on when the output circuit is not properly terminated. A wire could be open or the device being monitored could be defective.

Low Aux Voltage. This indicator turns on when the auxiliary input voltage is below the specified limit. This fault is self-clearing when the correct auxiliary power input voltage is applied.

Auto Config Fault. This bit is set when the gateway was unable to successfully download configuration information.

UPDATE RATE

This field shows in milliseconds how often the SAM will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the SAM configuration screen.

ALARM ADDRESS

This area shows the address of the logic controller that is configured for communication with this SAM. All trouble status data will be sent to the address listed here. The address can be changed on the SAM configuration screen. It is important to ensure that the logic controller is configured to communicate with this device.

ALARM HISTORY

The SAM stores the time and date of the last eight activations. This information is displayed by pressing the Fetch Logs button. Circuit 1 or 2 will be displayed to identify the output that was activated.

FETCH LOGS BUTTON

This button will retrieve the alarm logs.

From the Point Configuration screen, highlight the Power Supply Monitor, then click on Display Point or select Point from the View menu. The Power Supply Monitor Point Display screen will be displayed. See Figure VII–15.

POWER SUPPLY MONITOR (PSM) POINT DISPLAY
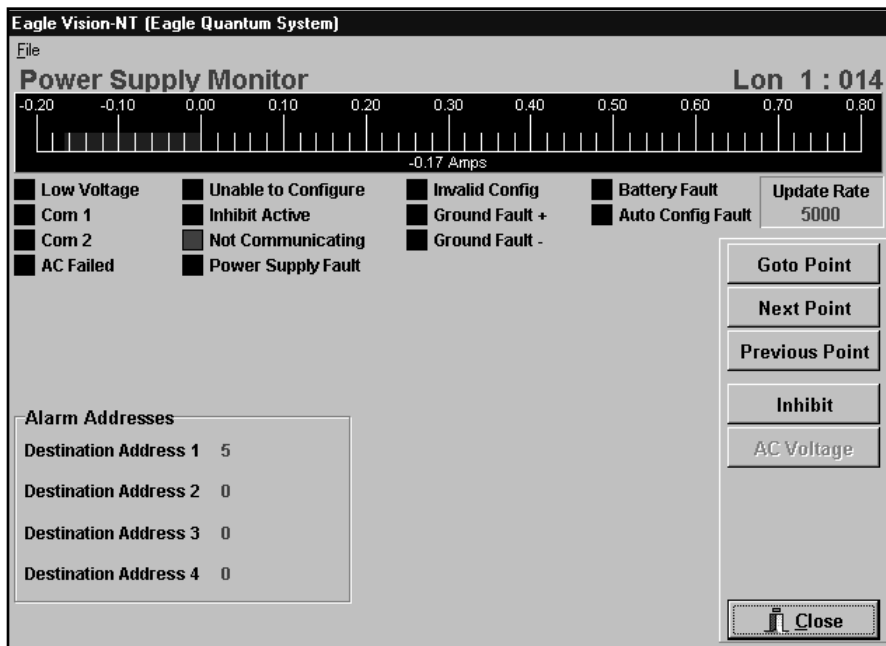
FIGURE VII-15

Power Supply Monitor
Point Display Screen

STATUS INDICATORS

Bar Graph Display. The bar graph display shows the battery current in amperes. A positive value indicates battery charging current, while a negative value indicates battery discharge current. In normal operation the current should be near zero.

Low Voltage. This indicator turns on when the input voltage to the power supply monitor (PSM) is below 17.5 volts.

Com 1 / Com 2. One of these indicators turns on when the fault isolation circuitry in the power supply monitor has detected and isolated a LON wiring fault.

AC Failed. This indicator turns on when the AC voltage drops below the fault threshold for 20 seconds. The status will automatically clear when the voltage is above the threshold for 20 seconds. The default fault threshold is 85% below the nominal voltage, however, this can be changed on the PSM configuration screen. Pressing the AC Voltage button will display the actual voltage level.

Unable to Configure. This bit is set by the gateway when it was unable to successfully transfer configuration information to the PSM.

Inhibit Active. This indicator turns on when the gateway relays and display are inhibited from responding to changes in the status of the PSM. The inhibit active status bit is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the PSM. The bit is cleared when a new status update is received.

Power Supply Fault. This indicator turns on when the AC power is good, but power is being drawn from the batteries. This fault suggests a problem with the DC power supply or power wiring.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Ground Fault + / -. This bit is set when a ground fault is detected on the positive or negative side of the power supply. To locate the problem, remove the power wires from one section of the system at a time and look for the fault to clear. The status is self-clearing after the problem has been corrected.

Battery Fault. This indicator turns on when the back-up battery is disconnected from the power supply. This is detected by monitoring the current flow between the DC power supply and the battery.

Auto Configuration Fault. This bit indicates that the gateway was unable to successfully download configuration information.

UPDATE RATE

This field shows in milliseconds how often the PSM will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the PSM configuration screen.

ALARM ADDRESS

This area shows the logic controller addresses that are configured for communication with this PSM. All trouble status data will be sent to the addresses listed here. The addresses can be changed on the PSM configuration screen. It is important to ensure that the logic controller is configured to communicate with this device.

AC VOLTAGE BUTTON

Pressing this button will display the AC voltage level measured at the power supply monitor.

Point display screens provide detailed status information for each configured point on the network. Information provided on the point display screens includes:

- current analog value (displayed as bar graph and in engineering units)
- alarm setpoint levels
- communication status
- sensor status
- relay status
- calibration status and history
- alarm status and history.

All point display screens share the following common fields.

COMMON DISPLAY FIELDS

Point Name is displayed in the upper left hand corner of the screen.

LON Name and Point Number are displayed in the upper right hand corner of the screen.

Goto Point, Next Point and Previous Point buttons allow the operator to navigate from one point to another.

Inhibit button toggles the status of the inhibit bit. When a point is inhibited, the gateway relays and display are inhibited from responding to changes in the status of this point.

Close button closes this screen and returns to the previously displayed screen.

Status Indicators are normally black and turn red when active. In a properly operating system with no faults or alarms occurring, all indicators are off with the exception of the LON Master indicator on the Gateway Point Display screen.

From the Point Configuration screen, highlight the gateway, then click on Display Point or select Point from the View menu. The Gateway Point Display screen will be displayed. See Figure VIII–1.
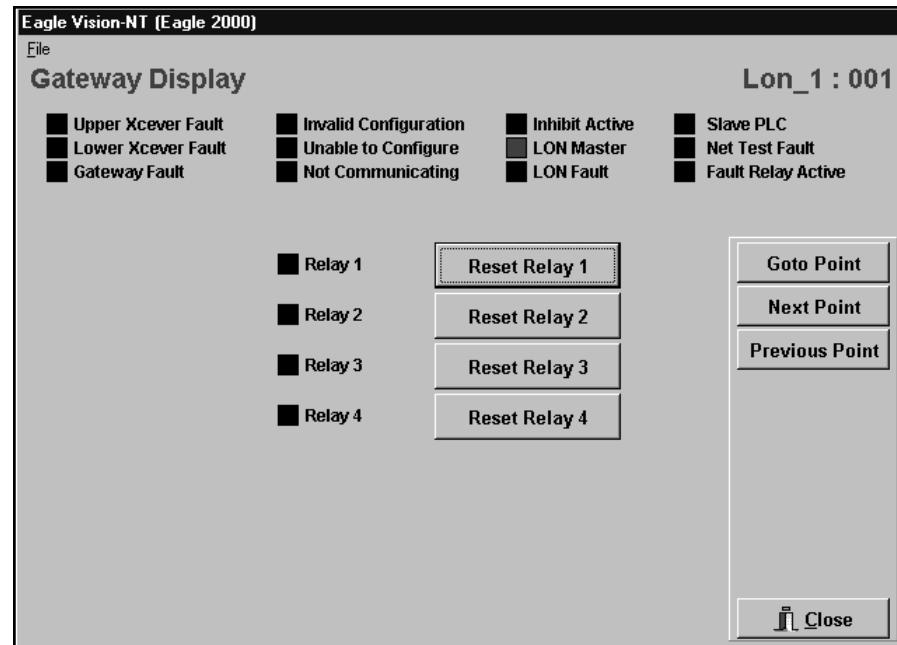
GATEWAY POINT DISPLAY

FIGURE VIII-1

Eagle 2000 Gateway
Point Display Screen

INDICATORS

Upper Xcever Fault and Lower Xcever Fault. These bits indicate that the self-diagnostic tests have detected a malfunction in one of the LON communication transceivers. Reset the gateway by cycling power. If the fault continues, replace the gateway.

Gateway Fault. This bit is set when the self-diagnostic test has detected an internal problem with the gateway. Reset the gateway by cycling power. If the fault continues, replace the gateway.

LON Relay Override. This bit indicates that the user has overridden the normal function of the gateway's LON relay. The LON relay is used to connect the ends of the network in the event of a LON fault. While troubleshooting, it is helpful to override the automatic function of this relay. However, it is critical to return the relay to the automatic mode after troubleshooting is completed.

Invalid Configuration. This bit indicates that the gateway has not been configured or that the configuration does not match the DIP switch settings.

Unable to Configure. The main gateway was unable to successfully transfer configuration data to an auxiliary gateway.

Not Communicating. This bit is set when any configured gateways fail to report on schedule.

Inhibit Active. This bit indicates that the gateway relays and display are inhibited from responding to changes in the gateway's status word. The status is controlled by the "Inhibit" button.

LON Master. This bit indicates which gateway is currently sending the time and date heartbeat messages. This bit is normally on for main gateways and off for auxiliary gateways. If auxiliary gateways or logic controllers do not hear the heartbeat messages from the main gateway, they will send the heartbeat messages and set this bit.

LON Fault. This bit is set when the time and date message sent out from one side of the gateway is not being received by the other port, indicating the presence of a short or open on the network. This bit is set any time that a short or open condition occurs on the network.

Slave PLC. This bit is set to indicate that an attached PLC is responding.

Net Test Fault. The main gateway periodically sends the time and date heartbeat messages in the opposite direction to test for failed network extenders. This bit is set to indicate a test failure. The bit will remain set until the system passes the test. The test is conducted once every 20 minutes.

Fault Relay Active. This bit is set when the gateway fault relay is active. The relay is triggered when an open is detected on the LON or a gateway fault is detected.

BUTTONS

The **Reset Relay** buttons are used to reset the gateway relays when set for latching operation.

From the Point Configuration screen, highlight the communication module, then click on Display Point or select Point from the View menu. The Communication Module Point Display screen will be displayed. See Figure VIII–2.
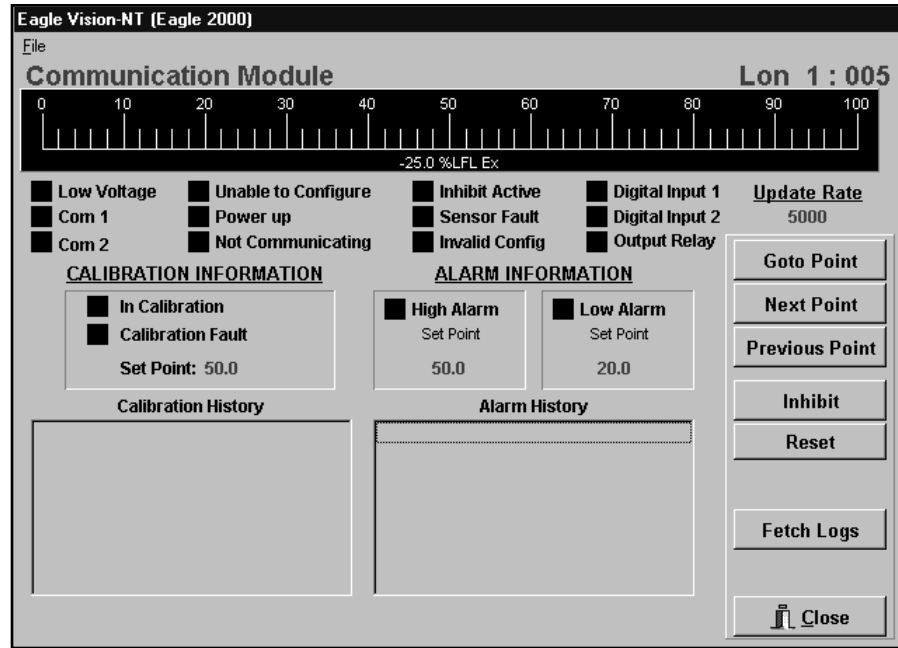
**COMMUNICATION MODULE
POINT DISPLAY**

8.4

FIGURE VIII-2

Communication Module
Point Display Screen

PROCESS VARIABLE DISPLAY

The gas level / process variable is graphically displayed on an analog bar graph. The scaling and engineering units will change depending on the type of gas and configuration settings.

STATUS INDICATORS

Low Voltage. This bit is set when the input power voltage to the communication module is below 17.5 volts. The actual voltage can be read from the "Network" screen. The typical cause of this fault is under-sized wire.

Com 1 and Com 2. One of these bits is set when the communication module's fault isolation circuitry has detected and isolated a wiring fault.

Unable to Configure. This bit is set by the gateway when it is unable to successfully transfer configuration information to the communication module.

Power up. This bit is set during the power-up time delay.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the communication module. The bit is cleared when a new status update is received.

Inhibit Active. This bit indicates that the gateway relays and display are inhibited from responding to changes in the communication module's status. The Inhibit Active status is controlled by the "Inhibit" button.

Sensor Fault. This bit is set when the gas level is below the fault threshold or the Invalid Configuration bit is set.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Digital Input 1/2. This indicator shows the status of the signal connected to the communication module's digital input.

Output Relay. This bit is set when the communication module's output relay is activated.

CALIBRATION INFORMATION

In Calibration. This bit is active during the sensor calibration procedure.

Calibration Fault. This bit is set when a fault is detected during the calibration procedure.

Calibration History. The communication module stores the baseline and the last seven calibration records (date, time, high and low calibration values). These records allow the operator to spot trends in sensor sensitivity or potential problems. Clicking in the calibration history box will bring up a graphic representation of the calibration history.

ALARM INFORMATION

High and Low Alarm. The alarm indicator is on when the gas concentration exceeds the alarm setpoint and clears when the level returns below the setpoint. The current alarm setpoint values are also displayed. The alarm setpoint values are selected on the point configuration screen.

Alarm History. The communication module stores and displays the last eight alarms (high and low). The display includes the type of alarm and the time and date stamp.

UPDATE RATE

This field shows in milliseconds how often the communication module will report its status to the gateway. The update rate is programmable from 1 to 10 seconds on the communication module configuration screen.

RESET BUTTON

This button resets the communication module's output relay.

FETCH LOGS BUTTON

This button will retrieve the alarm logs.

RELAY NODE POINT DISPLAY

From the Point Configuration screen, highlight the relay node, then click on Display Point or select Point from the View menu. The Relay Node Point Display screen will be displayed. See Figure VIII–3.

FIGURE VIII-3

Relay Node
Point Display Screen
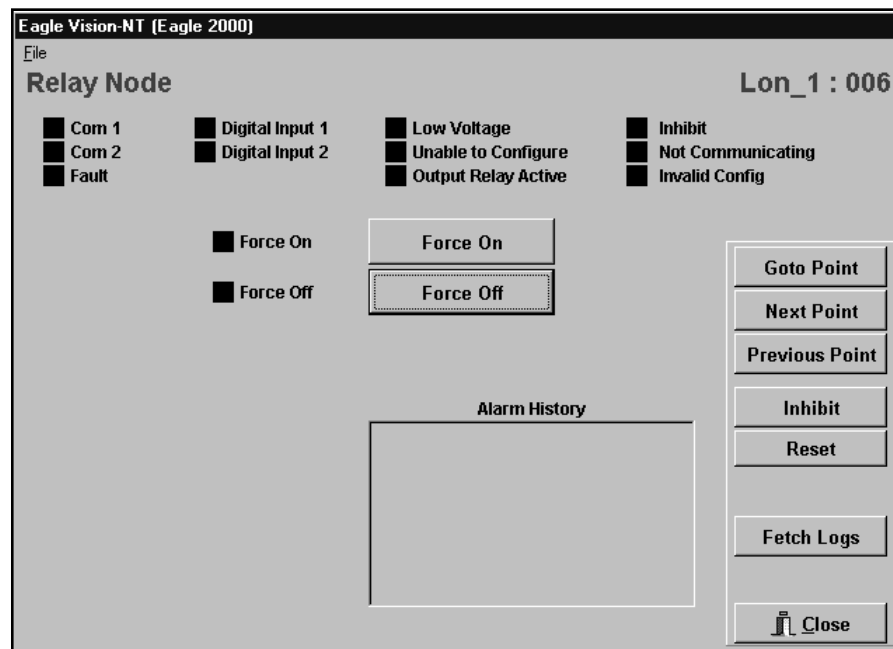

STATUS INDICATORS

Com 1 and Com 2. One of these bits is set when the relay node's fault isolation circuitry has detected and isolated a wiring fault.

Fault. This bit is set when the internal fault detection circuitry has indicated a hardware fault.

Digital Input 1/2. These indicators show the status of the signals connected to the relay node's two digital inputs.

Low Voltage. This bit is set when the input power voltage to the relay node is below 17.5 volts. The actual voltage can be read from the "Network" screen.

Unable to Configure. This bit is set by the gateway when it is unable to successfully transfer configuration information to the relay node.

Output Relay Active. This bit is set when the relay node's output relay is activated.

Inhibit. This bit indicates that the gateway relays and display are inhibited from responding to changes in the relay node's status. The Inhibit status is controlled by the "Inhibit" button.

Not Communicating. This bit is set by the gateway when its diagnostic routine indicates that it has not received periodic status messages from the relay node. The bit is cleared when a new status update is received.

Invalid Configuration. This bit indicates that configuration information is invalid and is set on a new unit, when the address is changed, or when invalid data is transferred. A valid configuration must be downloaded to clear the bit.

Force On. This bit indicates that the relay is in a "force on" condition, causing it to be in its active state, regardless of voting or other programmed responses.

Force Off. This bit indicates that the relay is in a "force off" condition, causing it to be in its inactive state, regardless of voting or other programmed responses.

ALARM HISTORY

The relay node stores and displays the last eight alarms (high and low). The display includes the type of alarm and the time and date stamp.

BUTTONS

Reset. This button resets the relay node's output relay.

Fetch Logs. This button will retrieve the alarm logs.

Force On. This switch puts the relay node's output relay in a "force on" condition, causing it to be in its active state, regardless of input conditions.

Force Off. This switch puts the relay node's output relay in a "force off" condition, causing it to be in its inactive state, regardless of input conditions.

To determine the location of a wiring fault on the network:

From the Point Configuration screen, click on the Overview button to display the System Overview screen. This screen provides an overview of the entire system. Each configured node is represented by a square on the loop, and is identified by its address number. The color or the square indicates the status condition.

> Black = Normal operation
> Red = Alarm
> Yellow = Fault condition.

Click on the LON Diag. button. The LON Diagnostic screen is displayed. See Figure IX-1.
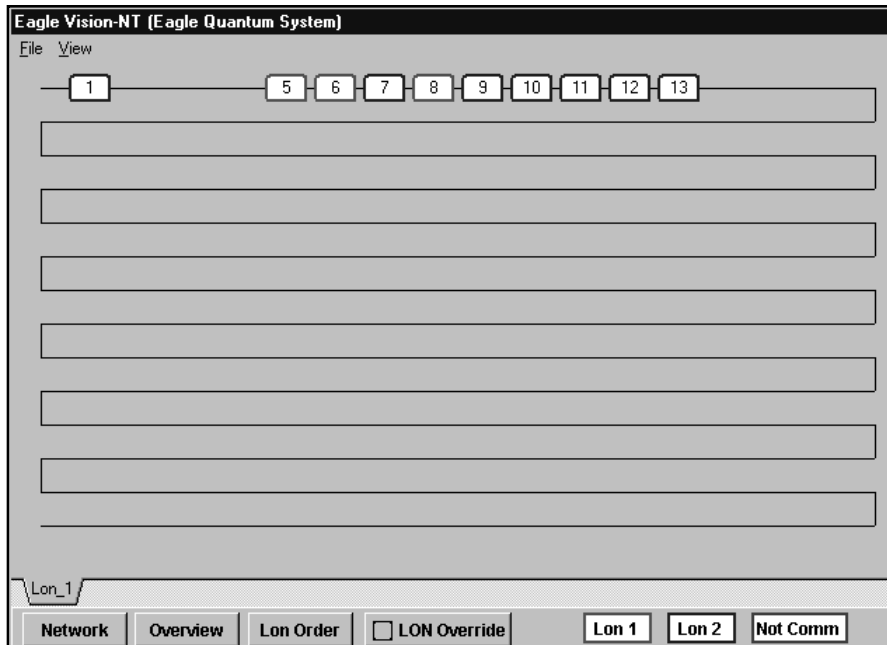
FIGURE IX-1

LON Diagnostic Screen

In the LON diagnostic mode, each node changes color as it reports to the gateway at the update rate determined at the time of configuration. This continual change in color indicates that normal LON communication is occurring. The color of the node indicates which of the gateway's two transceivers is receiving the message — green = LON 1, blue = LON 2, red = no communication. (The three boxes in the lower right hand corner of the screen are not buttons, but represent the gateway transceiver color code.)

Selecting the LON Order button allows the nodes to be dragged to any position on the screen in order to match the actual position on the LON (for systems where the devices on the loop are not wired in numerical order).

Selecting the Point Order button displays the points in numerical order. (This does not affect changes that were made after selecting LON Order, as described above.)

Click on the LON Override button. This resets the Gateway's LON relay (opening its contacts).

Under normal conditions, the gateway LON relay contacts are open and information moves over the network as shown in Figure IX–2.
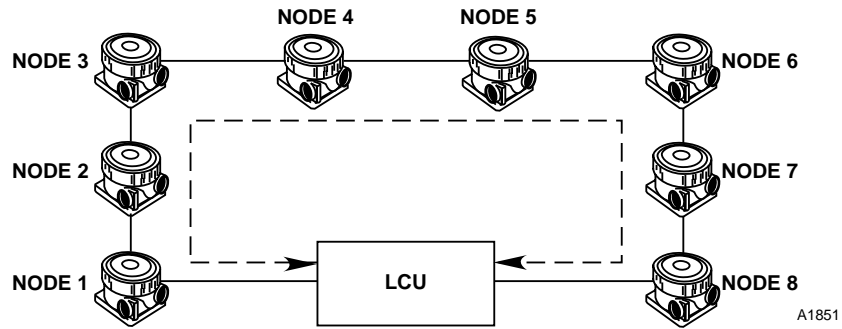
FIGURE IX-2

Normal Communication over the Network

When a network fault occurs, the relay contacts close and the data travels as shown in Figure IX–3.
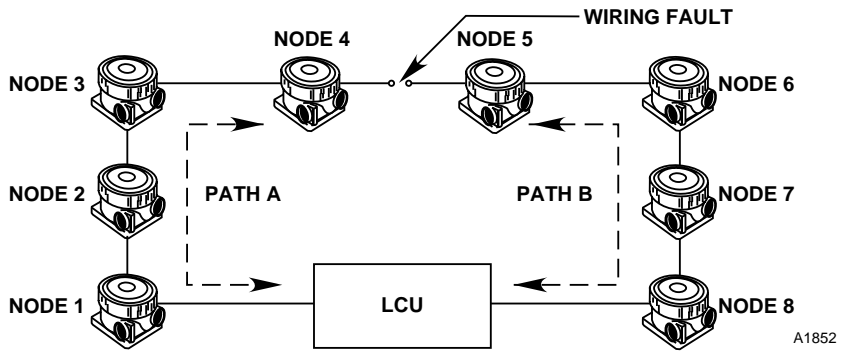
FIGURE IX-3

Communication with a Wiring Fault on the Network

NOTE

Since the logic controller occupies an address on the LON, the relay contacts must close during a fault condition to ensure normal communication until the fault can be repaired. Closing the contacts allows messages from the downstream side of the wiring fault to pass through the gateway and reach the logic controller. As a result, messages will continue to be received by both gateway transceivers.

By opening the contacts using the LON Override button, each node is able to report to only one side of the gateway. All nodes on one side of the fault will be blue and all nodes on the other side will be green, with the wiring fault located between the last green node and the first blue node.

In the event of multiple wiring faults on the LON, as shown in Figure IX-4, those nodes between the faults are unable to communicate with the gateway. In this case, all nodes between the faults will be red in color, while the nodes on one side of the fault will be blue and the nodes on the other side will be green.

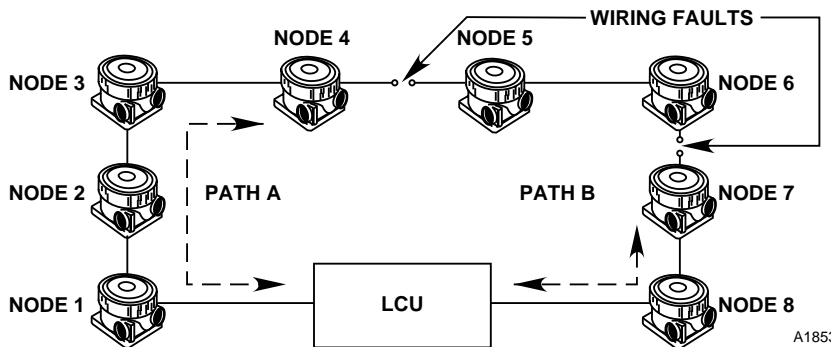

FIGURE IX-4

Communication with Multiple Wiring Faults on the Network

When troubleshooting is complete, click on the LON Override button to return the gateway relay to normal operation.

IMPORTANT

Incorrect network communication can occur if the gateway relay is inadvertently left in the LON Override position.

Click on the Network button to return to the Point Configuration screen.

LOGIC CONTROLLER DIAGNOSTICS

From the Point Configuration screen, highlight the logic controller, then click on the Display Point button. The Logic Controller Point Display screen will be displayed. Click on the Diagnostics button. The Logic Controller Diagnostics screen will be displayed. A tabbed notebook is displayed at the top of the screen.
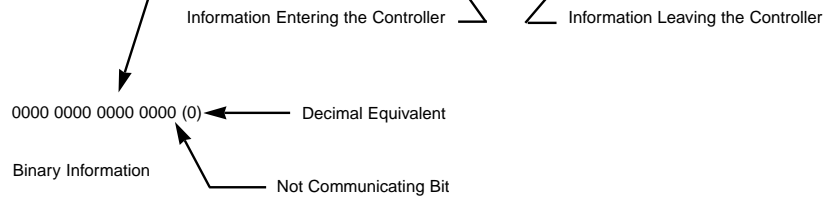
LC NV STATUS WORDS

Click on the LC NV Status Words tab to display the Logic Controller Network Variable Status Words screen. See Figure X–1. This display shows the raw alarm message data entering and leaving the logic controller. The alarm messages consist of 16 bit words with some bits predefined, while others have special meaning depending on the device type.

Point	Product	Input	Output
1	Gateway	0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
2		0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
3		0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
4		0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
5	Logic Controller	0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
6	Reserved	0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
7	DCU-PointWatch	0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
8	UV	0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
9	IDC	0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
10	ARM	0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
11	SAM	0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
12	UVIR	0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
13	DCU-H2S	0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
14		0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
15		0000 0000 0000 0001 (1)	0000 0000 0000 0000 (0)
16		0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)
17		0000 0000 0000 0000 (0)	0000 0000 0000 0000 (0)

Information Entering the Controller   Information Leaving the Controller

0000 0000 0000 0000 (0) ← Decimal Equivalent

Binary Information

Not Communicating Bit

FIGURE X-1

Logic Controller Network Variable Status Words

CARDS DETECTED

Click on the Cards Detected tab to display the LIOU Cards Detected screen. See Figure X–2. During configuration a list of LIOU boards is generated. On power-up the logic controller polls all available board addresses, establishing a list of "detected boards". The logic controller then compares the list of detected boards with the list of configured boards. If extra boards are found, the IO Board Count fault bit is set. If any boards are missing, the IO Not Communicating fault bit is set.

10.2

FIGURE X-2

LIOU Cards Detected by the
Logic Controller

This screen displays the type and address of each detected board. A command can be sent to the logic controller to poll for all available boards by pressing the "Detect Cards" button. This command takes approximately 20 seconds and the logic controller must be in program mode. This list can also aid in finding wrong address settings.

LOCAL HARDWARE

Click on the Local Hardware tab to display the Logic Controller Scan Time screen. See Figure X–3. The logic controller scan times are used to measure the logic controller's performance. The numbers represent the time required to update the input image table, process up to 32 pages of custom logic, and update all the output field devices. Typical times range from 300 to 900 milliseconds, however, the times can increase depending on the number and type of field devices and the amount of logic being performed.

Logic Controller Diagnostics

| Close |

NV Status | Cards Detected | Local Hardware

Last Scan Time   494

Min Scan Time   478

Max Scan Time   764

Toggle the Logic Controller Switch to Reset to zero the counts.

FIGURE X-3

Logic Controller Scan Times

95-8479

EagleVision-NT offers password protection to keep unauthorized personnel from modifying system configuration. When the entire system has been configured and correct operation has been verified, security can be set up using the following procedure.

1. From the Point Configuration screen (Figure V–1) select Overview. The system Diagnostic screen is displayed (Figure IX–1).

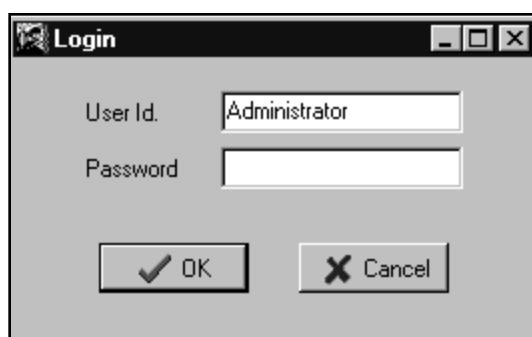2. Under the File menu select Security. The Login screen will be displayed. See Figure XI–1.

FIGURE XI-1

Login Screen

NOTE

Passwords are case sensitive.

3. Enter "Administrator" in the User ID box and "Admin" in the Password box. (This default password allows entry to the highest level of security.) The Security screen is displayed. See Figure XI–2.
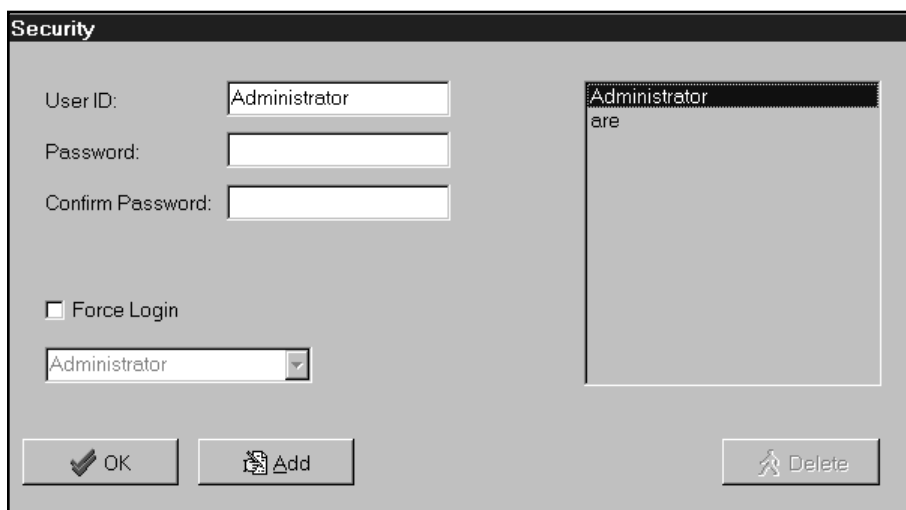

FIGURE XI-2

Security Screen

11.2

EagleVision-NT provides four levels of security protection, with each level allowing access to different EagleVision-NT features. Refer to Table XI–1.
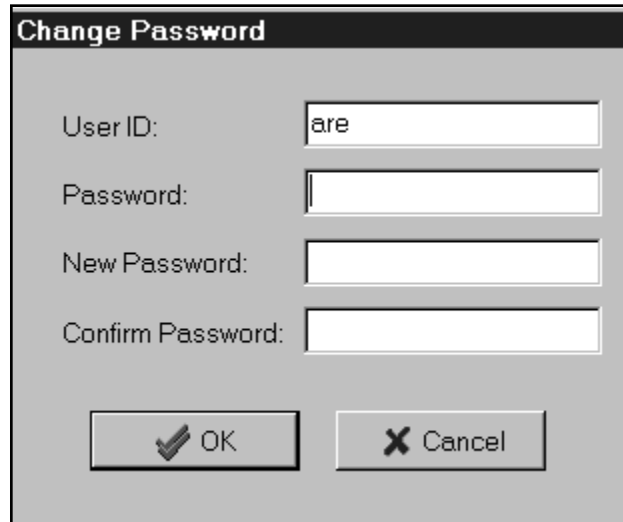
TABLE XI-1

EagleVision-NT Security

	Point Display	Point Configure	LON Override	Download	Logic	Upload	Quit
Administrator	X	X	X	X	X	X	X
Fire Engineer	X	X	X	X	X	X	X
Engineer	X	X	X	X			X
Operator	X						

ESTABLISHING A USER LIST

1. Enter a name and password for each user:
   With the Security screen displayed, click on the Add button. Enter a user's name in the User ID box and a password in the Password box. Enter the same password in the Confirm Password box. The "Password" and "Confirm Password" entries must match exactly to be accepted. Click on the Accept button. The name of each user is added to the user list in the upper right hand portion of the Security screen. Repeat the process for each user.

2. Assign an access level for each user:
   Select the user's name from the list in the upper right hand portion of the screen, then select the appropriate access level in the box at the lower left hand part of the screen. Click on the Accept button. Repeat the process for each user.

3. Activate security.
   Click on the Force Passwords check box. The "Force Passwords" check box functions as an "On/Off" switch for the Security feature. When "Force Passwords" is checked, the security feature is operational. When it is not checked, EagleVision-NT will not request a password to gain entry.

4. When all entries have been made, click on OK. The System Diagnostic screen is displayed.

Any operator can change his/her password by selecting "Password" from the File menu on the Overview screen. The Change Password screen is displayed. See Figure XI–3. Enter the user's name in the "User ID" box, the old password in the "Password" box, and the new password in the "New Password" and "Confirm Password" boxes (these two entries must match exactly).

CHANGING PASSWORDS

FIGURE XI-3

Change Password Screen