EDGE Technical Reference Manual

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Contact information

For contact information, see www.edwardsfiresafety.com.

Content

Important information

Regulatory information

This product has been designed to meet the requirements of NFPA 70 *National Electric Code*, NFPA 72 *National Fire Alarm and Signaling Code,* NFPA 720 *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*, Canadian Electrical Code, Part 1, ULC 524 *Standard for the Installation of Fire Alarm Systems*, ULC 5537 *Standard for the Verification of Fire Alarm Systems*, and CAN/ULC 561 *Installation and Services for Fire Signal Receiving Centres and Systems*.

Limitation of liability

To the maximum extent permitted by applicable law, in no event will Walter Kidde Portable Equipment, LLC be liable for any lost profits or business opportunities, loss of use, business interruption, loss of data, or any other indirect, special, incidental, or consequential damages under any theory of liability, whether based in contract, tort, negligence, product liability, or otherwise. Because some jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages the preceding limitation may not apply to you. In any event the total liability of Walter Kidde Portable Equipment, LLC shall not exceed the purchase price of the product. The foregoing limitation will apply to the maximum extent permitted by applicable law, regardless of whether Walter Kidde Portable Equipment, LLC has been advised of the possibility of such damages and regardless of whether any remedy fails of its essential purpose.

Installation in accordance with this manual, applicable codes, and the instructions of the authority having jurisdiction is mandatory.

While every precaution has been taken during the preparation of this manual to ensure the accuracy of its contents, Walter Kidde Portable Equipment, LLC assumes no responsibility for errors or omissions.

Advisory messages

Advisory messages alert you to conditions or practices that can cause unwanted results. The advisory messages used in this document are shown and described below.

WARNING: Warning messages advise you of hazards that could result in injury or loss of life. They tell you which actions to take or to avoid in order to prevent the injury or loss of life.

Caution: Caution messages advise you of possible equipment damage. They tell you which actions to take or to avoid in order to prevent the damage.

Note: Note messages advise you of the possible loss of time or effort. They describe how to avoid the loss. Notes are also used to point out important information that you should read.

FCC compliance statement

This equipment can generate and radiate radio frequency energy. If the equipment is not installed in accordance with this manual, it may cause interference to radio communications. This equipment has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart B of Part 15 of the FCC Rules. These rules are designed to provide reasonable protection against such interference when this equipment is operated in a commercial environment. Operation of this equipment is likely to cause interference, in which case the user, at their own expense, will be required to take whatever measures may be required to correct the interference.

SA-DACT FCC information

Cautions

- To ensure proper operation, this dialer must be installed according to the enclosed installation instructions. To verify that the dialer is operating properly and can successfully report an alarm, it must be tested immediately after installation, and periodically thereafter, according to the enclosed test instructions.
- In order for the dialer to be able to seize the phone line to report an alarm or other event when other customer equipment (telephone, answering system, computer modem, etc.) connected to the same line is in use, the dialer *must* be connected to a properly installed RJ-31X jack. The RJ-31X jack must be connected in series with, and ahead of, all other equipment attached to the same phone line. Series installation of an RJ-31X jack is depicted in the wiring diagram. If you have any questions concerning these instructions, you should consult your telephone company or a qualified installer.

Testing

When programming emergency numbers or making test calls to emergency numbers, remain on the line and briefly explain to the dispatcher the reason for the call. When system maintenance, testing or modifications could result in the transmission of signals from the fire alarm system to a supervising station, consult the supervising station to determine the best time to send these signals (i.e., “off-peak” hours).

Compliance

- This dialer complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council for Terminal Attachments (ACTA). A label attached to the dialer contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this information must be provided to the telephone company.
- The plug and jack used to connect the dialer to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by ACTA. The dialer must be connected to a compliant RJ-31X or RJ-38X jack using a compliant cord. If a modular telephone cord is supplied with the dialer, it is designed to meet these requirements. See installation instructions for details.
- A ringer equivalence number (REN) is used to determine how many devices you can connect to a telephone line. If the total REN value for all devices connected on a telephone line exceeds that allowed by the telephone company, the devices may not ring on an incoming call. In most (but not all) areas the total REN value should not exceed 5.0. To be certain of the total REN value allowed on a telephone line, contact the local telephone company.
- For products approved after July 23, 2001, the REN is part of the product identifier in the format US:AAAEQ##TXXXX. The digits ## represent the REN without a decimal point. Example: 03 is a REN of 0.3. For earlier products, the REN is listed separately.
- If the dialer is harming the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn’t practical, the telephone company will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC, if you believe it is necessary.
- The telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the operation of the dialer. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.
- If you are experiencing problems with the dialer, contact the manufacturer for repair or warranty information. If the dialer is harming the telephone network, the telephone company may request that you disconnect the dialer until the problem is resolved.
- The dialer contains no user serviceable parts. In case of defects, return the dialer for repair.
- You may *not* connect the dialer to a public coin phone, or a party line service provided by the telephone company.

Industry Canada information

Note: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user disconnect the equipment.

Caution: Users should not attempt to make connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Note: The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirements that the sum of the Load Numbers of all the devices does not exceed 100.

Chapter 1
Introduction

Summary

This chapter provides information about this manual and other related documentation.

Content

About this manual

This manual provides information on how to install, program, and operate an EDGE control panel. It is organized as follows:

Chapter 1, Introduction: Provides information about this manual and other related documentation.

Chapter 2, Product description: Provides technical descriptions of the control panel and its operation. It also provides descriptions of the command menus.

Chapter 3, Installation and wiring: Provides installation information for control panel and system components. It is intended for those trained and authorized to maintain the fire alarm system.

Chapter 4, Operating instructions: Provides instructions for operating the control panel from the user interface. It is intended for those who might be expected to operate the control panel in a fire alarm emergency.

Chapter 5, Supplementary applications: Provides technical descriptions of supplementary applications that can expand system capabilities.

Chapter 6, Preventive maintenance and testing: Provides maintenance schedules and testing procedures for fire alarm systems. It is intended for those trained and authorized to maintain the fire alarm system.

Chapter 7, Service and troubleshooting: Provides instructions for servicing and troubleshooting the fire alarm system. It is intended for those trained and authorized to maintain the fire alarm system.

Appendix A, System calculations: Provides worksheets for sizing standby batteries, and for calculating the maximum wire lengths for notification appliance circuits and intelligent addressable loops.

Appendix B, Addresses: Provides a comprehensive list of addresses to use as a general reference.

Appendix C, Pseudo points table: Provides pseudo point addresses, sources, and descriptions that can be used to troubleshoot pseudo point events.

Intended audience

The intent of this document is to provide trained and authorized personnel with technical, operational, service, and maintenance information.

Life safety system limitations

The purpose of an automatic life safety system is to provide early detection and warning of a developing fire. There are a number of uncontrollable factors that can prevent or severely limit the ability of an automatic life safety system to provide adequate protection. As such, an automatic life safety system cannot guarantee against loss of life or loss of property.

Two main causes of system failures are improper installation and poor maintenance. The best way to minimize these types of system failures is to have only trained life safety system professionals design, install, test, and maintain your system in accordance with national and local fire codes.

Life safety systems will not operate without electrical power. As fires frequently cause power interruption, we suggest that you discuss ways to safeguard the electrical system with your local fire protection specialist.

Chapter 2
Product description

Summary

This chapter provides descriptions of the control panel and its components, unpacking instructions, and wiring of the panel components.

Content

System overview

The EDGE control panel can operate as a stand-alone panel in a Class B/DCLB, Class A/DCLA, or Class X/DCLC system. The EDGE-CU is required for configuring the EDGE control panel.

EDGE user interface modules mount onto the inner door UI frame assembly. Most field wiring is terminated using plug-in terminal strips for easy installation and servicing of modules. See “Control panel components” on page 6 for a list of standard control panel components and optional equipment.

System size

Table 1 below lists the maximum hardware capabilities for a single EDGE control panel.

Table 1: Panel hardware capabilities

Accessories/subassemblies/networked panels	Maximum capacity
Signaling line circuits (SLC)	4
Addressable detectors	500 (125 detectors each SLC)
Addressable modules	500 (125 single-address modules each SLC)
Initiating device circuits	896 (16 per RZI, max 14 RZI per loop)
Notification appliance circuits	4 Class A or Class B
Auxiliary power circuits	4 continuous or resettable, programmable and 2 dedicated
Remote annunciators	30
Reverse polarity outputs	3
LED/switch annunciators	3

EDGE-CU computer specifications

The EDGE-CU computer specifications provided in Table 2 below are the minimum recommended requirements for performing EDGE-CU functions. While the minimum requirements are acceptable, EDGE-CU performance can be improved by increasing computer memory and processor speed.

Two factors affect the amount of time it takes for an EDGE-CU database conversion to EDGE control panels:

- Computer size (processor speed and memory)
- Project size (number of control panels in a network and number of devices)

Table 2: Minimum recommended EDGE-CU computer specifications

	Minimum requirement
Operating system	Windows 10 or higher (64 bit)
Processor [1]	7th Generation Core i5
Memory [1]	16 GB RAM
Hard drive	512 GB SSD (unencrypted)
Display/Monitor	17 inch, 1920 × 1080

[1] The project size affects the amount of time for a database conversion. Increasing the computer memory size and processor speed can reduce conversion time.

Cybersecurity

The EDGE control panel provides levels of protection and the flexibility to deploy in a manner that can help with cybersecurity protections. The system's flexibility allows the installer to work with the building owner and local IT professionals to match the system to their IT and cybersecurity needs. It is recommended that longer and complex alphanumeric passwords are used.

- Airgap: EDGE has multiple levels of physical security that can be used to meet simple airgap requirements in systems without firewalls.
- Access and authentication: Access to an EDGE system is based on industry standards, best practices. First a physical barrier, the locked door, provides a barrier to the system. To gain access to higher level system operations, at least a seven-digit ID/password entry is required. All control panel access is role-based; a user can only perform actions explicitly allowed by the permissions policy.
- External Connectivity: While the EDGE control panel has built-in firewall protection, it works in tandem with the site IT infrastructure. Therefore, the site should always include its own commercial firewall to protect the building network or intranet.

Supported fire alarm system types

The EDGE control panel is listed for use as the following types of fire alarm systems:

- Protected Premises (Local) Fire Alarm System
- Auxiliary Alarm System
- Remote Supervising Station Alarm System
- Releasing Fire Alarm System
- Central Station Service Alarm System

The minimum requirements to meet each service listing are shown below. For optional components, refer to *EDGE UL Listing Document* (P/N 3102922).

Protected Premises (Local) Fire Alarm System

- EDGE control panel backbox, inner and outer doors
- Panel main electronics assembly (includes a power supply board and CPU board with onboard SLC)
- EDGE-SLC-250, EDGE-SLC-500 card (at least one IDC module must be installed with one output programmed for an audible EVAC and one input configured for initiating)
- RZI16-2 initiating device circuit module (at least one IDC module must be installed with one output programmed for an audible evac and one input configured for initiating)
- EDGE-24L, EDGE-24L12S, EDGE-24L18S, EDGE-24L24 control-display module(s) (at least one control-display module)

Auxiliary Alarm System

- EDGE control panel backbox, inner and outer doors
- Panel main electronics assembly (includes a power supply board and CPU board with onboard SLC)
- EDGE-SLC-250, EDGE-SLC-500 card (at least one IDC module must be installed with one output programmed for an audible EVAC and one input configured for initiating)
- EDGE-24L, EDGE-24L12S, EDGE-24L18S, EDGE-24L24 control-display module(s) (at least one control-display module)
- RZI16-2 initiating device circuit module (at least one IDC module must be installed with one output programmed for an audible evac and one input configured for initiating)

- SA-DACT modem communicator module
- CTM city tie module

Remote Supervising Station Alarm System

- EDGE control panel backbox, inner and outer doors
- Panel main electronics assembly (includes a power supply board and CPU board with onboard SLC)
- EDGE-SLC-250, EDGE-SLC-500 card (at least one IDC module must be installed with one output programmed for an audible EVAC and one input configured for initiating)
- RZI16-2 initiating device circuit module (at least one IDC module must be installed with one output programmed for an audible evac and one input configured for initiating)
- EDGE-24L, EDGE-24L12S, EDGE-24L18S, EDGE-24L24 control-display module(s) (at least one control-display module)
- SA-DACT modem communicator module
- RPM reverse polarity module

Releasing Fire Alarm System

- EDGE control panel backbox, inner and outer doors
- Panel main electronics assembly (includes a power supply board and CPU board with onboard SLC)
- EDGE-SLC-250, EDGE-SLC-500 card (at least one IDC module must be installed with one output programmed for an audible EVAC and one input configured for initiating)
- EDGE-24L, EDGE-24L12S, EDGE-24L18S, EDGE-24L24Scontrol-display module(s) (at least one control-display module)
- SIGA-REL releasing module

Central Station Service Alarm System

- EDGE control panel backbox, inner and outer doors
- Panel main electronics assembly (includes a power supply board and CPU board with onboard SLC)
- EDGE-SLC-250, EDGE-SLC-500 card (at least one IDC module must be installed with one output programmed for an audible EVAC and one input configured for initiating)
- EDGE-24L, EDGE-24L12S, EDGE-24L18S, EDGE-24L24 control-display module(s) (at least one control-display module)
- SA-DACT modem communicator module

Control panel components

This section describes the compatible equipment enclosures, modules, and accessories that can be used with the EDGE control panel.

Note: Option cards and modules are ordered separately and installed in the field.

Table 3: Equipment enclosures

Model	Description
Backbox	
EDGE backbox	Semi-flush or surface mount backbox that provides the housing for locally installed EDGE components and batteries. The following batteries are supported for the EDGE control panel.

Battery model	Description	Quantity
12V10A	12 volts, 11 amp/hours	2
12V17A	12 volts, 18 amp/hours	2
12V24A[1]	12 volts, 26 amp/hours	2
12V40A[1]	12 Volts, 40 amp/hours	2
12V50A[2]	12 Volts, 50 amp/hours	2
12V65A[2]	12 Volts, 65 amp/hours	2

[1] Requires the BC-1(R)
Note: The BC-1(R) cabinet can only be used if your EDGE system has a current draw of 7.0 A or less.

[2] Requires 3-RCC7R, 3-BATS, or 3-BTSEN

Enclosure	
EDGE-ML-R	Edwards Base Panel (red). Four-loop capable with one onboard 250-point SLC, 10" Touchscreen LCD, 110v/220v Power Supply, Built-in 4 Class B/A NACs (Class A needs to use optional EDGE-CLA1 module not included), IP and USB ports, Cabinet backbox, Plastic inner door, Red outer door. Includes configurable primary and alternate languages (factory default setting is English).
EDGE-ML-G	Edwards Base Panel (grey). Four-loop capable with one onboard 250-point SLC, 10" Touchscreen LCD, 110v/220v Power Supply, Built-in 4 Class B/A NACs (Class A needs to use optional EDGE-CLA1 module not included), IP and USB ports, Cabinet backbox, Plastic inner door, Grey outer door. Includes configurable primary and alternate languages (factory default setting is English).

Table 4: Control panel sub-assemblies

Model	Description
Panel main electronics assembly	
Panel power supply board	Main power supply. Housed on the main electronics assembly plastic base. Provides the required power and related supervision functions for the control panel, as well as filtered and regulated power to the LRMs and 24 VDC for ancillary equipment. See “Panel main electronics assembly” on page 28 for details.
Panel CPU board	Central Processor Module. Housed on the main electronics assembly plastic base. Processes all information from modules installed in the same cabinet and networked control panels. See “Panel main electronics assembly” on page 28 for details.
LCD	
LCD	Main LCD Module. Provides the user interface for the fire alarm control panel. The module includes operator command controls, LED indicators, and a capacitive touch screen (10 in., 18-bit color, 1024 x 600 pixels).The LCD is installed in the top on the inner door UI frame assembly and connects to the panel CPU board using an HDMI cable. See “EDGE LCD user interface” on page 9 for details.

Model	Description
Control display modules	
EDGE 24L series	Control-display modules. Provides additional user interface capability for the control panel. Installs onto the inner door UI frame assembly. See *EDGE 24L Series Control Display Modules Installation Sheet* (P/N 3102902) for specifications. • EDGE-24L: 24 LEDs (programmable as red, yellow, green, white, or blue) • EDGE-24L12S: 12 LED-switches with 2 LEDs per switch (programmable as red, yellow, green, white, or blue) • EDGE-24L18S: 6 groups of 3 LED-switches with 4 LEDs per switch (programmable as red, yellow, green, white, or blue) • EDGE-24L24S: 24 LED-switches with 24 LEDs (programmable as red, yellow, green, white, or blue)

Table 5: Control panel accessories

Model	Description
EDGE-Tamper	Tamper switch. Used to detect an open cabinet door. See *EDGE Tamper Switch Installation Sheet* (P/N 3103038) for specifications.
SA-DACT	DACT dialer. Transmits system status changes (events) to compatible digital alarm communicator receivers over the public switched telephone network. See *SA-DACT Dialer Installation Sheet* (P/N 3101099) for specifications.
EDGE-CLA1	NAC Class A conversion module. Provides NAC Class A wiring for the control panel. The card's terminal block provides the connection for the NAC Class A return field wiring. See *EDGE-CLA1 NAC Class A Conversion Module Installation Sheet* (P/N 3102914) for specifications.
RZI16-2	Remote zone interface module. Addressable device that provides connections for sixteen Class B initiating device circuits (IDCs). It also provides two Class B supervised output circuits or two unsupervised dry contact outputs. The inputs and outputs can be configured individually for several device types. See *RZI16-2 Remote Zone Interface Module Installation Sheet* (P/N 3101970) for specifications.
EDGE-SLC-250	Single SLC interface card. Provides one device signaling line circuit (SLC) on the control panel. See *EDGE-SLC-250 Single SLC Interface Card Installation Sheet* (P/N 3102908) for specifications.
EDGE-SLC-500	Dual SLC Interface Card. Provides two device signaling line circuits (SLCs) on the EDGE control panel. See *EDGE-SLC-500 Dual SLC Interface Card Installation Sheet* (P/N 3102909) for specifications.
EDGE-PTK2	Trim kit. Used to semi-flush mount the backbox. See *EDGE-PTK2 Trim Kit Installation Sheet* (P/N 3102937) for specifications.
EDGE-FPS-LK	Language kit UI inserts. Provides inserts and labels for the EDGE panel LCD in the languages listed below. See *EDGE-FPS-LK Language Kit UI Inserts Installation Sheet* (P/N 3102975) for specifications. • French – Canada • Spanish – Latin America • Portuguese – Brazil
PT-1S+	Ethernet printer. Connects to the fire alarm control panel to print system events such as status changes, active events, or reports. See *PT-1S+ Printer Installation Sheet* (P/N 3102823) for specifications.

Model	Description
R-Series remote annunciator	Remote annunciators: Provides status indication and common controls for the control panel. The following annunciators and interface cards can be used with the EDGE control panel. See *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919) for specifications. • RLCD-C-2: Provides LCD text annunciation with common controls. • RLCD-2: Provides LCD text annunciation without common controls. • RLED-C-2: Provides LED zone annunciation with common controls. • RLED24-2: Provides 24 red-over-yellow pairs of LEDs (12 pairs configurable as yellow-over-yellow) without common controls.
RKEY	Remote key switch. Used to enable or disable (lock/unlock) common controls on R-Series annunciators.
Replacement items	
EDGE-CPU-HDMI-CBL	HDMI CPU to LCD cable replacement. Used as a replacement cable for the LCD. See *EDGE-CPU-HDMI-CBL Replacement CPU to LCD HDMI Cable Installation Sheet* (P/N 3102977) for specifications.
EDGE-10TSLCD-RE	LCD main display module replacement. Includes the replacement LCD and the upper UI frame assembly. See *EDGE-10TSLCD-RE Replacement LCD Main Display Module Installation Sheet* (P/N 3102980) for specifications.
EDGE-MB-RE	Panel main electronics assembly replacement. Includes the panel power supply board and the panel CPU board mounted on a plastic base. See *EDGE-MB-RE Replacement Panel Main Electronics Assembly* (P/N 3103002) for specifications.

EDGE LCD user interface

The EDGE inner door includes the LCD user interface for the EDGE fire alarm control panel. The interface is comprised of an alphanumeric LCD screen, operator controls, and LED indicators.

Operator alert signal

In coordination with visual event notifications on the user interface, the control panel employs an audible signal to alert the operator of off-normal system conditions for active event conditions. Different operator alert signal patterns are assigned to the event queues. Table 6 below shows the signal patterns used in the US Market. Note that the market setting for your control panel may result in different patterns.

Note: The operator alert signal may automatically sound a reminder signal, if supported by the market.

Table 6: Operator alert patterns (US Market patterns shown)

Event queue	Operator alert pattern
Alarm / Emergency	3 pulses every 4 seconds
Supervisory / Building	2 pulses every 4 seconds
Trouble	1 pulse every 4 seconds
Monitor	1 pulse every 16 seconds
Ground Fault	1 pulse every 4 seconds
CPU Fail	On steady

Event queue	Operator alert pattern
Disable	1 pulse every 4 seconds
Test	1 pulse every 4 seconds

User interface command controls and indicators descriptions

The LCD screen on the user interface provides command control and indicators relevant to system operation. See Table 7 on page 11 for a description of each control and indicator.

Note: The language inserts for the command controls and indicators are shipped with English inserts. A separately ordered *EDGE-FPS-LK* language kit is available that provides French (Canada), Spanish (Latin America), and Portuguese (Brazil) inserts. The kit also includes a replacement EDGE panel door label. For more information on the EDGE-FPS-LK, see *EDGE-FPS-LK Language Kit Installation Sheet* (P/N 3102975).

Figure 1: User interface command controls and indicators

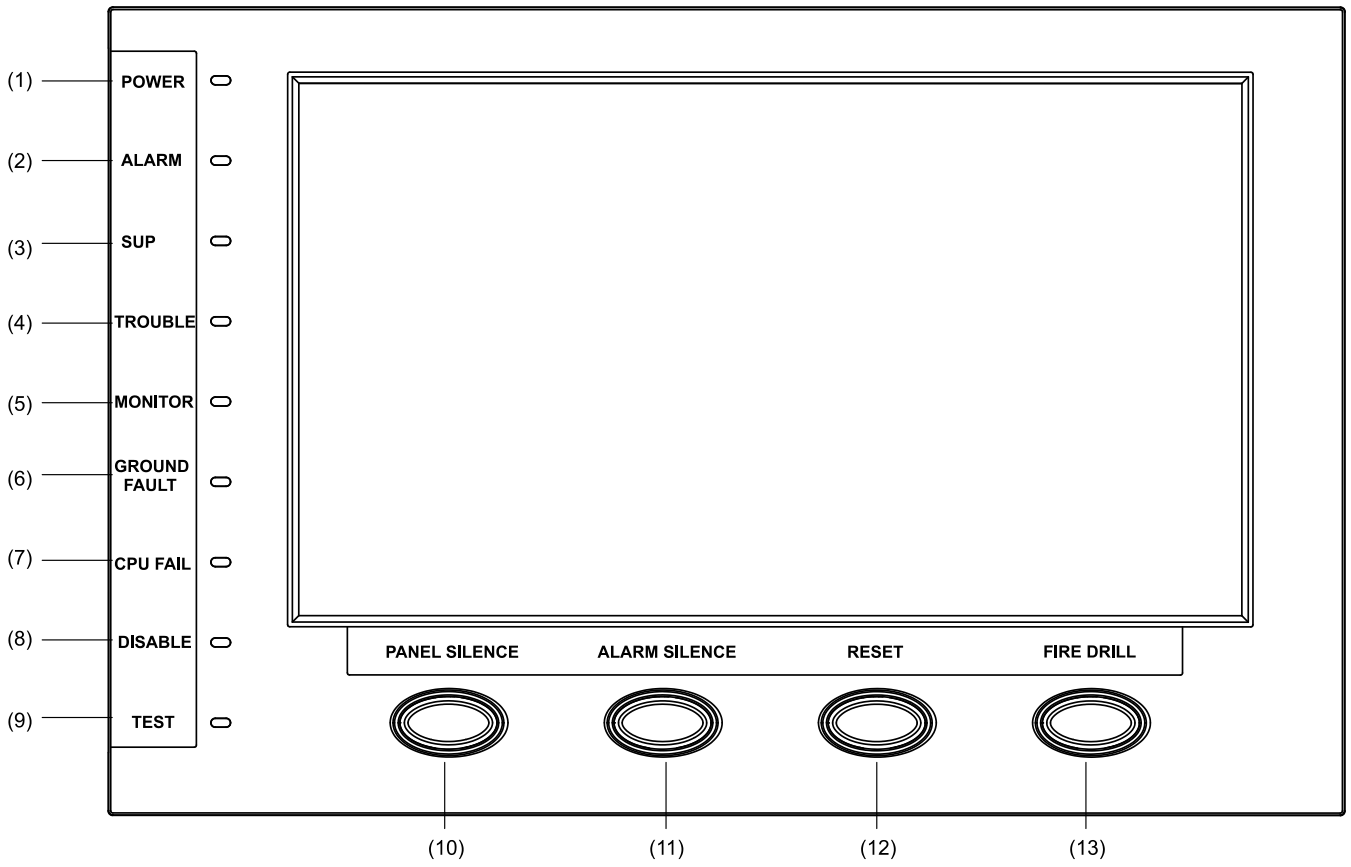


Table 7: Command controls and indicators descriptions

Item	Control/Indicator	Description
1	POWER indicator	Green LED. The indicator provides the power status. The indicator is set by the selected marketplace: **Power Always On:** A steady LED indicates that either primary power or standby power are present. An off LED indicates that both primary power and standby power are missing. **Power Follows AC:** A steady LED indicates that primary power is present and off when primary power is missing. An off LED indicates that standby power is present or is missing. **Power Only If Available AC and Battery:** A steady LED indicates that both primary power and standby power are present. An off LED indicates that either primary power or standby power are missing.
2	ALARM indicator	Red LED. Flashes when there is an active alarm event on any loop. On steady once acknowledged.
3	SUP indicator	Yellow LED. Flashes when there is an active supervisory event on any loop. On steady once acknowledged.
4	TROUBLE indicator	Yellow LED. Flashes when there's a fault with a monitored circuit or system component or when a circuit is disabled. On steady once acknowledged.
5	MONITOR indicator	Yellow LED. Flashes when there is an active monitor event on any loop. On steady once acknowledged.
6	GROUND FAULT indicator	Yellow LED. On steady when a ground fault is active.
7	CPU FAIL indicator	Yellow LED. On steady to indicate a microprocessor or memory failure as defined by regulatory agencies. An off LED indicates that CPU communications has been restored.
8	DISABLE indicator	Yellow LED. Flashes when there is a disabled circuit or device. On steady once acknowledged.
9	TEST indicator	Yellow LED. Flashes when there is an active Service Group or test event. On steady when all active test events have been acknowledged.
10	PANEL SILENCE button	Pressing the Panel Silence button silences the system buzzer and acknowledges the alert signal.
11	ALARM SILENCE button	Pressing Alarm Silence a second time unsilences/reactivates any silenced outputs.
12	RESET button	Pressing the Reset button executes a system reset process to return the system to normal if all alarms have cleared.
13	FIRE DRILL button	Pressing the Drill button for two seconds activates all common alarm outputs, and any other outputs configured for drill activation. Pressing the Drill button a second time cancels the drill response and deactivates all active drill outputs. Pressing Signal Silence during an active Drill cancels the drill response and deactivates all active drill outputs.

LCD screen indications

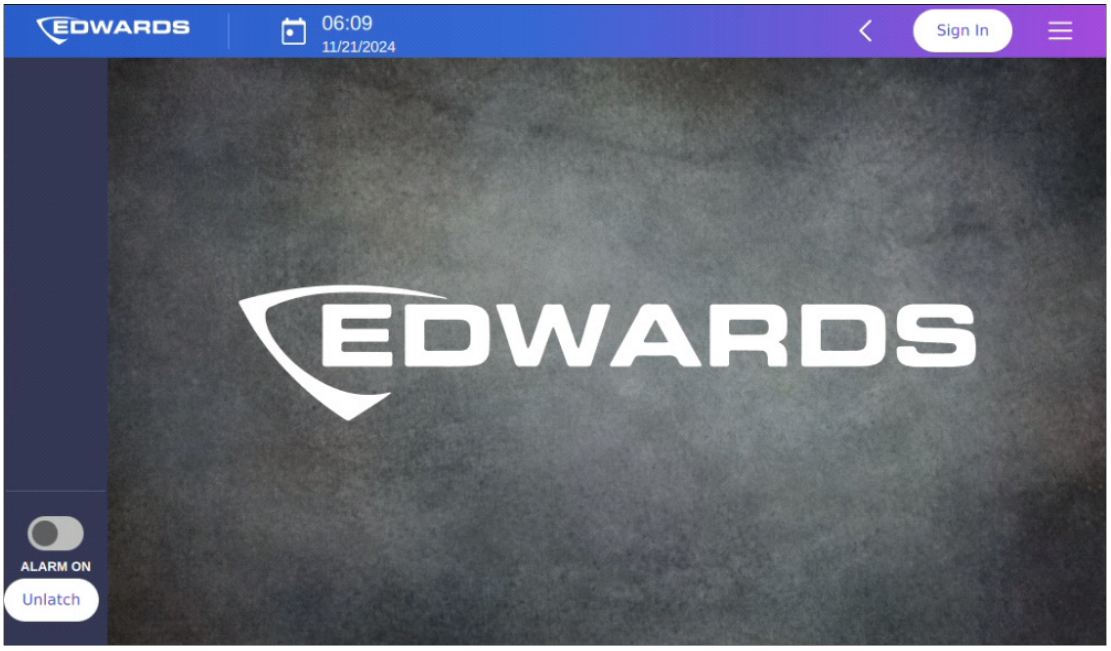
The LCD screen on the user interface provides information relevant to the current functional condition of the control panel. There are two screen modes: system normal and system off-normal.

System normal screen

System normal (Figure 2 below) means that the control panel is in a normal or startup state. In this state, the LCD screen is clear of any event messages.

Up to two quick action buttons can be configured to perform system operations. These buttons always appear on the system normal display.

Figure 2: System normal LCD screen



System off-normal

System off-normal (Figure 3 on page 13) means the control panel has entered an alarm, trouble, supervisory, monitor, disabled, or test state. In this state, event messages automatically display on the screen that provide information about the events. Up to eight events can be displayed on the screen, which includes the most recent event.

Up to two quick action buttons can be configured to perform system operations. These buttons always appear on the system off-normal display. For LCD screen operator controls information, see “LCD screen operator controls” on page 16.

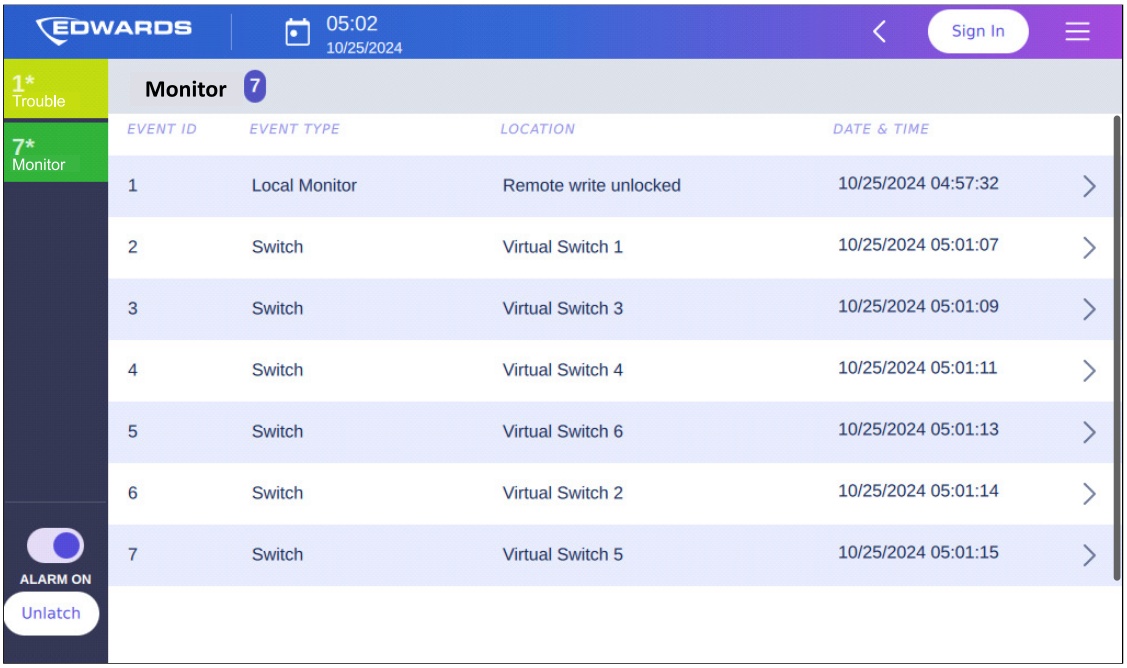
Note: The off-normal screen only displays when events are activated. It does not display when events are restored.

The panel operates in off-normal mode any time an event is introduced into the system. When this happens, the panel:

- Changes contact positions on appropriate common relays
- Activates alarm outputs (for alarm events only)
- Turns on the appropriate LEDs and the panel buzzer

- Executes the appropriate programmed output response for the input that signaled the event
- Communicates event information to the LCD screen
- Sends a record of the event to the control panel's history log
- Prints event information on the printer if one is connected to the panel

Figure 3: System off-normal LCD screen



Event indicators and event counters

The event indicators (queues) that display on the LCD screen are determined by the system marketplace. Events in the queues can pass through to a configured printer.

The event counters display the number of active events in the event queue. If the number of events in the event queue exceeds 1,000, the count displays as 99+. A star designates that there are unacknowledged or new events since the control panel was last silenced.

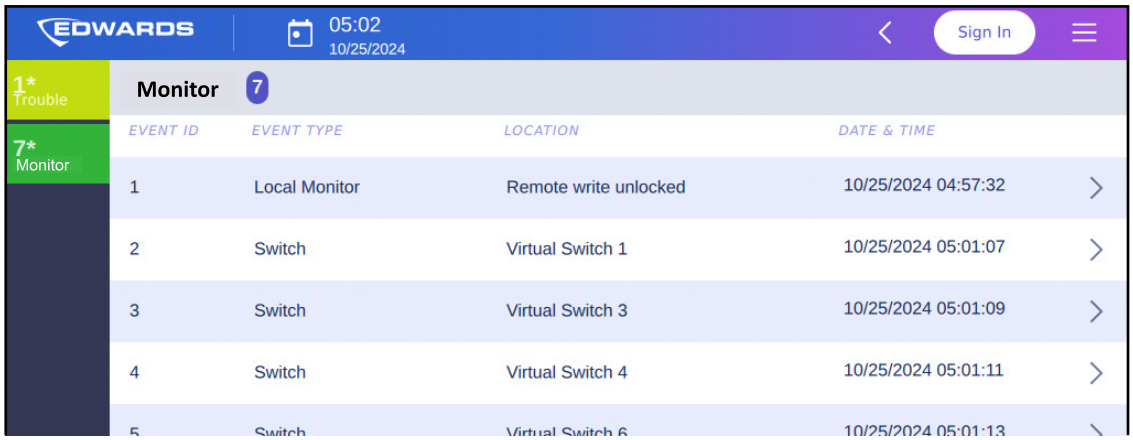
Note: The market setting determines which event types go into each event queue, and their priority (see Table 8 on page 14).

Event message lists

Event message lists allow you to view details of messages to help locate points that are in an abnormal state. When the system signals a status change, the control panel posts the event message for the point that activated the event in the appropriate event message list.

An event message consists of four columns of text that identify the activated event: Event ID, Event Type, Location, Date & Time. Figure 4 on page 14 shows an example of the event message screen.

Figure 4: Event message



The event queues display in order of priority based on programming and market settings. Event types are mapped to the queues based on the project's market setting. Table 8 below shows the event types that go into each event queue, and their priority, for the US market.

Table 8: Event type-to-queue for US

Event queue	Priority	Max Events	Event type
Alarm	1	2,000	Alarm, Pull, Heat, Waterflow, Stagetwo, Zone, AND, Matrix, HeatAlarm
Emergency	2	2,000	Emergency, COAlarm, COAlarm3, ComboAlarm3
Supervisory	3	2,000	Supervisory, PreAlarm [1], Valve, Gatevalve, Tamper, COSupervisory, COSupervisory3, SmokeSupervisory
Trouble	4	2,000	TroubleOpen, TroubleShort, LocalTrouble, Dirtyhead, Devicecommunication
Building	5	1,000	Temperature, Power, Signal, Damper, Fan, Door
Disable	6	2,000	Disablement, SensorBypass, Testevent, ObjectRunning, Servicegroup
Ground Fault	7	500	Groundfault
Monitor	8	2,000	AlarmVerify, PreAlarm [1],Station, MaintenanceAlert, RelayConfirmation, Monitor, LocalMonitor, Switch, TimeControl, InstructionText, COMonitor, COMonitor3, Temperature, Power, Signal, Interlockfeedback, InterlockFBFailure, Interlock, Damper, Fan, Door

[1] PreAlarm events appear in the Supervisory queue but are considered Monitor events, which do not trigger the supervisory relay. PreAlarm events appear in the “History” report as monitor events.

Event display priorities

New events of the types listed below are high priority event types. They will interrupt the current LCD screen and immediately switch the display to the queue of the new event type, overriding any user timeout.

- Alarm
- Emergency

User fire access levels

Certain user interface controls and functions are password protected and have a fire privilege level that is determined by the market setting or programming administrator. The fire privilege levels are summarized in Table 9 below.

Table 9: Fire privileges by access level

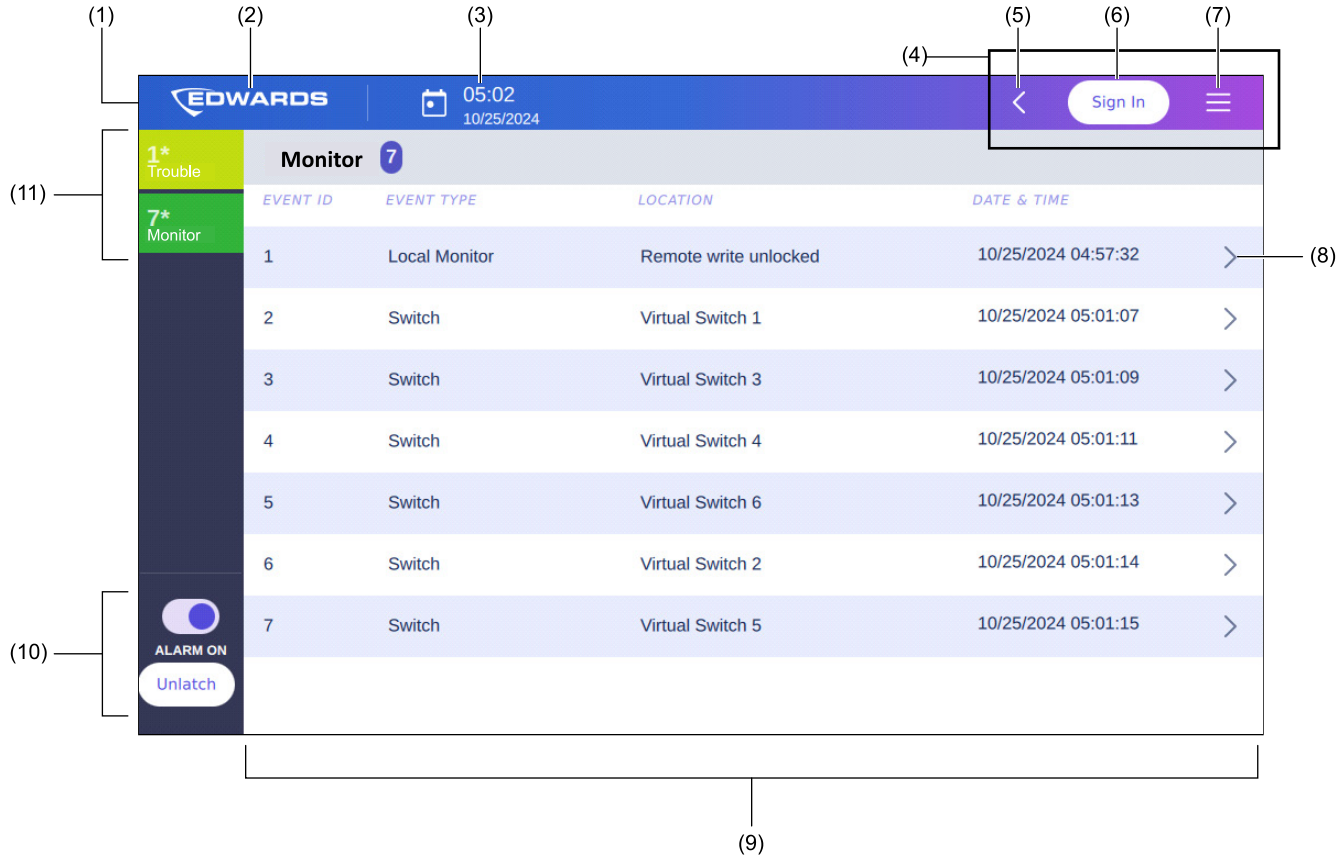
Fire privilege level	Privileges
0 (default; no user sign in required)	• Panel Silence button • Alarm Silence button • Reset button • Drill button • Event details • Reports • Indicator Test • Reset/Reset All • Find Device • Virtual Switch (activate) [1] • Access PIN (one/eight hour) • Toggle language primary/secondary
001	All level 0 privileges, plus: • Start/cancel test • Set system time and date • Devices (activate/restore) • Devices (enable/disable) • Switches (enable/disable) • Logic groups (enable/disable) • Freeze history • Lock Incoming Network [1] • Unlock Incoming Network [1] • Toggle alternate sensitivity • Change level 001 password
002	All level 0 and 1 privileges, plus: • Clear history • Reboot/Reboot All (restart) • Change level 002 and level 001

[1] Requires additional EDGE-CU correlation configuration. Refer to EDGE-CU Help, for information on correlations.

LCD screen operator controls

The LCD screen displays event activity, provides on-screen action and command buttons, and access to system conditions, control panel settings, and system information.

Figure 5: LCD screen operator controls



(1) Banner bar
(2) Brand logo
(3) Date and time
(4) Navigation tools
(5) Back to previous screen button
(6) Sign In button (shows the Fire User U icon when a user is logged on)
(7) Menu button
(8) Detail Report button
(9) Information screen
(10) Quick action virtual buttons
(11) Event indicators (queues) with event counters (counter shows as 99+ when the event count exceeds 1,000)

LCD screen user interface icons and control buttons

The user interface includes icons, some of which act as operator control buttons. Table 10 below provides descriptions of the icons that you may see.

Table 10: Operator interface icon and option button descriptions

Icon	Description
U	User button. Displays when a user is logged on to the control panel. Tap to log off from the control panel or to change a user password.

Icon	Description
☰	Menu button. Tap to display a list of selectable control panel actions. (See Table 12 below for descriptions of menu selections.)
›	Details button. Tap to go to event details.
‹	Go back button. Tap to go back to previous screen.
★	Appears next to the event indicator counters, designating there are unacknowledged or new events since the control panel was last silenced.
↻	Refresh button. Displays on report screens. Tap to refresh screen.
⌘	Command & Controls button. Displays on a report screen. Tap to display a list of dynamic selectable command and control actions. (See Table 13 on page 20 for description of the options.)
🖶	Print button. Displays on a report screen when a printer has been configured in the EDGE-CU project. Tap to send the report to a configured printer.
✕	Close window button. Displays on popup windows. Tap to close the window.
●	Virtual switch toggle button. Displays when a virtual switch has been configured as a Toggle switch in the EDGE-CU project. Tap to toggle a virtual switch between off and on.
‹ ›	Previous/next button. Displays on a report screen. Tap to go to next or previous screen of a report.

Banner bar navigation tools

The banner bar includes the Edwards brand logo, the system date and time, and navigation tools. The navigation tools are described in Table 11 below.

Table 11: Banner bar navigation tools

Item	Description
Back button	Provides ability to go back to the previous screen.
Sign In button	Provides access to the control panel log on screen. **Note:** When a user is logged on, the Fire User button U displays.
Fire User button	Provides access to changing the user password and to logging off control panel.
Menu button	Provides access to control panel commands and reports, virtual switches, control panel access for project downloads, and to find a specific device. (See Table 12 below for details.)

LCD screen Menu button options

The control panel Menu ☰ button on the banner bar provides access to commands and actions that can be performed from the control panel. See Table 12 below for the options included in the Menu.

Table 12: LCD screen Menu button options

List	Minimum fire privilege level	Description
Alternate language toggle	0	Switches the names on LCD screen buttons, lists, indicators, and the text in primary event message to the EDGE-CU configured alternate language. (Example: English | Español.)
Panel Commands	0	• Indicator Test: Activates a color-cycle test for the LCD, all control panel LEDs, and installed control-display module LEDs.

List	Minimum fire privilege level	Description
	0	• Reset All: Resets all networked nodes. When activated, the Reset control button indicator flashes.
	0	• Reset: Resets the local control panel. When activated, the Reset control button indicator flashes.
	1	• Freeze History: When activated, the system freezes and archives up to 10,000 of the most recent events so that they cannot be overwritten. They can, however, be erased when the Clear history command is activated. To view or print a Freeze History archive, see “Freezing the events history” on page 75.
	1	• Toggle Alternate Sensing: Switches detector alarm sensitivity levels from primary to alternate or from alternate to primary, whichever is currently active.
	1	• Lock Incoming Network: Blocks IP read communications between the EDGE-CU and the control panel.
	1	• Unlock Incoming Network: Removes the block on communication between the EDGE-CU and the control panel.
	1	• Set Date and Time: Opens a window that lets you set the system time and date.
	2	• Clear History: When activated, clears the event history, resets the event indicator counters on the LCD screen, and erases the list of events that occurred on the control panel since it was placed into service or the last time the history file was cleared. This includes unfreezing and erasing archived history.
	2	• Reboot All: Restarts all networked control panels without removing power.
	2	• Reboot: Restarts the local control panel without removing power.
	2	• Start R-Series Firmware Download: Activates the firmware download to R-Series annunciators. The download can take up to 20 minutes for each annunciator. See “Updating R-Series annunciator firmware” on page 96.
	2	• Cancel R-Series Firmware Download: When activated, the download to R-Series annunciators is cancelled. See “Updating R-Series annunciator firmware” on page 96.
	2	• Switch to Default Configuration: Clears the downloaded project from control panel.
Find Device	0	Displays an interface keyboard that allows you to enter the system address for a device, module, or pseudo point to display and perform operations on. • NNN: Node number • CCC: Hardware/module address • DDDD: Device point address
Virtual Switches	0	Displays six programmable virtual switches. A virtual switch must be programmed in the EDGE-CU to be active. They can be configured to: • Activate inputs, outputs, zones, logic, groups • Initiate correlations (Disable function, Unlatch operation, manual evacuation • Initiate a Service Group **Note:** Up to two virtual switches can be programmed in the EDGE-CU as Quick Action switches. See Figure 5, item 10 on page 16.
Panel Reports	0	• Status: Lists active events and disabled points from the selected node.
	0	• Status Test: Lists off-normal devices under test.
	0	• Status Disabled: Lists all addressable points that are in the disabled state.
	0	• History report: Lists up to the last 30,000 events (10,000 latest events, 10,000 alarm events, 10,000 frozen events) processed by the selected node in reverse chronological order, from the current date to the beginning of the previous month. The date range for the report is shown on the report screen.

List	Minimum fire privilege level	Description
	0	• History Alm (Alarm): Lists the event name, time, date, and location text for all alarm events in reverse chronological order, from the current date to the beginning of the previous month. The date range for the report is shown on the report screen.
	0	• History Trbl (Trouble): Lists the event name, time, date, and location text for all trouble events in reverse chronological order, from the current date to the beginning of the previous month. The date range for the report is shown on the report screen.
	0	• History Sup (Supervisory): Lists the event name, time, date, and location text for all supervisory events in reverse chronological order, from the current date to the beginning of the previous month. The date range for the report is shown on the report screen.
	0	• Maintenance: Lists the %Dirty value for all of the detectors on a signaling line circuit for the selected node. For CO detectors the report includes CO Life Left Months or CO DAY Running. The report includes each detector's model type, primary and alternate alarm sensitivity values, and, if programmed, a location description.
	0	• Maintenance Dirty: Lists all addressable smoke detectors that have a %Dirty value 80% and greater. A smoke detector that is more than 80% dirty should be noted for possible cleaning or replacing.
	0	• Maintenance Not Clean: Lists all addressable smoke detectors that have a %Dirty value of 20% and greater. Smoke detectors that are more than 20% dirty should be cleaned or replaced as soon as possible.
	0	• Device Maintenance: Lists the %Dirty value for a specific detector. For CO detectors the report includes CO Life Left Months or CO DAY Running. The report includes the detector's model type, primary and alternate alarm sensitivity values, and, if programmed, a location description.
	0	• System Info: Lists the control panel firmware version, EDGE-CU version, and hardware configurations.
	0	• License Info: License information report. Lists EDGE control panel third-party and open-source software and licensing.
	0	• Revision: Lists the revision level of the configuration components in the local control panel, including CPU, hardware and operator layer modules.
Access PIN	0	1 Hour Access PIN: Provides a validation code that unblocks the Remote Write command for one hour to permit database changes. The code must be entered in the EDGE-CU to allow database downloads from a programming computer to the CPU in the EDGE control panel.
	0	8 Hour Access PIN: Provides a validation code that unblocks the Remote Write command for eight hours to permit database changes. The code must be entered in the EDGE-CU to allow database downloads from a programming computer to the CPU in the EDGE control panel.
	2	Access PIN Manual Restore: Provides a validation code that unblocks the Lock Incoming Network command for an unlimited amount of time to permit database changes. This access must be manually restored. The code must be entered in the EDGE-CU to allow database downloads from a programming computer to the CPU in the EDGE control panel.

Device and logic group command and control tools

You can issue commands to individual points and logic groups from a report screen and after finding a device by using the Find Device function. The tools are accessed by tapping the Command & Control ⌘ button that is displayed on a device Detail Report screen, as well as other report screens. The pop-up window displays a list of selectable dynamic commands that can be issued. See Table 13 on page 20 for the options included in the Command & Control list.

Table 13: Device and logic group Command & Control tools

List	Minimum fire privilege level	Description
Device Maintenance	0	Lists the %Dirty value for the selected detector. For CO detectors the report includes CO Life Left Months or CO DAY Running. The report includes the detector's model type, primary and alternate alarm sensitivity values, and, if programmed, a location description.
Disable	1	Disables a device.
Enable	1	Enables a device.
On	1	Activates an input/output device.
Off	1	Restores an input/output device.
Active 1 Test	2	Places a Signature device into alarm state for verification testing.
Active 2 Test	2	Places a Signature device into prealarm state for verification testing.
Trouble Test	2	Places a Signature device into trouble state for verification testing.
Accelerate Test On	2	Places a Signature CO detector or Signature optical smoke detector into accelerated sensing rates for testing purposes.
Accelerate Test Off	2	Returns a Signature CO detector or Signature optical smoke detector under test to normal sensing rates.
Activate	1	Activates AND groups and command lists.
Restore	1	Restores AND groups and command lists.
Activate Service Group	1	Starts a service group test for an alarm input device that is part of the service group. Service groups allow alarm input devices to be activated without placing the system into alarm.
Restore Service Group	1	Stops a Service group test.
Steady	1	Turns on a control-display LED to steady
Fast	1	Turns on a control-display LED to fast blink.
Slow	1	Turns on a control-display LED selected to slow blink.
Off	1	Turns off the control-display LED.

Chapter 3
Installation and wiring

Summary

This chapter provides installation information for system components and applications that supplement the instructions provided on individual component installation sheets.

Content

System installation sequence

If you are just starting out, follow these basic instructions to prepare, install, wire, and program your fire alarm control panel. Refer to the installation sheet that came with a component for specific instructions.

Notes

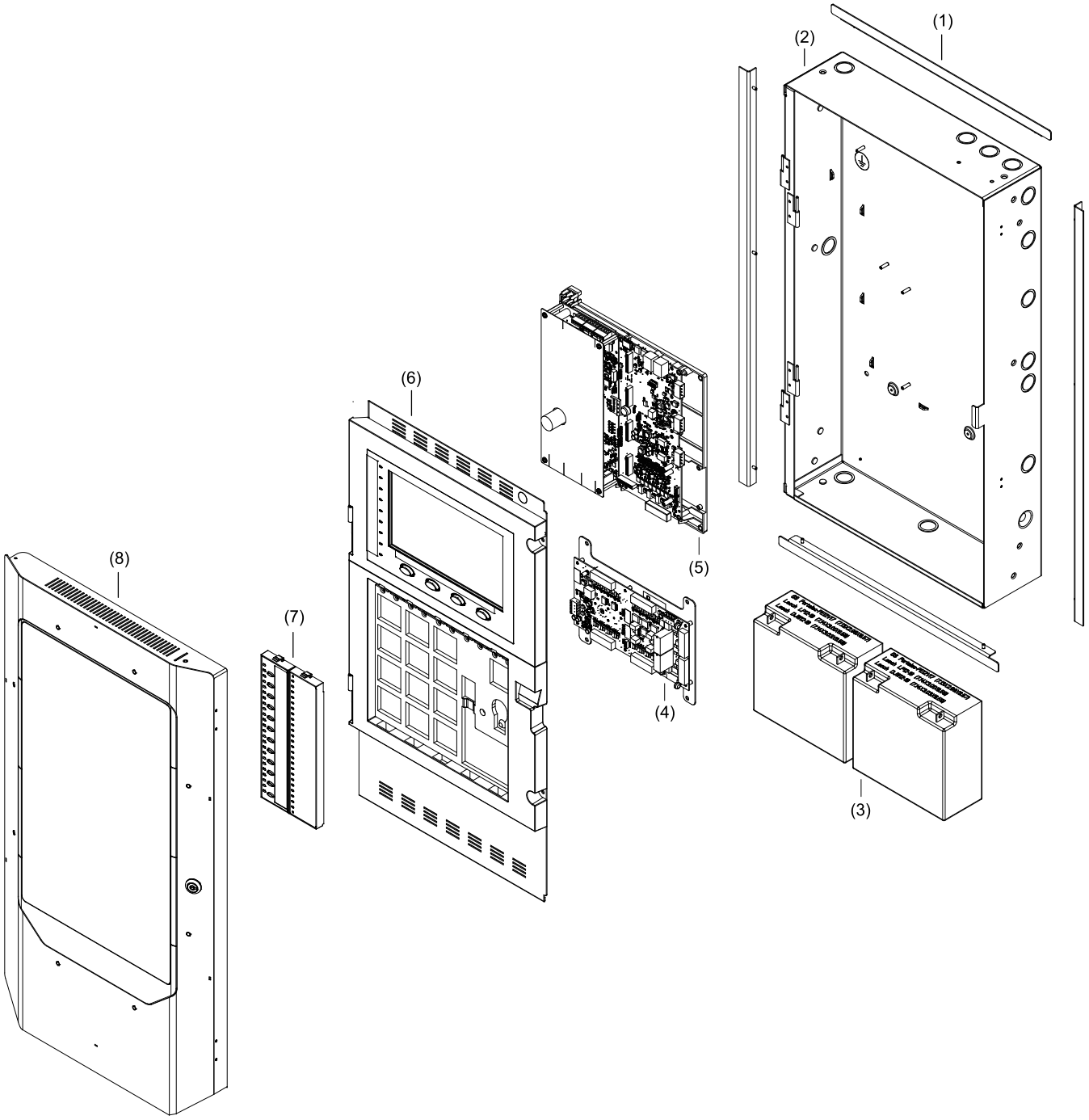
- Make sure the installation location is free from construction dust and debris and is not subject to extreme temperature ranges and excess humidity.
- Ensure sufficient floor and wall space, to avoid obstructions during installation and servicing.
- When installing the cabinet, use fasteners that can support the full weight of the cabinet, including standby batteries.
- Be sure to tighten the fasteners firmly to prevent the cabinet from vibrating.
- Remove a control panel component from its protective antistatic packaging only for inspection or installation.
- Do not connect standby batteries until initial control panel power up (see “Initial power up” on page 66).

WARNING: Electrocution hazard. Make sure that the AC power circuit breaker is off before connecting wires to the terminal block.

Installation sequence

1. Unpack the equipment and make sure it is not damaged. Be sure to remove installation sheets from component accessory bags.
2. Install the panel backbox. See “Panel backbox ” on page 24 for backbox dimensions.
3. Install the panel main electronics assembly in the panel backbox. See “Panel main electronics assembly” on page 28.
4. Install the inner door with the LCD. See Figure 12 on page 31.
5. Install the outer door. See Figure 13 on page 32.
6. Remove the clear protective plastic from the front panel display.
7. Check field wiring for opens, grounds, and shorts before connecting to panel.
8. Connect all field wiring except the mains AC and battery wiring.
9. Connect AC power and ground wiring. See “Mains wiring (power supply board TB1)” on page 36. The panel cannot be started on batteries only.
10. Power up the control panel and download an optional initial startup database. See “Initial power up” on page 66.
11. Connect the batteries. See “Standby battery wiring” on page 38.
12. Download the EDGE-CU and release notes from the My-Eddie Website (https://my-eddie.com/).
13. Program the control panel configuration, device loops, option cards, etc. for a final EDGE-CU database, and then download it to the control panel. Refer to the *EGDE-CU Online Help*.
14. Test the system for proper operation.

Figure 6: Exploded view of EDGE cabinet standard components



Item	Description
1	EDGE-PTK2 Trim Kit. Used when semi-flush mounting the backbox.
2	Panel backbox. Houses the panel electronics and standby batteries.
3	Standby batteries (purchased separately). Provides secondary/standby power to the panel electronics in the absence of primary power.
4	RZI16-2 Remote Zone Interface Module with RZI-MPL mounting bracket (optional equipment).

Item	Description
5	Panel Main Electronics Assembly. Includes the panel power supply board and the CPU board.
6	Panel inner door. Includes the LCD and UI frame assemblies used to mount option devices.
7	EDGE 24 L series control display modules (purchased separately).
8	Panel outer door. Keyed door to prevent unauthorized entry to the panel components.

EDGE control panel components installation

The EDGE control panel ships with the:

- Panel backbox (see “Panel backbox ” below)
- Panel main electronics assembly (see “Panel main electronics assembly” on page 28)
- Panel doors (see “Panel doors” on page 29)

Separately ordered option cards are available to provide additional functionality such as the SA-DACT dialer and additional signaling line circuit cards to expand the panel device loops to 1,000 devices.

Panel backbox

The backbox houses the power supply, electronics chassis assembly, option cards, and standby power supply batteries for the control panel.

The panel backbox can be surface mounted or semiflush mounted.

Note: Install and wire this device in accordance with applicable national and local codes, ordinances, and regulations.

To surface mount the panel backbox:

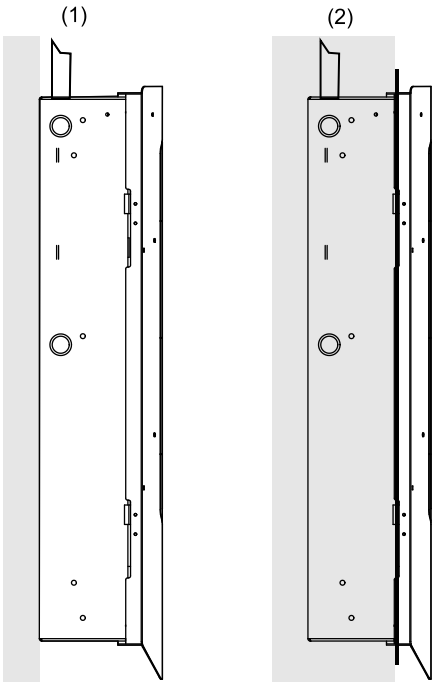
1. Position the panel backbox on the finished wall surface.
2. Fasten the panel backbox to the wall surface where indicated in Figure 7 on page 25 using fasteners that are suitable for the type of wall surface and weight of the backbox and panel, including standby batteries.
3. Route the field wiring through the designated knock-out locations to ensure separation of power-limited and non-power limited wiring.

   See Figure 9 on page 27 for knock-out locations and panel dimensions. See “EDGE control panel components wiring” on page 33 for where to route nonpower-limited and power-limited wiring.

To semiflush mount the panel backbox:

1. Frame the interior wall (as required) to support the entire weight of the fully installed control panel, including standby batteries.
2. Install the EDGE-PTK2 panel trim kit (purchased separately) on the backbox. Refer to *EDGE-PTK2 Panel Trim Kit Installation Sheet* (P/N 3102937) for details.
3. Route the field wiring through the designated knock-out locations to ensure separation of power-limited and non-power limited wiring. See Figure 9 on page 27 for knock-out locations and panel dimensions. See “EDGE control panel components wiring” on page 33 for where to route nonpower-limited and power-limited wiring.
4. Fasten the panel backbox to the framing studs where indicated.

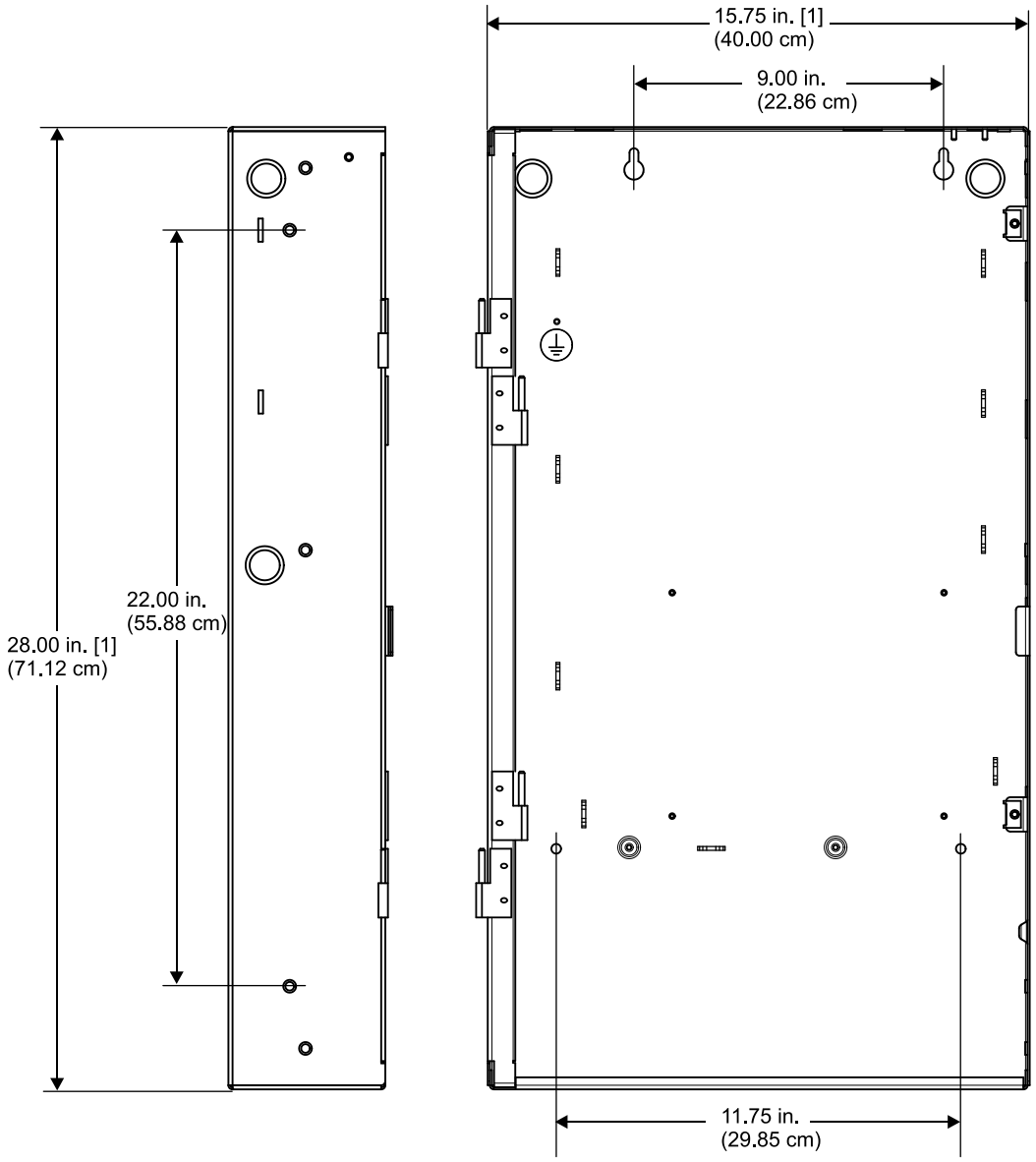
Figure 7: Surface and semiflush mounting details



(1) Surface mount

(2) Semiflush mount t

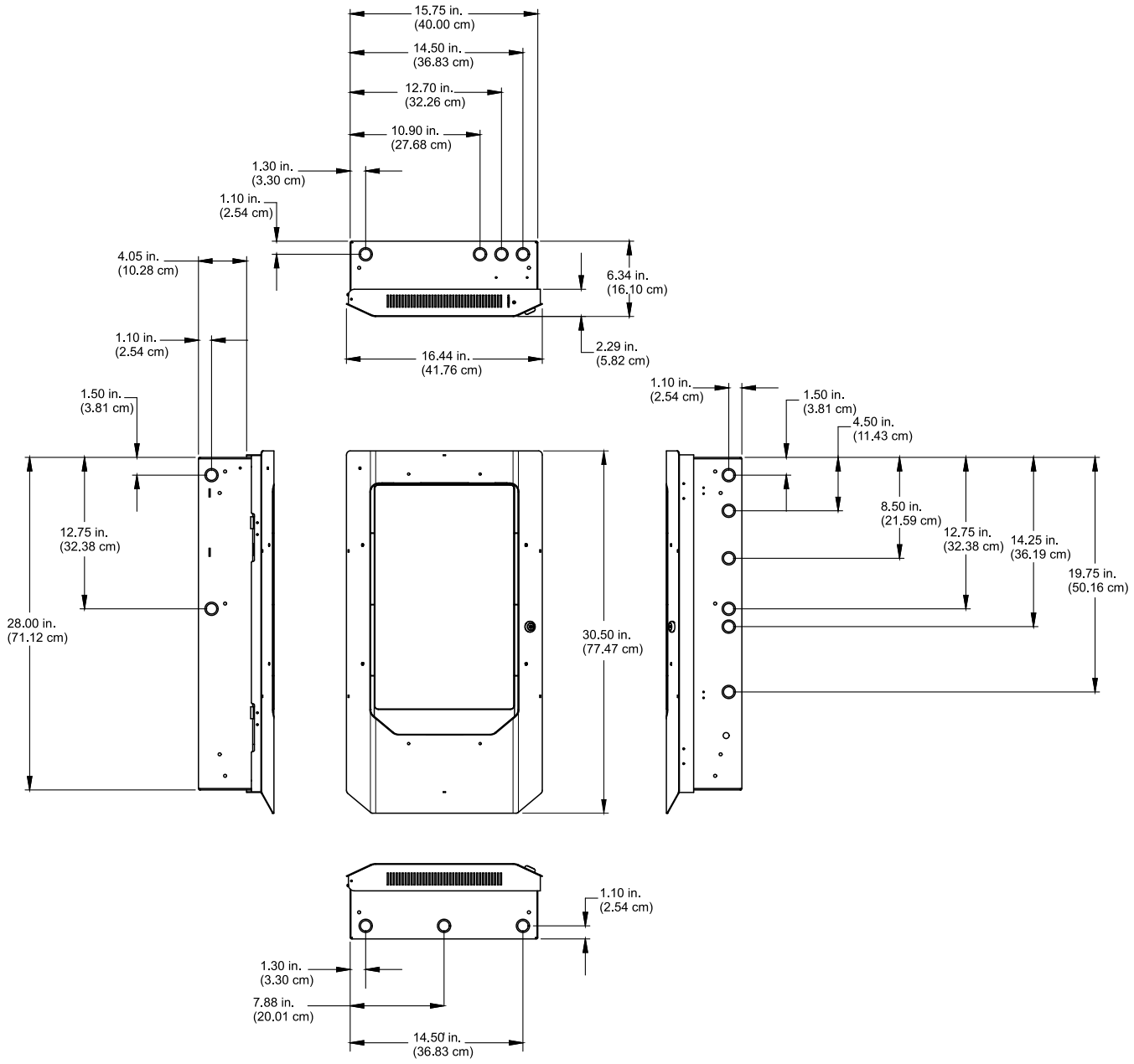
Figure 8: Panel backbox mounting details



Note

[1] Add 1-1/2 in. (3.81 cm) to the dimensions for the EDGE-PTK2 trim kit. The trim kit provides 0.75 inches (1.9 cm) of trim to the top, bottom, and sides of the panel backbox.

Figure 9: Panel backbox dimensions and knockout locations

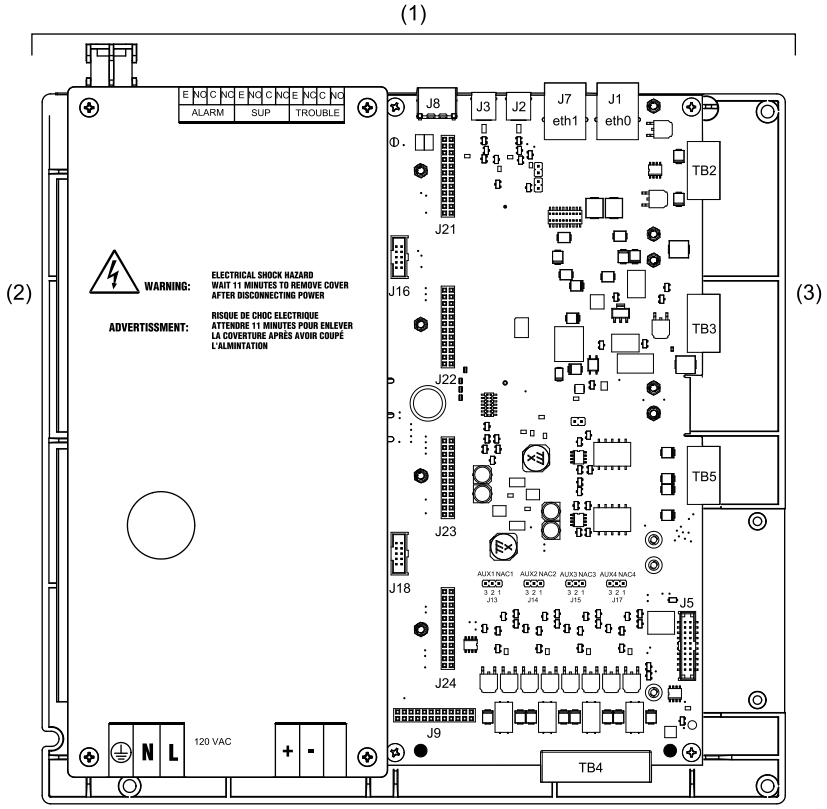


Panel main electronics assembly

The panel main electronics assembly includes the panel power supply board and the CPU board.

The panel main electronics assembly is packaged separately from the backbox to prevent damage during backbox installation. The panel main electronics assembly is factory assembled to a plastic mounting chassis and must be installed in the panel backbox to maintain the system's NRTL listing.

Figure 10: Main electronics assembly



Item	Description
1	Panel Main Electronics Assembly. Includes the panel power supply board and the panel CPU board.
2	Panel power supply board with fish paper insulator cover. See “Power supply board” on page 34 for wiring details.
3	Panel CPU board: See “CPU board layout ” on page 41 for wiring details.

Main electronics assembly installation

WARNING: Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and allow stored energy to discharge before installing or removing equipment.

Notes

- Be sure that any possibility for construction damage and vandalism has passed before installing the panel electronics.
- Install the panel main electronics assembly only after backbox fastening and infrastructure connections are complete and all required system wiring for connection to the panel has been pulled into the backbox.

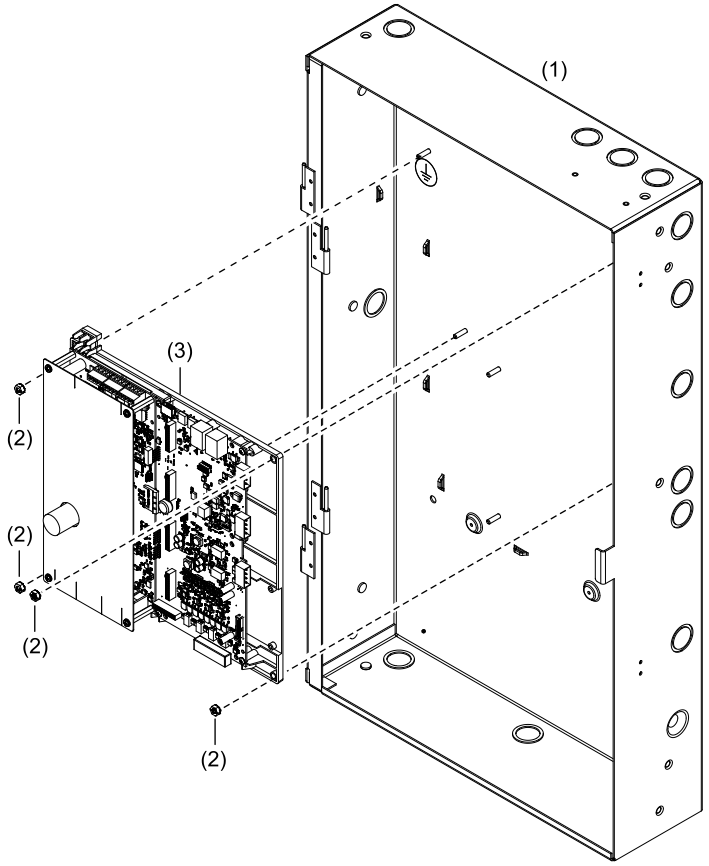
- The top left #8-32 nut (see Figure 11 below) is used to secure the panel main electronics assembly ground bar to the backbox stud. Do not overtighten the nut, but make sure that it is tightened securely.
- For information on wire routing, see “Backbox wire routing” on page 33.

To install the panel main electronics assembly:

1. Position the panel main electronics assembly on the four threaded studs in the backbox. See Figure 11 below.
2. Secure the assembly to the studs using the #8-32 K-nuts provided.

   Note: The top left #8-32 K-nut (item 2) is also used to secure the panel main electronics assembly ground bar to the backbox stud. Do not overtighten the nut at this time.

Figure 11: Installing the panel main electronics assembly installation



Legend
(1) Backbox
(2) #8-32 K-nut (4X) [1]
(3) Panel main electronics assembly

Notes
[1] The top left K-nut also secures the panel main electronics assembly ground bar to the backbox stud.

Panel doors

The EDGE panel has an inner door with LCD and outer door with viewing window.

Panel inner door

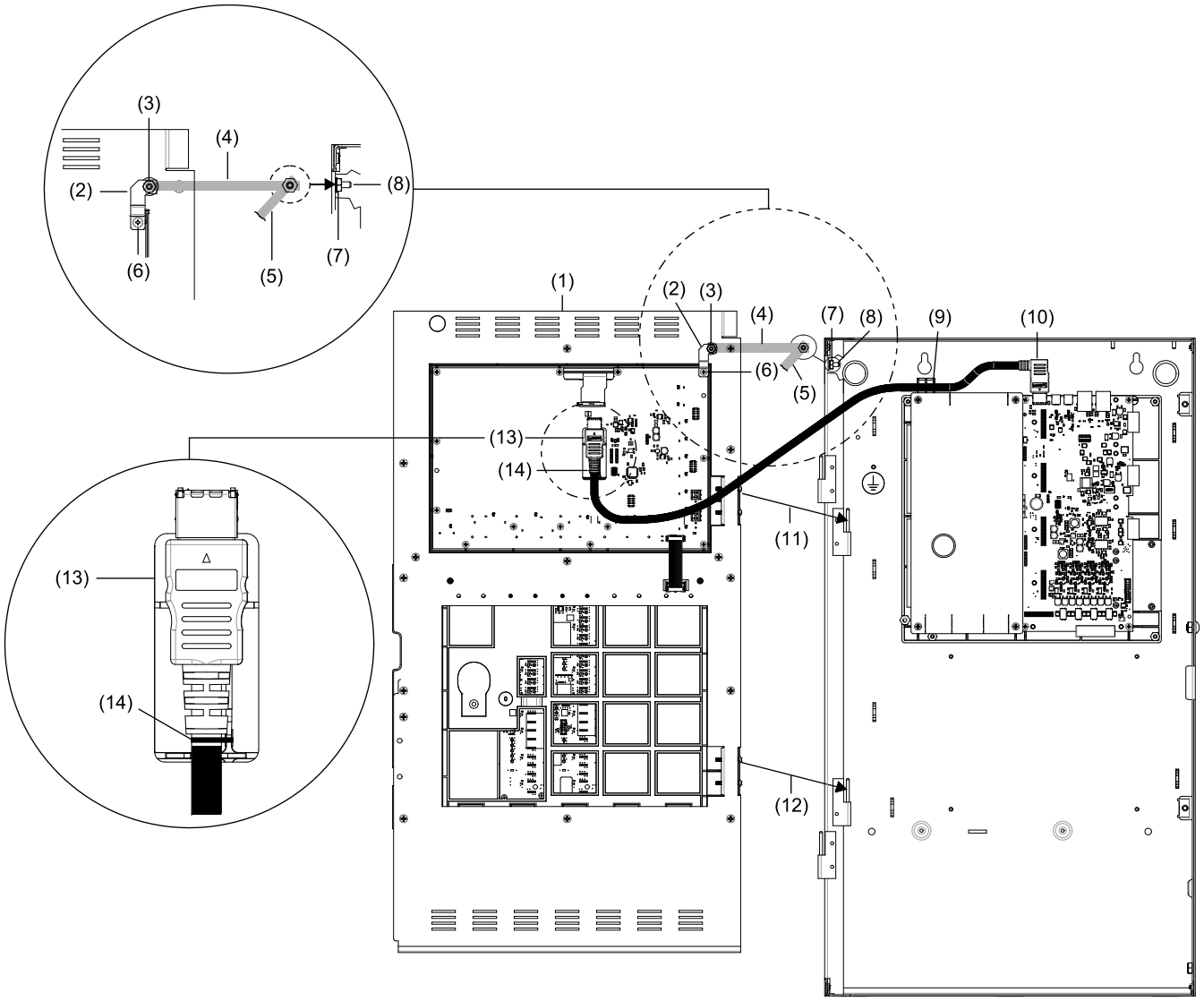
The inner door houses the control panel LCD user interface and provides slots for control-display modules.

In the event you need to replace the LCD main display module, you can order the EDGE-10TSLCD-RE Replacement LCD Main Display Module. For details, see *EDGE-10TSLCD-RE Replacement LCD Main Display Module Installation Sheet* (P/N 3102980).

To install the panel inner door:

1. Position the hinge on the inner door with the LCD onto the backbox hinge pins, as shown in Figure 12, items 11 and 12.
2. Install the LCD to inner door ground bar (item 2) and then secure using the provided screw (item 6).
3. Install ground straps (items 4 and 5) to the backbox stud (item 8) and then secure the straps using the provided #8-32 K-nut (item 7).
4. Install the other end of the ground strap (item 4) from the backbox to the inner door and then secure the strap using the provided #8-32 K-nut (item 3).
5. Connect the HDMI cable (provided) to the panel CPU board HDMI connection J8 (item 10).
6. Insert the HDMI cable into the retaining clip (item 9) to support the HDMI cable.
7. Connect the other end of the HDMI cable to the HDMI (J1) connection (item 13) on the back of the LCD.
8. Secure the HDMI cable (J1) connection (item 13) on the back of the LCD using a tie wrap (item 14).

Figure 12: Panel inner door and LCD installation



(1) Inner door with LCD
(2) LCD to inner door ground bar
(3) #8-32 nut
(4) Ground strap from the backbox ground stud to the inner door
(5) Ground strap from the backbox ground stud to the outer door
(6) #6-19 X 0.500 screw
(7) #8-32 nut
(8) Backbox ground stud
(9) Retaining clip to secure the HDMI cable
(10) HDMI connection on the CPU board
(11) Inner door hinge onto the upper backbox hinge pin
(12) Inner door hinge onto the lower backbox hinge pin
(13) HDMI connection (J1) on the back of the LCD
(14) Tie wrap to secure the HDMI cable to the connection on the back of the LCD

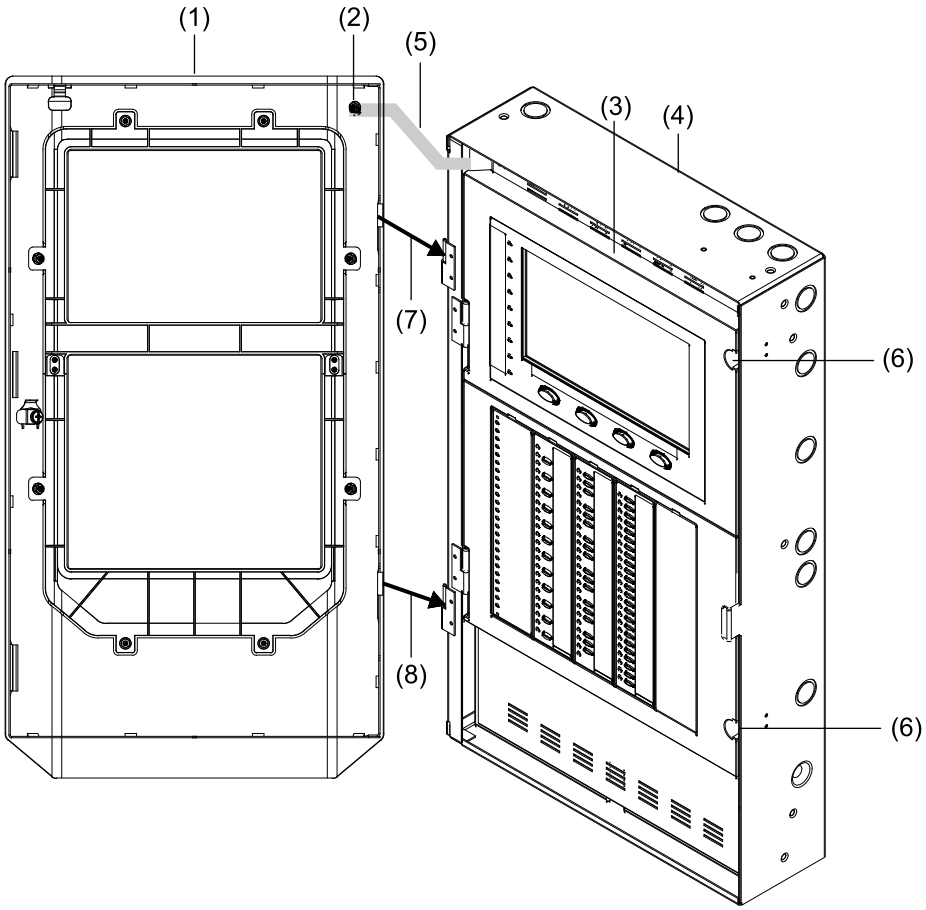
Panel outer door installation

The outer door includes a viewing window and can be locked to prohibit unauthorized access to the LCD user interface and installed components.

To install the panel outer door:

1. Position the hinge on the outer door onto the backbox hinge pins, as shown in Figure 13, items 7 and 8 below.
2. Route the outer door ground cable (item 5) that was attached to the backbox ground stud in Figure 12 on page 31 through the slot at the top left of the inner door, as shown in Figure 13, item 3.
3. Close the inner door (item 3) and secure it using the captive screws (item 6).
4. Attach the outer door ground cable (item 5) to the ground stud (item 2) and then secure the cable using the provided #8-32 K-nut.

Figure 13: Panel outer door installation



(1) EDGE outer door
(2) Ground stud and #8-32 K-nut for the outer door
(3) Inner door
(4) Backbox
(5) Ground cable from the backbox to the outer door
(6) Captive screws to secure the inner door to the backbox
(7) Outer door hinge onto the upper backbox hinge pin
(8) Outer door hinge onto the lower backbox hinge pin

EDGE control panel replacement components

Replacement components are available for issues with the control panel CPU board, power supply board, LCD screen, and LCD HDMI cable. See Table 14 on page 33 for details.

Table 14: Control panel replacement components

Item	Part number	Description
Panel main electronics assembly	EDGE-MB-RE	Panel main electronics assembly includes the panel CPU and power supply boards, ground strap, and associated mounting hardware. For more information, see *EDGE-MB-RE Replacement Panel Main Electronics Assembly Installation Sheet* (P/N 3103002).
LCD screen	EDGE-10TSLCD-RE	LCD screen that includes the upper UI frame assembly. For more information, see *EDGE-10TSLCD-RE Replacement LCD Main Display Module Installation Sheet* (P/N 3102980).
LCD HDMI cable	EDGE-CPU-HDMI-CBL	CPU to LCD HDMI cable. For more information, see *EDGE-CPU-HDMI-CBL Replacement CPU to LCD HDMI Cable Installation Sheet* (P/N 3102977).

EDGE control panel components wiring

Install and wire devices in accordance with applicable national and local codes, ordinances, and regulations.

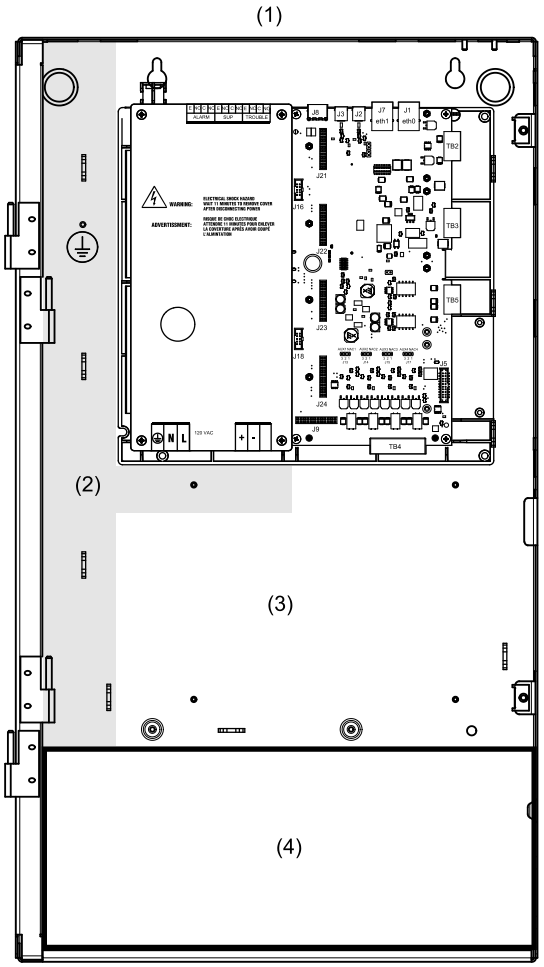
Backbox wire routing

See Figure 14 on page 34 to see where to route nonpower-limited and power-limited wiring in the backbox.

Notes

- All power-limited wiring (Figure 14, item 3 non-shaded area) must be separated from all nonpower-limited wiring (Figure 14item 2 shaded area) by a minimum distance of 1/4 in. (6 mm).
- Nonpower-limited wiring (Figure 14, item 2 shaded area) should be routed at the left rear of the cabinet and the power-limited wiring (Figure 14 3 non-shaded area) at the front of the cabinet. Use the knockouts on the left side or top left for AC mains wiring.
- When batteries are installed in the cabinet (Figure 14, item 4), no other wiring shall be routed through the battery storage area. If batteries are not installed in the cabinet, power-limited wiring can be used battery storage area.
- Secure wiring to the cabinet built-in tie downs using nylon cable ties, as required.

Figure 14: Panel backbox wire routing

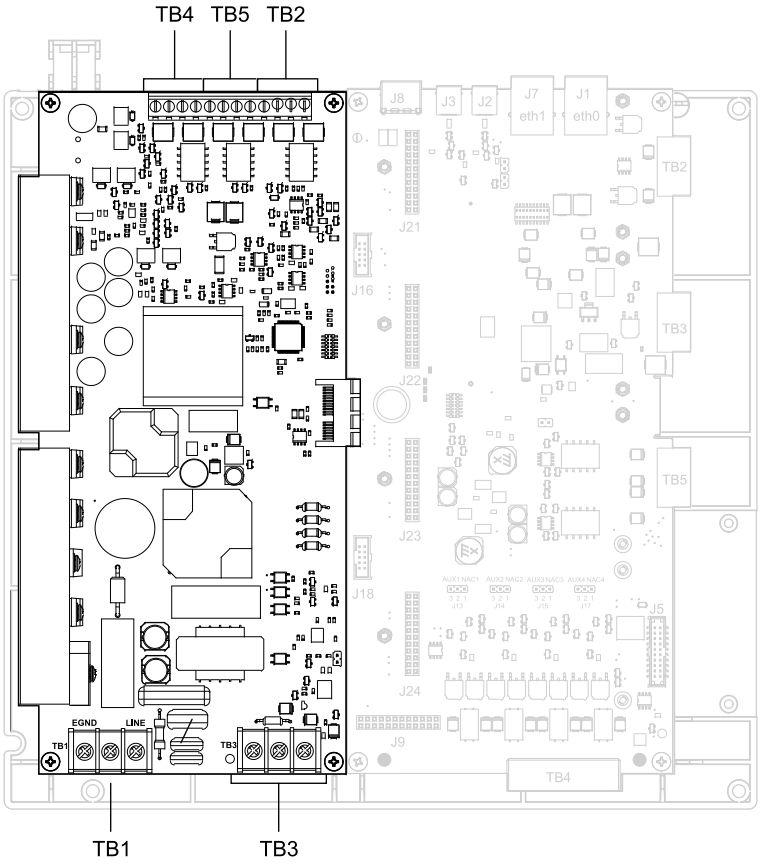


(1) EDGE panel
(2) Nonpower-limited wiring
(3) Power-limited wiring
(4) Battery storage area. When batteries are installed in the cabinet, no other wiring shall be routed through the battery storage area. If batteries are not installed in the cabinet, power-limited wiring can be used in the battery area.

Power supply board layout

The power supply board on the main electronics assembly includes onboard terminals and connectors facilitate connection to mains input wiring (TB1), common relay wiring, and standby battery wiring.

Figure 15: Power supply board layout on the main electronics assembly (insulator cover not shown)



Item	Description
TB4	Relay to external alarm input circuit. See Figure 17 on page 38 for wiring.
TB5	To external input circuit for monitoring common supervisory or monitor state. See Figure 17 on page 38 for wiring.
TB2	To external trouble input circuit. See Figure 17 on page 38 for wiring.
TB3	To plus and minus terminals on cabinet battery or to plus and minus terminals on power distribution bus in remote cabinet. See Figure 18 on page 40.
TB1	From dedicated 120 V or 240 V mains distribution circuit. See Figure 16 on page 37 for wiring.

Power supply board specifications

Common relays	See “Common relay wiring (power supply board TB4, TB5, and TB2)” on page 37.
Mains circuit	See “Mains wiring (power supply board TB1)” on page 36.
Battery circuit	See “Standby battery wiring (power supply board TB3)” on page 38.
Wire size	12 to 18 AWG (4.0 to 1.0 mm²)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	0 to 93% noncondensing

Regulatory

FCC compliance	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Environmental class	UL/ULC: Indoor dry

Mains wiring (power supply board TB1)

TB1 on the panel power supply board on the main electronics assembly provides mains wiring.

Mains circuit specifications

Voltage	120/240 VAC, 50/60 Hz
Current	120 V, 50/60 Hz: 3.0 A max. 240 V, 50/60 Hz: 1.5 A max.
Brownout level	≤ 95 VAC, 50/60 Hz ≤195 VAC (when operating at 230 V), 50/60 Hz

WARNINGS

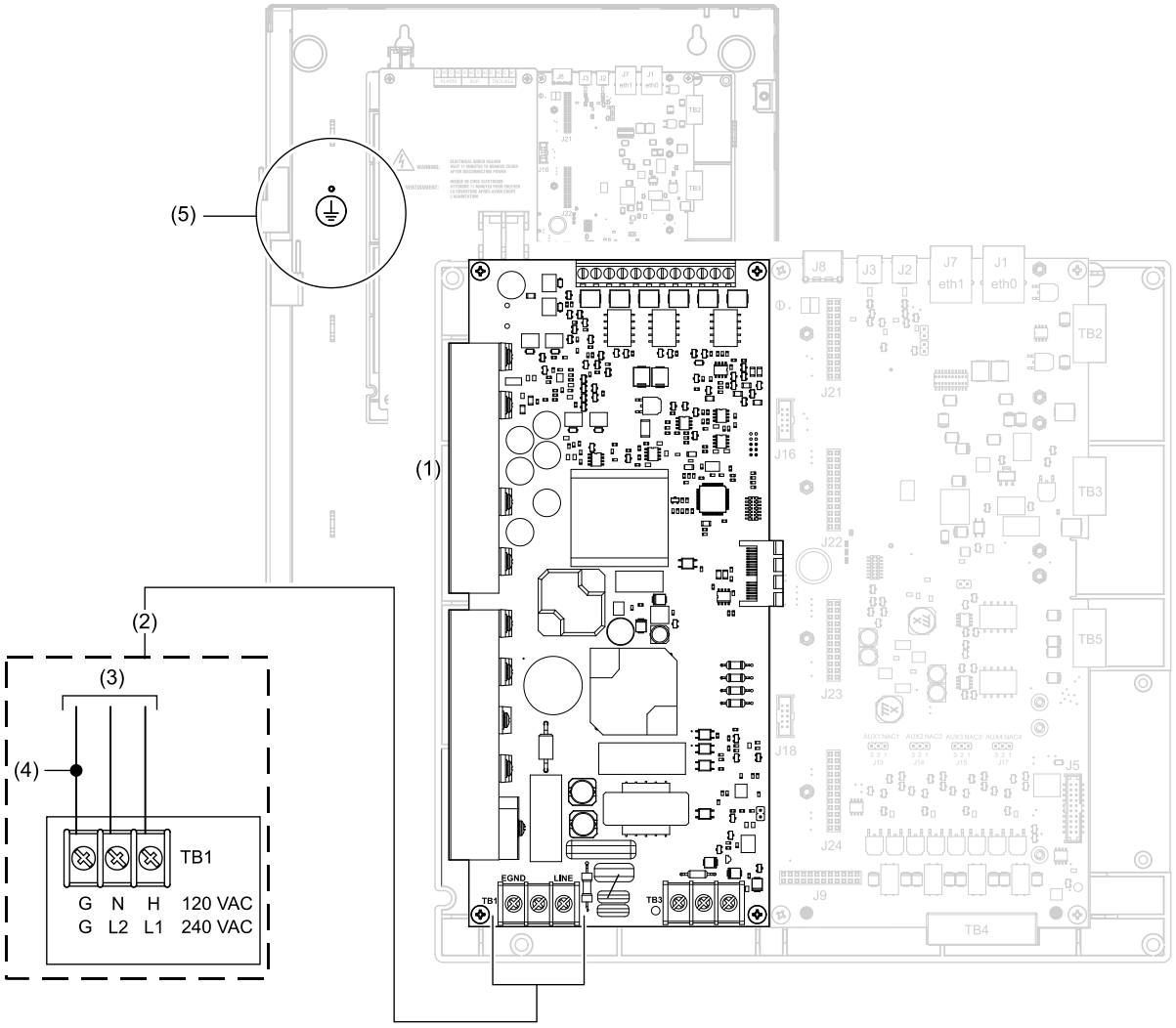
- Electrocution hazard. To avoid personal injury or death from electrocution, make sure the distribution circuit providing mains AC is rendered inoperative prior to connecting mains input wiring to the power supply board.
- Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and wait 11 minutes to allow stored energy to discharge before installing or removing equipment.

Caution: Circuit boards are sensitive to electrostatic discharge (ESD). To avoid damage, follow ESD handling procedures.

Notes

- The mains ground wire must be connected to the ground stud on the backbox first. A separate ground wire *must* be attached from the ground stud to the terminal block TB1. See Figure 16, items 4 and 5 on page 37.
- Mains input wiring is supervised and nonpower-limited. See Figure 14 on page 34 for backbox wire routing guidance.
- Maintain 0.25 in. (6 mm) separation between power-limited and nonpower-limited wiring at all times.
- Use the knockouts on the left side or top left for AC mains wiring.

Figure 16: Power supply board mains wiring (insulator cover not shown)



(1) Power supply board on the main electronics assembly
(2) Exploded view of TB1 AC mains terminal wiring
(3) TB1 dedicated 120 V or 240 V mains distribution circuit
(4) To backbox ground stud (mains ground wire *must* be connected to the ground stud on the backbox first)
(5) Backbox ground stud

Common relay wiring (power supply board TB4, TB5, and TB2)

The panel power supply board TB4, TB5, and TB2 on the main electronics assembly provides common event relays for alarm, supervisory, and trouble events.

Common relay circuit specifications

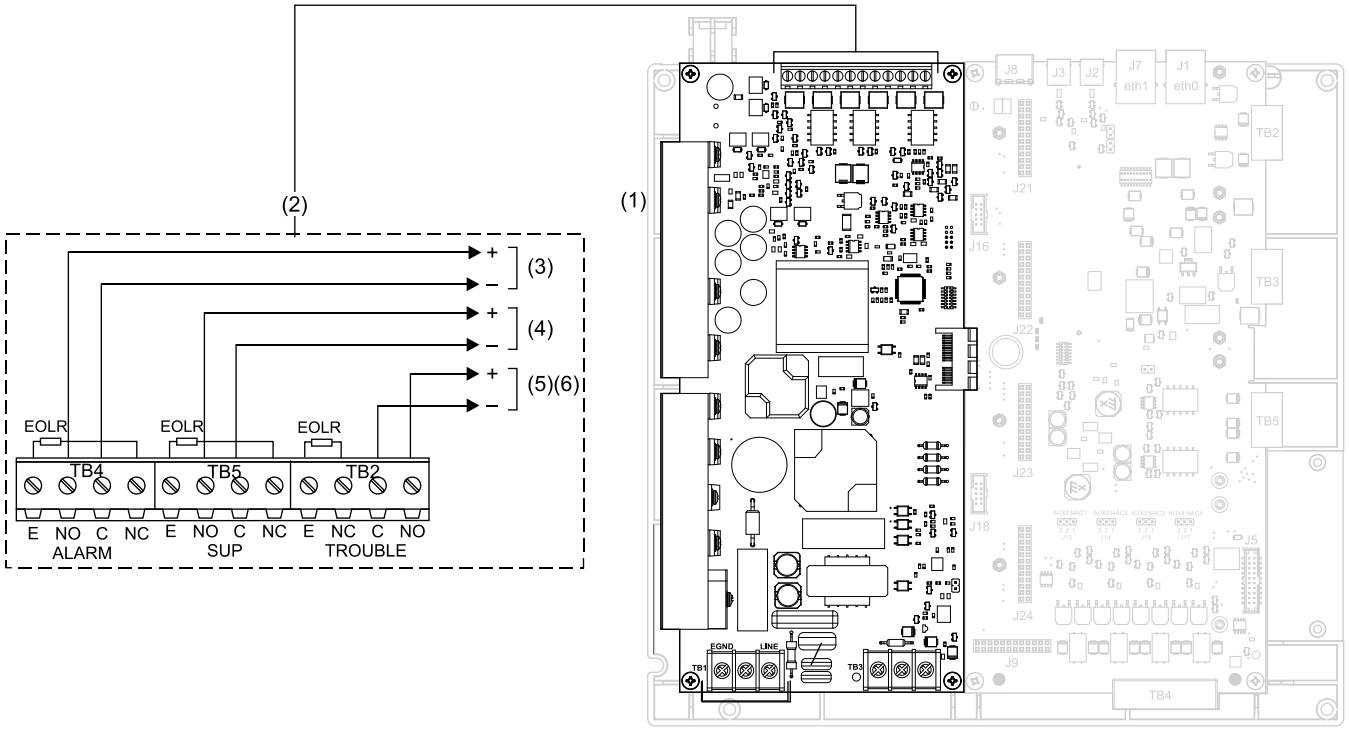
Current	
Standby	0 mA at 24 VDC
Alarm/Active	8 mA at 24 VDC
Quantity	3 (alarm, supervisory, trouble)
Type	Form C

Rating	30 VDC at 1.0 A, 1.0 PF
Wiring	Class E
Wire size	12 to 18 AWG (4.0 to 1.0 mm²)

Notes

- Common relay wiring is unsupervised and power-limited. Do not connect nonpower-limited wiring.
- The EOLR is determined by the initiating device circuit requirements.
- Maintain 0.25 in. (6 mm) separation between power-limited and nonpower-limited wiring at all times.
- When configured as a trouble event type, the common relay activation can be delayed for AC failures.

Figure 17: Power supply board common relay wiring (insulator cover not shown)



Legend

(1) Power supply board on the main electronics assembly
(2) Exploded view of TB2, TB4, TB5 common relay wiring
(3) TB4 to external alarm input circuit [1]
(4) TB5 example to external input circuit for monitoring Common Supervisory or Monitor state [2]
(5) TB2 example to external trouble input circuit (Programmable Relay 2 configured for Common Trouble) [3]
(6) Shown in the powered state (trouble contact is energized at system startup when status is normal)

Notes

[1] TB4 Alarm Relay is not programmable. The default setting is Common Alarm.
[2] TB5 Programmable Relay 1 can be programmed using the EDGE-CU. The default setting is Common Supervisory.
[3] TB2 Trouble Relay is not programmable. The default setting is Common Trouble.

Standby battery wiring (power supply board TB3)

The panel power supply board TB3 has a 24 VDC rechargeable battery circuit that is capable of charging up to two 12 VDC, 65 Ah sealed lead acid batteries. See “EDGE backbox” in Table 3 on page 7 for a list of batteries that can be installed in the control panel cabinets. Up to two 18 Ah batteries will fit in the EDGE control panel

cabinet. If larger batteries are required, you must use an approved battery cabinet. To determine which battery the system requires, see “Battery calculations” on page 145.

Standby battery circuit specifications

Voltage	24 VDC nom.
Operating voltage	20.4 V min.
Charge current	1.5 A or 3.0 A, selectable
Battery capacity	65 Ah max.
Battery type	Sealed lead-acid
Expected standby operation	24 h min.
Wire size	See Table 15 below

WARNING: Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and wait 11 minutes to allow stored energy to discharge before installing or removing equipment.

Caution: Circuit boards are sensitive to electrostatic discharge (ESD). To avoid damage, follow ESD handling procedures.

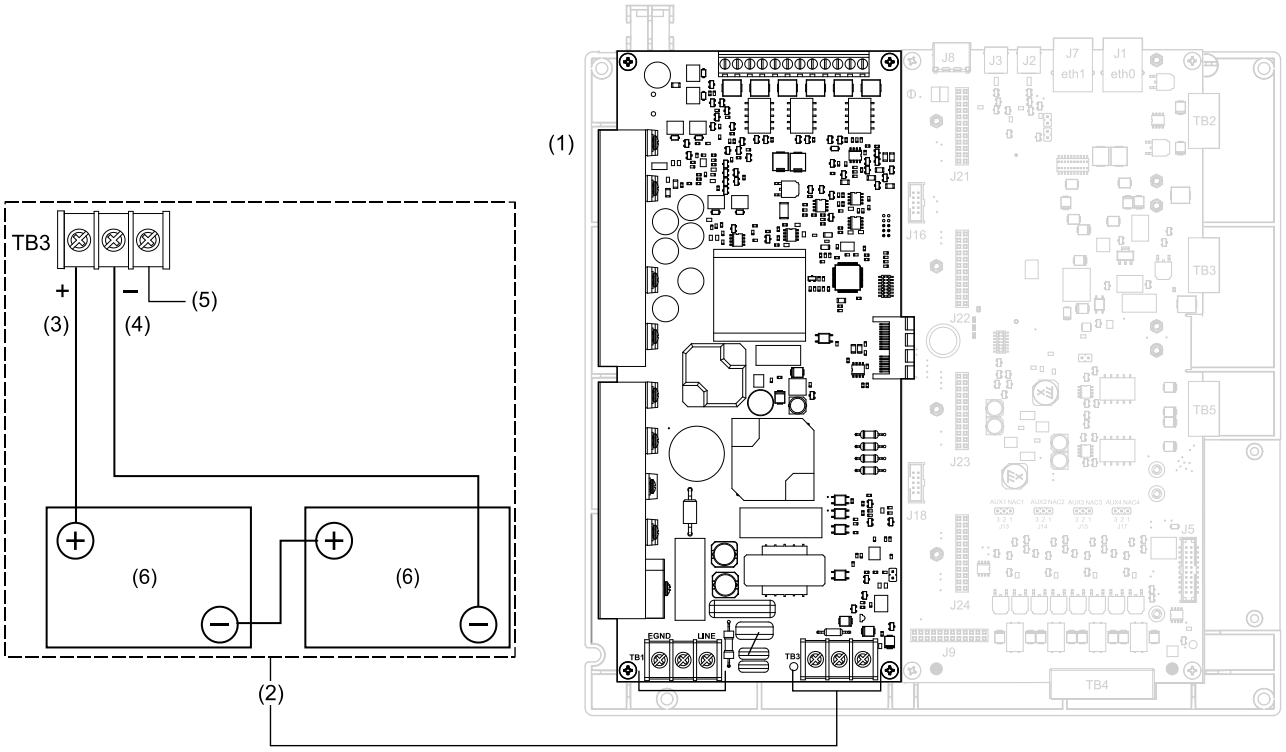
Notes

- All battery wiring must be the same length and gauge when a compatible battery enclosure is used or use the battery cables included with the kit for the EDGE enclosure installation for battery wiring inside the cabinet. See Table 15 below for battery maximum wire distances.
- Make sure that the battery model, manufacturer, and rating are the same and that the battery date codes differ by no more than one month.
- Battery wiring is supervised and nonpower-limited. See Figure 14 on page 34 for wire routing guidance.

Table 15: Battery maximum wire distance

Wire Size	12 AWG (4.0 mm²)
Distance	10.0 ft. (3.05 m)

Figure 18: Power supply board standby battery wiring (insulator cover not shown)

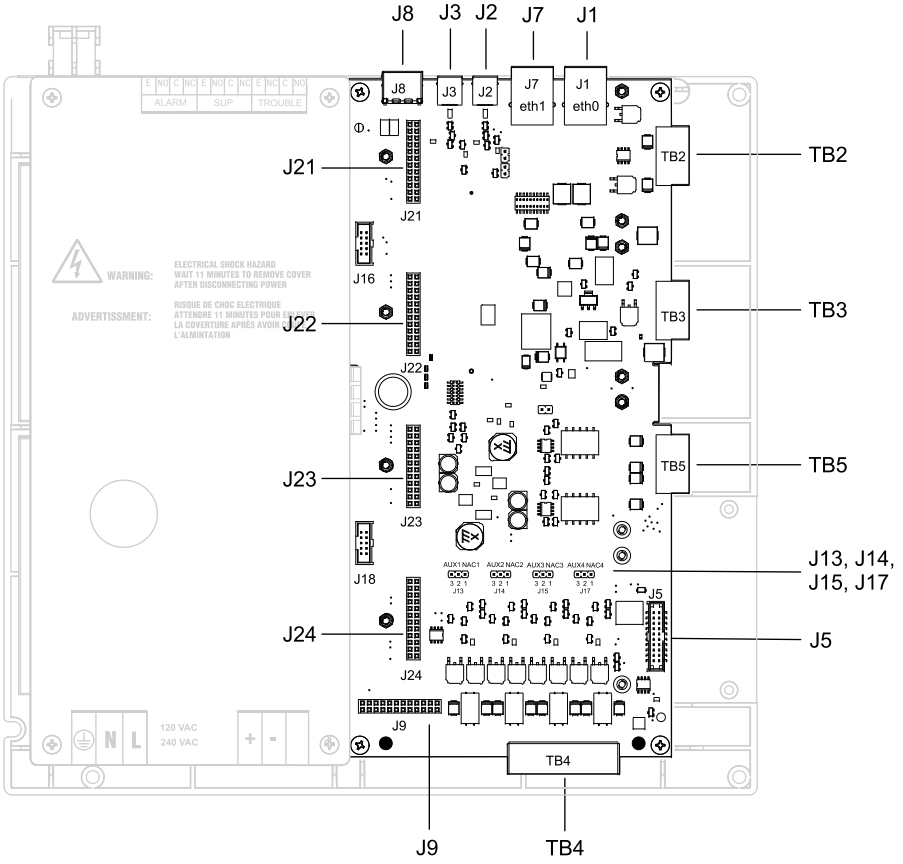


(1) Panel power supply board on the main electronics assembly
(2) Exploded view of TB3 backup battery wiring
(3) Plus (red) to cabinet battery plus or to power distribution bus plus in a compatible enclosure
(4) Minus (black) to cabinet battery minus or to power distribution bus minus in a compatible enclosure
(5) Not used
(6) Battery

CPU board layout

The EDGE panel CPU board housed on the main electronics assembly processes all information from modules installed in the same cabinet and from other control panels on the network.

Figure 19: Panel CPU board layout



Item	Description
J8	HDMI connection to the LCD. Use the wire clip located above the panel power supply board to secure the cable.
J3	USB1. Type C, 2.0. Programmable to be used for host or device operation. Can be used as a temporary connection to a laptop.
J2	USB0. Type C, 2.0. Programmable to be used for host or device operation. Can be used as a temporary connection to a laptop.
J7	eth1. RJ45 connector for general external communication such as to a printer. Refer to *PT-1S+ Printer Installation Sheet* (P/N 3102823) for printer wiring details.
J1	eth0. RJ45 connector for general external communication such as to a printer. Refer to *PT-1S+ Printer Installation Sheet* (P/N 3102823) for printer wiring details.
TB2	Terminal for 24 V AUX power. See Figure 20 on page 43 for wiring details.
TB3	Terminal for the panel onboard SLC. See Figure 21 on page 45 for wiring details.
TB5	Terminal for RS-485 annunciator wiring.
J13, J14, J15, J17	Put the jumper on pins 1 and 2 for NAC wiring and on pins 2 and 3 for AUX wiring. See Figure 23 on page 48 for pin information.

Item	Description
J5	Connection for an optional SA-DACT dialer module. See the *SA-DACT Dialer Installation Sheet* (P/N 3101099) for details.
TB4	Terminal for onboard NAC/AUX field wiring. See Figure 23 on page 48 for wiring details.
J9	Class A connection for the optional EDGE-CLA1 NAC Class A conversion module. For installation, wiring, and specifications, see *EDGE-CLA1 NAC Class A Conversion Module Installation Sheet* (P/N *3102914*).
J24	Connection for expansion slot 4
J23	Connection for expansion slot 3
J22	Connection for expansion slot 2
J21	Connection for expansion slot 1

CPU board circuit specifications

24 V AUX outputs	See “24 V AUX power output wiring (TB2)” below.
SLC circuit	See “Onboard signaling line circuit wiring (TB3)” on page 43.
NAC/AUX	See “NAC/AUX wiring (TB4)” on page 46.
Wire size	12 to 18 AWG (4.0 to 1.0 mm²)
Ground fault impedance	0 to 5 kΩ
Operating environment Temperature Relative humidity	 32 to 120°F (0 to 49°C) 0 to 93% noncondensing

Regulatory

FCC compliance	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Environmental class	UL/ULC: Indoor dry

24 V AUX power output wiring (TB2)

The panel CPU board provides two non resettable AUX power output circuits (TB2) that supply 24 VDC power to supported devices . See Figure 20 on page 43.

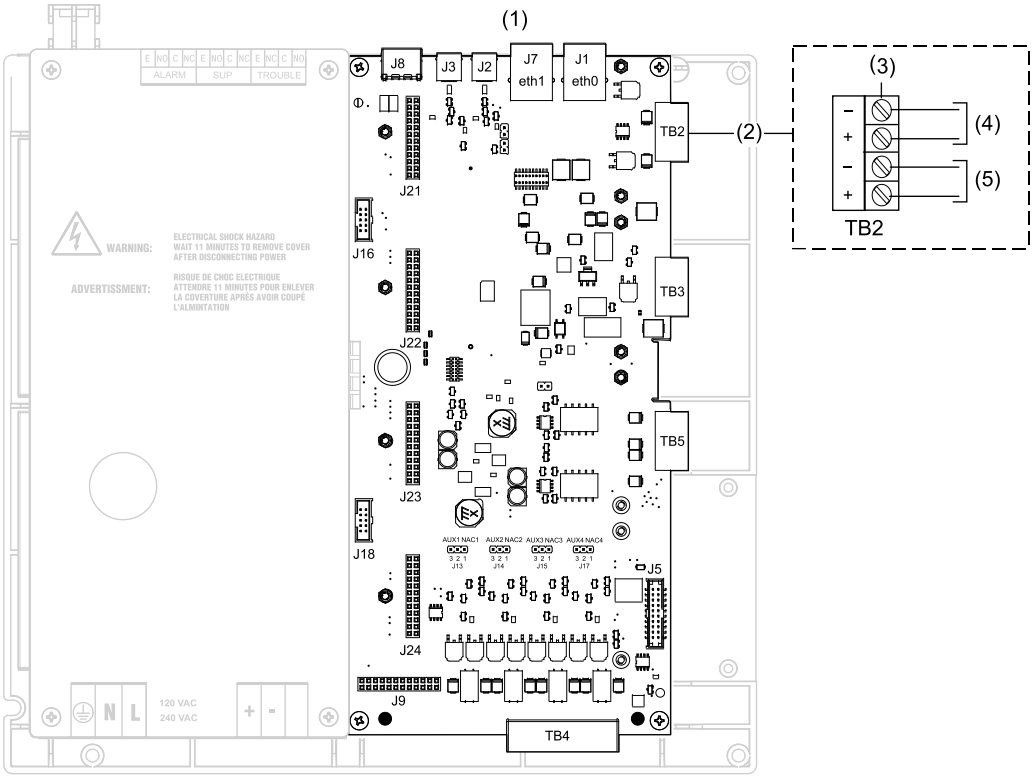
Note: AUX power wiring used for fire functions cannot be shared with any device performing ancillary functions.

AUX/smoke power circuit specifications

Voltage (regulated VDC)	24 V
Current (regulated VDC)	1.0 A each [1]
Wiring	Power-limited and supervised

[1] The circuit max. for TB2 and TB4 (NAC/AUX wiring) combined is 2.0 A total.

Figure 20: 24 V AUX power wiring



Legend

(1) Panel CPU board
(2) Exploded view of TB2 24 VDC AUX power wiring
(3) PCB connector
(4) AUX2: 24 VDC power to supported devices [1]
(5) AUX1 24 VDC power to supported device [1]

Notes

[1] If using TB2 AUX1 or AUX2 for power to a SIGA-UM, SIGA-MAB, or RZI16-2 for a two-wire smoke detector, use the EDGE-CU to program the AUX circuit to non-resettable.

Onboard signaling line circuit wiring (TB3)

The CPU board on the main electronics assembly includes one onboard single signaling line circuit, as shown in Figure 19 on page 41. The loop circuit is supervised for open circuits, short circuits, and ground faults.

The EDGE control panel supports four signaling line circuits for up to 1,000 devices (see Table 1 on page 4). The onboard single signaling line circuit supports 250 devices (125 detectors and 125 module addresses). For information on expanding your signaling line circuits, see “EDGE-SLC-250 and EDGE-SLC-500 signaling line circuit cards” on page 50.

Notes

- Wiring is power-limited and supervised.
- SLC pathways that provide signaling outputs to more than one fire notification zone must prevent a single break, single ground, or wire-to-wire fault from adversely affecting more than one zone.

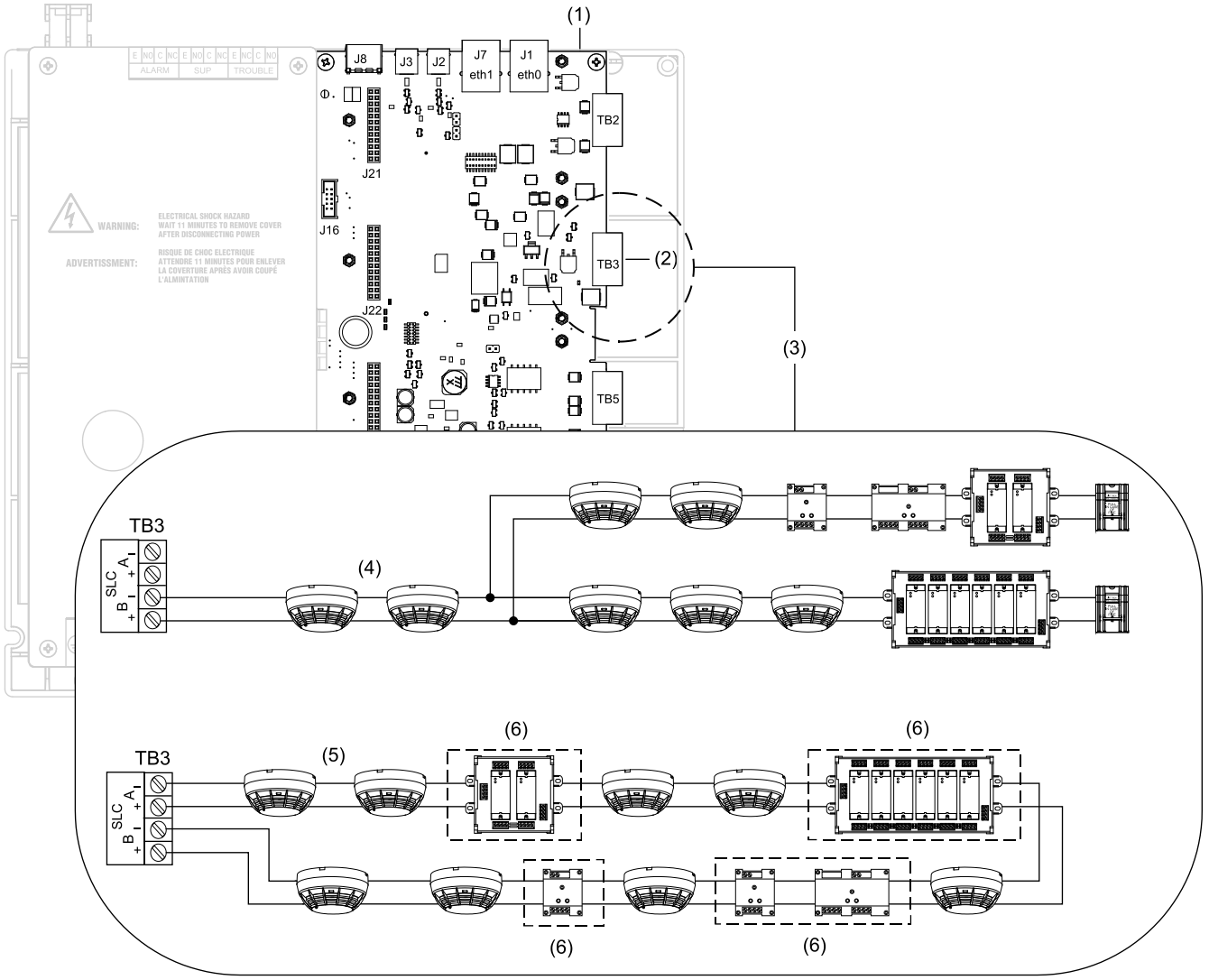
  Exception: SLC pathways installed for survivability from attack by fire in accordance NFPA 72.
- If shielding is used it must be continuous, free from earth ground, terminated at the shield terminal only, and taped throughout the entire circuit. Attach the drain wire to a grounding point on the control panel’s backbox.

- If notification appliances are used on the data line for more than one zone, each zone must have isolation so that a break, ground, or wire-to-wire fault does not affect more than one zone.
- For Class A/DCLA wiring, isolator modules and isolator detector bases are required to prevent wire-to-wire shorts on the signaling line circuit wiring from adversely affecting other segments of the loop. Do not install more than 50 addressable devices between isolators, per NFPA 72.
- For Class X/DCLC wiring, isolator modules, and isolator detector bases are required to prevent wire-to-wire shorts on the signaling line circuit wiring from adversely affecting any devices of the loop.
- For a complete list of devices that can be connected to this circuit, refer to *EDGE Compatibility List* (P/N 3102915).

Onboard SLC circuit specifications

Device addresses	250 per loop (125 detectors and 125 module addresses)
Wiring	Class B/DCLB, Class A/DCLA, or Class X/DCLC
Operating voltage	24 VDC
Operating current	See “Battery calculations” on page 145
Signature SLC voltage	21.0 V max.
Wire size	12 to 18 AWG (4.0 to 1.0 mm²)
Circuit current	0.5 A max.
Resistance	100 Ω max. (total for loop)
Capacitance	0.5 µF max. (total for loop)
Isolators	64 isolators maximum per loop (total both isolator bases and modules)
Ground fault impedance	0 to 5 kΩ
Operating environment Temperature Relative humidity	 32 to 120°F (0 to 49°C) 0 to 93% noncondensing at 90°F (32°C)

Figure 21: Panel CPU board TB3 integrated SLC wiring



(1) Panel CPU board
(2) TB3 onboard SLC terminals
(3) Exploded view of TB3 wiring
(4) Class B/DCLB circuit
(5) Class A/DCLA circuit
(6) For Class X/DCLC wiring (un-isolated devices must be mounted in a cabinet with isolators on the incoming and outgoing wiring)

RS-485 remote annunciator wiring (TB5)

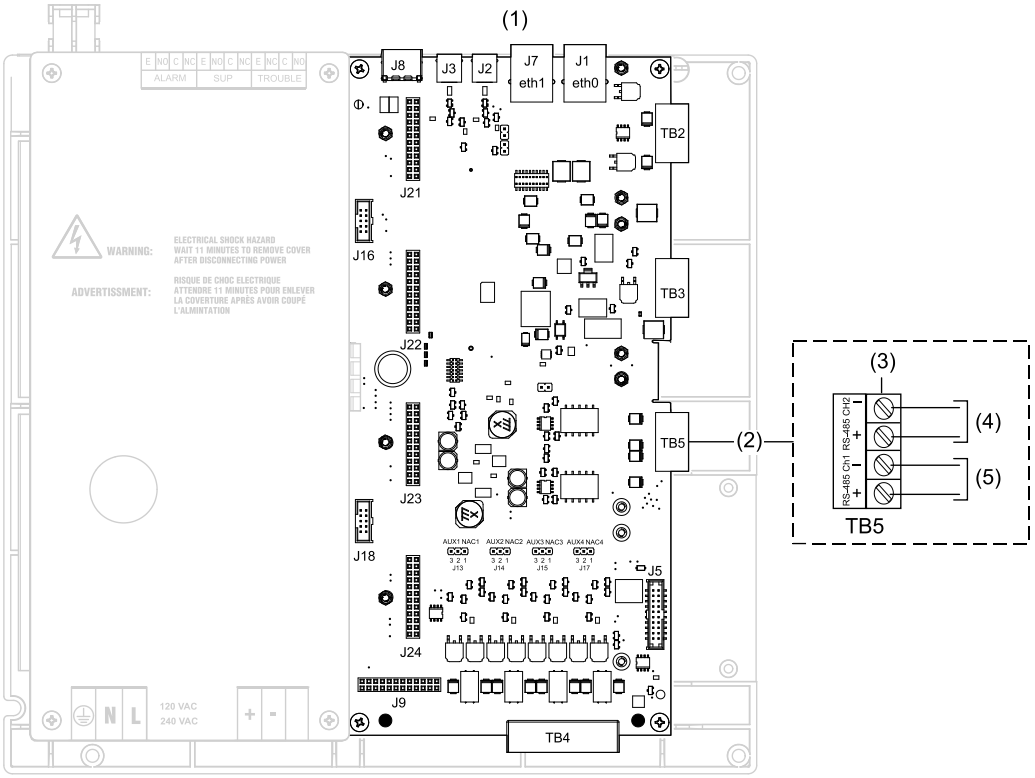
The panel CPU board provides an RS-485 terminal for connecting to R-Series remote annunciators.

For wiring information, see “R-Series remote annunciators” on page 91.

For R-Series annunciator installation instructions and specifications, refer to *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919).

For programming details, refer to the *EDGE-CU Help*.

Figure 22: CPU board RS-485 annunciator wiring



(1) Panel CPU board
(2) TB5 terminals for RS-485 annunciator wiring
(3) Exploded view of TB5 wiring
(4) Redundant Class B/DCLA circuit
(5) Class B/DCLB circuit

NAC/AUX wiring (TB4)

The CPU board provides four 24 V Class B NAC/AUX power circuits. Polarity reverses when the circuit is not active. For a list of devices you can connect to special application circuits, refer to the control panel compatibility list (P/N 3102915).

Each of the four NACs can be individually configurable as a NAC or a 24 VDC AUX output by way of a jumper. The default jumper positions are set as NACs.

For notification appliance circuits only, adding an optional EDGE-CLA1 NAC Class A Conversion Module converts the four Class B NAC/AUX power circuits on the CPU board to Class A. Refer to the *EDGE-CLA1 NAC Class A Conversion Module Installation Sheet* (P/N 3102914) for connecting field wiring and for specifications.

Class B or Class A NAC/AUX circuits configured as NAC outputs are supervised and power-limited. Route power-limited wiring on the right side of the cabinet, as shown in Figure 14 on page 34. For proper circuit supervision, break the wire run at each notification appliance and do not loop wires around notification appliance terminals.

Notes

- CPU board jumpers J13, J14, J15, and 17 must be set to designate NAC or AUX wiring. Put the jumper on pins 1 and 2 for NAC wiring and on pins 2 and 3 for AUX wiring. See Figure 23 on page 48.

NAC/AUX circuit specifications

TB4 NAC outputs [1]	
Voltage (regulated VDC)	24 V
Current (regulated VDC)	2.5 A each (8.0 A max.)
TB4 AUX outputs	
Voltage (regulated VDC)	24 V
Current (regulated VDC)	2.0 A shared [2]
Ground fault impedance	0 to 5 kΩ
Wire size	12 to 18 AWG (4.0 to 1.0 mm²)

[1] When calculating NAC loading, use a minimum 22.5 VDC terminal voltage and a max allowable voltage drop of 6.5 VDC at the end device.
[2] The circuit max. for TB4 and TB2 combined is 2.0 A total.

Class B NAC wiring

Use the TB4 terminal on the CPU board for Class B NAC wiring. Each circuit can be individually configured for continuous, temporal, synchronized, coded, or city tie output. See Figure 23 on page 48.

For Class A notification appliance circuits, you must install a separately purchased EDGE-CLA1 card (see “EDGE-CLA1 Class A NAC wiring (J17)” on page 50).

WARNINGS

- Electrocution hazard. To avoid personal injury or death from electrocution, make sure the distribution circuit providing mains AC is rendered inoperative prior to connecting mains input wiring to the power supply board.
- Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and wait 11 minutes to allow stored energy to discharge before installing or removing equipment.

Caution: Circuit boards are sensitive to electrostatic discharge (ESD). To avoid damage, follow ESD handling procedures.

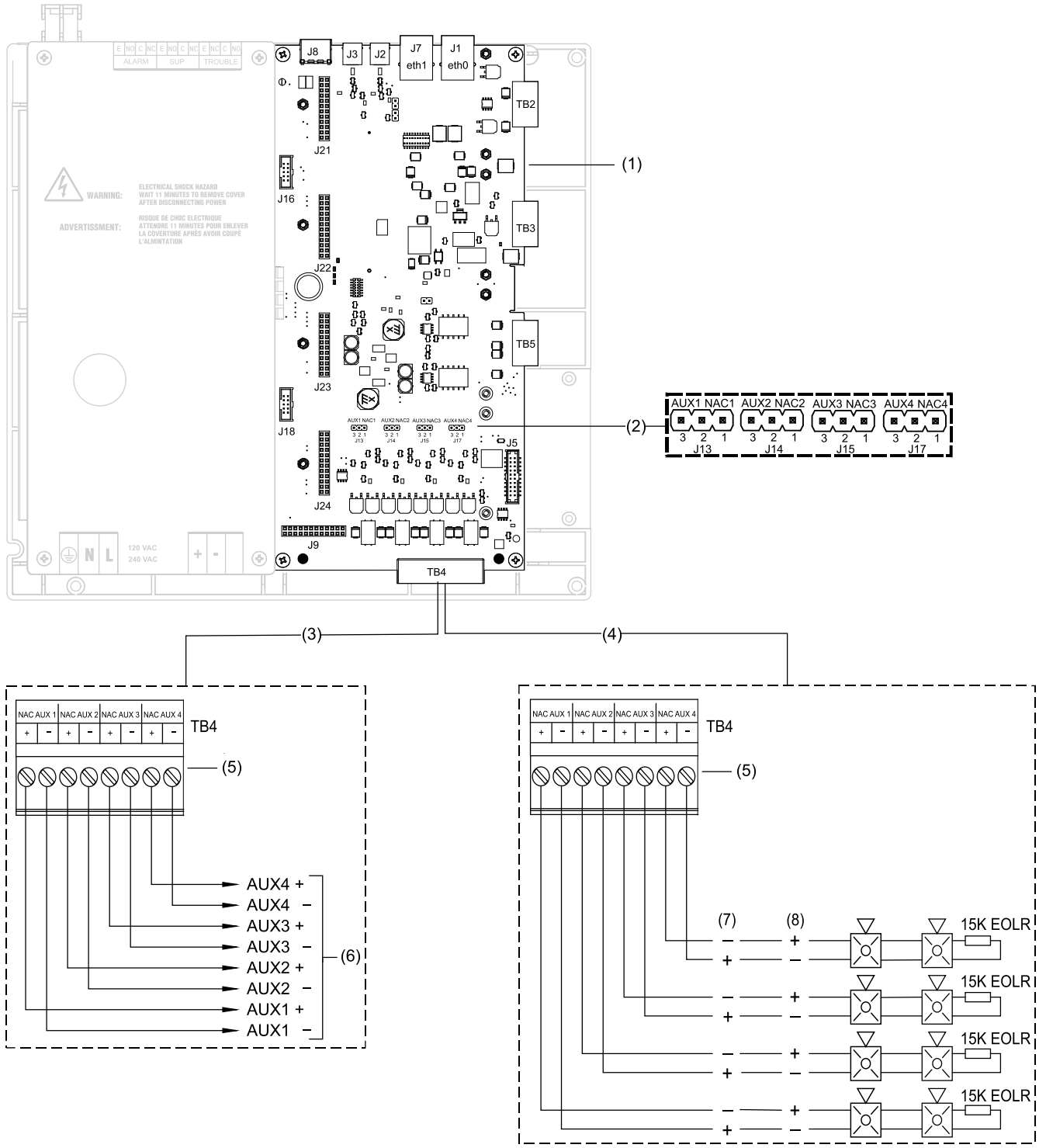
Notes

- Listed EOLRs must be installed as shown for proper supervision.
- Polarity reverses when the circuit is not active. Wire notification appliances accordingly. Notification appliance polarity is shown in the active state.
- Installation limits are subject to acceptance by the AHJ.
- If the riser is used for more than one notification zone, install in accordance with the survivability from attack by fire requirements in NFPA 72 National Fire Alarm and Signaling Code.

AUX wiring

If a NAC is configured as a 24 VDC AUX power output it can be configured as Resettable (interruptible for the period of time during the soft reset power down cycle) or Not Resettable (always on from power up to power down). The default setting is Resettable.

Figure 23: CPU board NAC/AUX wiring



Legend

(1) Panel CPU board
(2) Exploded view on NAC/AUX jumpers [1]
(3) Exploded view of TB4 AUX wiring
(4) Exploded view of TB4 Class B NAC wiring (for Class A wiring, see "EDGE-CLA1 Class A NAC wiring (J17)" on page 50)
(5) PCB terminal connector
(6) Riser
(7) Normal
(8) Active

Notes

[1] Put the jumper on pins 1 and 2 for NAC wiring or on pins 2 and 3 for AUX wiring.

Ethernet wiring

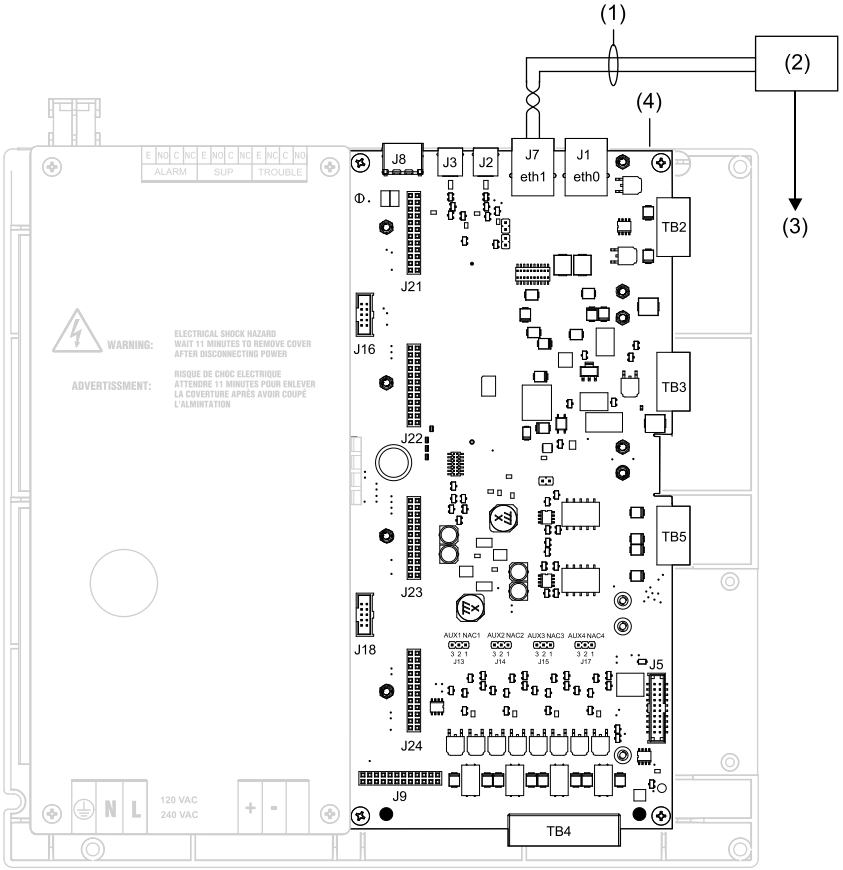
The panel CPU board (Figure 24 below) provides two standard Ethernet connections (RJ45) for external communication, such as to a building infrastructure switch, router, or direct to a printer.

Note: For programming details, refer to the *EDGE-CU Help*.

Ethernet circuit specifications

Ethernet	10/100Base
Wiring	RJ45 CAT5 or better
Supported protocols	IPv4 and IPv6
Supported Central Monitoring Station (CMS) accounts	Up to 8 IP dialer connectivity services with 8 accounts each
Supported IP dialers	Refer to the *EDGE Compatibility List* (P/N 3102915)

Figure 24: Ethernet wiring



(1) Ethernet wiring. CAT5 or better cable, up to 328 ft. (100 m). For wiring details, consult with the local IT department to obtain the building infrastructure specifications.
(2) Building infrastructure switch or router. For wiring details, consult with the local IT department to obtain the switch or router manufacturer installation sheet.
(3) To a printer, CMS receiver, or cloud service. Consult with the local IT department for wiring specifications. For wiring details to the receiver or server, see the manufacturer installation sheet.
(4) Panel CPU board

Install and wire optional accessories

Install and wire devices in accordance with applicable national and local codes, ordinances, and regulations.

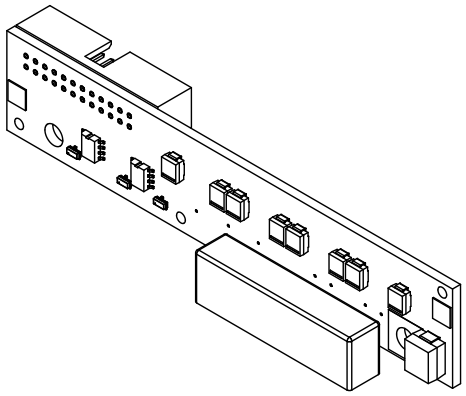
EDGE-CLA1 Class A NAC wiring (J17)

A separately ordered EDGE-CLA1 NAC Class A Conversion Module is required for Class A NAC wiring. The card's terminal block provides the connection for the NAC Class A return field wiring. The module plugs in to J9 connector on the CPU board (see Figure 19 on page 41).

Install and wire the EDGE-CLA1 in accordance with applicable national and local codes, ordinances, and regulations. For installation and wiring details, and device specifications, see *EDGE-CLA1 NAC Class A Conversion Module Installation Sheet* (P/N *3102914*) for details.

Note: The wiring connections on the Class A card are used when wiring NACs Class A. The card does not provide a redundant power AUX circuit.

Figure 25: EDGE-CLA1 NAC Class A conversion module



EDGE-SLC-250 and EDGE-SLC-500 signaling line circuit cards

The EDGE control panel supports four signaling line circuits for up to 1,000 devices (500 addressable detectors, 500 addressable modules). See Table 1 on page 4 for panel capabilities.

In addition to the onboard signal signaling line circuit, the panel provides expansion slots to mount up to three optional EDGE-SLC-250 or EDGE-SLC-500 SLC Interface Cards. See Figure 19 on page 41 for the expansion cards location.

EDGE-SLC-250 signaling line circuit expansion card

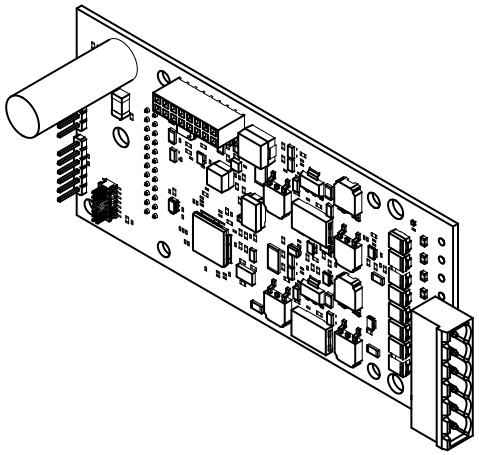
The EDGE-SLC-250 Single SLC Interface Card provides one device signaling line circuit (SLC) that can be added to the control panel. There is one LED on the card that indicates loop communication status. The card can be installed on an EDGE panel as a replacement or as an additional card.

The card expands the control panel's device capability with an additional 250 device addresses, (125 detectors and 125 module addresses). The expansion slot location of the card is programmed using the EDGE-CU.

Install and wire the EDGE-SLC-250 in accordance with applicable national and local codes, ordinances, and regulations. For installation and wiring details, and device specifications, see *EDGE-SLC-250 Single SLC Interface Card Installation Sheet* (P/N 3102908).

Note: Installation limits are subject to acceptance by the AHJ.

Figure 26: EDGE-SLC-250 signaling line circuit expansion card



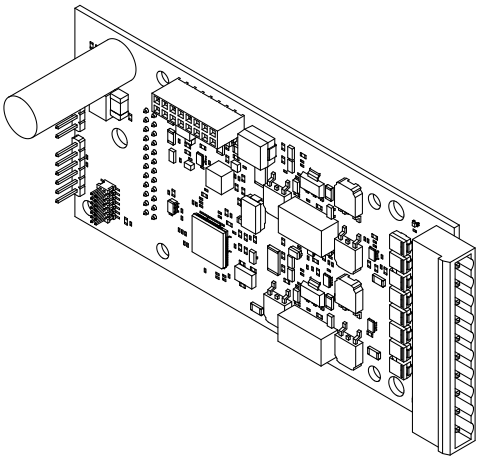
EDGE-SLC-500 signaling line circuit expansion card

The EDGE-SLC-500 Dual SLC Interface Card provides two device signaling line circuits that can be added to a control panel expansion connector. There are two LEDs on the card for each SLC that indicate SLC communication status. The card can be installed on an EDGE panel as a replacement or as an additional card.

The card expands the control panel's device capability with an additional 250 device addresses, (125 detectors and 125 module addresses) per SLC. The expansion slot location of the card is programmed using the EDGE-CU.

Install and wire the EDGE-SLC-500 in accordance with applicable national and local codes, ordinances, and regulations. For installation and wiring details, and device specifications, see *EDGE-SLC-500 Dual SLC Interface Card Installation Sheet* (P/N 3102909).

Figure 27: EDGE-SLC-500 signaling line circuit expansion card



EDGE-Tamper outer door tamper switch installation

For added enclosure security, a tamper switch can be installed in the backbox that will detect an open enclosure door. For more information see *EDGE-Tamper Switches Installation Sheet* (P/N 3103038).

SA-DACT dialer

The SA-DACT transmits system status changes (events) to compatible digital alarm communicator receivers over the public switched telephone network. The SA-DACT queues messages and transmits them based on priority (alarm, supervisory, trouble, disable, test, monitor, and system). The dialer is capable of single, dual, or split reporting of events to two different account and telephone numbers. The modem feature of the SA-DACT can also be used for uploading and downloading panel configuration, history, and current status to a PC running the configuration utility.

Install and wire the SA-DACT in accordance with applicable national and local codes, ordinances, and regulations. For installation and wiring details, and device specifications, see the *SA-DACT Dialer Installation Sheet* (P/N 3101099).

RZI16-2 remote zone interface module

The RZI16-2 remote zone interface module is an addressable device that provides connections for sixteen Class B initiating device circuits (IDCs). It also provides two Class B supervised output circuits or two unsupervised dry contact outputs. The inputs and outputs can be configured individually for several device types.

Install and wire the RZI16-2 in accordance with applicable national and local codes, ordinances, and regulations. For installation and wiring details, and device specifications*, see RZI16-2 Remote Zone Interface Module Installation Sheet* (P/N 3101970).

PT-1S+ printer connection

The PT-1S+ printer can be connected to one of the two RJ45 connections available on the panel CPU board to provide a printout of system events such as status changes, active events, and reports. The PT-1S is an 80-character line width, freestanding printer that uses standard form feed paper.

Install and wire the PT-1S+ in accordance with applicable national and local codes, ordinances, and regulations. For installation and wiring details, and device specifications, see *PT-1S+ Printer Installation Sheet* (P/N 3102823).

Preliminary field wiring testing

It is recommended that you test all circuits before they are connected to the control panel components. Table 16 below indicates the recommended tests and acceptable test results.

Note: Individual devices are not checked as part of these tests. All equipment installed on field circuits must be individually tested to ensure proper operation when the system is running.

Table 16: Field wiring tests

Circuit type	Test
DC notification appliance circuit	1. Measure the resistance between conductors. The circuit resistance should be infinite if no devices are installed on the circuit. The circuit resistance should be approximately 15 kΩ when the polarized notification appliances and the end-of-line resistor are correctly installed. 2. Reverse the meter leads. The circuit resistance between conductors should read approximately 10 Ω to 20 Ω. If the resistance reading is still approximately the same value when the meter leads are reversed, one or more polarized devices are installed incorrectly. 3. Measure the resistance between each conductor and earth ground. The resistance should be infinite.

Circuit type	Test
Signature data loops	1. With field wiring disconnected, verify the continuity of each conductor. Each conductor should measure less than 38 Ω. 2. Measure the resistance between conductors. The circuit resistance between conductors should be infinite if no devices are connected to the circuit. The circuit resistance between conductors should be between approximately 18 kΩ (250 devices) and 4.5 MΩ (1 device) when devices are installed. 3. Measure the resistance between each conductor and earth ground. The circuit resistance between a conductors and earth ground should be infinite.
Analog addressable circuits	1. Verify the continuity of each conductor. Each conductor should measure less than 50 Ω. 2. Measure the resistance between conductors. The circuit resistance between conductors should be infinite if no devices are connected to the circuit. 3. Measure the resistance between each conductor and earth ground. The circuit resistance between a conductors and earth ground should be infinite.
Traditional initiating device circuits	1. Verify the continuity of each conductor. 2. Measure the resistance between conductors. The circuit resistance between conductors should be infinite if no devices are connected to the circuit. The circuit resistance between conductors should be approximately 4.7 kΩ when devices are installed. 3. Measure the resistance between each conductor and earth ground. The circuit resistance between a conductors and earth ground should be infinite.
Earth Ground	Measure the resistance between the earth ground terminal and a convenient water pipe or electrical conduit. The circuit resistance should be less than 0.1 Ω.

Circuit compatibility

The circuit compatibility matrix in Table 17 below shows which circuit types may occupy the same conduit or be combined together, where permitted by code.

Table 17: Circuit compatibility matrix

1 = No restrictions ⃠ = Do not combine Gray box = Power-limited circuit White box = Allowed in same conduit by manufacturer [1] 1 \ 1 = Top number → / Bottom number ↓	24 VDC power-limited	Signature signaling line circuit	Traditional two-wire IDC	AC mains, nonpower-limited	Circuit wiring specifications
24 VDC power-limited	1 \ 1	1 \ 1	1 \ 1	⃠	Size conductors per acceptable voltage drop and load
Signature signaling line circuit	1 \ 1	1 \ 1	1 \ 1	⃠	Circuit resistance: 100 Ω max. (total for loop) Circuit capacitance: 0.5 µF max. (total for loop)
Traditional two-wire IDC (RZI16-2 module)	1 \ 1	1 \ 1	1 \ 1	⃠	Circuit resistance: 50 Ω max. (25 Ω per wire)
AC mains, nonpower-limited	⃠	⃠	⃠	1 \ 1	

[1] Install and wire devices in accordance with applicable national and local codes, ordinances, and regulations.

UL 864 notification appliance circuit (NAC) signal synchronization

Table 18 below lists the installation requirements for systems that must meet UL 864 NAC signal synchronization requirements.

Table 18: Installation requirements for UL 864 signal synchronization

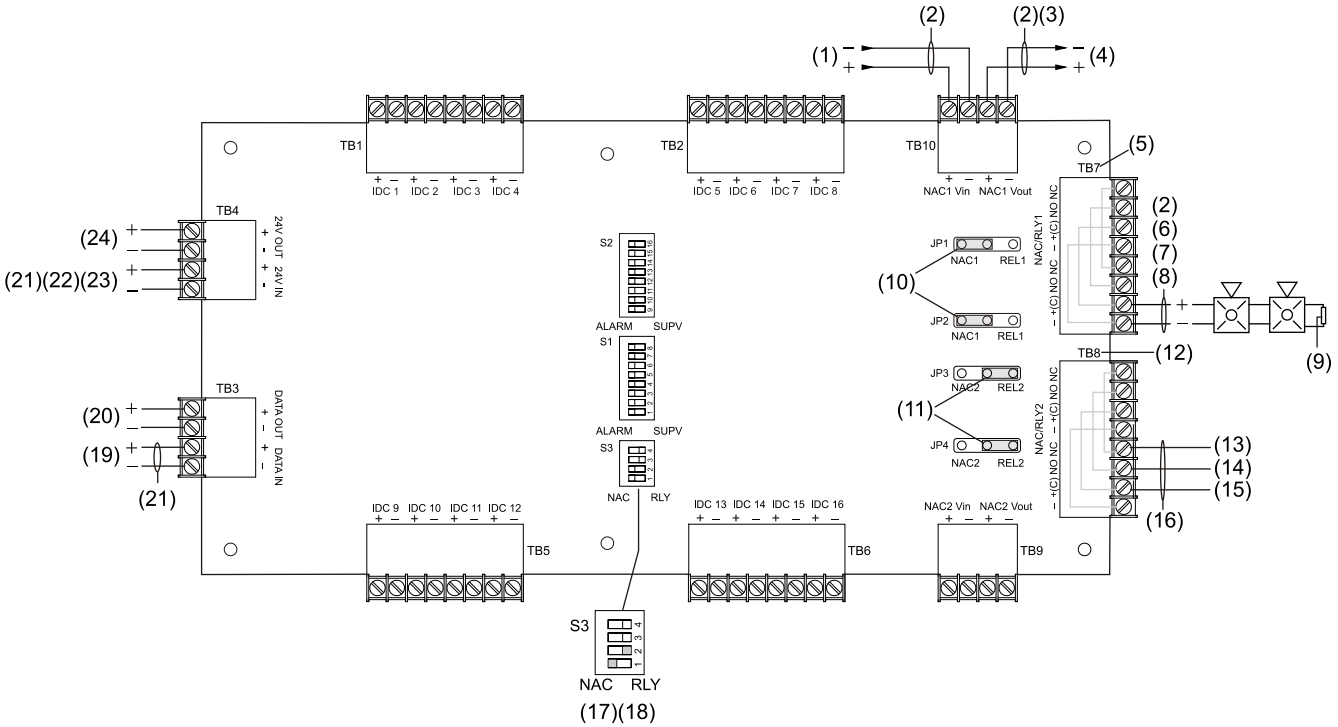
Circuit	Installation requirements
Main electronics assembly: CPU board NACs	Emergency evacuation signals are synchronized with main board signaling line circuits on a “per cabinet” basis when you configure the NACs as a Genesis device type and use Genesis or Enhanced Integrity notification appliances.
Main electronics assembly CPU board signaling line circuits	Emergency evacuation signals are synchronized with CPU board NACs on a “per cabinet” basis when you use SIGA-CC1S or SIGA-MCC1S modules configured for auto-sync output (personality code 25) and Genesis or Enhanced Integrity notification appliances. CPU board onboard signaling line circuit terminal, EDGE-SLC-250 or EDGE SLC-500 signaling line circuit card. modules: • Emergency evacuation signals are synchronized on a “per loop” basis when you use SIGA-CC1S or SIGA-MCC1S modules (personality code 25) and Genesis or Enhanced Integrity notification appliances. • Emergency evacuation signals are synchronized on a “per module” basis when you use SIGA-CC1 or SIGA-MCC1 modules (personality code 5), G1M or G1M-RM Genesis Signal Master modules, and Genesis notification appliances.
SIGA-CC1, SIGA-MCC1, SIGA-CC1S, and SIGA-MCC1S	Signature CC1 modules do not generate temporal signals, they simply turn the NAC circuit on or off. You must configure the notification appliances for temporal or steady output as desired.
G1M and G1M-RM	The G1M and G1M-RM Genesis Signal Master modules can be used to synchronize NACs consisting of Genesis appliances. They can also be used to synchronize mixed NACs consisting of Genesis and Enhanced Integrity appliances, but the first appliance must be a Genesis device, and the Genesis Signal Master module must be mounted on this device. G1M and G1M-RM Genesis Signal Master modules cannot be used to synchronize NACs consisting of Enhanced Integrity appliances.

Typical circuits

The circuit diagrams provided in this section use the term *zone* to indicate notification zones as defined in UL 864 (an area that is covered by notification appliances that are activated simultaneously).

Figure 28 on page 55 shows typical RZI16-2 Remote Zone Interface module NAC and relay circuits. For details on the RZI16-2, see *RZI16-2 Remote Zone Interface Module Installation Sheet* (P/N 3101971).

Figure 28: Typical RZI16-2 module NAC wiring



Legend

(1) NAC Vin: 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC Listed for fire protective signaling systems. [1].
(2) Regulated 24 VDC and power-limited
(3) If the NAC power riser is used for more than one notification zone, in accordance with the requirements for survivability from attack by fire specified in NFPA 72.
(4) NAC Vout: 24 VDC to next device or end of line supervision relay
(5) TB7 provides two identical sets of terminals for the relay and NAC circuits, however only one relay or one NAC can be wired to TB7.
(6) Signal polarity shown when the circuit is active. Polarity reverses when the circuit is in a normal supervision state.
(7) The maximum line resistance value must be calculated using the power source documentation. [2]
(8) Synchronized NAC devices are permitted
(9) 15 kΩ ohm end of line resistor. Use P/N EOL-15.
(10) Position JP1 and JP2 jumpers to NAC1
(11) Position JP3 and JP4 jumpers to REL2
(12) TB8 provides two identical sets of terminals for the relay and NAC circuits. [3]
(13) Normally closed (NC) contact
(14) Normally open (NO) contact
(15) Common (C)
(16) Not supervised [4]
(17) Set switch S3-1 to NAC (NAC1 circuit)
(18) Set switch S3-2 to RLY (RLY2 circuit)
(19) Signaling line circuit (SLC) from previous device
(20) Signaling line circuit (SLC) to next device
(21) Power limited.
(22) 24V IN [5]
(23) Only one RZI16-2 24V IN can be powered from the control panel AUX1 output circuit or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply circuit. [6]
(24) 24V OUT: To riser supervision relay.

Notes

[1] Note: Use a dedicated 24 VDC power riser to power the RZI16-2 module (TB4, 24V IN). Use a separate riser to power notification appliances and auxiliary devices (TB9 and TB10, NAC Vin).
[2] Refer to the *Auxiliary Power Supply Manual* (P/N 3100970) or the *Remote Booster Power Supply Manual* (P/N 3100485) for calculation details.

[3] Only one relay or one NAC can be wired to TB8.

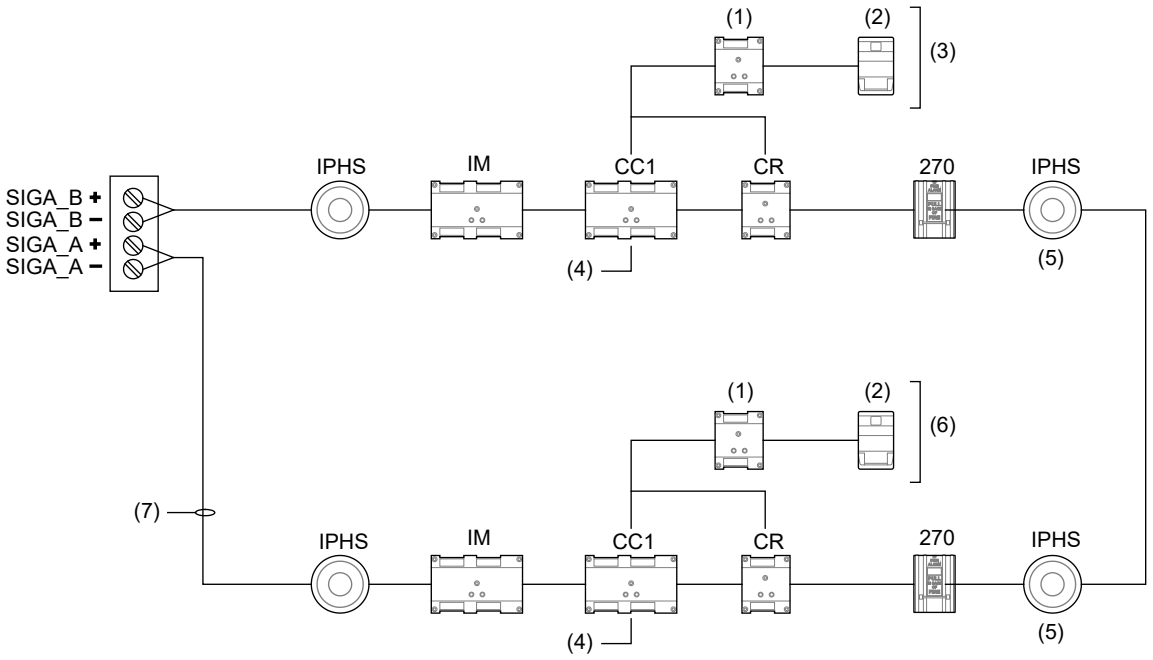
[4] Power-limited unless connected to a nonpower-limited source. If the source is nonpower-limited, eliminate the power-limited mark and maintain a minimum of 0.25 in. (6.4 mm) space from power-limited wiring. For other mounting methods, see enclosure and bracket installation sheets to maintain separation of power-limited and nonpower-limited wiring. The wire size must be capable of handling fault current from a nonpower-limited source.
— or —
Use type FPL, FPLR, FPLP, or permitted substitute cables, provided these power-limited cable conductors extending beyond the jacket are separated by a minimum of 0.25 in. (6.4 mm) space or by a nonconductive sleeve or nonconductive barrier from all other conductors. Refer to the *NFPA 70 National Electric Code* for more details.

[5] From the control panel AUX1 output circuit or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power circuit listed for fire protective signaling systems. For ground fault detection, see “Ground Fault Enabled” in the Auxiliary Power Supply Technical Reference Manual (P/N 3100970).
Note: Use a dedicated 24 VDC AUX circuit to power the TB4 24V IN and a separate 24 VDC AUX circuit to power the TB9 and TB10 NAC1/2 Vin for NAC devices.

[6] The power riser wire distance limit must be calculated using the specific power source’s NAC/AUX wire run limit based on this module’s 24V IN minimum voltage specification.

Figure 29 below shows a Signature loop wired as Class A for notification circuit synchronization.

Figure 29: Class A / X Signature wiring for notification circuit signal synchronization



(1) Sync module
(2) Temporal horn/strobe
(3) Notification zone 1
(4) AUX riser
(5) Isolator base
(6) Notification zone 2
(7) Class A /X (required)

Notes

- SLC pathways that provide signaling outputs to more than one fire notification zone must prevent a single break, single ground, or wire-to-wire fault from adversely affecting more than one zone.

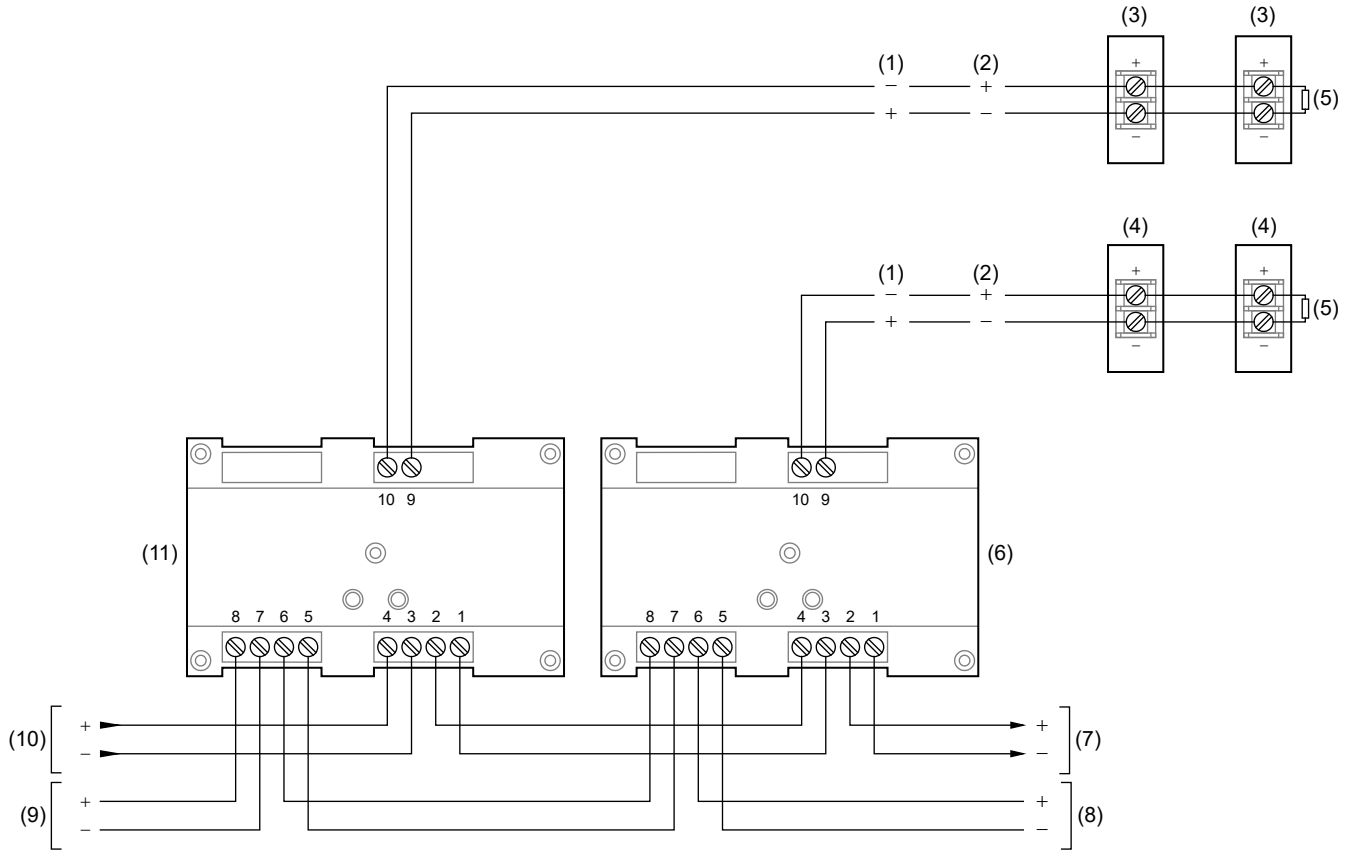
  Exception: SLC pathways installed for survivability from attack by fire in accordance with NFPA 72.

- For Class A wiring, isolator modules and isolator detector bases are required to prevent wire-to-wire shorts on the signaling line circuit wiring from adversely affecting other segments of the loop. Do not install more than 50 addressable devices between isolators, per NFPA 72.

- For Class X wiring, un-isolated devices must be mounted in a cabinet with isolators on the incoming and outgoing wiring.
- For Class X wiring, isolator modules and isolator detector bases are required to prevent wire-to-wire shorts on the signaling line circuit wiring from adversely affecting any devices of the loop.

Figure 30 below shows two NACs on a Signature data loop. Each NAC is controlled by a SIGA-CC1S module, one for audible appliances and one for visible appliances. The SIGA-CC1S modules provide signal synchronization for both NACs.

Figure 30: Typical SIGA-CC1S NAC wiring



(1) Normal
(2) Active
(3) Temporal horn
(4) Strobe
(5) 47 kΩ EOLR
(6) CC1S:
Device type: Visible
Personality: (5) Riser Selector
Label: ZONE_1_STROBES

(7) Data out to next device
(8) AUX riser to next device or riser monitor
(9) AUX riser from previous device
(10) Data in from previous device
(11) CC1S:
Device type: Audible
Personality: (5) Riser Selector
Label: ZONE_1_HORNS

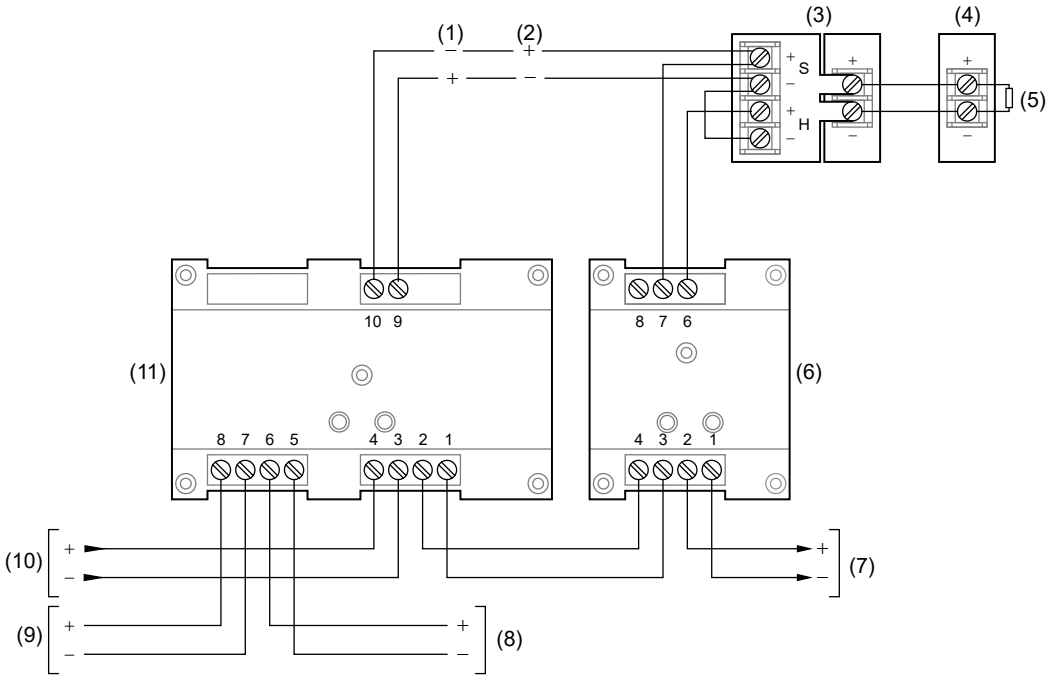
Figure 31 on page 58 shows a single SIGA-CC1 switching a NAC on or off. The G1M module provides signal synchronization for the temporal horn/strobe appliances.

As in earlier examples, this circuit allows for independent silencing of the audible appliances. This operation is provided by the SIGA-CR module, which opens or closes the circuit between S+ and H+ on the G1M module. In this case, you must program the operation of the SIGA-CR in the EDGE-CU. The CU settings for signal silence operation will not determine the operation of the audible appliances in this NAC.

Note also that this application could be implemented with a SIGA-CC1S module. The SIGA-CC1S provides signal synchronization compatible with the operation of the G1M module.

The advantage to using a SIGA-CC1S module is that the NAC would then be synchronized with other NACs on the Signature data loop.

Figure 31: Typical SIGA-CC1 NAC wiring



(1) Normal
(2) Active
(3) Temporal horn/strobe and G1M module
(4) Temporal horn/strobe
(5) 47 kΩ EOLR
(6) CR:
Device type: Dry Contact
Personality: (8) Dry Contact
Label: ZONE_1_NAC_SILENCE
(7) Data out to next device
(8) AUX riser to next device or riser monitor
(9) AUX riser from previous device
(10) Data in from previous device
(11) CC1:
Device type: Visible
Personality: (5) Riser Selector
Label: ZONE_1_NAC

Figure 32 on page 59 shows an auxiliary/booster power supply being used to power the NAC, to provide synchronization and horn silence capability. Because the auxiliary/booster supply has the ability to silence the horn circuit, this application can be created using only the Signature loop wiring.

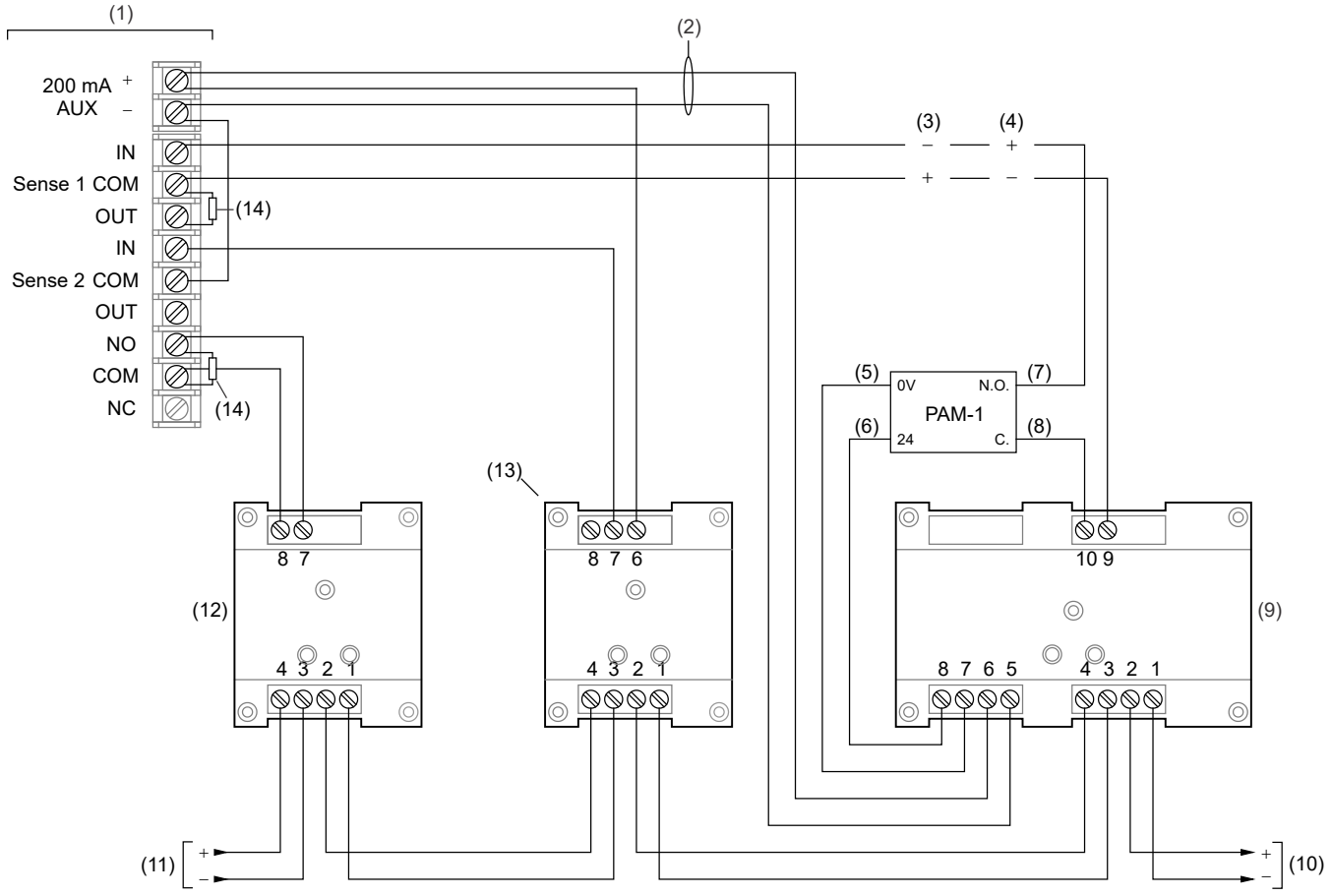
The SIGA-CT1 module monitors the power supply for AC failure. The SIGA-CR module signals the power supply to turn the horns on or off. The SIGA-CC1 module signals the power supply when the system goes into alarm, turning the NAC on.

Notes

- The power supply can only synchronize the notification appliances to which it is connected. If you need to synchronize several similar NACs on the same Signature loop, you can use a SIGA-CC1S module in place of the SIGA-CC1.
- All wiring is supervised and power-limited unless otherwise noted.
- Install a PAM-1 or equivalent listed relay only when you are required to supervise the 200 mA AUX circuit wiring.

- Configure Sense 1 and Sense 2 operation for Genesis Master mode and NAC operation for continuous. See the documentation received with the auxiliary/booster supply for details.
- Use a CC1S if you want to maintain signal synchronization across multiple auxiliary/booster supplies on the same Signature loop.

Figure 32: Using an auxiliary/booster supply for horn silence capability with two wires



(1) Auxiliary/booster supply
(2) Not supervised
(3) Normal
(4) Active
(5) White
(6) Red
(7) Orange
(8) Blue
(9) CC1 or CC1S:
Device type: Visible
Personality: (5) Riser Selector
Text 1: REMOTE_SUPPLY
Text 2: HRNS_&_STROBES
(10) Data out to next device
(11) Data in from previous device
(12) CT1:
Device type: AC Power
Personality: (3) Active B
Text 1: REMOTE_SUPPLY
Text 2: HRNS_&_STROBES
(13) CR:
Device type: NSCommonAlarmOutput
Personality: (8) Dry Contact
Text 1: REMOTE_SUPPLY
Text 2: HRNS_&_STROBES
(14) 47 kΩ EOLR

Chapter 4
Operating instructions

Summary

This chapter provides instructions for operating the control panel from the panel's user interface.

Content

Operating states

The EDGE control panel operates in the normal, alarm, disable, supervisory, trouble, monitor, test, and drill states.

Normal state

The system operates in the normal (standby) state in the absence of any events. In the normal state, the LCD screen shows the time, date, navigation tools, and the programmed background graphic. See Figure 2 on page 12 for an example of the system normal screen.

Alarm / Emergency state

The control panel enters the alarm state when a point signals an alarm condition. For example, when a smoke detector, pull station, or waterflow switch is activated.

Output of the alarm state

Upon entering the alarm state, the control panel:

- Activates all supervised and unsupervised common alarm outputs
- Changes over the alarm relay contacts on the CPU main board
- Activates the first alarm pseudo point
- Changes the active state for the point that signaled the alarm event

Indication of the alarm state

To indicate it is in the alarm state, the control panel:

- Sounds the operator alert signal
- Turns on the Alarm LED on the LCD user interface
- Posts the event activated by the point into the appropriate event list queue (See Table 8 on page 14 for a list of event types-to-queue)

Supervisory state

The control panel enters the supervisory state when a point signals a supervisory condition.

Output of the supervisory state

Upon entering the supervisory state, the control panel:

- Activates all supervised and unsupervised common supervisory outputs
- Changes over the supervisory relay contacts, if configured, on the CPU main board
- Activates the first supervisory pseudo point
- Changes the active state for the point that signaled the supervisory event

Indication of the supervisory state

To indicate it is in the supervisory state, the control panel:

- Sounds the operator alert signal

- Posts the event activated by the point into the appropriate event list queue (See Table 8 on page 14 for a list of event types-to-queue)

Trouble state

The control panel enters the trouble state when a point signals a trouble condition.

Output of the trouble state

Upon entering the trouble state, the control panel:

- Changes over the trouble relay contacts on the CPU main board
- Activates the first trouble pseudo point
- Changes the active state for the point that signaled the trouble event

Indication of the trouble state

To indicate it is in the trouble state, the control panel:

- Sounds the operator alert signal
- Turns on the Trouble LED on the LCD user interface
- Posts the event activated by the point into the appropriate event list queue (See Table 8 on page 14 for a list of event types-to-queue)

Monitor state

The control panel enters the monitor state when a point signals a monitor condition.

Output of the monitor state

Upon entering the monitor state, the control panel:

- Changes over the CPU main board relay contacts, if configured for monitor
- Activates the first monitor pseudo point
- Changes the active state for the point that signaled the monitor event

Indication of the monitor state

To indicate it is in the monitor state, the control panel:

- Sounds the operator alert signal
- Posts the event activated by the point into the appropriate event list queue (See Table 8 on page 14 for a list of event types-to-queue)

Note: Monitor indications are restored automatically when the monitor input is restored.

Ground fault state

Upon detection of any ground fault condition, the Ground Fault LED will be on steady, the operator alert signal is sounding and the Ground Fault event indicator and Ground Fault event list appear on the LCD.

CPU fail state

The control panel monitors integrity of the program and memory. Upon failure of these checks or failure of the microprocessor, the CPU Fail LED and the panel buzzer will be on steady.

Disable state

The control panel enters the trouble state when a point signals a disabled condition.

When a point is disabled, the control panel does not process any of the point's status changes and the point remains in its current state. For example, if an audible device type in the normal state was disabled and subsequently activated, the audible device type would not turn on until it was enabled. Conversely, if an active audible device type were disabled and subsequently restored, the audible device type would not turn off until it was enabled.

If a point is disabled and the cause of the trouble changes while the point is disabled, the point's original trouble event message may not update when the point is enabled. This is dependent on the point state or the EDGE-CU configuration setting for the Restore Event on Disable property.

Note: View the Status Disabled report to identify a disabled point.

Output of the disable state

Upon entering the disable state, the control panel:

- Activates the first trouble pseudo point
- Activates the first disable pseudo point
- Changes the active state for the point that signaled the disable event

Indication of the disable state

To indicate it is in the disable state, the control panel:

- Sounds the operator alert signal
- Turns on the Trouble LED on the LCD user interface
- Posts the event activated by the point into the appropriate event list queue (See Table 8 on page 14 for a list of event types-to-queue)

Test state

The control panel enters the test state when a service group is activated.

Output of the test state

Upon entering the test state, the control panel:

- Activates the ServiceGroupActive pseudo point
- Changes the active state for the service group that was activated

While in the test state:

- When a member of an active service group signals an active event, the control panel executes the service group's active test response
- When a member of an active service group signals a trouble event, the control panel executes the service group's trouble test response

Note: If you do not program a trouble test response, the control panel executes the active test response instead.

Indication of the test state

To indicate it is in the test state, the control panel:

- Sounds the operator alert signal
- Turns on the Test LED on the LCD user interface
- Activates the Test event indicator and displays an event message in the Test list queue for the first test pseudo point, provided there are no higher priority events

Drill state

The drill function activates the system notification appliances generally for conducting a fire drill. In this state, an alarm is not transmitted to the central monitoring station.

Output of the drill state

Upon entering the drill state, the control panel:

- Changes the active state for the device that activated

Indication of the drill state

To indicate it is in the drill state, the control panel:

- Activates all audible and common alarm output devices
- Activates all configured visual devices

Creating an initial startup database

Use the EDGE-CU software to create the initial startup database. The EDGE-CU provides extensive instructions for configuring, programming, and testing your EDGE control panel. The initial startup database is useful for the following:

- Assigning panel addresses when you bring up the system for the first time
- Verifying the correct installation of option cards and optional control-display modules

When creating the initial startup database:

- Only include the hardware configuration for each cabinet in the system.
- Do not include any device loops in the initial database. The device loops should be installed after verifying the cabinet configuration and then added to the final database.
- It is not necessary to configure any option cards. They can be added to the final database.
- Save the initial database, and then after installing the option cards define the cabinet configuration and device loops in the EDGE-CU and save it as a different version. This method eliminates doubling your workload by having to edit two databases as you add cabinets to the system.

Control panel power up

Initial power up

When you power up the EDGE control panel for the first time, the LCD screen may begin to show event messages as the CPU microprocessor begins communicating with devices. You can use the Panel Silence button to silence the operator alert signal.

Notes

- Before applying power to the control panel, make sure the standby batteries are not connected to the power supply board on the main electronics assembly.
- The control panel main electronics assembly should already be installed and mains AC (primary power) wired to the input terminals (TB1).

To power up the control panel for the first time:

1. Apply power to the control panel.
2. Connect the batteries to the battery wiring terminal (TB3) on the power supply board on the main electronics assembly.
3. Press the Panel Silence button, if necessary.
4. Download the database as instructed in “Downloading a project database” on page 70.
5. For a network system, clear any faults between control panels.
6. Verify proper operation. See “Routine maintenance and tests” on page 101 for Initial and Reacceptance testing.

Establishing control panel-to-EDGE-CU communication

Notes

- The USB port on the CPU main board requires a Type C cable. For connecting the control panel to the project computer for programming, a USB-C to USB-C or USB-C to USB-A cable is required.
- The Windows-based Remote Network Driver Interface Specification (RNDIS) driver is required on the project computer to provide the programming interface between the computer and CPU. Refer to the *EDGE-CU Release Notes* for instructions on installing the RNDIS driver.
- To avoid possible failure of the download process due to a login/logout error, any Wi-Fi or other network adapters should be disabled on the project computer. Only the USB RNDIS connection should be enabled during the download process.
- A Remote Write Unlocked local monitor event appears in the Other queue and the operator alert signal sounds when the control panel is unlocked. Both are restored to normal after the control panel is restored to its default setting when the access is cancelled by the programmer or the access period expires.

To connect communication between the EDGE control panel and the EDGE-CU:

1. Disable or disconnect any Wi-Fi or other network adapters on the project computer. Only the USB RNDIS connection should be enabled during the download process.
2. Connect the Type C end of a USB cable to the J2 or J3 USB port on the CPU. See Figure 33 on page 69.
3. Connect the other end of the cable to the USB port on the computer with the project database.

4. From the control panel LCD screen:

   In the Navigation tools on the Banner bar, tap the Menu ☰ button, and then tap Access PIN.

   On the Access PIN screen, tap 1 Hour Access PIN or 8 Hour Access PIN, to obtain an EDGE-CU required access code that will allow read access.

5. From the EDGE-CU:

   On the Home tab, click Enter PIN.

   Enter the PIN, and then click Validate.

   On the Home tab, click Query Network, and then Refresh. The query returns network information that includes node MAC addresses. The window remains open until you close it.

6. Disconnect communication when you have finished downloading/uploading data:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

Obtaining the control panel node MAC address

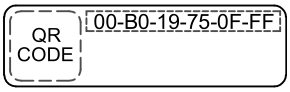
Each control panel with a CPU board is referred to as a “node” in the EDGE network. Each CPU has a unique MAC address that is used to identify the node in the EDGE network. The MAC address must be entered in the EDGE-CU for the CU to be able to communicate with the control panel.

See *EDGE-CU Help* for information on entering MAC addresses in the EDGE-CU.

The MAC address can be obtained from node’s product label or by querying the network.

To find the MAC address on the node-CPU product label:

1. From the control panel, before you install the main electronics assembly, locate the product label on the front, bottom left corner of the CPU board.

   Manually record the MAC address shown on the label onto the node list sheet.

   — or —

   Scan the QR code and save it to record later.

Note: When you enter the address in the EDGE-CU, you must use this format: xx-xx-xx-xx-xx-xx (e.g., 00-b0-19-78-ef-0a). See *EDGE-CU Help* for information on entering MAC addresses in the CU.

To find the MAC address on the control panel System Information report:

1. From the control panel LCD screen:

   Tap the Menu ☰ button, and then tap Panel Reports.

   Tap the System Info button.

   On the System Information report, locate IP/DNS node name.

   The address shown in the report is prefaced by the words “IP/DNS node name.” Record only the numeric address (e.g., 00B01978EF0A).

Note: When you enter the address in the EDGE-CU, you must use this format: xx-xx-xx-xx-xx-xx (e.g., 00-b0-19-78-ef-0a). See *EDGE-CU Help* for information on entering MAC addresses in the CU.

To query the control panel:

1. Enable control panel-to-EDGE CU communication as instructed in “Establishing control panel-to-EDGE-CU communication” on page 66..
2. After control panel-to-EDGE CU communication is established, from the EDGE-CU:

   On the Home tab, click Query Network, and then Refresh. The query returns network information that includes node MAC addresses. The window remains open until you close it.

   Copy the node MAC address.

   In the Active Project panel, select the Panel category.

   Copy the MAC address property from the Query Network screen, and then on the Properties grid for the panel, enter or copy and paste the address. Use this format: xx-xx-xx-xx-xx-xx (e.g., 00-b0-19-78-ef-0a).
3. From the control panel LCD screen, disconnect communication when finished entering the MAC address:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

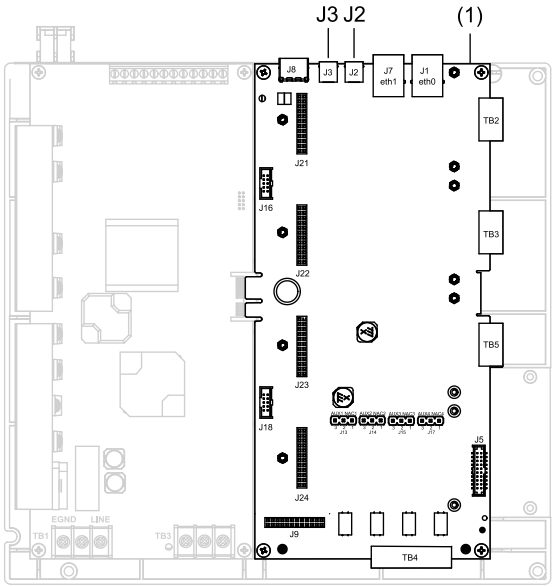
   Disconnect the USB cable from the control panel and computer.

Downloading the EDGE-CU firmware and project database to the control panel

You can download firmware and project databases from the project computer to the control panel through a USB connection. The control panel CPU is blocked by default to disallow unauthorized database changes. An authorization code must be obtained from the control panel and entered into the EDGE-CU that activates the Remote Write Unlock command and allows the download.

Note: This function should only be used by the installer or service provider. Changes to the control panel must be tested and may require local authority approval.

Figure 33: Download ports on the CPU



(1) CPU board

Downloading firmware to the control panel

The control panel allows you to download the EDGE-CU firmware into the CPU directly from a computer through the USB Type C port on the CPU board.

There are three steps in downloading the firmware to the control panel:

- Step 1: Download the firmware file.
- Step 2: Update the location of the firmware file in the EDGE-CU project.
- Step 3: Download the firmware and configuration to the control panel.

Notes

- It is recommended that *before* downloading to a system control panel you save the EDGE-CU project.
- A Remote Write Unlocked local monitor event appears in the Other queue and the operator alert signal sounds when the control panel is unlocked. Both are restored to normal after the control panel is restored to its default setting when the access is cancelled by the programmer, or the access period expires.

Step 1: Download the firmware file:

1. Download the firmware file to any location on the computer with the EDGE-CU:

   Enter www.edwardsfiresafety.com in your web browser, and then at the bottom of the page click MyEddie Login to log on to the My-Eddie website.

   Locate the EDGE-CU firmware file in Resources & Training > Software, and then download the file.

Step 2: Identify the firmware location in the EDGE-CU:

1. From the EDGE-CU:

   In the Active Project panel, click the top-level project category.

   In the Properties panel, Other category, select the Firmware File box, and then click the Browse […] button.

   Browse to the location of the firmware file (.zip file type).

   Select the file, and then click Open.

Step 3: Download the firmware to the control panel

1. Enable control panel-to-EDGE CU communication as instructed in “Establishing control panel-to-EDGE-CU communication” on page 66.
2. After control panel-to-EDGE CU communication is established, from the EDGE-CU:

   On the Home tab in the Active Project panel, select the Panels > Panel category.

   On the Home tab, click Transfer.

   A Files Transferred count displays in the lower left side of the CU window. When the transfer is finished, the CU displays an Information message “Project Transferred Successfully.” Click OK.

   The control panel reboots when the download is complete.
3. Disconnect communication when you have finished downloading:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

Downloading a project database

The control panel allows you to download the project database into the CPU directly from a computer through the USB Type C port (J2/J3) on the CPU board.

Notes

- It is recommended that *before* downloading to a system control panel you save the EDGE-CU project.
- A Remote Write Unlocked local monitor event appears in the Other queue and the operator alert signal sounds when the control panel is unlocked. Both are restored to normal after the control panel is restored to its default setting when the access is cancelled by the programmer, or the access period expires.

To download the project database:

1. Enable control panel-to-EDGE CU communication as instructed in “Establishing control panel-to-EDGE-CU communication” on page 66.
2. From the EDGE-CU:

   In the Active Project panel, select the Panels > Panel category.

   On the Home tab, click Transmit.

   A Files Transferred count displays in the lower right side of the CU window. The CU display an Information message “Project Transferred Successfully.” Click OK.

   The control panel reboots when the download is complete.
3. Disconnect communication when you have finished downloading:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

Logging on and off the control panel

Certain user interface controls and functions are password protected, requiring the user to log on. The user password is comprised of a 3-digit user ID and 4-digit PIN (example, 0011234) as assigned by the system administrator.

To log on to the control panel:

1. On the banner bar, tap Sign In.
2. Enter your 3-digit user ID and 4-digit PIN provided by the administrator. Example, 0011234.

   The Sign In button changes to the User icon.

To log off from the control panel:

1. On the Action bar, tap the User icon, and then tap Sign Out.

User administration

Certain user interface controls and functions are password protected and have a fire privilege level that is determined by the market setting or programming administrator. By default, the 7-digit user password is comprised of a 3-digit user ID and a 4-character password.

The user access time out is a configurable setting in the EDGE-CU. The default setting is 5 minutes. When the user timeout period expires, the control panel reverts to the default fire privilege level (ID 0).

Table 19 below shows the default user IDs and passwords, and the fire privilege level pre-assigned to each user ID.

Table 19: Default user IDs, passwords, and fire privileges

User IDs	Default password [1]	Default fire privilege level [2]
None (no sign in, ID 0)	–	0
001	1234	1
002 (administrator)	1234	2

[1] It is recommended that you change the default password to a more complex password once the control panel is put into service.

[2] See Table 9 on page 15 for a list of fire privileges by level.

Changing user passwords

Notes

- User ID 001 can change their own password.
- User ID 002 (administrator) can change their own password and the password for user ID 001.

To change your user ID 001 password:

1. Tap the Sign In button in the banner bar navigation tools.
2. Enter user ID 001 and your password, and then tap Sign In.
3. Tap the User button, and then tap Change Password.

4. In the New Password box, enter the new password, and then enter it again in the Confirm Password box.
5. Click Change Password.

To change the user password for ID 001 and ID 002 as administrator:

1. Tap the Sign In button in the banner bar navigation tools.
2. Sign in as user ID 002 (administrator), and then tap Sign In.
3. Tap the User button, and then tap Reset Password.
4. Select the user ID number.
5. In the New Password box enter the new password, and then tap Reset Password.

   Note: If you are resetting the user ID 001 password, it is recommended you advise them to change the password to a personal password.

To reset an unknown administrator password (user ID 002):

1. If the administrator does not know their password, contact Edwards Technical Support at +1 800 655 4497 to reset the password.
2. After regaining control panel access, it is recommended that you change the temporary password provided by Edwards Technical Support

Setting the system date and time

The control panel incorporates a system clock to time stamp events and to activate time controls. The time is presented in 24-hour format. The date format is determined by the EDGE-CU project property setting. The default format is presented in month-day-year.

Note: Only users with fire privilege 1 and higher can access the system clock function.

To set the system date and time:

1. Sign in as fire privilege 1 or higher, and then tap the Menu button.
2. Tap Panel Commands, and then tap Set Date & Time.
3. Use the interface rotary pad to select the date and time.

   The default format is YYYYMMDD hhmm. Where,

   YYYY = 4-digit year
   MM = 2-digit month
   DD = 2-digit day
   hh = 2-digit hour
   mm = 2-digit minutes

   Note: The time is entered in 24-hour format, for example:

   0000 = midnight
   0100 = 1:00 a.m.
   1200 = noon
   1300 = 1:00 p.m.
   2359 = 11:59 p.m.
4. Tap Issue Command. The date and time at the top of the user interface screen immediately changes.

Changing the LCD screen to an alternate language

For control panels configured in the EDGE-CU for an alternate language, you can toggle between the primary and alternate language using the language option in the Menu ☰. The language option shows the primary and alternate language. For example, English | Española.

When the alternate language button is tapped, the names on LCD screen buttons, lists, and indicators and the text in event messages switches to the alternate language. Device labels will also change to the alternate language label configured in the EDGE-CU.

Notes

- Custom event message text does not switch to the alternate language.
- The LCD screen defaults to the primary language at control panel startup.

To change the LCD screen to the alternate language:

1. Tap the Menu ☰ button.
2. Tap the alternate language button to toggle between the primary alternate language.

Silencing and acknowledging the operator alert signal

The control panel sounds the operator alert signal when an event message is posted into one of the event message queues. Pressing the Panel Silence button acknowledges the event message and silences the operator alert signal. The operator alert signal automatically re-sounds when a new event message is posted or when the system panel silence cancel timer expires (typically 24 hours).

Table 20 below describes the behavior of event messages.

Table 20: Event message behavior

Scenario	Event operation
No new events have activated since the last time the control panel was silenced.	The highest priority event queue displays.
New events have activated since the last time the control panel was silenced.	The first new, highest priority event displays and the buzzer sounds.
An active non-latching event is restored.	The event clears from the display queue.

Note: For nonlatching events, the operator alert signal automatically silences when the event is restored. For example, when a trouble clears.

To silence and acknowledge the operator alert:

1. Press the Panel Silence operator control button.

Silencing alarm signals

WARNING: Death or serious injury. The protected premises may be occupied. Do not silence alarm signals or reset the control panel unless you are authorized to do so and only after all occupants have been evacuated.

Pressing the Alarm Silence operator control button silences all audible alarm signals and, if configured, all visual alarm signals. Pressing the button a second time turns back on the signals.

Pressing the Alarm Silence operator control button *does not* silence alarm signals under the following conditions:

- When a waterflow alarm switch is active and the system is configured to prevent silencing alarm signals when a waterflow alarm switch is active.
- When the system is configured to delay the silencing of alarm signals (Alarm Silence Inhibit property), in which case the Alarm Silence button may not be operational for up to five minutes following the first alarm event.

Silenced outputs automatically re-sound when:

- The Alarm Silence button is pressed a second time
- Another alarm input activates
- Another alarm input in the same zone activates, unless the system is configured to prevent alarm signals from re-sounding

To silence alarm signals:

1. Press the Alarm Silence operator control button.

Resetting the control panel

WARNING: Death or serious injury. The protected premises may be occupied. Do not reset the control panel until the proper authorities have determined that the threat of fire is no longer present.

Resetting the control panel restores the system to its normal state, provided all latched inputs have been restored before the end of the reset cycle.

If alarm signal initiating devices have not been restored before the end of the reset cycle:

- Active alarm signals will remain active
- Silenced alarm signals will remain silenced

Notes

- The Reset button may be inoperable for up to three minutes following the first alarm event.
- The Reset button does not affect disabled points or manually overridden functions.

To reset the control panel:

1. Press the Reset operator control button.

Rebooting the control panel

Rebooting the system reinitializes it without removing power.

Note: Only users with fire privilege 2 and higher can access the reboot function.

To reboot the system:

1. Sign in as fire privilege 2 or higher, and then tap the Menu ☰ button.

2. Tap the desired reboot command.
   - Reboot: Reboots the local control panel.
   - Reboot All: Reboots all networked control panels.
3. Tap Issue Command.

Clearing the event history

Caution: Clearing the control panel history file permanently deletes all history data for the control panel.

The alarm history counter keeps track of how many times the control panel has entered the alarm condition. Clearing the history resets the event indicator counters on the LCD screen (Figure 3 on page 13) and erases the list of events that occurred on the control panel since it was placed into service or the last time the history file was cleared.

Notes

- Only users with fire privilege 2 and higher can access the clear history function.
- Clearing the alarm history also unfreezes and erases archived history.

To clear the alarm history:

1. Sign in as fire privilege 2 or higher, and then tap the Menu ☰ button.
2. Tap the Clear command, and then Issue Command.

Freezing the events history

When the Freeze History command is activated, the system archives the most recent events (up to 10,000) so that they cannot be overwritten.

Note: Only users with fire privilege 1 and higher can access the freeze history function.

To freeze event history:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button.
2. Tap the Freeze command, and then Issue Command.

To view or print events in the freeze history archive:

1. Enable control panel-to-EDGE CU communication as instructed in “Establishing control panel-to-EDGE-CU communication” on page 66.
2. From the control panel LDC screen:

   Tap the Menu ☰ button, and then Panel Reports.

   Tap the System Info button.

   On the System Info screen, find History Frozen and note the date and time that the Freeze history command was issued.

3. From the EDGE-CU:

   In the Active Project panel, click the Panels > Panel category of the node from which you want the events freeze history.

   On the Reports tab, click Events, and then select History.

   In the Panel Report – History dialog box, configure the report properties.

   - Start Time: Enter the desired begin date and time.
   - End Time: Enter the History Frozen information noted in step 2 above.

   Click Get Report. The history report displays listing events that occurred within the specified timeframe.

4. Disconnect control panel-to-EDGE CU communication when you have finished downloading:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

Viewing and printing event details

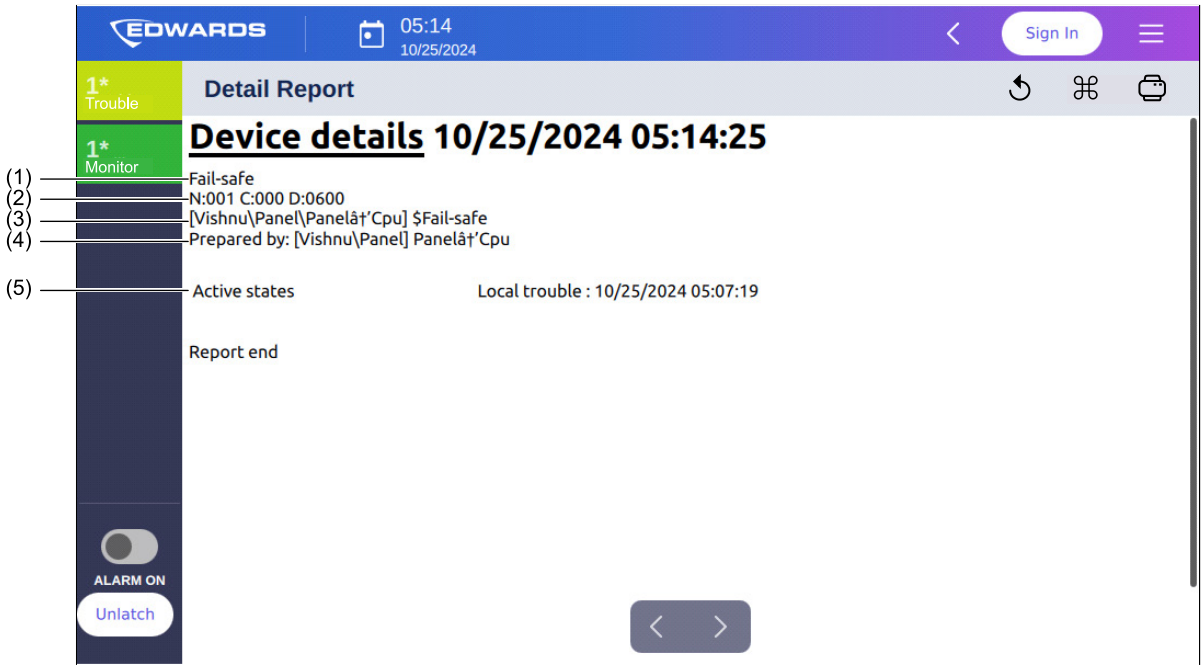
A Detail Report provides information that identifies a device that generated a system event and the event type (Figure 34 on page 77). Event details are accessed from an event on the off-normal screen or from the Find Device screen.

Device details: If a device activation causes an event, the Details screen shows the active device label, device address, and the off-normal state.

Logic group details: If a group activation causes an event, the Details screen shows the state of the device, device address, and device message, which is usually the device location.

Instruction text details: For certain system events or pseudo points, additional information text may be displayed.

Figure 34: Event Detail Report



(1) Location text
(2) Device address
(3) Path
(4) Node running the report
(5) Event type

Note: The printer button displays if a printer has been configured in the EDGE-CU project.

To view and print device details from the off-normal screen:

1. On the off-normal screen, tap Detail Report > button. The Detail Report displays.
2. To print the report, tap the print button on the Detail Report.
3. To return to the previous screen, tap the go back < button on the Detail Report.

To view device details from an event list:

1. Tap the Menu ≡ button.
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.

   Tap Find. The Detail Report displays.
3. To print the report, tap the print button on the Detail Report.
4. To return to the previous screen, tap the go back < button on the Detail Report.

Viewing and printing system reports

Reports are used to check the current condition or history of the EDGE network. EDGE system reports can be viewed and printed from either the control panel LCD screen or from the computer running the EDGE-CU.

Accessing system reports on the control panel

Table 21 below lists the reports that you can access from the control panel. The report displays on the LCD screen and can also be printed to a local printer.

Table 21: Reports accessed from the control panel

Report type	Description
Status	Lists all active events and disabled points from the selected node.
Status Test	Lists all off-normal devices under test.
Status Disabled	Lists of addressable points that are disabled.
History [1]	Lists the last 30,000 events and operator commands (10,000 latest events, 10,000 alarm events, 10,000 frozen events) processed by selected node from the current date to the beginning of the previous month.
History Alm (Alarm) [1]	Lists the event name, time, date, and location text for all alarm events from the current date to the beginning of the previous month
History Trbl (Trouble) [1]	Lists the event name, time, date, and location text for all trouble events from the current date to the beginning of the previous month.
History Sup (Supervisory) [1]	Supervisory: Lists the event name, time, date, and location text for all supervisory events from the current date to the beginning of the previous month.
Maintenance	Lists the %Dirty value for all of the smoke detectors on a signaling line circuit. The report also includes each smoke detector's model type, primary and alternate alarm sensitivity values, and, if programmed, a location description.
Maintenance Dirty	Lists all addressable smoke detectors that have a %Dirty value of 80% and greater. A smoke detector that is more than 80% dirty should be noted for possible cleaning or replacing.
Maintenance Not Clean	Lists all addressable smoke detectors that have a %Dirty value of 20% and greater. Smoke detectors that are more than 20% dirty should be cleaned or replaced as soon as possible. **Note:** The %Dirty value is an indication of a smoke detector's ability to compensate for environmental conditions. Smoke detectors with higher percentages are less able to compensate.
Maintenance Device	Lists the %Dirty value for a single smoke detector. For CO detectors the report includes CO Life Left Months or CO DAY Running. The report also includes the smoke detector's model type, primary and alternate alarm sensitivity values, and location description.
System Info	Provides a project description that includes the control panel MAC address required for communication between the EDGE-CU and control panel, and project versioning numbers. The System Information report content is described below. • IP/DNS node name: Shows the MAC address of the installed CPU (node). • System Up Time: Shows the date and time the system was started. • History frozen: Shows the date and time the Freeze history command was issued. • First Event Date: Shows the date and time of the first system event. • Most Recent Alarm Date: Shows the date and time of the most recent alarm. • Total history count: Shows a count of events or operator instructions processed by the control panel. • Alarm history count: Shows a count of how many times the control panel has entered the alarm condition.
License Info	The License Information report provides a list of open source and third-party software used in the EDGE control panel.
Revision	Provides system database information and installed hardware information. The hardware shown on the list is dependent on the devices installed in the control panel cabinet. **Initial information:** • Market: Shows the EDGE-CU market setting • Configuration Utility: Shows the EDGE-CU version • Configuration Version: Shows the EDGE-CU project version number.

Report type	Description
	• Configuration time stamp: Shows the date and time that the EDGE-CU project was created or modified. • Configuration schema: Shows the EDGE-CU firmware-to-software interface version. • Configuration messaging: Shows the EDGE-CU internal messaging protocol version. • Firmware: Shows the EDGE-CU firmware version. **LRM x information:** • LRM type • Firmware version and date • Bootloader version and date • Database version and date **CPU shows:** • CPU type • Firmware version and date • Bootloader version and date.

[1] History reports list the most recent events or operator instructions processed by the control panel for the previous month to current or since its history was cleared. To view all months, use the EDGE-CU reports feature or a web browser. The event or system command name, address, time and date of occurrence, and the source that initiated the event or command are included.

When the Freeze History command is activated, the system freezes and archives up to 10,000 of the most recent events so that they cannot be overwritten. They can, however, be erased when the Clear history command is activated. To view or print a Freeze History archive, see “Freezing the events history” on page 75.

When the Clear History command is activated, event indicator counters reset on the LCD screen and the list of events that occurred on the control panel since it was placed into service, or the last time the history file was cleared, is erased. This includes unfreezing and erasing archived history.

The report is structured with the most recent event or instruction listed first.

To view or print reports from the control panel LCD:

1. Tap the Menu ☰ button.
2. Tap Panel Reports, and then tap the desired report.

   Note: To view more reports swipe left or right on the screen.
3. To print the report, tap the print button on the Detail Report.

   Note: An EDGE CU configured printer for must be connected to the control panel.
4. To return to the previous screen, tap the go back < button on the Detail Report.

To view device reports:

See “Viewing and printing event details” on page 76.

Uploading reports to the EDGE-CU

Table 22 on page 80 lists the system reports that can be uploaded from the CPU node to the EDGE-CU, and then viewed and printed.

Table 22: System reports accessed from the EDGE-CU

Report type	Description
Project	Provides the project's name, version, and property settings. It also lists the configuration utility's version number and the fire alarm panel's configuration details.
Loops	Provides a summary of the loop configuration and a device barcode report for the selected loop.
Groups	Provides the configuration of logic groups configured.
Connectivity	Provides the configuration for Connectivity, i.e., Telco Dialer, Sur-Gard, etc.
Device Details	Provides device details from the connected panel for the selected device in the EDGE-CU.

To view and print systems reports uploaded to the EDGE-CU:

1. Enable control panel-to-EDGE CU communication as instructed in “Establishing control panel-to-EDGE-CU communication” on page 66.
2. After control panel-to-EDGE CU communication is established, from the EDGE-CU:

   On the Active Project panel, expand the Panels category, and then select the Panel node or device for which you want the upload system information.

   On the Reports tab, click desired report. If required, enter information when prompted. See Table 22 above for a description of the reports.

   The report is displayed on the screen. To print or save the report, refer to *EDGE-CU Help* for instructions.
3. Disconnect communication when you have finished:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel PIN. This will block read access.

   Disconnect the USB cable from the control panel and computer.

Disabling and enabling devices

Devices include input and output circuits, detectors, and modules. Disabling a device isolates it from the system. While the device is disabled, the EDGE control panel logs the status change signals, but is prevented from processing the signals until the device is enabled. For example, the control panel does not activate an alarm event when you activate a disabled detector, but it will after the detector is enabled.

The control panel keeps track of how many times you disable a device without enabling it. You must enable a device the same number of times you disable it in order to return the device to its original condition. The Status Disabled report provides a counter that shows the number of times the device was manually disabled.

Notes

- You cannot disable a device configured as a common alarm output.
- Disabling all of the devices in a Zone group automatically disables the Zone group. Enabling each device in a Zone group automatically enables the Zone group.
- Disabling the device address for the dialer or a dialer account deletes all event messages sent to that account before they are transmitted. The dialer still transmits the account’s test-abnormal message and any message that was in the dialer queue before the account was disabled.
- When you enable a device, all indicators and outputs activated by the device will reactivate.

To disable a device:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button

2. Tap Find Device, and then use the interface keyboard to enter the target device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Disable command, and then tap Issue Command.

To enable a device:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button.
2. Tap Find Device, and then use the interface keyboard to enter the target device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Enable command, and then tap Issue Command.

   Note: Enable the device the same number of times that you disabled it. If necessary, view the Status Disabled report to see the manual disable counter (Menu ☰ > Panel Reports > Status Disabled).
5. A warning screen appears before enabling the device. Note that the panel will go into alarm if you enable a disabled device that is still in alarm state. Tap OK to enable the device or Cancel to cancel the action.

Disabling and enabling modules installed in the panel

Disabling CPU main board SLC expansion modules or UI frame assembly control-display modules isolates the module from the system. While the module is disabled, the EDGE control panel logs the status change signals, but is prevented from processing the signals until the module is enabled.

Note: The control panel keeps track of how many times you disable a module without enabling it. You must enable a module the same number of times you disable it in order to return the module to its original condition. The Status Disabled report provides a counter that shows the number of times the device was manually disabled.

To disable an LRM:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the LRM address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Disable command, and then tap Issue Command.

To enable an LRM:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button.
2. Tap Find Device, and then use the interface keyboard to enter the LRM address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Enable command, and then tap Issue Command.

   Note: Enable the LRM the same number of times that you disabled it. If necessary, view the Status Disabled report to see the manual disable counter (Menu ☰ > Panel Reports > Status Disabled).

Disabling and enabling logic groups

A group is a *logic* device that is created in the EDGE-CU. Groups are required in order to execute certain system functions, but groups bear no physical relationship to the system. For example, smoke detectors can be assigned to the same Zone group even though they are not attached to the same wire run.

Disabling a group isolates it from the system. While the group is disabled, the EDGE control panel is prevented from processing status change signals from every device in the group until the device is enabled. For example, in a Zone group, the control panel does not activate an alarm event when you activate a disabled detector, but it will after the detector is enabled.

The control panel keeps track of how many times you disable a logic group without enabling it. You must enable a logic group the same number of times you disable it in order to return the group to its original condition. The Status Disabled report provides a counter that shows the number of times the device was manually disabled.

Note: If you disabled a Zone logic group by disabling all of the devices in the zone, enabling the zone enables all of the devices in the zone.

The logic groups are listed below.

- Zone group: A collection of input devices that are grouped in the database to provide a unique response separate from their individual device responses. Zone groups can be configured to go into alarm when any member of the group goes active or when any device in the group goes into trouble.
- AND group: A collection of devices that are grouped in the database to provide a group response that is separate from that of its member devices. An AND group activates when a specified number of devices change to a specified state. The specified state can be alarm, supervisory, trouble, monitor, or not active (NA). AND groups can be configured to signal an alarm, supervisory, trouble, or monitor condition upon activation.
- Service group: A collection of devices that are grouped together in the database to provide a unique response for testing purposes. When enabled, the Service group automatically disables the member device's normal alarm response and provides a common alternate test response.
- Command group: A collection of commands and the group of devices you want the command to target.
- Base group: A collection of relay and sounder bases.
- Event Routing: A collection of event routing to CMS accounts.

To disable a group:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the group address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Disable command, and then Issue Command.

To enable a group:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button.
2. Tap Find Device, and then use the interface keyboard to enter the group address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Enable command, and then Issue Command.

   Note: Enable the group the same number of times that you disabled it. If necessary, view the Status Disabled report to see the manual disable counter (Menu ☰ > Panel Reports > Status Disabled).

Activating alarm signals manually

The EDGE drill feature lets you activate alarm signals manually without putting the control panel into alarm. When you activate a drill, all audible alarm signals turn on and, if configured, all visual alarm signals, but other automatic fire alarm responses are not activated. The alarm signals remain active until the drill is canceled.

To activate a drill:

1. Press the Fire Drill operator control button.

To cancel a drill:

1. Press the Fire Drill operator control button.

Testing the system and devices

Test commands are used to perform periodic inspection tests on the control panel.

Performing an indicator test (lamp test)

Use the Indicator Test command to verify the operation of the LCD screen, LED indicators, and any installed control-display module LEDs. The Indicator Test command temporarily turns on the operator alert signal, all LED indicators, and every pixel on the LCD screen.

Notes

- A control-display module switch can also be programmed to activate the LampTestOn command.
- The indicator test function may be programmed for a fire privilege level password; however, the default setting is no PIN required.

To activate an indicator test:

1. Tap the Menu ☰ button, and then tap Panel Commands.
2. In the Panel Commands list, tap Indicator Test.

   A color-cycle test starts for the LCD, control panel LEDs, and installed control-display module LEDs.

Testing Signature devices

Use commands accessed from the control panel LCD screen to remotely place a Signature device into the alarm, prealarm, monitor, supervisory, or trouble condition for testing purposes. Signature devices include all detectors and modules. To test a Signature device, the device must be connected to a signaling line circuit.

Note: For latching devices, you must reset the control panel to restore the tested device to its normal state. Nonlatching devices restore automatically without resetting the control panel.

To place a Signature CO or optical smoke detector into test state:

1. Sign in as fire privilege 2 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.

4. Tap the Accelerate Test On command, and then Issue Command.
5. Return the detector to normal sensing rates by tapping the Command & Controls ⌘ button on the Detail Report screen and issuing the Accelerate Test Off command.

To place a Signature device into test state:

1. Sign in as fire privilege 2 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Test Trouble command, and then Issue Command.

To place a Signature device into alarm, monitor, or supervisory state:

1. Sign in as fire privilege 2 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Activate 1 Test command, and then Issue Command.

To place a Signature device into prealarm state:

1. Sign in as fire privilege 2 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Activate 2 Test command, and then Issue Command.

Testing alarm input devices

In order to test an alarm input device, the device must be part of a Service group that was created in the EDGE-CU. Service groups allow alarm input devices to be activated without placing the system into alarm. The protected premises may be divided into more than one Service group to make testing possible without leaving the entire premises unprotected.

Note: The alarm input test automatically times out after approximately 1-hour of inactivity.

To put a Service group into test:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the group address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Activate Service Group command, and then Issue Command.
5. Stop the test by tapping the Command & Controls ⌘ button on the Detail Report screen and issuing the Restore Service Group command.

Changing output states

Open the Command & Control pop-up window from the Detail Report to issue On and Off commands that change the output state of relays, NAC circuit outputs, and audio amplifiers.

To activate an output state:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the On command, and then Issue Command.
5. Restore to normal sensing rates by tapping the Command & Controls ⌘ button on the Detail Report screen and issuing the Accelerate Test Off command.

To restore a relay output state:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the device address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Off command, and then Issue Command.

Changing a smoke detector alarm sensitivity threshold

Intelligent addressable smoke detectors are configured with two alarm sensitivity thresholds: primary and alternate. The alarm sensitivity setting determines how much smoke is needed for the automatic fire detectors to sense a fire alarm condition. This allows you to increase or reduce an individual detector's sensitivity at various times of the day, dependent upon, environmental conditions, occupancy, manufacturing processes, etc.

A time control is commonly used to automatically switch alarm sensitivity thresholds. However, you can manually switch alarm sensitivity thresholds by using a command button.

Primary alarm sensitivity threshold

Typically, the primary alarm sensitivity threshold is set to a lower threshold. This threshold is commonly used for a daytime operation to reduce the occurrence of nuisance alarms when a facility is occupied, or when environmental conditions may create prealarm conditions.

Alternate alarm sensitivity threshold

The alternate alarm sensitivity threshold sets the *secondary threshold* at which the smoke detector activates an alarm event. Typically, the alternate threshold is set to a higher sensitivity threshold. This threshold is commonly used for a nighttime or weekend operation when the facility is unoccupied.

Alarm sensitivity settings

Alarm sensitivity settings are expressed in percent of smoke obscuration per foot. The setting defines the threshold at which the detector will change to the alarm state when the smoke in its sensing chamber exceeds the obscuration per foot threshold. The alarm sensitivity levels for Signature devices are described below.

Note: When smoke detectors having both ionization and photoelectric elements are used, the sensitivity setting applies to both elements.

- Most: Activates an alarm event when the smoke level reaches approximately 1.0 %/ft. obscuration (0.7 %/ft. for ionization detectors)
- More: Activates an alarm event when the smoke level reaches approximately 2.0 %/ft. obscuration (1.0 %/ft. for ionization detectors)
- Normal: Activates an alarm event when the smoke level reaches approximately 2.5 %/ft. obscuration (1.2 %/ft. for ionization detectors)
- Less: Activates an alarm event when the smoke level reaches approximately 3.0 %/ft. obscuration (1.4 %/ft. for ionization detectors)
- Least: Activates an alarm event when the smoke level reaches approximately 3.5 %/ft. obscuration (1.6 %/ft. for ionization detectors, 2.46 %/ft. for a SIGA-SD Duct Smoke Detector)

Toggling the sensitivity threshold

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button.
2. Tap the Toggle Alternate Sensing command, and then Issue Command.
3. To switch back to primary alarm sensitivity:

   Tap the Toggle Alternate Sensing again, and then Issue Command.

Control-display modules

Control-display modules provide additional operator interface capability. The EDGE 24L series modules provide pockets for inserting custom labels. The labels can be printed using the EDGE-CU configuration utility.

Model [1]	Description
EDGE-24L	24 indicators
EDGE-24L12S	24 indicators and 12 switches
EDGE-24L18S	24 indicators and 18 switches
EDGE-24L24S	24 indicators and 24 switches

The switches on a control-display module use one of three available operating modes that are database configured.

- **Toggle:** The state of the switch changes each time the switch is pushed (i.e., off to on or on to off). Toggle switches are commonly used to control two-state operations such as on/off, open/close, speaker select, telephone select, etc.
- **Interlocked:** Adjacent toggle switches that operate as a group. Pushing any switch in the group turns the output of the other two switch off and turns its own output on. The interlocked mode is commonly used for hand-off-auto control of HVAC systems. An interlocked switch in the On state can be turned off without

activating a second switch by pressing the On switch a second time. The output of the On switch remains on during control panel reset. It must be manually returned to auto when no longer required.

- **Momentary:** The switch is on only while pressed by the operator. Momentary switches are typically used to activate functions that are self-restoring. Examples include lamp test, function reset, and test sequence.

You may find multiple switch modes on a single control-display module. Consult your site-specific documentation for additional information.

Disabling and enabling control-display modules

Disabling a control-display module isolates it from the system. While disabled, changes to the module's state are not processed. When the module is disabled, a Disabled Active event shows in the Trouble queue.

Enabling a control-display module re-establishes it as part of the system. When enabled, any changes in state that occurred while the module was disabled are not processed.

To disable the control-display module:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the control-module address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Disable command, and then Issue Command.

To enable the control-display module:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the control-module address. Where, NNN = Node number, CCC = Hardware/module slot address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Enable command, and then Issue Command.

Disabling and enabling control-display module elements

Control-display module switches

To disable the control-display module switch:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the target switch address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Disable command, and then Issue Command.

To enable the control-display module switch:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the target switch address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.

4. Tap the Enable command, and then Issue Command.

Control-display module LEDs

To disable the control-display module LED:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the target LED indicator address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Disable command, and then Issue Command.

To enable the control-display module LED:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the target LED indicator address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Enable command, and then Issue Command.

To set the control-display module LED mode:

1. Sign in as fire privilege 1 or higher, and then tap the Menu ☰ button
2. Tap Find Device, and then use the interface keyboard to enter the target LED indicator address. Where, NNN = Node number, CCC = Hardware/module address, DDDD = Device point address.
3. On the Detail Report screen, tap the Command & Controls ⌘ button.
4. Tap the Enable command, and then select one of the following:
   - Steady (turns on the LED to steady)
   - Fast (turns on the LED to fast blink)
   - Slow (turns on the LED to slow blink)
   - Off LED (turns off the LED)
5. Tap Issue Command.

Chapter 5
Supplementary applications

Summary

This chapter provides installation information for system components and applications that supplement the instructions provided on individual component installation sheets.

Content

External connections

The EDGE external connections feature is used to allow transmission of system events through an EDGE control panel to external devices such as computers, printers, and smartphones. Communication occurs over Ethernet using external connections described in this section.

External connectivity services are configured using the EDGE-CU. Before starting the configuration process, you need to gather configuration settings. To guide you through what information to gather, download the *EDGE Network Services Configuration Worksheet* (P/N 3102901) from the My-Eddie website. To access the website, enter my-eddie.com in your web browser. Log on to the My-Eddie website, and then locate the worksheet in Resources & Training.

Table 23 below shows the maximum number of services that can be configured for the control panel. The connectivity services can be any combination of different services but cannot exceed a maximum of eight for the control panel.

Table 23: External connectivity services

External connection	Allowed connections	Description
Printer	1	Used to send control panel events to a PT-1S+ printer.
Telco Dialer	1	Used to send control panel events to a CMS by way an SA-DACT dialer.
Sur-Gard [1]	8	Used to send control panel events to a CMS by way of Ethernet or SA-DACT dialer.
Max. allowed	**8**	

[1] A project can have up to eight Sur-Gard connections per fire panel node provided you do not specify any other external connections. Each Sur-Gard connection can send event codes to one or more CMS accounts, but you cannot have more than eight Sur-Gard CMS accounts in a project

PT-1S+ printer communication

The PT-1S+ printer can be connected to one of the two RJ45 connections available on the EDGE control panel electronics assembly CPU board. To enable control panel-to-printer communication, you must configure the Printer connectivity service in the EDGE-CU. Once communication is established, the printer can provide a printout of system events such as status changes, active events, and reports.

See Table 23 above for the number of allowed connections. For instructions on configuring the Printer connectivity service, refer to *EDGE-CU Help*.

Central Monitoring Station communication

The Telco Dialer and Sur-Gard connectivity services are used to allow EDGE control panel-to-CMS communication.

Telco connectivity service

The Telco Dialer connectivity service allows an EDGE control panel to communicate system events to a CMS by way an SA-DACT dialer.

See Table 23 above for the number of allowed connections. For instructions on configuring the Telco Dialer connectivity service, refer to *EDGE-CU Help*.

Sur-Gard connectivity service

The Sur-Gard connectivity service allows an EDGE control panel to communicate system events to a CMS by way of Ethernet as an alternative to, or in conjunction with, an SA-DACT dialer.

See Table 23 on page 90 for the number of allowed connections. For instructions on configuring the Sur-Gard connectivity service, refer to *EDGE-CU Help*.

Central Monitoring Station AC failure reporting

The EDGE control panel uses an SA-DACT dialer to communicate system events to a CMS. When it is necessary to delay reporting of AC failures or to prevent intermittent failures from being sent to a CMS, correlations must be configured.

Note: Use the EDGE-CU to configure the delay of AC fail reporting. For help configuring settings and correlations, refer to *EDGE-CU Help*.

In the programming instructions below, when the AC pseudo point is activated by disconnecting power to the panel, its routing to the CMS will be delayed because the CMS first trouble is delayed by the AC Trouble Delay setting. The AND group activates after configured trouble delay time, and its activation is sent to CMS.

To configure the panel to delay AC fail reporting:

1. Open the project in the EDGE-CU.
2. Configure the AC Trouble Delay setting for the project to the desired time.
3. Create a Local Trouble type AND group.

   Set the Event Routing to All.

   Set the Activation count as 2.
4. Set Event Routing for pseudo point 0614 AC and pseudo point 0019 CMS First Trouble to None.
5. Add a correlation with pseudo point 0614 AC as the input and the AND group as the output.
6. Add a correlation with pseudo point 0019 CMS First Trouble as the input and the AND group as the output.

R-Series remote annunciators

R-Series remote annunciators communicate with the EDGE control panel over the TB5 RS-485 connection on the control panel CPU board. The annunciators provide common control switches, system status indicators, zone event messages, and zone status indicators at remote locations throughout the protected premises.

Operating power can come from one of the following sources:

- AUX power from the control panel CPU board TB2 connector (see Figure 19 on page 41)
- Continuous AUX power from the control panel CPU board TB4 connector (see Figure 19 on page 41)
- An auxiliary/booster power supply that is UL/ULC Listed for fire protective signaling systems

EDGE control panel compatible R-Series remote annunciator models are shown in Table 24 below. For details on R-Series annunciators, see *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919).

Table 24: Compatible R-Series remote annunciators

Model	Description
RLCD-C-2	Remote LCD text annunciator with common controls and indicators.
RLCD-2	Remote LCD text annunciator with indicators (no common controls).
RLED-C-2	Remote LED annunciator with common controls and 16 pairs of programmable LEDs. The first 12 pairs are dedicated red-over-yellow LEDs. The last four pairs can be configured in the EDGE-CU as red-over-yellow LEDs or as yellow-over-yellow LEDs.

Model	Description
RLED24-2	Remote annunciator LED expander with 24 pairs of programmable LEDs. The top 12 pairs are dedicated red-over-yellow LEDs. The bottom 12 pairs can be configured in the EDGE-CU as red-over-yellow LEDs or yellow-over-yellow LEDs.

DIP switch setting

The R-Series remote annunciator must be configured with a unique address. Configuration settings are done on the S1 DIP switch on the back of the annunciator. Refer to Table 25 below for descriptions of each S1 DIP segment (switch).

Note: S1 DIP switch segment 7 *must* be set to ON for annunciator communication with the EDGE control panel. In the ON position, R-Series remote annunciators support Class B/DCLB and redundant Class B/DCLB wiring.

Figure 35: LCD model DIP switch (S1)

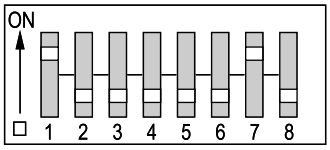


Table 25: S1 DIP switch settings

Switch	Description
1 to 5 [1]	Annunciator address (in binary): The factory preset address is 2. Possible values are 1 to 31.
6	Baud rate: OFF = Factory default setting, 9600 baud ON = For EDGE control panel communication
7	Annunciator circuit type: OFF = Circuit supports Class B/DCLB and redundant Class B/DCLA wiring ON = Circuit supports Class A/DCLA wiring **Note:** Switch 7 *must* be set to ON for EDGE control panel communication.
8	Not used

[1] For examples of DIP switch address settings, refer to the *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919).

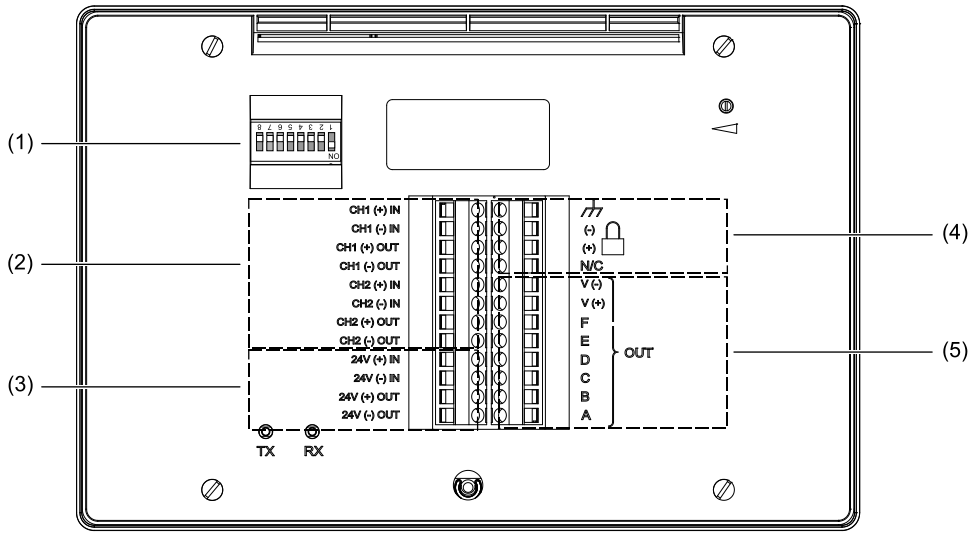
Annunciator wiring

Install and wire devices in accordance with applicable national and local codes, ordinances, and regulations.

Notes

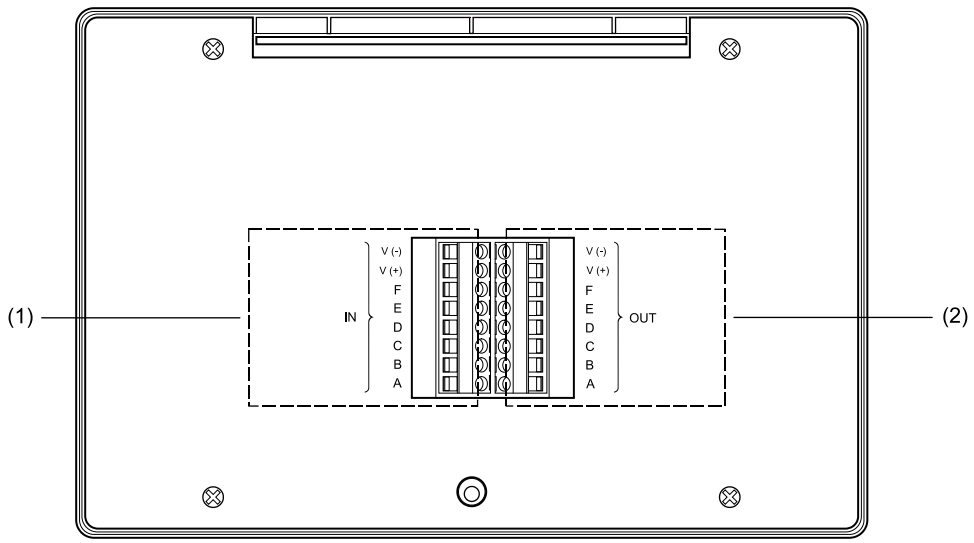
- All wiring is supervised and power-limited.
- For more about R-Series annunciators, see the *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919).
- For more about the RKEY, see the *RKEY Annunciator Key Switch Installation Sheet* (P/N 387459).

Figure 36: RLCD-2 and RLCD-C-2 annunciators rear view



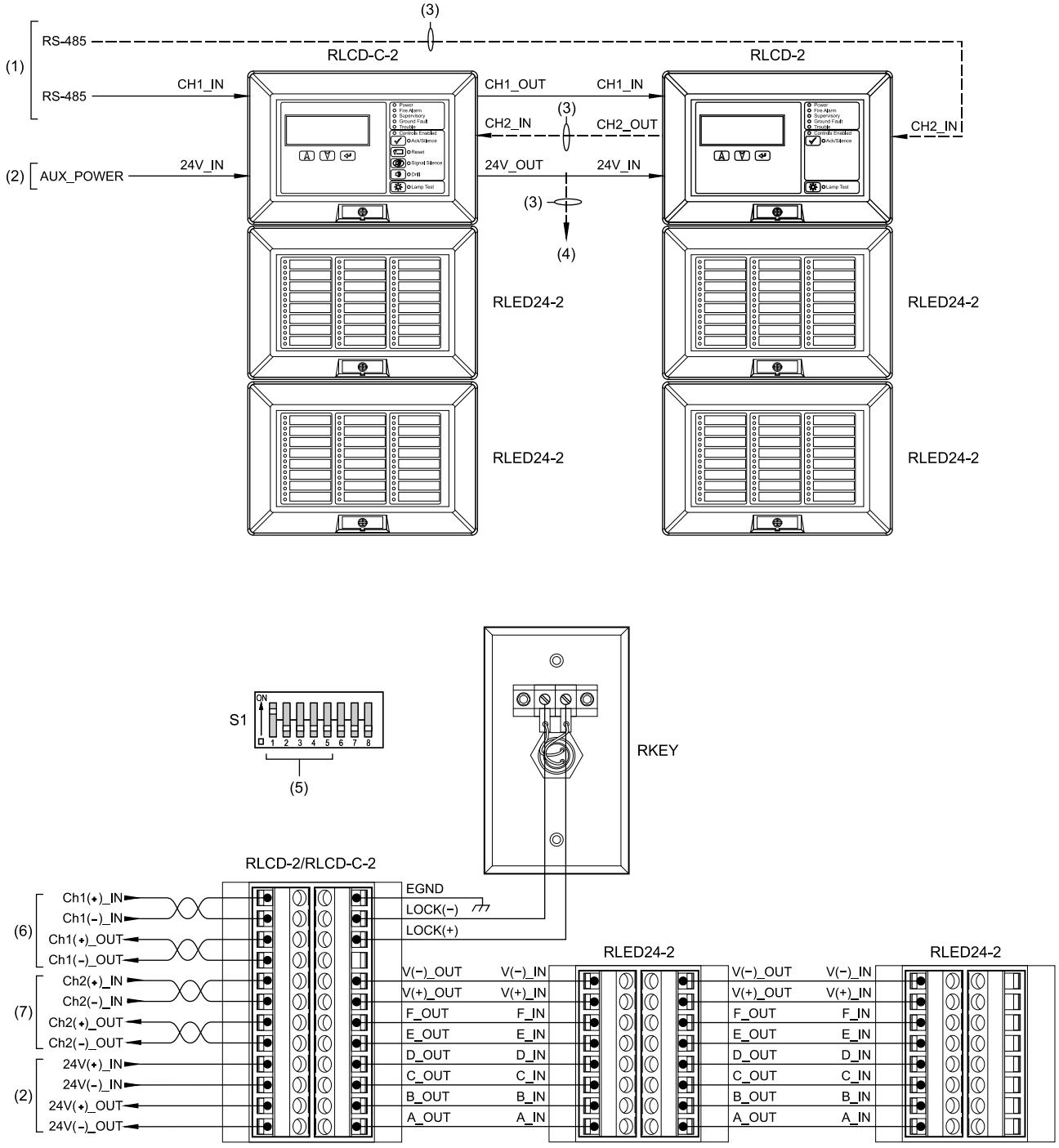
(1) DIP switch
(2) Annunciator bus IN/OUT terminals
(3) Power rise IN/OUT terminals
(4) Remote key switch terminals
(5) Expander cable terminals

Figure 37: RLCD-2 and RLCD-C-2 annunciators rear view



(1) Expander cable IN terminals
(2) Expander cable OUT terminals

Figure 38: RLCD annunciator wiring and annunciator wiring to RKEY key switch



Legend

(1) Control panel CPU board TB5

(2) Use the control panel power supply or a 24 VDC, continuous, regulated, power supply that is UL/ULC Listed for fire protective signaling systems.

(3) Redundant Class B/DCLA wiring only

(4) To dedicated power source (redundant Class B/DCLA wiring only, see note below)

(5) Address 1 to 30 in binary (address 1 shown; refer to the *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919) for address examples)

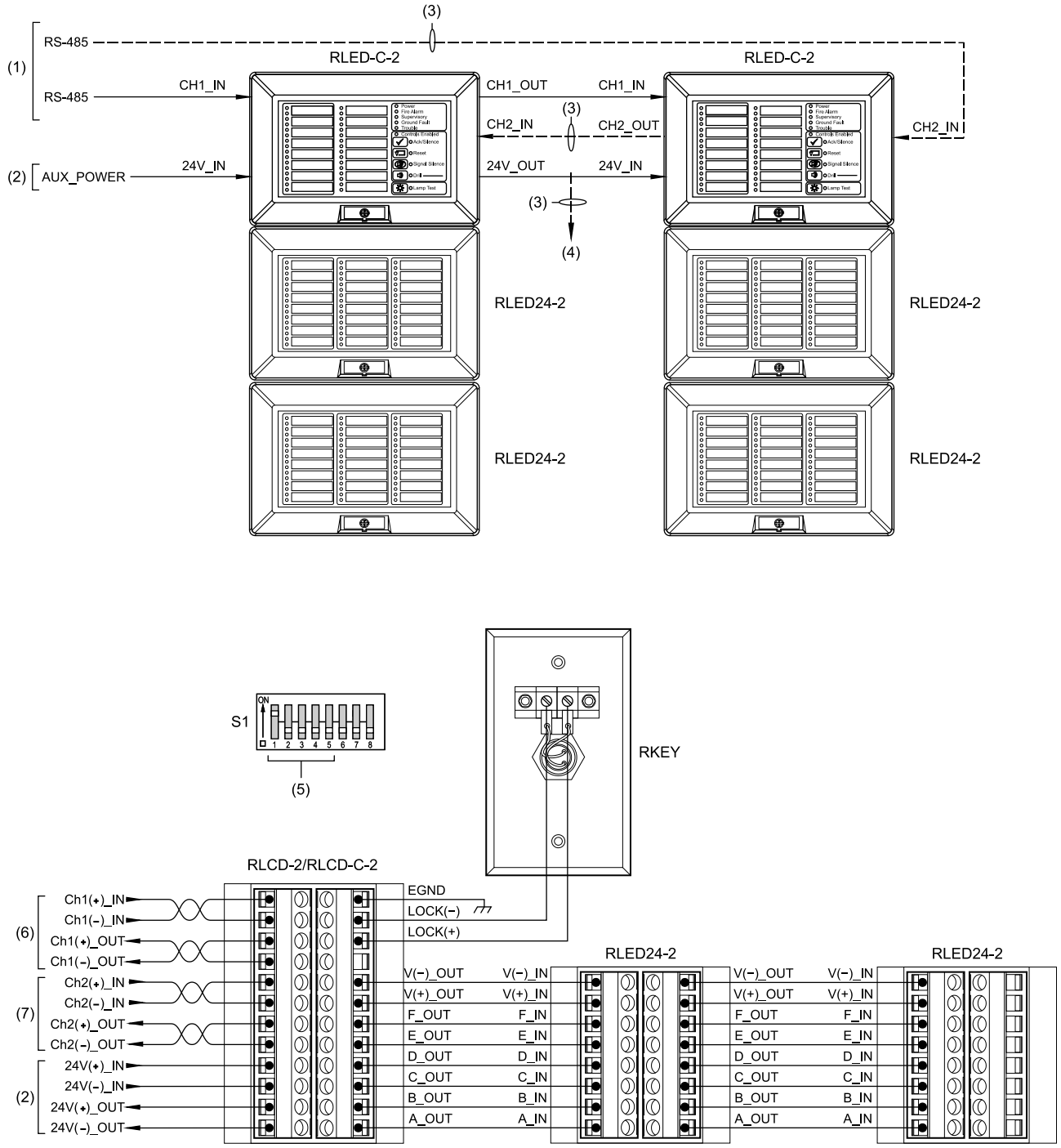
(6) CH1_IN+/− from the control panel or previous annunciator. CH1_OUT+/− to the next annunciator or to the control panel if it is the last annunciator on a Class A circuit.

(7) CH2_IN+/− from the control panel or previous annunciator. CH2_OUT+/− to the next annunciator. Used only on redundant Class B/DCLA circuits.

Notes

- Use RLCD firmware version 4.xx or later.
- For redundant Class B/DCLA, each annunciator must have a dedicated power source that must be located in the same room. The wiring must be 20 ft. (6.1 m) or less and installed in conduit.

Figure 39: RLED annunciator wiring and annunciator wiring to RKEY key switch



Legend

(1) Control panel CPU board TB5

(2) Use the control panel power supply or a 24 VDC, continuous, regulated, power supply that is UL/ULC Listed for fire protective signaling systems.

(3) Redundant Class B/DCLA wiring only
(4) To dedicated power source (redundant Class B/DCLA wiring only, see note below)
(5) Address 1 to 30 in binary (address 1 shown; refer to the *R-Series Remote Annunciator Technical Reference Manual* (P/N 3102919) for address examples)
(6) CH1_IN+/− from the control panel or previous annunciator. CH1_OUT+/− to the next annunciator or to the control panel if it is the last annunciator on a Class A circuit.
(7) CH2_IN+/− from the control panel or previous annunciator. CH2_OUT+/− to the next annunciator. Used only on redundant Class B/DCLA circuits.

Note: For redundant Class B/DCLA, each annunciator must have a dedicated power source that must be located in the same room. The wiring must be 20 ft. (6.1 m) or less and installed in conduit.

Updating R-Series annunciator firmware

R-Series annunciator firmware is part of the entire EDGE firmware package. The annunciator CPU contains two micro controllers. During the firmware download, the annunciator's main micro controller (CPU) receives the firmware from the EDGE-CU and in turn updates the firmware of the second controller and any connected expanders.

During the download, the buzzer on the R-Series annunciator sounds. On R-Series LCD series annunciators, Download in Progress displays during the download.

Notes

- The download process can take 20 minutes for *each* annunciator.
- To cancel the firmware download to R-Series annunciators, use the control panel command Cancel R-Series Firmware Download.

To download R-Series annunciator firmware:

1. Enable control panel-to-EDGE-CU communication as instructed in "Establishing control panel-to-EDGE-CU communication" on page 66.
2. On the EDGE control panel:

   Sign in as fire privilege 2, tap the Menu ☰ button, and then tap Panel Commands.

   In the Panel Commands list, tap Start R-Series Firmware Download.
3. From the EDGE-CU:

   Note: The download process to the R-Series annunciators can take 20 minutes for *each* annunciator.

   On the Home tab in the Active Project panel, select the Panels > Panel category.

   On the Home tab, click Transfer.

   The LCD screen on an R-Series LCD series annunciator displays "Download in Progress." The EDGE-CU shows a files transferred count in the lower left side of the CU window.

   When the transfer is finished, the CU displays the information message "Project Transferred Successfully." Click OK.

   The control panel reboots when the download is complete.
4. Disconnect communication when you have finished downloading:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

To cancel the R-Series annunciator firmware download:

1. During the firmware download, tap the Menu ☰ button, and then tap Panel Commands.

   Note: Requires fire privilege 2 access.

2. In the Panel Commands list, tap Cancel R-Series Firmware Download.

Chapter 6
Preventive maintenance and testing

Summary

This chapter provides instruction for maintaining and testing the EDGE control panel

Content

Visual inspections

Perform visual inspections in accordance with Table 26 below, or more often if required by the local AHJ. See Table 28 on page 102 for test methods.

Table 26: Visual inspection schedule

Component	Frequency	Recommended procedure
Radiant energy fire detectors	Monthly	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance. Clean if necessary.
Supervisory signal devices	Monthly	Verify that the module's green LED flashes. Ensure there are no changes that may adversely affect equipment performance.
Waterflow devices	Monthly	Verify that the module's green LED flashes. Ensure there are no changes that may adversely affect equipment performance.
Batteries	Semiannually	Inspect batteries for corrosion or leakage. Verify that the battery connections are tight and secure. Clean the connections, if required. Replace batteries every 5 years, or sooner if conditions warrant.
Control panel trouble signals	Semiannually	Ensure there are no changes that may adversely affect equipment performance.
Duct detectors	Semiannually	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
Electromechanical releasing devices	Semiannually	Ensure there are no changes that may adversely affect equipment performance.
Fire extinguishing systems or suppression systems	Semiannually	Ensure there are no changes that may adversely affect equipment performance.
Fire alarm boxes	Semiannually	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
Heat detectors	Semiannually	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance. Clean if necessary.
Smoke detectors	Semiannually	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance. Clean if necessary.
Interface equipment	Semiannually	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
Alarm notification appliances	Semiannually	Verify that the module's green LED flashes. Ensure there are no changes that may adversely affect equipment performance.
Supervising station control panel transmitters	Semiannually	Ensure there are no changes that may adversely affect equipment performance.
Control panel	Annually	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
Fiber optic cable connections	Annually	Inspect the cables for any visible signs of damage, loose connections, or other changes that may adversely affect performance.

Routine maintenance and tests

Perform routine maintenance and tests in accordance with Table 27 below or more often if required by the local AHJ. See Table 28 on page 102 for test methods.

Notes

- Before starting testing, notify all areas where the alarm sounds and off premises locations that receive alarm and trouble transmissions that testing is in progress.
- Keep records of all testing and maintenance on the protected premises for a period of at least five (5) years.
- A complete check of installed field wiring and devices should be made at regular intervals, in accordance with NFPA 72 and ULC 524 requirements. This includes testing all alarm and supervisory alarm initiating devices and circuits, and any off premise connections.
- Control panel operation should be verified in the alarm, supervisory, and trouble modes.
- For SIGA and SIGA2 Signature Series detector testing and maintenance procedures, refer to *Signature Series Detector Application Bulletin* (P/N 270145).

Maintenance schedule

Table 27: Routine maintenance schedule

Component	Initial and Reacceptance	Other
Control equipment [1]	Y	Quarterly/Annually
Batteries [2]	Y	Annually
Control panel trouble signals	Y	Annually
Fiber optic cable connections	Y	Annually
Smoke detectors	Y	Annually
Heat detectors	Y	Annually
Fire alarm boxes	Y	Annually
Supervisory signal devices (except valve tamper switches)	Y	Quarterly
Waterflow devices	Y	Semiannually
Valve tamper switches	Y	Semiannually
Fire extinguishing systems or suppression systems	Y	Annually
Interface equipment	Y	Annually
Audible notification appliances	Y	Annually
Textual audible notification appliances (speakers)	Y	Annually
Visible notification appliances	Y	Annually
Off-premises transmission equipment	Y	Quarterly
Supervising station fire alarm system transmitters	Y	Annually

[1] Test control equipment quarterly when it is not connected to a supervising station.

[2] Replace batteries every five years or sooner if conditions warrant.

Table 28: Routine maintenance and tests

Component	Test	Test methods
Control panel	Visual inspection	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
	Initial and Reacceptance	1. Verify that the control panel indicates open, short, and ground faults for all notification appliance circuits, initiating device circuits, and signaling line circuits. 2. Verify that the control panel activates all evacuation signals and auxiliary functions according to the site specific software. 3. Verify that all controls and indicators function as intended. 4. Disconnect the primary (mains) power. Verify that the control panel indicates an AC power failure.
	Quarterly/Annual	Test one-fourth of the entire system every three months such that the entire system is tested in a one year period or test the entire system once each year.
Standby batteries	Visual inspection	Inspect batteries for corrosion or leakage. Verify that the battery connections are tight and secure. Clean the connections, if required. Replace batteries every 5 years or sooner if conditions warrant.
	Initial and Reacceptance	1. With the control panel powered up, and with the batteries connected and fully charged, verify that the voltage across the battery terminals is the correct voltage in accordance with the battery manufacturer's specifications. 2. With the control panel under full load, disconnect the primary (mains) power. Wait until the standby operation time requirement passes then activate all alarm signals. Verify that the alarm signals remain active for at least 5 minutes for horns and strobes or 15 minutes for audio in the US, whichever is greater.
	Annual	1. With the control panel powered up, and with the batteries connected and fully charged, verify that the voltage across the battery terminals is the correct voltage in accordance with the battery manufacturer's specifications. 2. Test the capacity of the batteries using a battery tester suitable for the amp-hour rating of the batteries.
Smoke detectors	Visual inspection	1. Verify that the detector’s green LED flashes if programmed to do so. 2. Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance. Clean if necessary.
	Initial and Reacceptance	1. Remove the detector from its base. Verify that the control panel displays a trouble message that correctly identifies the detector. 2. Activate the detector. Verify that the detector’s red LED flashes and the control panel displays an alarm message that correctly identifies the detector. 3. If the detector is installed in a relay base, verify the correct operation of the relay. 4. Run a Device Maintenance Report on all the smoke detectors in the system. Verify that all sensitivity levels fall within acceptable limits. Keep a printed copy for your records.

Component	Test	Test methods
	Annual	1. Activate the detector. Verify that the detector's red LED flashes and the control panel displays an alarm message that correctly identifies the detector. 2. If the detector is installed in a relay base, verify the correct operation of the relay. 3. Run a Device Maintenance Report on all the smoke detectors in the system. Verify that all sensitivity levels fall within acceptable limits. Keep a printed copy for your records.
Heat detectors	Visual inspection	1. Verify that the detector's green LED flashes. 2. Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance. Clean if necessary.
	Initial and Reacceptance	**Caution:** Directing heated air at a single point may permanently damage the heat detector. Wave the hair blower slowly back and forth approximately 1 in. from the heat entry slots. 1. Remove the detector from its base. Verify that the control panel displays a trouble message that correctly identifies the detector. 2. Activate the detector using a commercial grade (1200 to 1500 W) hair blower. Verify that the detector's red LED flashes and the control panel displays an alarm message that correctly identifies the detector. 3. If the detector is installed in a relay base, verify the correct operation of the relay.
	Annual	**Caution:** Directing heated air at a single point may permanently damage the heat detector. Wave the hair blower slowly back and forth approximately 1 in. from the heat entry slots. 1. Activate the detector using a commercial grade (1200 to 1500 W) hair blower. Verify that the detector's red LED flashes and the control panel displays an alarm message that correctly identifies the detector. 2. If the detector is installed in a relay base, verify the correct operation of the relay.
Duct detectors	Visual inspection	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
	Initial and Reacceptance	Activate the equipment. Make sure the control panel correctly identifies the device.
	Semiannual	Activate the equipment. Make sure the control panel correctly identifies the device.
Fire alarm boxes	Visual inspection	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
	Initial and Reacceptance	Activate the equipment. Make sure the control panel correctly identifies the device.
	Semiannual	Activate the equipment. Make sure the control panel correctly identifies the device.

Component	Test	Test methods
Alarm input modules (except waterflow switch inputs)	Visual inspection	Verify that the module's green LED flashes. Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	1. Open the circuit. Verify that the control panel displays a trouble message that correctly identifies the module. 2. Short each side of the circuit to ground one at a time. Verify that for each short the control panel displays a ground fault message that correctly identifies the module. 3. Activate the module. Verify that the module's red LED flashes and the control panel displays an alarm message that correctly identifies the module.
	Annual	Activate the module. Verify that the red LED flashes and the control panel displays an alarm message that correctly identifies the module.
Waterflow switch input modules	Visual inspection	Verify that the module's green LED flashes. Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	1. Open the circuit. Verify that the control panel displays a trouble message that correctly identifies the module. 2. Short each side of the circuit to ground one at a time. Verify that for each short the control panel displays a ground fault message that correctly identifies the module. 3. Activate the module. Verify that the module's red LED flashes and the control panel displays an alarm message that correctly identifies the module.
	Semiannual	Activate the module. Verify that the module's red LED flashes and the control panel displays an alarm message that correctly identifies the module.
Supervisory input modules (except valve tamper inputs)	Visual inspection	Verify that the module's green LED flashes. Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	1. Open the circuit. Verify that the control panel displays a trouble message that correctly identifies the module. 2. Short each side of the circuit to ground one at a time. Verify that for each short the control panel displays a ground fault message that correctly identifies the module. 3. Activate the module. Verify that the module's red LED flashes and the control panel displays a supervisory message that correctly identifies the module.
	Quarterly	Activate the module. Verify that the module's red LED flashes and the control panel displays a supervisory message that correctly identifies the module.
Valve tamper input modules	Visual inspection	Verify that the module's green LED flashes. Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	1. Open the circuit. Verify that the control panel displays a trouble message that correctly identifies the module. 2. Short each side of the circuit to ground one at a time. Verify that for each short the control panel displays a ground fault message that correctly identifies the module. 3. Activate the module. Verify that the module's red LED flashes and the control panel displays a supervisory message that correctly identifies the module.
	Semi-annual	Activate the module. Verify that the module's red LED flashes and the control panel displays a supervisory message that correctly identifies the module.
Releasing modules	Visual inspection	Verify that DS2 flashes and DS4 is on. Ensure that there are no changes that may adversely affect equipment performance.

Component	Test	Test methods
	Initial and Reacceptance	**WARNING:** Disconnect all wiring on TB4 (RELEASE 1 and RELEASE 2) when servicing or testing the system. Disabling points does not prevent activation of the release circuits. Failure to follow these instructions may result in loss of life, serious injury, or property damage. 1. Verify that the control panel indicates open, shorts, and ground faults for each of the circuits. 2. Verify that the release initiation circuit activates the release circuits as intended, and that all required signals are indicated on the control panel. 3. Verify that the manual release switch, if used, activates the release circuits as intended, and that all required signals are indicated on the control panel. 4. Verify that the abort switch, if used, prevents the release circuits from activating as intended.
	Semiannual	**WARNING:** Disconnect all wiring on TB4 (RELEASE 1 and RELEASE 2) when servicing or testing the system. Disabling points does not prevent activation of the release circuits. Failure to follow these instructions may result in loss of life, serious injury, or property damage. 1. Verify that the release initiation circuit activates the release circuits as intended, and that all required signals are indicated on the control panel. 2. Verify that the manual release switch, if used, activates the release circuits as intended, and that all required signals are indicated on the control panel. 3. Verify that the abort switch, if used, prevents the release circuits from activating as intended.
Audible notification appliances	Visual inspection	Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	Measure and record sound pressure levels throughout the protected area to ensure the minimum audibility requirements of NFPA 72 are met. Confirm synchronization of outputs within each notification zone per NFPA 72.
	Annual	Measure and record sound pressure levels throughout the protected area to ensure the minimum audibility requirements of NFPA 72 are met. Confirm synchronization of outputs within each notification zone per NFPA 72
Textual audible notification appliances (speakers)	Visual inspection	Ensure there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	Measure and record sound pressure levels of the required tone(s) preceding the textual audible (voice) message throughout the protected area to ensure the minimum audibility requirements of NFPA 72 are met. Verify that audible information is distinguishable and understandable.
	Annual	Measure and record sound pressure levels of the required tone(s) preceding the textual audible (voice) message throughout the protected area to ensure the minimum audibility requirements of NFPA 72 are met. Verify that audible information is distinguishable and understandable.
Visible notification appliances	Visual inspection	Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	Verify that the appliance locations are in accordance with the approved layout and are set for the correct candela rating. Verify that each appliance flashes. Verify synchronization of the light output between devices as required by NFPA 72.
	Annual	Verify that each appliance flashes. Verify synchronization of the light output between devices as required by NFPA 72.

Component	Test	Test methods
Off-premises transmission equipment	Visual inspection	Ensure that there are no changes that may adversely affect equipment performance.
	Initial and Reacceptance	1. Activate an alarm initiating device. Verify that the off-premises location receives an alarm signal. 2. Create a trouble condition. Verify that the off-premises location receives a trouble signal. 3. Activate a supervisory device. Verify that the off-premises location receives a supervisory signal. 4. If the module is configured to transmit alarm signals and trouble signals over the same dedicated pair of wires, create a trouble condition, and then activate an alarm initiating device. Verify that the off-premises location receives an alarm signal and a trouble signal.
	Semiannual	1. Activate an alarm initiating device. Verify that the off-premises location receives an alarm signal. 2. Create a trouble condition. Verify that the off-premises location receives a trouble signal. 3. Activate a supervisory device. Verify that the off-premises location receives a supervisory signal. 4. If the module is configured to transmit alarm signals and trouble signals over the same dedicated pair of wires, create a trouble condition, and then activate an alarm initiating device. Verify that the off-premises location receives an alarm signal and a trouble signal.
Digital alarm communicator transmitter (DACT)	Visual inspection	Inspect the equipment for any visible signs of damage or other changes that may adversely affect performance.
	Initial and Reacceptance	1. Activate an alarm input while using the primary telephone line for a telephone call. • Verify that the supervising station receives the correct signal. • Verify completion of the transmission attempt occurs within 90 seconds. 2. Disconnect the primary telephone line and connect the secondary telephone line. • Verify that the control panel indicates a DACT trouble message. • Verify that the DACT transmits the trouble signal to the supervising station within 4 minutes of detecting the fault. 3. Disconnect the secondary telephone line and connect the primary telephone line. • Verify that the control panel indicates a DACT trouble message. • Verify that the DACT transmits the trouble signal to the supervising station within 4 minutes of detecting the fault.
	Semiannual	Same as initial and reacceptance testing.

System trouble and maintenance log

Date	Time	Event	Initial

Record of completion

NFPA 72 requires a Record of Completion be filled out at the time of system acceptance and approval and revised when changes to the system are made. You can download a copy of the form from the NFPA website (www.nfpa.org).

After completing the Record of Completion form, mount it near the fire alarm control panel or give it to the building representative.

Chapter 7
Service and troubleshooting

Summary

This chapter provides instructions for servicing and troubleshooting the fire alarm system. It is intended for those trained and authorized to maintain the system.

Content

System repairs

The EDGE control panel is made up of modular assemblies that are easily installed and maintained. Because of the modular design, component level field repairs mainly consist of isolating a fault to the circuit card in an assembly and replacing the defective card.

Table 29 below provides a general guideline of recommended spare components to have on hand.

Table 29: Recommended spares list

Minimum of 1 each or 10% of the quantity installed	Minimum of 3 each or 10% of the quantity installed
• Panel main electronics assembly replacement	• Monitor modules
• LCD main display replacement module	• Control modules
• CPU-to-LCD HDMI cable replacement	• Heat detectors
• Option cards	• Photoelectric smoke detectors
• Printer ribbon	• Detector base
	• Breakglass replacement for pull stations
	• Breakglass replacement for warden stations
	• Horn, bell, strobe, and speaker

Service and repair of system components centers around the following assumptions:

- Qualified technicians possessing a complete understanding of the system hardware and functions will perform maintenance.
- Only certified maintenance technicians will service the equipment.
- Maintenance technicians will have a readily available supply of replacement parts.

Precautions

Removing or replace circuit board module

When removing or replacing circuit modules, always remember to:

- First disconnect the battery then remove AC power from the control panel. Removing or replacing circuit modules when power is applied will damage the equipment.
- Avoid applying excessive force to the snap-rivet fasteners that lock the plug-in modules in place.

Handling static sensitive circuit board modules

Many of the control panel components are circuit boards that are sensitive to electrostatic discharge. To avoid damage to the board, take the following precautions:

- Use only approved grounding straps that are equipped with a 1 MΩ resistive path to earth ground.
- Remove a circuit board module from its protective antistatic packaging only for inspection or installation.
- Always hold circuit modules by the sides. Avoid touching component leads and connector pins.

Hardware problems

Hardware problems are typically identified by an intermittent or total failure of a device. The problem may occur within an equipment cabinet or with field wiring and devices.

The quickest way to locate a hardware problem is by selectively isolating portions of the system and observing the results of the isolation. By isolating smaller and smaller portions of the system, hardware faults can usually be located.

Substituting hardware

WARNING: Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and allow stored energy to discharge before installing or removing equipment.

Caution: Circuit boards are sensitive to electrostatic discharge (ESD). To avoid damage, follow ESD handling procedures.

The control panel's CPU automatically configures the firmware, bootstrap, and configuration database of a replaced EDGE-SLC-250(500), SA-DACT, and control display modules. No download from the EDGE-CU is required.

The following is a guideline for substitutions and replacements.

- A chassis rail module must be replaced with the same model number module.
- A UI frame assembly control-display module must be replaced with the same module number control-display module.
- A substitute module should be installed in the same card location as the module it is replacing.

Adding hardware

When hardware is added to a cabinet, a portion of the network configuration database must also be changed. The extent of the changes depends on the correlation relationships between the added component and the rest of the network. Once the new hardware has been configured in the EDGE-CU, revised copies of the database must then be downloaded to the control panel.

Hardware troubleshooting

Power supply troubleshooting

Under most conditions, a defective power supply will be identified by the system and annunciated as a trouble. The system may continue to operate nearly normally, as the battery connected to the faulty supply will automatically be switched into the circuit, as the load demands.

You can connect the control panel to the PC running the EDGE-CU and perform a power supply diagnostics check. Refer to the *EDGE-CU Help* for details on using diagnostics tools.

Table 30: Power Supply troubleshooting

Problem	Possible cause
Auxiliary voltage low	There is an excessive load
Batteries will not charge	• The system is in alarm mode • The wrong battery type is configured in the EDGE-CU • The battery is shorted • The battery is not wired correctly to the power supply board
System will not operate on batteries	• The battery voltage is low • The batteries are defective

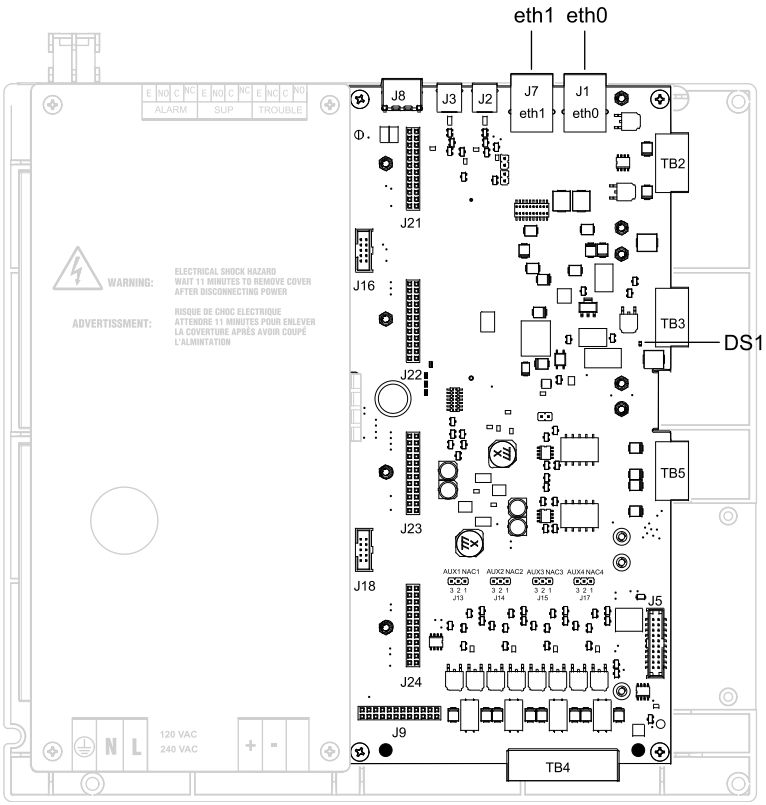
CPU troubleshooting

The CPU board on the panel main electronics assembly is considered a node module that processes all information from modules installed in the same cabinet and from other nodes in a network.

The CPU module incorporates:

- Two USB 2.0 connectors to connect supported USB devices
- Two Ethernet connections for general external communication.
- LEDs that indicate activity on a communication path. See Figure 40 on page 113 for the LED locations on the CPU board.

Figure 40: CPU board LEDs

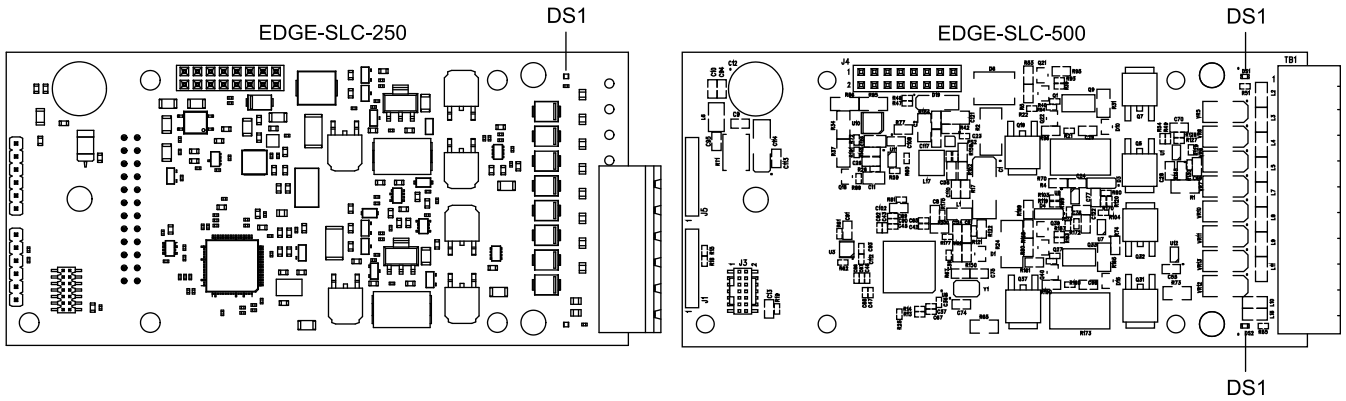


LED	State	Descriptions
eth1	ON – blinking ON – solid	eth1 communication activity eth1 link established
eth0	ON – blinking ON – solid	eth0 communication activity eth0 link established
DS1	ON - blinking	Onboard loop communication activity

Table 31: CPU board troubleshooting

Problem	Possible cause
LED DS1 is off	CPU failure
LCD screen is inoperative, and the power LED is off	• HDMI cable between the LCD screen module and CPU is loose or defective • CPU is defective • LCD screen module is defective • CPU is not configured in the EDGE-CU • No power to the control panel

Figure 41: EDGE-SLC-250 and EDGE-SLC-500 loop controllers LEDs



LED	State	Descriptions
DS1	ON - blinking	Loop 1 communication activity
DS2	ON - blinking	Loop 2 communication activity

Table 32: EDGE-SLC-250 and EDGE-SLC-500 loop controller cards troubleshooting [1]

Problem	Possible cause
LED DS1 or DS2 is off	• Loop controller card is not firmly seated on the CPU board expansion connector • CPU failure

[1] For details on the EDGE-SLC-250, see *EDGE-SLC-250 Single SLC Interface Card Installation Sheet* (P/N 3102908). For details on the EDGE-SLC-500, see *EDGE-SLC-500 Single SLC Interface Card Installation Sheet* (P/N 3102909).

EDGE 24L series control-display modules troubleshooting

The EDGE 24L series control-display modules mount on the UI frame assemblies attached to the inner door.

Performing an indicator test will quickly isolate hardware problems from programming problems with any control-display module. See “Performing an indicator test (lamp test)” on page 83.

Table 33: Control-display module troubleshooting

Problem	Possible cause
The indicators and buttons are inoperative	• There is no power to the control panel • The control-display module is not properly seated on the UI frame assembly • The control-display module is defective • The control-display module is not defined in the EDGE-CU
The indicators respond incorrectly	• The control-display or indicator is not defined in the EDGE-CU • A correlation governing indicator operation is not correctly written
A button does not perform the expected function	• The control-display or button is not defined in the EDGE-CU • A correlation governing button operation is not correctly written

RZI16-2 module troubleshooting

Table 34: RZI16-2 Remote Zone Interface module troubleshooting

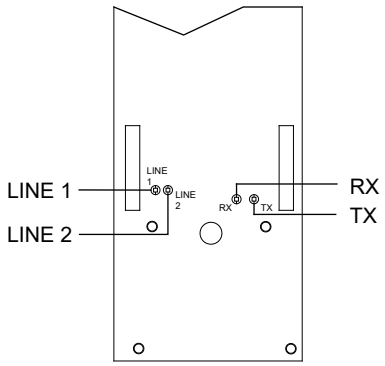
Problem	Possible cause
The module is in trouble state	• A 4.7 kΩ EOL resistor is not installed on unused IDC circuits • A 15 kΩ EOL resistor is not installed on unused NAC circuits • There is no communication with the CPU module • The module is not defined in the EDGE-CU • The field wiring connector is not plugged into the module
NAC output is not working	• The jumpers are installed incorrectly • An external source is configured but not connected • The circuit is overloaded • The circuit is silenced • The circuit is shorted • A polarized device is defective or reversed on the circuit • Output was not programmed
The IDC circuit is not working	• There is an incompatible two-wire smoke detectors • There is excessive wiring resistance or capacitance • There is an open circuit on the line

SA-DACT module troubleshooting

LED indicator diagnostics

LINE 1 and LINE 2 LEDs on the SA-DACT provide diagnostic information. See the tables below for a description of the LEDs and their dialing and data transmission states.

Figure 42: SA-DACT LED indicators



Label	Description
LINE 1	Indicates line 1 telephone activity
LINE 2	Indicates line 2 telephone activity

Label	Description
RX	Indicates receive activity
TX	Indicates transmit activity

Table 35: SA-DACT LINE 1 and LINE 2 states

LED state	LINE 1 description	LINE 2 description
Off	There is no activity	There is no activity
On	LINE 1 has been seized	LINE 2 has been seized
Slow flash	Dialer or modem data is being passed on LINE 1	Dialer data is being passed on LINE 2 (modem data is passed only on LINE 1)
Slow flash (both LEDs)	The application code or configuration code is downloading from the CPU or EDGE-CU	
Fast flash	There is ringing on LINE 1 (flashing pattern detected)	N/A (LINE 2 does not have ring detection)

Audible diagnostics

Obtain an audio amplifier device locally for listening to the distinctive sounds associated with dialing, receiving handshakes, transmitting data, and receiving acknowledgements. Place a 0.1 µF, 200 V or greater capacitor in series with one of the leads. Alternatively, you can use a lineman's handset in monitor mode.

During downloading from a remote computer, you will hear the distinct sound of modems establishing a connection, and then a series of rapid chirps as data is transmitted.

Note: Remove the audio amplifier when you finish troubleshooting.

Common problems

Evaluation of visual and audible indications will usually serve to isolate the source of trouble. Before replacing an SA-DACT, investigate the following common causes of a module problem.

- The module is not properly seated on the electronics chassis, or one or more connector pins are bent away from the associated connectors
- A modular telephone plug is not connected to the appropriate line 1 or line 2 jack, is not fully seated, or is not connected at the telephone block
- The module is configured with incorrect CMS telephone numbers
- The telephone line is faulty

If the module and telephone line are okay, check the CMS telephone number by dialing it using a standard telephone plugged directly into the RJ-31X jack. (The jack will accommodate a standard modular phone plug.) You should:

1. Hear a dial tone when going off-hook
2. Lose the dial tone after dialing the first digit
3. Hear the receiver ringing
4. Hear the CMS receiver go off-hook and send a handshake tone

Typical problems dialing the CMS involve missing or incorrect area codes, the need to dial 1 for long distance, or missing line access codes (for example, dialing 9 for an outside line).

If the receiver answers, check that it is sending out the correct handshake. For Contact ID, the handshake signal consists of two short tones of different frequency. For TAP, there should be a modem-type exchange of handshake messages.

If the receiver sends the correct handshake and the SA-DACT transmits data, but the receiver does not send an acknowledgement, check that the receiver is compatible with the desired protocol. (SIA DCS standard is available from the Security Industry Association). Typical problems involve an incompatible format or data message.

If the handshake and acknowledge signals are audible, check that the correct account number was configured in the SA-DACT and the code being sent was correctly programmed in the CMS computer.

Where a SA-DACT module is suspected of being faulty, try substituting a known good one that has been properly programmed.

Pseudo points

A pseudo point is an input or output point that is not a physical device. For example, ground fault and communication fault notifications. When a pseudo point event occurs an event message displays on the LCD screen. Viewing the event message details provides the pseudo point address.

Refer to the pseudo point tables in Appendix C “Pseudo points table” on page 161 where you can cross-reference the pseudo point address to its source and read a brief description.

Note: For instructions on how to view event details, see “Viewing and printing event details” on page 76.

Understanding Signature data loops

Operation

The features of the EDGE loop controller module perform a number of advanced operations. These operations are not always apparent from the control panel. Table 36 below lists a number of Signature data loop conditions and describes the loop’s operational responses.

Table 36: Signature data loop operation

When you:	Response
Remove a detector, and then reinstall the detector in the same base	• A system trouble displays on the LCD screen when the detector is removed. The message shows the detector’s label or address. • The system restores when the detector is reinstalled.
Remove a module or pull station, and then reinstall the module/pull station in the same location	• A system trouble displays on the LCD screen when the module/pull station is removed. The message shows the device’s label or address. • The system restores when the module/pull station is reinstalled.
Remove a detector, and then install a different detector of the same type in the same base	• A system trouble displays on the LCD screen when the detector is removed. The message shows the detector’s label or address. • The EDGE loop controller module remaps the loop, replacing the serial number of the old detector with the serial number of the new detector, when mapping is enabled. All of the old detector’s sensitivity and verification settings are transferred to the new detector. The system returns to normal when mapping is finished. • The communication fault for the old detector remains when mapping is disabled.
Remove a module or pull station, and then reinstall a different module/pull station of the same type in the same location. **Note:** A SIGA-UM replacement module must have jumper JP1 set in the same position as the original module.	• A system trouble displays on the LCD screen when the module/pull station is removed. The message shows the device’s station label or address. • The EDGE loop controller module remaps the loop, replacing the serial number of the old device with the serial number of the new device, when mapping is enabled. If the devices are modules (not pull stations), the old module’s personality codes are transferred to the new module. The system returns to normal when mapping is finished. • The communication fault for the old module remains when mapping is disabled.

When you:	Response
Remove a detector, and then reinstall a different detector type in the same base.	• A system trouble displays on the LCD screen when the detector is removed. The message shows the detector's label or address. • The EDGE loop controller module remaps the loop, replacing the serial number of the old detector with the serial number of the new detector, when mapping is enabled. All of the old detector's sensitivity and verification settings are transferred to the new detector. The new detector will be operational, but a system trouble displays indicating a device type mismatch. To clear the trouble, the new detector type must be assigned to the base using the EDGE-CU and the database downloaded to the control panel. • The communication fault for the old detector remains when mapping is disabled.
Remove a module or pull station, and then reinstall a different module/pull station type in the same location.	• A system trouble displays on the LCD screen when the module/pull station is removed. The message shows the device's station label or address. • The EDGE loop controller module remaps the loop, replacing the serial number of the old device with the serial number of the new device, when mapping is enabled. The new device is *not* operational. A system trouble displays, indicating a device type mismatch. To clear the trouble, the new device type must be defined using the EDGE-CU and the database downloaded to the control panel. • The communication fault for the old detector remains when mapping is disabled. • If a single address module is replaced with a dual address module or vice versa, a map fault is generated by the address count mismatch.
Add a device to the configuration but do not add the physical device to the Loop.	• After configuration download an Unprogrammed device fault appears for the device that is not present. • The actual map should be uploaded from the panel and accepted/committed and then downloaded to the panel. • At that point, only a device communication trouble should appear until the actual device is installed. Once the device is installed, the mapping steps should be executed again.

Signature data loop troubleshooting basics

The EDGE control panel CPU board provides one onboard Class B/DCLB, Class A/DCLA, or Class X/DCLC single signaling line circuit and expansion slots to mount optional EDGE-SLC-250 and EDGE-SLC-500 signaling line circuit expansion cards. In total, the panel is capable of supporting up to 1,000 devices (125 detectors and 125 module addresses per loop).

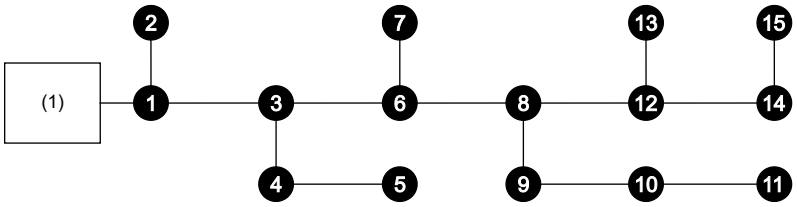
When a device is removed from a loop, the SLC controller recognizes the change and the control panel processes the information.

Isolating loop and device problems

The process of isolating a problem on a data loop is similar to that used on a conventional fire alarm Initiating Device Circuit (IDC). An accurate and complete wiring diagram of the loop installation is the best troubleshooting aid available. When the diagram is used in conjunction with the information provided by the control panel, you can easily isolate open conditions or defective devices. The loop shown in Figure 43 on page 119 will be used to illustrate basic troubleshooting techniques.

Note: When troubleshooting Class A/DCLA loops, disconnect the loop from the return (loop A) terminals and temporarily jumper both loop A terminals to the respective loop B terminals. You can then troubleshoot the loop as a Class B/DCLB loop.

Figure 43: Normal SLC topology

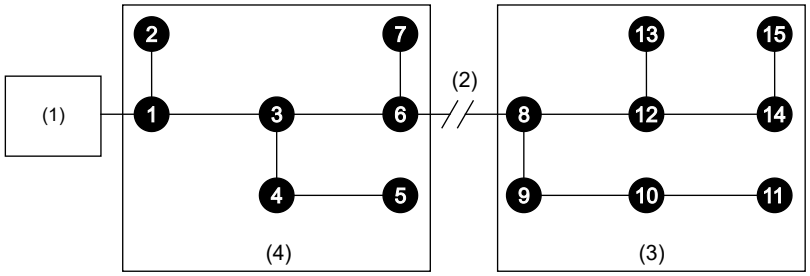


(1) EDGE loop controller

Open circuit conditions

On a loop with an open fault, the Signature modules communicate with devices up to the break. The control panel LCD screen displays a trouble condition for all devices beyond the break. Figure 44 below shows devices 1 through 7 continuing to operate and devices 8 through 15 reporting device troubles.

Figure 44: Open fault on the data loop



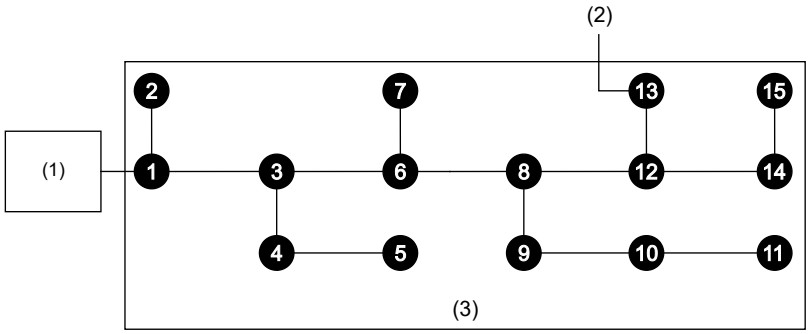
(1) EDGE loop controller
(2) Break in the loop
(3) Devices in trouble
(4) Devices operating normally

In Figure 44, a wire break or intermittent connection between devices 6 and 8 is the most probable cause of the failure. Other possible causes include a device failure in devices 9 through 15, failure to define them in the loop controller's database, or failure to define them correctly in the EDGE-CU.

Short circuit conditions

Short circuit conditions require selective isolation of portions of the loop to systematically narrow down the fault's location. A shorted circuit typically reports to the control panel a trouble condition on all devices, as shown in Figure 45 on page 120.

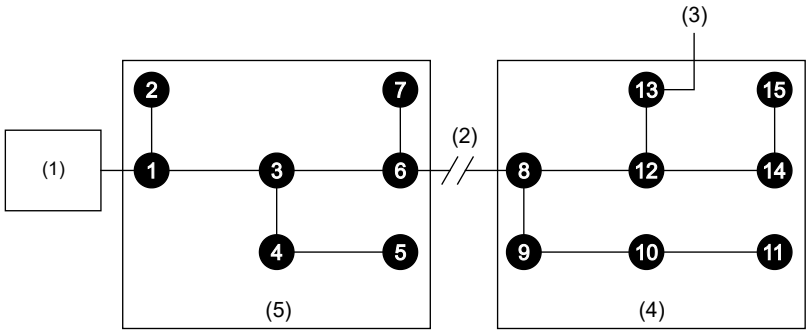
Figure 45: Wiring short on the data loop



(1) EDGE loop controller
(2) Wiring short location
(3) Devices in trouble

To isolate the short, open the data loop at a point that will disconnect approximately 50% of the installed devices as shown in Figure 46 below.

Figure 46: Isolating a short on the data loop



(1) EDGE loop controller
(2) Open in loop to isolate the short
(3) Wiring short location
(4) Devices remain in trouble
(5) Devices return to operation

After opening the loop, if some of the devices restore, the short is located on the portion of the loop that has been disconnected. If no devices restore, the short has been isolated to the first 50% of the loop.

Reconnect the previously isolated portion of the loop. If during the first isolation process some devices restored, open the loop at a location *electrically farther* from the loop controller, and then repeat the analysis. If during the first process no devices restored, open the loop at a location *electrically closer* to the loop controller, and then repeat the analysis.

Continue increasing or decreasing the number of devices on the opened loop leg until you isolate the device or wire segment causing the problem.

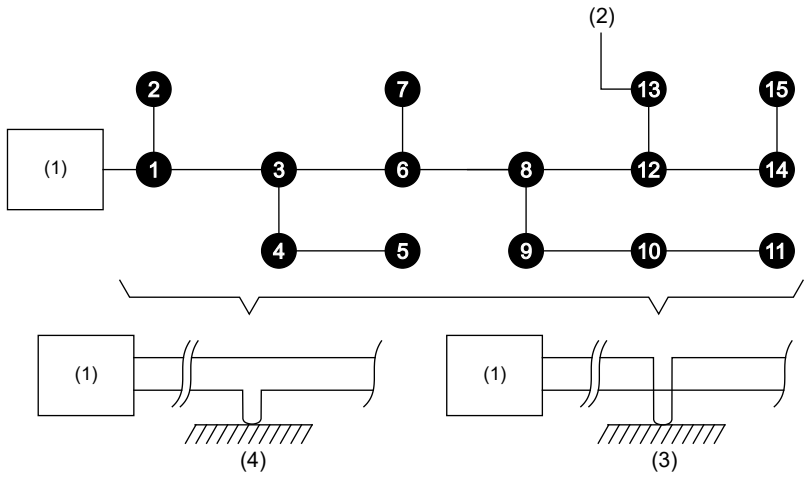
Ground fault conditions

Ground fault conditions require selective isolation of portions of the data loop to systematically narrow down the fault's location. A loop with a ground fault (approximately 10 kΩ or less to ground) activates the Ground event queue indicator on the LCD screen. The conditions can occur on the Signature loop, the 24 VDC smoke power circuit, or the input circuits to the onboard loop controller and the EDGE-SLC-250 and EDGE-SLC-500 loop controllers. The general location of a ground fault can be determined by viewing indications and messages on the control panel user interface (see Table 37 on page 121).

Table 37: Ground fault indications

Control panel user interface indications	Ground fault location
The Ground event queue indicator activates but no event message shows in the Ground Fault event list	• Loop controller circuit • 24 VDC smoke power circuit
The Ground event queue indicator activates, and the event message appears in the Ground Fault event list	Positive leg of the input circuit for the device

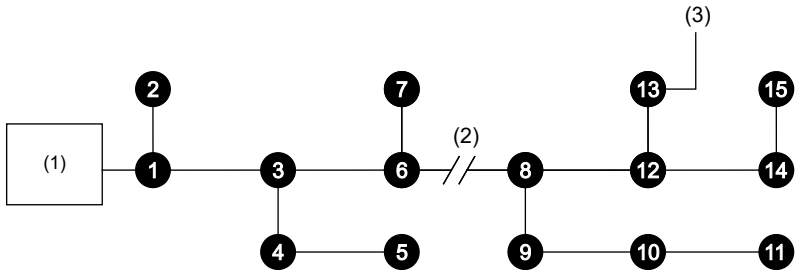
Figure 47: Data loop ground faults



(1) EDGE loop controller
(2) Ground fault location
(3) Positive ground fault
(4) Negative ground fault

To isolate the ground fault, open the suspect loop (both conductors) at a point that will disconnect approximately 50% of the installed devices as shown in Figure 48 below. A similar technique is used on smoke power or module input circuits.

Figure 48: Data loop ground fault isolation



(1) EDGE loop controller (ground fault LED Off)
(2) Both conductors open insolates the ground fault
(3) Ground fault

After opening the loop, if the GND Fault event clears, the ground fault is located on the portion of the loop that has been disconnected. If the LED remains on and no devices restore, the short has been isolated to the first 50% of the loop.

Reconnect the previously isolated portion of the loop, and then open the loop at a new point. If during the first isolation process the GND Fault event cleared, open the loop at a location *electrically farther* from the loop

controller, and then repeat the analysis. If during the first process the GND Fault event remained, open the loop at a location electrically closer to the loop controller, and then repeat the analysis.

Continue increasing or decreasing the number of devices on the opened loop leg until you isolate the device or wire segment causing the problem.

Notes

- The ground fault detection circuitry requires approximately 30 to 40 seconds response time when the fault is removed.
- The EDGE control panel performs a ground fault test for 46 ms seconds at 30-second intervals. If the system is working properly, with no active ground-fault, the voltage between earth ground and logic negative should be approximately 10.5 VDC. The system is designed to ensure that 5k Ω ground faults will be detected within 30 seconds. A ground-fault will cause the voltage between earth and logic ground to move toward 0 V if the faulted line is normally low. It will move toward 24 V if the faulted line is normally high, e.g., AUX+. The actual voltage that is measured will vary depending on which field wire is faulted and will also vary with the alarm state. Ground fault resistances greater than 200 k Ω will not be reported.

Substituting Signature Series devices

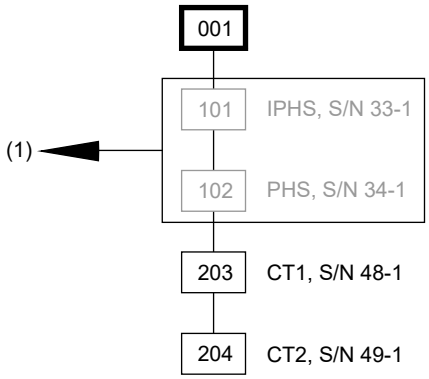
When substituting a *known good* detector or module in place of a suspect device, the following scenarios can take place.

1. With mapping enabled, if the substituted device is the same model as the suspect device, the system accepts it with no further operator action. When the substituted device is installed, the system goes into trouble. When the quantity of devices defined on the loop is reached, the system automatically remaps the loop, stores the revised information, and returns to normal. This process may take a few minutes.
2. With mapping enabled, if the substituted device is a different model than the suspect device, when the device count is correct, the EDGE controller module automatically remaps the loop. A trouble occurs at the address of the suspect device as the result of a map fault because the known good device's parameters differ from those of the removed suspect device. You must accept the parameters of the known good device to remove the fault. These can be changed later.
3. If the substituted device is a DH or DS detector, the system automatically disables the mapping feature. As a result, a Map Fault and Mapping Disabled monitor event is generated. You must remove the detector and restart the control panel to restore mapping operations.

Detectors

When one or more devices are removed from a loop for servicing, as shown in Figure 49 on page 123, the control panel LCD screen displays a trouble condition for each device. If the detector is removed from an isolator base, the isolator will transfer.

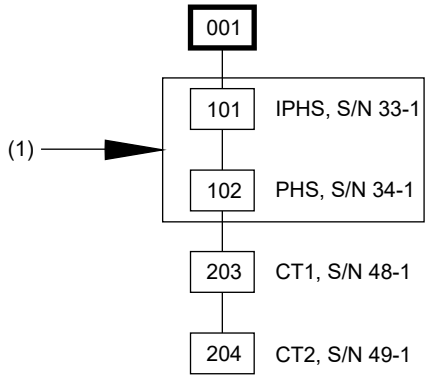
Figure 49: Detectors removed for service



(1) Removed detectors

If the devices are returned to their original locations, as shown in Figure 50 below, the map supervision function recognizes the detectors have been returned as originally installed and mapped, and no additional action is taken.

Figure 50: Detectors returned to original location

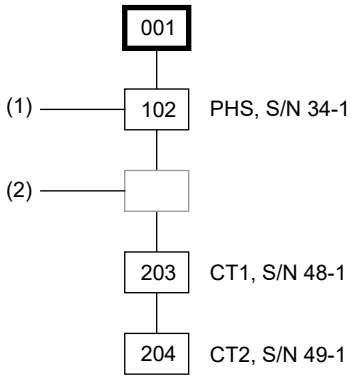


(1) Detectors returned

If the devices are returned to different locations, the map supervision function recognizes that previously mapped serial numbers occupy new map locations. When the mapping supervision function recognizes the need to remap the loop, the control panel is put in the map pending state. In the map pending state, the control panel automatically remaps the loop when the quantity of reinstalled devices is equal to or greater than the quantity of devices defined in the original map.

In Figure 51 on page 124, the PHS, S/N 34-1 detector originally installed at address 102 has been installed in the location originally occupied by the IPHS, S/N 33-1 detector.

Figure 51: One detector returned to a new location on the loop



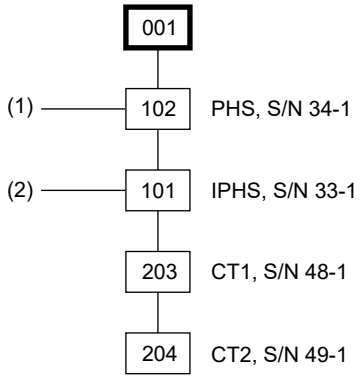
(1) PHS, S/N 34-1 detector installed in a new location
(2) IPHS, S/N 33-1 detector not installed

Until all devices are returned on the loop and the loop automatically remaps, the original S/N-to-control panel address correlation is still valid. Figure 51 shows that the device address moves with the detector until the loop is remapped. In this example, relocating the PHS detector temporarily relocated address 102. Until all devices are returned and the loop remapped, testing a relocated detector will cause the control panel to respond as though the detector was still installed in its original location.

During mapping, all devices remain operational and are capable of initiating an alarm. Figure 52 below shows that both the IPHS and the PHS detectors retain their old S/N-to-control panel address correlations while the loop is mapping. Mapping activity is indicated on the control panel LCD screen.

Once mapped, the mapping supervision function automatically correlates a control panel address to a specific map location until manually changed using the CU configuration utility.

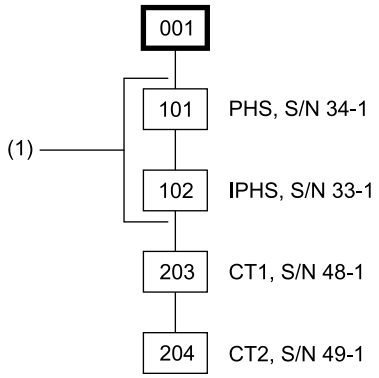
Figure 52: Both detectors returned to new locations



(1) PHS, S/N 34-1 detector returned to service in new location before remapping
(2) IPHS, S/N 33-1 detector returned to service in new location before remapping

Figure 53 on page 125 shows the map after remapping. Note that the new S/N-to-control panel address correlations have been made. The IPHS detector is now correlated with address 102 and the PHS detector is correlated with address 101. The relocated devices will now respond as programmed for the original address location.

Figure 53: Both detectors remapped



(1) Remapped detectors PHS, S/N 34-1 and IPHS, S/N 33-1

When a factory-new detector replaces an in-service detector, the new detector is operational with a default address of 00 until it is mapped. When the loop is remapped, the new detector is given the address assigned to its map location. If a factory-new detector is added over and above the expected number of devices on the loop, it is operational with a default address of 00. However, the control panel reports a trouble because the *actual map* contains one more device than the *expected map*.

Modules

When a module is replaced with another module of the same type, automatic remapping assigns the replacement module the personality code of the module originally installed at that map location.

If a module is replaced with a module of a different type one of three things can happen.

1. If a single address module, such as the SIGA-CT1 or SIGA-CC1, is replaced with a different type of single input module, the loop remaps all devices. However, the new module type will not operate because of incompatible personality codes. A map fault generates because the actual device differs from the expected device. The new device type must be defined in the EDGE-CU and the database downloaded into the control panel. The map fault will then clear.
2. If a single address module is replaced with a dual address module, the control panel unsuccessfully attempts to remap all devices. A map fault generates because the actual device differs from the expected device, and the dual address module does not operate. To clear the map fault, define the new module using the EDGE-CU, and then download the database into the control panel.
3. If a dual address module is replaced with a single address module, the control panel never automatically attempts to remap all devices because the control panel does not see enough devices (one address less) on the loop. A manual remap will also be unsuccessful. A map trouble shows on the control panel LCD screen as the control panel remains in map pending mode. To clear the trouble, define the new module using the EDGE-CU, and then download the database into the control panel.

Notes

- Do not replace factory-programmed devices such as pull stations and MM1 modules with a SIGA-CT1.
- For mapping purposes, give all manual pull stations the device type *Pull,* regardless of their model numbers.

Device type replacement

If a different Signature device model is substituted for a suspect device, when the device count is correct the Signature controller module automatically remaps the loop. A trouble occurs at the address of the suspect device as the result of a map fault, because the known good device’s parameters differ from those of the suspect device that was removed from the loop. To clear the map fault, accept the parameters of the known good device. You can change the parameters later.

Note: Signature Series devices require a solid connection at their terminals. If a wire can wiggle, it will be subject to contact resistance variations due to temperature changes. A loose wire can result in an intermittent connection, which will affect communication between the Signature devices and the control module. Using a proper size screwdriver, securely tighten all wiring connections.

Substituting an EDGE loop controller

When substituting a known good EDGE loop controller in place of a suspect loop controller, it must be defined in the EDGE-CU and the database downloaded into the control panel.

Note: Replacing the CPU board's onboard loop controller requires you to replace the entire panel electronics board. Replacing an EDGE-SLC-250(500) expansion card only requires card replacement.

Substituting Signature Series devices on a nonmapping loop

When nonmapping DH and DS detectors are configured on a Signature loop, mapping is disabled for the loop. When substituting a known good detector or module in place of a suspect device, one of the following scenarios can take place.

1. If the substituted device is the same model as the suspect device and preprogrammed with the same device address, the system accepts it with no further action. When the substituted device is installed, the system goes into trouble. When the quantity of devices defined on the loop is reached, the system stores the revised information, updates the device's personality code and other parameters, and returns to normal. This process may take a few minutes.
2. If the substituted device is a different model than the suspect device but is preprogrammed with the same device address, the system accepts it but generates a device fault indicating the difference in models. The details of the trouble indicate a "bad type fault." To remove the fault, you must accept the model of the known good device using the EDGE-CU or replace the substituted device with a model that matches the suspect device.
3. If the substituted device is preprogrammed with a different device address, a trouble occurs at the address of the suspect device because it was removed. The system may also generate a device trouble if the substituted device address matches another device already configured on the loop or it may generate an "unprogrammed device" trouble. You must remove the substituted device, and then use the SIGA-PRO tool or the EDGE-CU to reprogram its address to remove the fault.

EDGE loop controller troubleshooting

Table 38 on page 127 provides a list of possible problems that may be detected by the loop controller module. For information on identifying and locating signaling line circuit problems, see "Signature mapping diagnostic report" on page 128.

The onboard loop controller and EDGE-SLC-250 SLC expansion card provide one SLC. The EDGE-SLC-500 SLC expansion card provides two SLCs. Whether a single or dual SLC loop controller, the panel sets aside two sets of pseudo points for loop controller related issues. For example, the onboard loop controller will have SDC1 and SDC2 pseudo points even though only one SLC exists. When dual loop controllers (EDGE-SLC-500) are installed and there is an issue related to the second loop, the pseudo point will report the first loop label and "SDC 2" to identify that the second loop has the issue. For a full list of panel pseudo points, see Appendix C "Pseudo points table" on page 161. For SLC addressing, see Appendix B "Addresses" on page 149.

Notes

- Do not replace factory-programmed devices such as pull stations and MM1 modules with a SIGA-CT1.
- For mapping purposes, give all manual pull stations the device type *Pull,* regardless of their model numbers.

Table 38: EDGE loop controller troubleshooting

Problem	Possible cause
An open is detected on the loop	• The loop is incorrectly wired, or a connector is loose • A detector or isolator base is defective • A conductor is broken • A device is not installed on the loop • A device is not defined in the EDGE-CU
A short is detected on the loop	• The loop is incorrectly wired (often crossed wires on a device base) • A detector, detector base, or module is defective • The insulation between conductors is nicked
A ground fault is detected on the loop	• There is a pinched wire between the device and electrical box • The wire insulation is nicked
An internal trouble is detected on the loop	• A detector is defective or dirty • A CO module is defective or not seated correctly • A photo or heat sensor is reading too high or too low • A light source is affecting a detector • There is a short between a detector and detector base • An isolator or relay base is defective • Devices are drawing too much or too little current during mapping
A maintenance alert is detected on the loop	A detector is nearing end of life
The system reports an “End of life ACT” event	A CO module needs replacement

Signature device troubleshooting

Module LED indicators

Each Signature Series module has a red and green status LED. These LEDs are useful when trying to determine the communication and alarm or active status of Signature devices.

Table 39: Signature Series module status LEDs

LED status	Device status
Green flashing	Normal communication
Red flashing	Alarm or active (either input of dual input modules)
Red and green steady	Stand-alone alarm or active (either input of dual input modules)

Common causes of Signature Series module and device problems

Common causes for Signature Series modules and devices not responding correctly or reporting trouble events are listed below.

- The module/device is installed in the wrong location or is not addressed correctly
- The module/device is not defined in the EDGE-CU database
- An incorrect personality code was programmed into the module
- The jumper is in the wrong position
- 24 VDC for smoke power is low or missing
- Inputs 1 and 2 were switched
- There is a ground fault
- There is incorrect wiring
- There are mapping errors
- A short or open is detected on the output circuit
- The polarized device is installed in reverse
- There is an incorrect or missing EOL resistor
- The module/device is defective

Signature mapping diagnostic report

The EDGE-CU allows you to generate a diagnostic report on devices connected to an EDGE loop controller. When mapping is turned on for the SLC, you can upload data from the SLC to the EDGE-CU to view device information and placement on the circuit. By using the mapping tool, you can compare actual data with expected data to remove any conflicts between the configured map and the current map. See “Uploading Signature diagnostics from the ” on page 129 for instructions on uploading data.

See Table 40 below for suggested corrective actions. Refer to *EDGE-CU Help* for details on how to identify and locate Signature module and device problems.

Table 40: Signature mapping errors diagnostics

Problem	Suggested corrective action
The mapping command failed either because the sensor did not draw current or it was not possible to obtain stable mapping data from the signaling line circuit	• Verify that wiring is correct • Verify that devices are operational • Review EDGE-CU Diagnostics report to identify failed devices • Check for loose wiring connections at the devices or T-taps • Check for faulty device(s)
While mapping a chain from a device back to the EDGE loop controller, the chain was built with holes in it	• Review EDGE-CU Diagnostics report to identify failed devices • Review EDGE-CU Diagnostics report to compare the serial numbers or addresses with the actual wiring to identify the conflict
Map tables are inconsistent	• Upload the current map • Compare the current map with the expected map • Write the map back to the loop controller • Ensure loop wiring is correct

Problem	Suggested corrective action
The actual Signature data loop map does not match the expected map	• Compare the current map with the expected map • Write the map back to the loop controller • Ensure loop wiring is correct
The system continues to remap the data loop	• An intermittent connection is causing one or more devices to lose then reestablish communication with the loop controller • There is a defective device or detector base
Device address assignment failed	Review the serial number or address; if missing, replace the device
The map in use has invalid data (map supervision failure)	Wait for automatic map reconstruction to complete before continuing
Mapping supervision detected a change on the loop (a map rebuild was scheduled)	Wait for automatic map reconstruction to complete before continuing
The mapping command failed because the sensor did not draw current, or it was not possible to obtain stable mapping data from the loop	• Check for loose wiring • Check for a defective device
Mapping supervision detected that the supervised device's type changed (a map fault was flagged)	• Replace the device • Correct the loop controller programming
Mapping aborted because a short or open was detected on the loop wiring	• Check for an open or short on a Class A/DCLA loop • Check for a short across the entire Class B/DCLB loop • A reset may restart mapping
Control panel startup is not able to recreate the current map	Wait for the automatic map reconstruction to complete before continuing
Mapping is disabled	Enable mapping
While mapping a chain from a device back to the loop controller, the chain appears to have two devices at the same location	• Check for faulty wiring or a faulty device on the loop • Review EDGE-CU Signature Diagnostics to identify the conflict
More than 125 end-of-line devices are detected on the loop	• Correct the wiring • Remap the loop • Reduce the number of T-taps
Mapping detected a difference between the device at the end-of-line and the devices in its chain	• Review EDGE-CU Signature Diagnostics to identify the conflict • Review EDGE-CU Signature Diagnostics to compare the serial numbers or addresses with the actual wiring to identify the conflict

Uploading Signature diagnostics from the control panel

The control panel allows you upload data from the control panel SLC to the EDGE-CU for troubleshooting devices on the circuit.

To upload Signature diagnostics data to the EDGE-CU:

1. Enable control panel-to-EDGE CU communication as instructed in "Establishing control panel-to-EDGE-CU communication" on page 66.
2. From the EDGE-CU:

   In the Active Project panel, right-click the Loops > Loop category, and then select Signature Diagnostics.

3. Disconnect communication when you have finished downloading:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

To upload SLC mapping data to the EDGE-CU:

1. Enable control panel-to-EDGE CU communication as instructed in “Establishing control panel-to-EDGE-CU communication” on page 66.
2. From the EDGE-CU:

   In the Active Project panel, right-click the Loops > Loop category, and then select Signature Mapping.
3. Disconnect communication when you have finished downloading:

   From the control panel LCD screen, tap the Menu ☰ button, and then Access PIN, Cancel Access. This will block read access.

   Disconnect the USB cable from the control panel and computer.

Appendix A
System calculations

Summary

This appendix provides instructions and worksheets for calculating wire lengths and sizing standby batteries.

Content

Signature data loop wire length

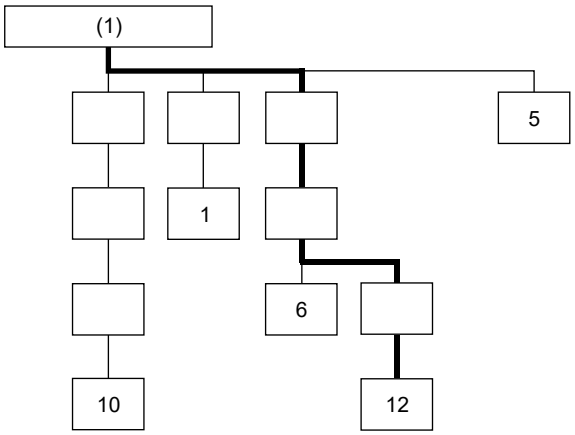
Signaling line circuit resistance and capacitance determines the maximum length of a Signature data loop. Circuit resistance affects the wire length of the longest loop branch. Circuit capacitance affects the total amount of wire that can be used on the loop.

Notes

- The design of the Signature data loop must not exceed either of the two measurements.
- There are no restrictions placed on the wiring used for the Signature data loop. Longer wire runs may be obtained using standard (non-twisted, non-shielded) wire pairs.

Determine the maximum allowable branch length

The maximum branch length is the wire distance measured from the EDGE loop controller to the last device on the longest loop path as shown below.



Several factors influence the maximum allowable branch length:

- Wire gauge and type
- Number of Signature detectors and modules installed on the branch
- Number of SIGA-UMs or SIGA-MABs configured for two-wire smoke detectors installed on the branch

Table 41 through Table 44 provide the maximum allowable branch length for any detector, module, SIGA-UM, and SIGA-MAB and the wire gauge combination. Using the wire distances specified in the tables ensures that the signaling line circuit does not exceed the maximum circuit resistance of the Signature loop.

Note: To calculate the wire distance with respect to circuit resistance, the tables assume that the loop is end-loaded (all devices are clustered more towards the end of the loop) and the loop uses standard non-shielded wire.

To determine the maximum allowable length of a Signature data loop branch:

1. Identify the device located farthest from the EDGE loop controller.
2. Determine the number of Signature detectors, modules, and SIGA-UMs or SIGA-MABs configured for two-wire smokes that lie on the same conductive path between the device identified in step 1 and the Signature controller.
3. Calculate the number of detector and module addresses. Some Signature modules require two addresses.
4. Determine the size of the wire used to construct the loop.
5. Find the maximum allowable wire distance for the longest branch in the lookup tables as follows:

If no SIGA-UMs or SIGA-MABs are installed, use Table 41 on page 134.

If 1 to 5 SIGA-UMs or SIGA-MABs are installed, use Table 42 on page 135.

If 6 to 10 SIGA-UMs or SIGA-MABs are installed, use Table 43 on page 136.

If 11 to 15 SIGA-UMs or SIGA-MABs are installed, use Table 44 on page 137.

Table 41: Maximum branch length with zero SIGA-UMs/SIGA-MABs configured for two-wire smokes

Signature detector addresses	Signature module addresses	Maximum allowable wire distance using non-twisted, non-shielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1–25	0	7437	2267	11815	3601	18792	5728
26–50	0	7038	2145	11180	3408	17782	5420
51–75	0	6638	2023	10545	3214	16772	5112
76–100	0	6238	1901	9910	3021	15762	4804
101–125	0	5839	1780	9275	2827	14752	4497
0	1–25	7267	2215	11544	3519	18361	5597
1–25	1–25	6867	2093	10909	3325	17351	5289
26–50	1–25	6467	1971	10275	3132	16342	4981
51–75	1–25	6068	1849	9640	2938	15332	4673
76–100	1–25	5668	1728	9005	2745	14322	4365
101–125	1–25	5268	1606	8370	2551	13312	4057
0	26–50	6697	2041	10639	3243	16921	5157
1–25	26–50	6297	1919	10004	3049	15911	4850
26–50	26–50	5897	1798	9369	2856	14901	4542
51–75	26–50	5498	1676	8734	2662	13891	4234
76–100	26–50	5098	1554	8099	2469	12881	3926
101–125	26–50	4698	1432	7464	2275	11871	3618
0	51–75	5906	1800	9383	2860	14923	4549
1–25	51–75	5250	1600	8340	2542	13265	4043
26–50	51–75	4633	1412	7360	2243	11707	3568
51–75	51–75	4051	1235	6435	1961	10235	3120
76–100	51–75	3498	1066	5558	1694	8839	2694
101–125	51–75	2973	906	4723	1440	7512	2290
0	76–100	3931	1198	6245	1903	9932	3027
1–25	76–100	3404	1037	5407	1648	8601	2621
26–50	76–100	2899	883	4605	1404	7324	2232
51–75	76–100	2413	735	3833	1168	6096	1858
76–100	76–100	1945	593	3089	942	4913	1498
101–125	76–100	1493	455	2371	723	3771	1149
0	101–125	2631	802	4180	1274	6649	2027
1–25	101–125	2165	660	3439	1048	5470	1667
26–50	101–125	1713	522	2721	829	4328	1319
51–75	101–125	1274	388	2023	617	3218	981
76–100	101–125	847	258	1345	410	2140	652
101–125	101–125	431	131	685	209	1089	332

Table 42: Maximum branch length with 1 to 5 SIGA-UMs/SIGA-MABs configured for two-wire smokes

Signature detector addresses	Signature module addresses	Maximum allowable wire distance using non-twisted, non-shielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1–25	0	6778	2066	10768	3282	17126	5220
26–50	0	6131	1869	9741	2969	15492	4722
51–75	0	5501	1677	8739	2664	13899	4236
76–100	0	4885	1489	7760	2365	12342	3762
101–125	0	4282	1305	6802	2073	10819	3298
0	1–25	5353	1632	8504	2592	13525	4122
1–25	1–25	4720	1439	7498	2286	11926	3635
26–50	1–25	4100	1250	6513	1985	10359	3157
51–75	1–25	3491	1064	5546	1691	8821	2689
76–100	1–25	2893	882	4597	1401	7311	2228
101–125	1–25	2306	703	3663	1116	5826	1776
0	26–50	3776	1151	5999	1829	9542	2908
1–25	26–50	3153	961	5009	1527	7966	2428
26–50	26–50	2539	774	4034	1230	6416	1956
51–75	26–50	1935	590	3075	937	4890	1491
76–100	26–50	1340	409	2130	649	3387	1032
101–125	26–50	754	230	1197	365	1905	581
0	51–75	2491	759	3957	1206	6293	1918
1–25	51–75	1868	569	2967	904	4720	1439
26–50	51–75	1254	382	1992	607	3168	966
51–75	51–75	648	198	1030	314	1638	499
76–100	51–75	50	15	80	24	126	39
101–125	51–75						
0	76–100	1386	422	2201	671	3501	1067
1–25	76–100	760	232	1208	368	1921	586
26–50	76–100	143	44	227	69	361	110
51–75	76–100						
76–100	76–100						
101–125	76–100						
0	101–125						
1–25	101–125						
26–50	101–125						
51–75	101–125						
76–100	101–125						
101–125	101–125						

Table 43: Maximum branch length with 6 to 10 SIGA-UMs/SIGA-MABs configured for two-wire smokes

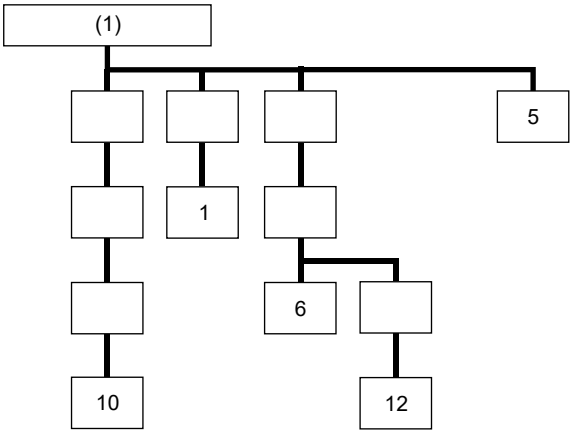
Signature detector addresses	Signature module addresses	Maximum allowable wire distance using non-twisted, non-shielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1–25	0	5045	1538	8015	2443	12748	3886
26–50	0	4494	1370	7139	2176	11355	3461
51–75	0	3950	1204	6275	1913	9981	3042
76–100	0	3414	1040	5423	1653	8625	2629
101–125	0	2884	879	4581	1396	7286	2221
0	1–25	4106	1252	6523	1988	10375	3162
1–25	1–25	3542	1080	5627	1715	8950	2728
26–50	1–25	2985	910	4742	1445	7542	2299
51–75	1–25	2435	742	3868	1179	6152	1875
76–100	1–25	1891	576	3004	916	4778	1456
101–125	1–25	1353	412	2150	655	3419	1042
0	26–50	2869	874	4557	1389	7248	2209
1–25	26–50	2296	700	3648	1112	5802	1768
26–50	26–50	1730	527	2749	838	4372	1332
51–75	26–50	1170	357	1859	567	2957	901
76–100	26–50	617	188	979	299	1558	475
101–125	26–50	68	21	108	33	172	53
0	51–75	1796	547	2853	869	4537	1383
1–25	51–75	1214	370	1929	588	3067	935
26–50	51–75	638	195	1014	309	1613	492
51–75	51–75	69	21	109	33	173	53
76–100	51–75						
101–125	51–75						
0	76–100	833	254	1323	403	2105	642
1–25	76–100	242	74	385	117	613	187
26–50	76–100						
51–75	76–100						
76–100	76–100						
101–125	76–100						
0	101–125						
1–25	101–125						
26–50	101–125						
51–75	101–125						
76–100	101–125						
101–125	101–125						

Table 44: Maximum branch length with 11 to 15 SIGA-UMs/SIGA-MABs configured for two-wire smokes

Signature detector addresses	Signature module addresses	Maximum allowable wire distance using non-twisted, non-shielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1–25	0	3931	1198	6245	1904	9932	3028
26–50	0	3427	1045	5444	1660	8659	2640
51–75	0	2928	893	4651	1418	7397	2255
76–100	0	2432	741	3864	1178	6145	1873
101–125	0	1941	592	3083	940	4903	1495
0	1–25	3247	990	5158	1572	8204	2501
1–25	1–25	2722	830	4324	1318	6878	2097
26–50	1–25	2202	671	3498	1066	5563	1696
51–75	1–25	1686	514	2678	816	4259	1298
76–100	1–25	1174	358	1865	569	2966	904
101–125	1–25	666	203	1058	323	1683	513
0	26–50	2204	672	3502	1067	5570	1698
1–25	26–50	1664	507	2644	806	4205	1282
26–50	26–50	1129	344	1793	547	2852	870
51–75	26–50	598	182	950	290	1511	461
76–100	26–50	71	22	113	34	179	55
101–125	26–50						
0	51–75	1263	385	2007	612	3192	973
1–25	51–75	710	216	1128	344	1794	547
26–50	51–75	161	49	256	78	407	124
51–75	51–75						
76–100	51–75						
101–125	51–75						
0	76–100						
1–25	76–100						
26–50	76–100						
51–75	76–100						
76–100	76–100						
101–125	76–100						
0	101–125						
1–25	101–125						
26–50	101–125						
51–75	101–125						
76–100	101–125						
101–125	101–125						

Determining the total loop length

The total loop length is the sum of the lengths of all the wire segments installed in the data loop.



(1) EDGE loop controller

The total length of all the cable installed in the Signature data loop cannot exceed the values listed below:

	Wire Size		
Wire type	**14 AWG**	**16 AWG**	**18 AWG**
Twisted pair	13,157 ft. (4,010 m)	13,888 ft. (4,233 m)	20,000 ft. (6,096 m)
Twisted-shielded pair	5,952 ft. (1,814 m)	6,098 ft. (1,859 m)	8,621 ft. (2,628 m)
Non-twisted, non-shielded pair	20,000 ft. (6,096 m)	20,000 ft. (6,096 m)	20,000 ft. (6,096 m)

If the cable manufacturer's data indicates the capacitance per foot of the cable, the following method may be used to determine the maximum total loop length.

Note: In no case may the total loop length of a Signature data loop exceed 20,000 feet (6,098 meters).

Lmax = 500,000 / Cpf

Where,
- Lmax = maximum total cable length in feet
- Cpf = Cable capacitance in picofarads per foot

Note: A short circuit on a Signature data loop can disable the entire loop. In order to limit the effect of a single short circuit, SIGA-IB Isolator Bases or SIGA-IM Isolator modules can be installed at strategic points on the loop.

Notification appliance circuit calculations

This topic shows you how to determine the maximum cable length of a notification appliance circuit for a given number of appliances.

Two methods are presented: worksheet and equation. The worksheet method is simpler, but your installation must meet the criteria listed on the worksheet. If your installation does not meet these criteria, you need to use the equation method.

The methods given here determine cable lengths that work under all operating conditions. The calculations ensure that the required operating voltage and current will be supplied to all notification appliances. To do this, we assume these two worst-case conditions:

- The voltage at the NAC terminals is the minimum provided by the power supply
- The notification appliances are clustered at the end of the NAC cable

Other, more detailed methods that distribute the appliance load along the NAC cable may indicate that longer cable runs are possible.

What you will need

Appliance and cable values

Whether you use the worksheet method or the equation method, you will need to know the following:

- The minimum operating voltage required for the appliances
- The maximum operating current drawn by each appliance
- The resistance per unit length of the wire used (Ω/ft.)

This information can be found on the appliance installation sheets and on the cable specification sheet.

Power supply values

For either method, you'll need some fixed or calculated operating values for your specific power supply. The fixed values are:

- Maximum voltage = 27.4 V
- Rated voltage = 22.5 V
- Load factor = 0.0 V/A
- Power type = DC

The *maximum voltage* is the highest voltage measured at the NAC terminals. This value is not used in the calculations but is given so you can ensure appliance compatibility.

The *rated voltage* is the minimum voltage provided by the battery boost circuit.

The *load factor* is a measure of how the power supply voltage reacts when a load is applied. The load factor measures the voltage drop per ampere of current drawn by the load.

The *power type* reflects the type of power supplied to the NAC terminals at minimum voltage. The current draw of notification appliances can vary substantially with the type of power supplied: full-wave rectified (VFWR) or direct current (VDC). It is important to know the power type at minimum terminal voltage.

You will need to calculate the following values relating to your power supply and to the NAC circuit current. These are:

- Minimum voltage
- Voltage drop

The *minimum voltage* is the lowest voltage measured at the NAC terminals when the power supply is under the maximum load for that loop (i.e., for the appliances that constitute the NAC).

The *voltage drop* is the difference between the minimum voltage and 16 V. This value is for use with the worksheet only.

Worksheet method

Use this worksheet to determine the maximum cable length of a notification appliance circuit for a given number of appliances.

Use this worksheet only if all the appliances are regulated. That is, they must have a minimum operating voltage of 16 V. For other appliances, use the “Equation method.”

Worksheet 1: NAC cable length

		NAC1	NAC2	NAC3	NAC4	
Total operating current [1]						A
Load factor	×	0.0	0.0	0.0	0.0	V/A
Load voltage drop	=					V
Rated voltage		22.5	22.5	22.5	22.5	V
Load voltage drop	−					V
Minimum voltage	=					V
Regulated appliance voltage	−	16.0	16.0	16.0	16.0	V
Voltage drop [2]	=					V
Total operating current	÷					A
Maximum resistance	=					Ω
Wire resistance (Ω/ft.) [3]	÷					
Maximum wire length	=					ft.
	÷	2	2	2	2	
Maximum cable length	=					ft.

[1] Total of the maximum operating currents for all appliances as specified for DC power. Refer to the appliance installation sheets for operating currents.

[2] This voltage drop is valid for regulated notification appliances only. For special application appliances, see “Equation method” on page 141.

[3] Use the manufacturer’s published wire resistance expressed in ohms per foot. For typical values, see Table 45 on page 141.

Equation method

Appliance operating voltage and current

Regulated notification appliances have an operating range from 16 V to 33 V. Use 16 V as the minimum appliance voltage when using regulated notification appliances.

When using special application appliances, refer to the installation sheets to determine the minimum appliance voltage required.

What if there are different types of appliances in the NAC, and each type has a different minimum operating voltage? In this case, use the *highest* minimum voltage required by any appliance.

The total current requirement for the appliances will be the sum of the individual maximum currents drawn by each appliance when using DC power. Use the maximum current for the appliance over the 16 V to 33 V range.

If all appliances draw the same maximum current, the total current is the maximum current multiplied by the number of appliances. If different appliance types have different maximum currents, the total current is the sum of the maximum current for each appliance type multiplied by the number of appliances of that type.

Wire resistance

Typical wire resistances are shown in the following table.

Table 45: Typical wire resistances

Wire gauge (AWG)	Resistance 1-strand uncoated copper		Resistance 7-strand uncoated copper	
	Ω per foot	Ω per meter	Ω per foot	Ω per meter
12	0.00193	0.00633	0.00198	0.00649
14	0.00307	0.01007	0.00314	0.01030
16	0.00489	0.01604	0.00499	0.01637
18	0.00777	0.02549	0.00795	0.02608

When performing these calculations, always refer to the actual cable supplier documentation and use the actual Ω/ft. (or Ω/m) for the cable being used.

Calculating the maximum CAB cable length

1. Calculate the total current (Itot) as the sum of the maximum operating currents for all the appliances.

   Itot = ΣIa
   Where:
   Ia = appliance maximum current

   Refer to the appliance installation sheets for Ia. Remember to use the maximum operating current specified for DC power.

2. Calculate the minimum voltage (Vm).

   Vm = Vr − (Itot × K)

   Where:
   Vr = rated voltage
   Itot = total current (from above)
   K = load factor

   For the power supply, Vr is 22.5 V and K is 0.0 V/A.

3. Calculate the allowable voltage drop (Vd) between the NAC circuit source and the appliances.

   Vd = Vm − Va

   Where:
   Vm = minimum voltage (from above)
   Va = appliance minimum voltage

   For regulated notification appliances, Va is 16 V. For special application appliances, Va is the lowest operating voltage specified on the appliance installation sheet.

4. Calculate the maximum resistance (Rmax) the wire can have.

   Rmax = Vd / Itot

   Where:
   Vd = voltage drop
   Itot = total current

5. Calculate the maximum length of the cable (Lc), based on the maximum resistance allowed, the resistance of the wire, and the number of wires in the cable (two).

   Lc = (Rmax / Rw) / 2

   Where:
   Rmax = maximum resistance
   Rw = wire resistance factor

   Example: The NAC source is the power supply board. You are using regulated notification appliances. Assume that the maximum operating current for each appliance is 100 mA for DC power, and that 20 appliances will be placed on the NAC. The cable is 12 AWG wire, and the manufacturer specifies a wire resistance factor of 0.002 Ω/ft.

   Itot = **S**Ia
   = 20 × 0.1 A
   = 2 A

   Vm = Vr − (Itot × K)
   = 22.5 V − (2 A × 0.0 V/A)
   = 22.5 V − 0.0 V
   = 22.5 V

   Vd = Vm − Va
   = 22.5 V − 16.0 V
   = 6.4 V

   Rmax = Vd / Itot
   = 6.4 V / 2.0 A
   = 3.2 Ω

   Lc = (Rmax / Rw) / 2
   = (3.2 Ω / 0.002 Ω/ft.) / 2
   = 1600.0 ft. / 2
   = 800.0 ft.

   So, the maximum wire run for this NAC would be 800 ft. (rounding down for safety).

25 or 70 VRMS NAC wire length

The maximum allowable wire length is the farthest distance that a pair of wires can extend from the amplifier to the last speaker on the notification appliance circuit without losing more than 0.5 dB of signal. Calculating the maximum allowable wire length using this method ensures that each speaker operates at its full potential.

Several factors influence the maximum allowable wire length:

- Wire size
- Output signal level of the amplifier driving the circuit
- Number of speakers installed on the circuit

To calculate the maximum allowable wire length for a 0.5 dB loss, use the following formula:

Maximum length = (59.25 × Amplifier output²) / (Wire resistance × circuit load)

Where,

- Amplifier output is the signal level in VRMS supplied by the amplifier driving the circuit
- Circuit load is the total watts required by the audio circuit
- Wire resistance is the resistance rating of the wire per 1000 ft. pair, see Table 46 below.

For example, the maximum allowable wire length for an audio circuit consisting of a 30 W, 25 VRMS amplifier driving thirty 1 watt speakers, using 18-gauge wire would be 95 ft.

94.95 = (59.25 × 25²) / (13 × 30)

Table 46: Wire resistance ratings

Wire Size	Resistance per 1,000 ft. pair (ohms)
18 AWG (1.0 mm²)	13.0
16 AWG 1.5 mm²)	8.0
14 AWG (2.5 mm²)	5.2
12 AWG (4.0mm²)	3.2

Table 47 below and Table 48 on page 144 give the maximum allowable wire lengths for various wire sizes and loads. Use Table 47 when designing circuits for amplifiers set for 25 VRMS output. Use Table 48 when designing circuits for amplifiers set for a 70 VRMS output.

Table 47: Maximum allowable length at 25 VRMS, 0.5 dB loss

Wire size	Circuit load requirement											
	15 W		20 W		30 W		40 W		95 W		120 W	
	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m
18 AWG (1.0 mm²)	190	58	142	43	95	29	71	22	Over max current limit		Over max current limit	
16 AWG (1.5 mm²)	309	94	231	70	154	47	116	35	48.7	15	39	12
14 AWG (2.5 mm²)	475	145	356	109	237	72	178	54	75	23	59	18
12 AWG (4.0 mm²)	772	235	579	176	386	118	289	88	121.8	37	96	29

Table 48: Maximum allowable length at 70 VRMS, 0.5 dB loss

Wire size	Circuit load requirement											
	15 W		20 W		30 W		40 W		95 W		120 W	
	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m
18 AWG (1.0 mm²)	1489	454	1117	340	744	227	558	170	235	72	186	57
16 AWG (1.5 mm²)	2420	738	1815	553	1210	369	907	276	382	116	302	92
14 AWG (2.5 mm²)	3722	1134	2792	851	1861	567	1396	426	588.7	180	465	142
12 AWG (4.0 mm²)	6049	1844	4537	1383	3024	922	2268	691	955	291	756	230

Cabinet battery

Use the following method to calculate the minimum ampere-hour capacity of a battery required in order to operate a control panel in the absence of AC power. Battery calculations must be performed separately for each cabinet in the system.

Determine the total amount of current in milliamps required by all of the components that derive power from the battery while the control panel is in standby mode. Multiply the total amount of standby current by the number of hours that the control panel is required to operate in standby mode while on battery power.

Determine the total amount of current in milliamps required by all of the components that derive power from the battery while the control panel is in alarm mode. Multiply the total amount of alarm current by the number of minutes that the control panel is required to operate in alarm mode while on battery power. Divide the result by 60 to convert minutes to hours.

Add the total amount of standby current and the total amount of alarm current then divide the result by 1000 to convert to ampere-hours. Multiply this number by 1.25 to add a 25% safety factor to the calculations.

Battery calculations

Battery capacity worksheet

Instructions: Enter the standby and alarm currents from the other worksheets, and then calculate the size of standby batteries you need based on your operating time requirements.

	Standby current (mA)	Alarm current (mA)	CO alarm current (mA)	
Total control panel current (from Worksheet A)			0	
Total NAC current (from Worksheet B)	0		0	
Total AUX current (from Worksheet C)			0	
Total CO alarm current (from Worksheet D)	0	0		
Smoke power [1]			0	
Total current				
Operating time required	× h	× min	× 12 h	
		÷ 60	+12 h	
	+	+		= mAh
				× 1.25 [2]
				mAh
				÷ 1,000
Battery capacity				**Ah**

[1] A maximum of fifteen SIGA-UM or SIGA-MAB modules per signaling line circuit can be configured to support two-wire smoke detectors (personality codes 13, 14, 20, and 21). For standby current, enter 2.0 mA for each smoke power circuit used. For alarm current, enter 17.0 mA for each smoke power circuit used.

[2] Required 25% safety margin.

Worksheet A: Control panel current load

Devices	Qty	Standby current (mA)	Alarm current (mA)	Qty x Standby current (mA)		Qty x Alarm current (mA)
Panel main electronics assembly [1]	1	307.0	431.0			
Single SLC option card (fully loaded loop)		65.0	86.0			
Dual loop SLC option card (fully loaded loop)		110.0	151.0			
EDGE-CLA1 Class A card		7.0	25.5			
EDGE 24L series [2]		4.0	10.0			
SA-DACT dialer		41.0	100.0			
Total (mA)						
			x 1.25 = (panel to battery standby current)		x 1.25 = (panel to battery alarm current)	
Totals (mA) (transfer totals to Battery Calculation Worksheet)						

[1] Includes the power supply, CPU board, and LCD.

[2] Add 2.5 mA for each active LED. Total current does not exceed 30 mA with all LEDs on.

Worksheet B: NAC power current

Instructions: For each NAC/AUX (TB4) circuit used to provide NAC power, enter the total amount of alarm current required. Use the DC RMS current values listed on the device's installation sheet for your calculations.

Devices	Standby current (mA)	Alarm current (mA)
NAC/AUX 1		
NAC/AUX 2		
NAC/AUX 3		
NAC/AUX 4		
Total (mA) (transfer totals to Battery Calculation Worksheet)		

Worksheet C: AUX power current load

Instructions: For each NAC/AUX (TB4) circuit and each AUX (TB2) circuit used to provide AUX power, enter the total amount of standby and alarm currents required by the devices powered by the circuit. Use the standby and alarm currents on the device's installation sheet for your calculations.

Devices	Standby current (mA)	Alarm current (mA)
Sounder base		
RZI16-2 [1]		
RPM module [1]		
SIGA-REL module [1] [2]		
Other		
Total (mA) (transfer totals to Battery Calculation Worksheet)		

[1] Do not include currents if the module *is not* installed.

[2] A maximum of ten SIGA-REL modules per signaling line circuit can be installed.

Worksheet D: CO device current load

Instructions: For a system using CO devices, determine the total amount of CO signal current in milliamps required by all of the CO devices that derive power from the battery while the panel is in CO alarm mode. Use the alarm currents on the sounder base installation sheet for your calculations. Multiply the total amount of CO signal current by 12 hours to obtain the mAh value used in the Battery Calculation Worksheet.

CO signaling devices	CO signal current (mA)
Sounder base [1]	
Other	
Total (mA)	
	X 12 hr
Total (mAh) (transfer totals to Battery Calculation Worksheet)	mAh

Appendix B
Addresses

Summary

This appendix provides a list of logical addresses for system modules and devices.

Content

Address formats

EDGE addresses are in NNNCCCDDDD format, where:

- NNN is the node number. The node number is assigned when the installer downloads the CU database into the control panel.
- CCC is the hardware/module address. The node number and hardware/module address make up the hardware/module logical address.
- DDDD is the device point address. The node number, hardware/module logical address, and device point address make up the device or circuit's logical address.

Hardware and module addresses

Hardware and modules have a physical address and a logical address. The physical address identifies the card's location in the panel. The logical address identifies the card in the CPU database.

For a control panel with one node, see Figure 54 below and Table 49 on page 151.

Figure 54: Logical addressing (one node)

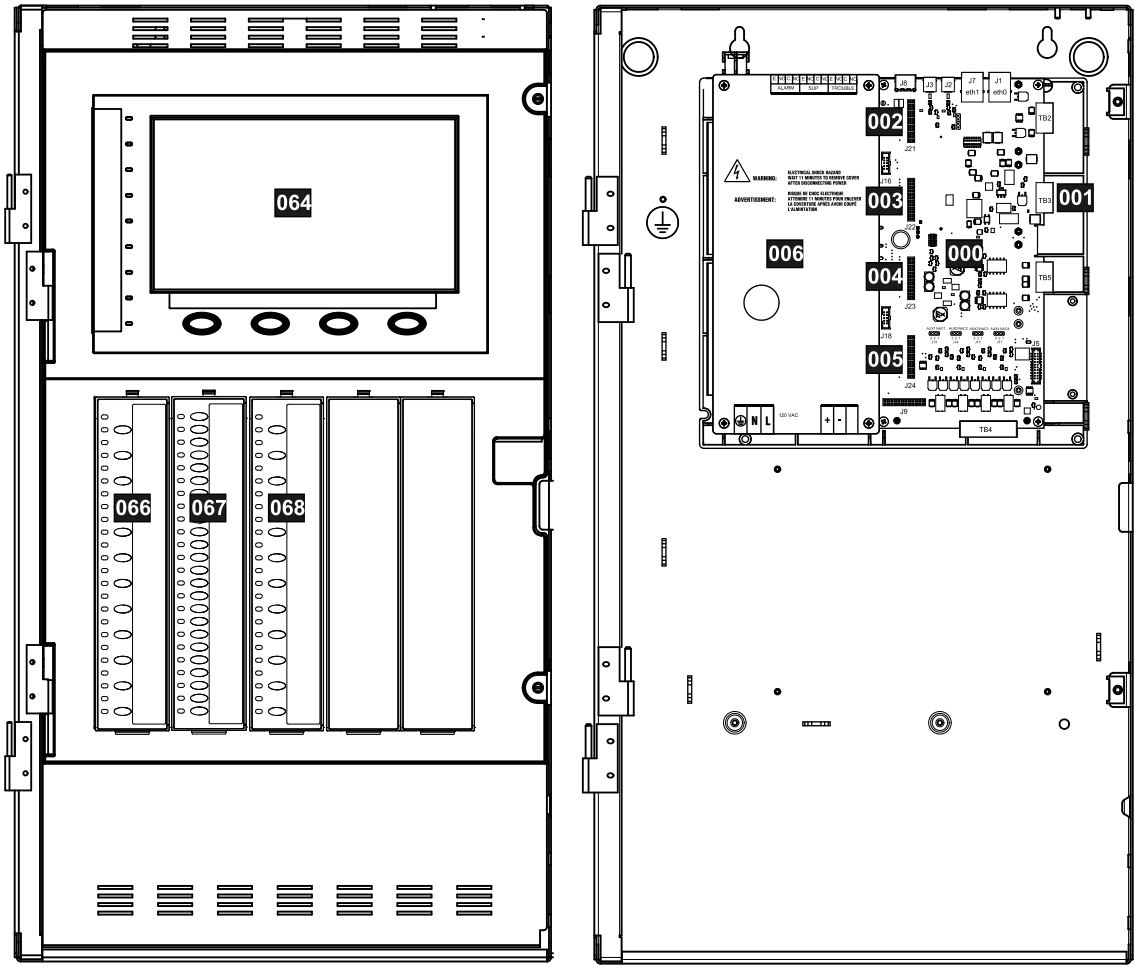


Table 49: Logical addressing (one node)

Card	Logical address
Operator layer modules on the inner door frame assembly	
User interface with LCD main display	NNN064(065)
Control-display modules	NNN066 to NNN068
Hardware main electronics assembly	
CPU board	NNN000
Onboard SLC circuit	NNN001
Expander modules (slots 1 to 4)	NNN0002 to NNN005
Power supply board	NNN006

Hardware layer device addresses

Table 50 below lists the device addresses for points on the EDGE hardware layer.

Table 50: EDGE hardware layer device addresses

Card	Device or circuit	Address
NAC/AUX	NAC/AUX 1 NAC/AUX 2 NAC/AUX 3 NAC/AUX 4	NNN0000697 NNN0000698 NNN0000699 NNN0000700
Onboard loop controller (single loop) [1]	Detectors Modules	NNN0011001 to NNN0011125 NNN0011126 to NNN0011250
Expansion slot 1 [1]		
Loop 1	Detectors Modules	NNN0021001 to NNN0021125 NNN0021126 to NNN0021250
Loop 2	Detectors Modules	NNN0022001 to NNN0022125 NNN0022126 to NNN0022250
Expansion slot 2 [1]		
Loop 1	Detectors Modules	NNN0031001 to NNN0031125 NNN0031126 to NNN0031250
Loop 2	Detectors Modules	NNN0032001 to NNN0032125 NNN0032126 to NNN0032250
Expansion slot 3 [1]		
Loop 1	Detectors Modules	NNN0041001 to NNN0041125 NNN0041126 to NNN0041250
Loop 2	Detectors Modules	NNN0042001 to NNN0042125 NNN0042126 to NNN0042250
Expansion slot 4 [1]		
Loop 1	Detectors Modules	NNN0051001 to NNN0051125 NNN0051126 to NNN0051250
Loop 2	Detectors Modules	NNN0052001 to NNN0052125 NNN0052126 to NNN0052250

[1] For SLC pseudo points, see Appendix C “Pseudo points table” on page 161.

Control-display device addresses

The tables in this section list switch and indicator addresses that the system assigns to operator layer control-display modules.

Figure 55 below shows the EDGE series control-display modules. Table 51 below lists the device addresses for points on the EDGE operator layer.

Figure 55: EDGE operator layer control-display modules

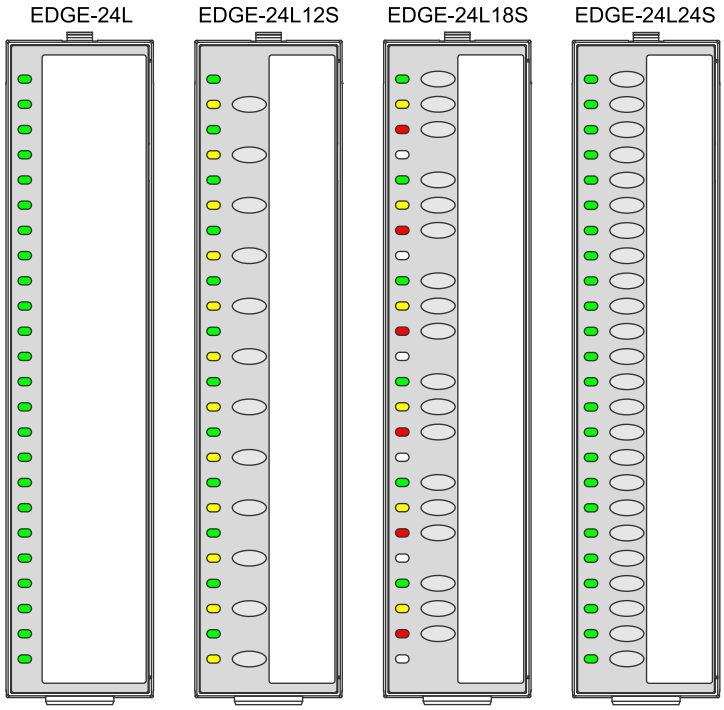


Table 51: EDGE operator layer device addresses

Module type	Switch group	Switch address	Indicator	Indicator address
EDGE-24L	N/A	N/A	1 to 24	0129 to 0152
EDGE-24L12S	1	0002	1	0129
	-	-	2	0130
	2	0004	3	0131
	-	-	4	0132
	3	0006	5	0133
	-	-	6	0134
	4	0008	7	0135
	-	-	8	0136
	5	0010	9	0137
	-	-	10	0138
	6	0012	11	0139
	-	-	12	0140
	7	0014	13	0141

Module type	Switch group	Switch address	Indicator	Indicator address
	-	-	14	0142
	8	0016	15	0143
	-	-	16	0144
	9	0018	17	0145
	-	-	18	0146
	10	0020	19	0147
	-	-	20	0148
	11	0022	21	0149
	-	-	22	0150
	12	0024	23	0151
	-	-	24	0152
EDGE-24L18S	1	0001	1	0129
	2	0002	2	0130
	3	0003	3	0131
	–	–	4	0132
	4	0005	5	0133
	5	0006	6	0134
	6	0007	7	0135
	–	–	8	0136
	7	0009	9	0137
	8	0010	10	0138
	9	0011	11	0139
	–	–	12	0140
	10	0013	13	0141
	11	0014	14	0142
	12	0015	15	0143
			16	0144
	13	0017	17	0145
	14	0018	18	0146
	15	0019	19	0147
	–	–	20	0148
	16	0021	21	0149
	17	0022	22	0150
	18	0023	23	0151
	–	–	24	0152
EDGE-24L24S	1 to 24	0001 to 0024	1 to 24	0129 to 0152

Remote annunciator device addresses

Table 52 below lists the device addresses for LEDs and switches on RLED-C-2 remote annunciators and RLED24-2 expanders. See also Figure 56 below.

Figure 56: RLED models LED numbering

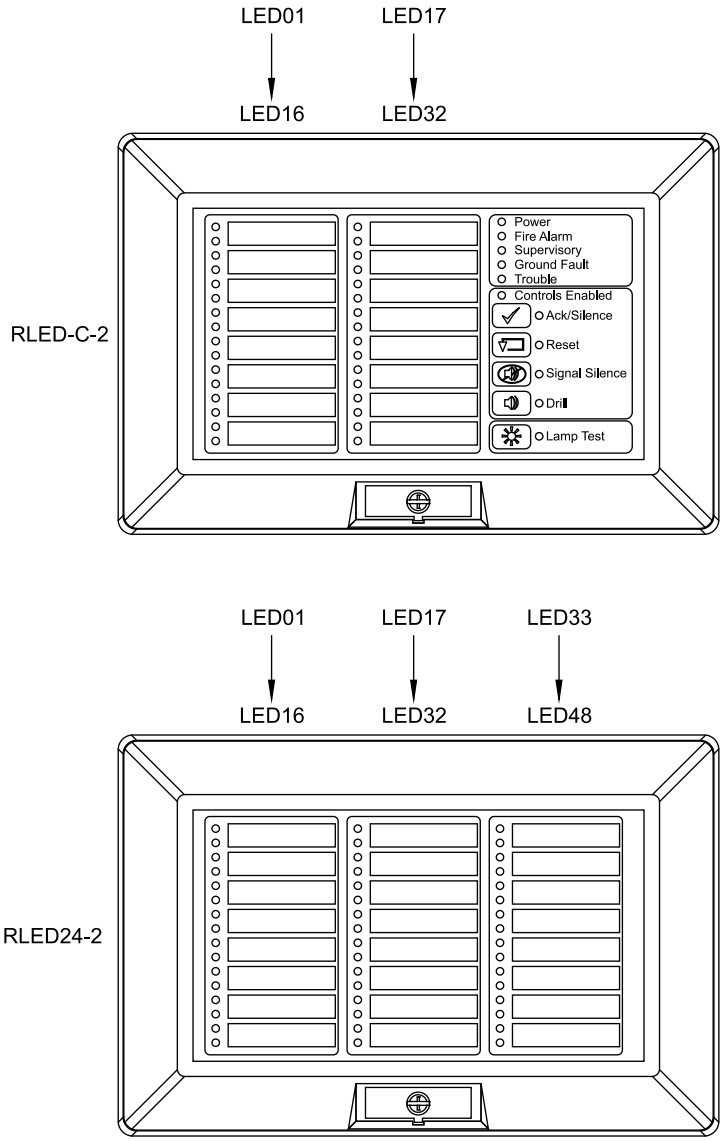


Table 52: R-Series remote annunciator device addresses

No.	Annunciator	LED or switch	Address
1	RLED-C-2	LED01 to LED32 SW01 to SW16	PP040201 to PP040232 PP020249 to PP040264
	RLED24-2	LED01 to LED48 SW01 to SW24	PP040301 to PP040348 PP040349 to PP040372
	RLED24-2	LED01 to LED48 SW01 to SW24	PP040401 to PP040448 PP040449 to PP040472

No.	Annunciator	LED or switch	Address
2	RLED-C-2	LED01 to LED32 SW01 to SW16	PP040501 to PP040532 PP020549 to PP040564
	RLED24-2	LED01 to LED48 SW01 to SW24	PP040601 to PP040648 PP040649 to PP040672
	RLED24-2	LED01 to LED48 SW01 to SW24	PP040701 to PP040748 PP040749 to PP040772
3	RLED-C-2	LED01 to LED32 SW01 to SW16	PP040801 to PP040832 PP020849 to PP040864
	RLED24-2	LED01 to LED48 SW01 to SW24	PP040901 to PP040948 PP040949 to PP040972
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041001 to PP041048 PP041049 to PP041072
4	RLED-C-2	LED01 to LED32 SW01 to SW16	PP041101 to PP041132 PP021149 to PP041164
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041201 to PP041248 PP041249 to PP041272
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041301 to PP041348 PP041349 to PP041372
5	RLED-C-2	LED01 to LED32 SW01 to SW16	PP041401 to PP041432 PP021449 to PP041464
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041501 to PP041548 PP041549 to PP041572
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041601 to PP041648 PP041649 to PP041672
6	RLED-C-2	LED01 to LED32 SW01 to SW16	PP041701 to PP041732 PP021749 to PP041764
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041801 to PP041848 PP041849 to PP041872
	RLED24-2	LED01 to LED48 SW01 to SW24	PP041901 to PP041948 PP041949 to PP041972
7	RLED-C-2	LED01 to LED32 SW01 to SW16	PP042001 to PP042032 PP022049 to PP042064
	RLED24-2	LED01 to LED48 SW01 to SW24	PP042101 to PP042148 PP042149 to PP042172
	RLED24-2	LED01 to LED48 SW01 to SW24	PP042201 to PP042248 PP042249 to PP042272
8	RLED-C-2	LED01 to LED32 SW01 to SW16	PP042301 to PP042332 PP022349 to PP042364
	RLED24-2	LED01 to LED48 SW01 to SW24	PP042401 to PP042448 PP042449 to PP042472
	RLED24-2	LED01 to LED48 SW01 to SW24	PP042501 to PP042548 PP042549 to PP042572
9	RLED-C-2	LED01 to LED32 SW01 to SW16	PP042601 to PP042632 PP022649 to PP042664
	RLED24-2	LED01 to LED48 SW01 to SW24	PP042701 to PP042748 PP042749 to PP042772
	RLED24-2	LED01 to LED48 SW01 to SW24	PP042801 to PP042848 PP042849 to PP042872

No.	Annunciator	LED or switch	Address
10	RLED-C-2	LED01 to LED32 SW01 to SW16	PP042901 to PP042932 PP022949 to PP042964
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043001 to PP043048 PP043049 to PP043072
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043101 to PP043148 PP043149 to PP043172
11	RLED-C-2	LED01 to LED32 SW01 to SW16	PP043201 to PP043232 PP043249 to PP043264
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043301 to PP043348 PP043349 to PP043372
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043401 to PP043448 PP043449 to PP043472
12	RLED-C-2	LED01 to LED32 SW01 to SW16	PP043501 to PP043532 PP043549 to PP043564
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043601 to PP043648 PP043649 to PP043672
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043701 to PP043748 PP043749 to PP043772
13	RLED-C-2	LED01 to LED32 SW01 to SW16	PP043801 to PP043832 PP043849 to PP043864
	RLED24-2	LED01 to LED48 SW01 to SW24	PP043901 to PP043948 PP043949 to PP043972
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044001 to PP044048 PP044049 to PP044072
14	RLED-C-2	LED01 to LED32 SW01 to SW16	PP044101 to PP044132 PP044149 to PP044164
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044201 to PP044248 PP044249 to PP044272
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044301 to PP044348 PP044349 to PP044372
15	RLED-C-2	LED01 to LED32 SW01 to SW16	PP044401 to PP044432 PP044449 to PP044464
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044501 to PP044548 PP044549 to PP044572
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044601 to PP044648 PP044649 to PP044672
16	RLED-C-2	LED01 to LED32 SW01 to SW16	PP044701 to PP044732 PP044749 to PP044764
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044801 to PP044848 PP044849 to PP044872
	RLED24-2	LED01 to LED48 SW01 to SW24	PP044901 to PP044948 PP044949 to PP044972
17	RLED-C-2	LED01 to LED32 SW01 to SW16	PP045001 to PP045032 PP045049 to PP045064
	RLED24-2	LED01 to LED48 SW01 to SW24	PP045101 to PP045148 PP045149 to PP045172
	RLED24-2	LED01 to LED48 SW01 to SW24	PP045201 to PP045248 PP045249 to PP045272

No.	Annunciator	LED or switch	Address
18	RLED-C-2	LED01 to LED32 SW01 to SW16	PP045301 to PP045332 PP045349 to PP045364
	RLED24-2	LED01 to LED48 SW01 to SW24	PP045401 to PP045448 PP045449 to PP045472
	RLED24-2	LED01 to LED48 SW01 to SW24	PP045501 to PP045548 PP045549 to PP045572
19	RLED-C-2	LED01 to LED32 SW01 to SW16	PP045601 to PP045632 PP045649 to PP045664
	RLED24-2	LED01 to LED48 SW01 to SW24	PP045701 to PP045748 PP045749 to PP045772
	RLED24-2	LED01 to LED48 SW01 to SW24	PP045801 to PP045848 PP045849 to PP045872
20	RLED-C-2	LED01 to LED32 SW01 to SW16	PP045901 to PP045932 PP045949 to PP045964
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046001 to PP046048 PP046049 to PP046072
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046101 to PP046148 PP046149 to PP046172
21	RLED-C-2	LED01 to LED32 SW01 to SW16	PP046201 to PP046232 PP046249 to PP046264
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046301 to PP046348 PP046349 to PP046372
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046401 to PP046448 PP046449 to PP046472
22	RLED-C-2	LED01 to LED32 SW01 to SW16	PP046501 to PP046532 PP046549 to PP046564
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046601 to PP046648 PP046649 to PP046672
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046701 to PP046748 PP046749 to PP046772
23	RLED-C-2	LED01 to LED32 SW01 to SW16	PP046801 to PP046832 PP046849 to PP046864
	RLED24-2	LED01 to LED48 SW01 to SW24	PP046901 to PP046948 PP046949 to PP046972
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047001 to PP047048 PP047049 to PP047072
24	RLED-C-2	LED01 to LED32 SW01 to SW16	PP047101 to PP047132 PP047149 to PP047164
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047201 to PP047248 PP047249 to PP047272
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047301 to PP047348 PP047349 to PP047372

No.	Annunciator	LED or switch	Address
25	RLED-C-2	LED01 to LED32 SW01 to SW16	PP047401 to PP047432 PP047449 to PP047464
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047501 to PP047548 PP047549 to PP047572
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047601 to PP047648 PP047649 to PP047672
26	RLED-C-2	LED01 to LED32 SW01 to SW16	PP047701 to PP047732 PP047749 to PP047764
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047801 to PP047848 PP047849 to PP047872
	RLED24-2	LED01 to LED48 SW01 to SW24	PP047901 to PP047948 PP047949 to PP047972
27	RLED-C-2	LED01 to LED32 SW01 to SW16	PP048001 to PP048032 PP048049 to PP048064
	RLED24-2	LED01 to LED48 SW01 to SW24	PP048101 to PP048148 PP048149 to PP048172
	RLED24-2	LED01 to LED48 SW01 to SW24	PP048201 to PP048248 PP048249 to PP048272
28	RLED-C-2	LED01 to LED32 SW01 to SW16	PP048301 to PP048332 PP048349 to PP048364
	RLED24-2	LED01 to LED48 SW01 to SW24	PP048401 to PP048448 PP048449 to PP048472
	RLED24-2	LED01 to LED48 SW01 to SW24	PP048501 to PP048548 PP048549 to PP048572
29	RLED-C-2	LED01 to LED32 SW01 to SW16	PP048601 to PP048632 PP048649 to PP048664
	RLED24-2	LED01 to LED48 SW01 to SW24	PP048701 to PP048748 PP048749 to PP048772
	RLED24-2	LED01 to LED48 SW01 to SW24	PP048801 to PP048848 PP048849 to PP048872
30	RLED-C-2	LED01 to LED32 SW01 to SW16	PP048901 to PP048932 PP048949 to PP048964
	RLED24-2	LED01 to LED48 SW01 to SW24	PP049001 to PP049048 PP049049 to PP049072
	RLED24-2	LED01 to LED48 SW01 to SW24	PP049101 to PP049148 PP049149 to PP049172

Logic group addresses

Table 53 below lists the addresses for EDGE logic groups.

Table 53: EDGE logic group addresses

Logical output	Address
Command lists	0000220001 to 0000220999
Zone groups	0000250001 to 0000250999
Service groups	0000260001 to 0000260100
AND groups	0000270001 to 0000270999
Base groups [1]	000CCC0501 to 0000000599

[1] The hardware/module address is determined by the device configuration of the Base group’s associated SLC.

Appendix C
Pseudo points table

Summary

This appendix provides pseudo point addresses, sources, and descriptions used to troubleshoot pseudo point events.

Content

Pseudo points

The table in this appendix provides pseudo point addresses, event types, sources, and descriptions that can be used to troubleshoot pseudo point events.

View the event's message details on the LCD screen to identify the pseudo point address. Cross-reference the pseudo point address to the Address column in Table 54 below to find details about the pseudo point.

Note: For instructions on how to view event details, see "Viewing and printing event details" on page 76.

Table 54: EDGE pseudo points

Address	Label	Device type	Source	Description
0001	Startup	Startup	EDGE Control panel	Control panel is energized, or operator initiated a restart.
0001	Switch 1	Common control switch	EDGE LCD	User interface control button 1 pressed.
0002	First Alarm	First alarm	EDGE Control panel	Control panel or any control panel in the same network routing group changed to the alarm state.
0002	Switch 2	Common control switch	EDGE LCD	User interface control button 2 pressed.
0003	First Supervisory	First supervisory	EDGE Control panel	Control panel or any control panel in the same network routing group changed to the supervisory state.
0003	Switch 3	Common control switch	EDGE LCD	User interface control button 3 pressed.
0004	First Trouble	First trouble	EDGE Control panel	Control panel or any control panel in the same network routing group changed to the trouble state.
0004	Switch 4	Common control switch	EDGE LCD	User interface control button 4 pressed.
0005	First Monitor	First monitor	EDGE Control panel	Control panel or any control panel in the same network routing group changed to the monitor state.
0006	Evacuated	Evacuation	EDGE Control panel	Operator pressed a switch that executed the EvacuationOn command.
0007	Drilling	Drill	EDGE Control panel	Operator pressed a switch that executed the DrillOn command.
0009	Alarm Silenced	Alarm silence	EDGE Control panel	Operator pressed a switch that executed the AlarmSilenceOn command.
0010	Two Stage Timer Expiration	Two stage timer expiration	EDGE Control panel	Control panel's second stage activation timer expired.
0011	Resetting	Reset	EDGE Control panel	Operator pressed a switch that executed the ResetOn command.
0012	R1	R1	EDGE Control panel	First phase of the 3-phase reset cycle starts.
0013	R2	R2	EDGE Control panel	Second phase of the 3-phase reset cycle starts.
0014	R3	R3	EDGE Control panel	Third phase of the 3-phase reset cycle starts.

Address	Label	Device type	Source	Description
0015	First Disable	First disable	EDGE Control panel	First point on a control panel or any control panel in the same network routing group changed to disable state.
0016	Service Group Active	Service group active	EDGE Control panel	Operator enabled a Service Group from the control panel.
0017	Two Stage Timer Active	Two stage timer active	EDGE Control panel	Control panel's second stage activation timer started.
0019	CMS First Trouble	CMS first trouble	EDGE Control panel	First point on a control panel or any control panel in the same network routing group changed to CMS trouble state.
0020	Alarm Silence Inhibit	Signal silence inhibit	EDGE Control panel	Control panel's alarm silence inhibit timer expired.
0021	Alternate Sensing Mode	Alternate sensing mode	EDGE Control panel	Control panel's alternate sensing (sensitivity) mode activated.
0026	Remote Read Locked	Local monitor	EDGE Control panel	Remote disconnect operation executed.
0027	Remote Write Unlocked	Local monitor	EDGE Control panel	IP write communications between the EDGE-CU and the control panel is unblocked.
0028	Panel Silence	Local monitor	EDGE Control panel	N/A (future use)
0032	Unconfigured	General alarm	EDGE Control panel	Alarm on a control panel is incompatible with system programming. Update the project configuration to include the control panel.
0033	First Interlock	FirstInterlock	EDGE Control panel	China marketplace only. Signals when the first time interlock is activated on a node.
0034	First Interlock Feedback	FirstInterlockFeedback	EDGE Control panel	China marketplace only. Signals when the first time interlock feedback is activated on a node.
0035	First Interlock FB Failure	FirstInterlockFB Failure	EDGE Control panel	China marketplace only. Signals when the first time interlock feedback failure is activated on a node.
0129	AC Power Indicator	Common control indicator	EDGE LCD	For internal use only.
0130	Alarm Indicator	Common control indicator	EDGE LCD	For internal use only.
0131	Supervisory Indicator	Common control indicator	EDGE LCD	For internal use only.
0132	Trouble Indicator	Common control indicator	EDGE LCD	For internal use only.
0133	Monitor Indicator	Common control indicator	EDGE LCD	For internal use only.
0134	Ground Fault Indicator	Common control indicator	EDGE LCD	For internal use only.
0135	CPU Fail Indicator	Common control indicator	EDGE LCD	For internal use only.

Address	Label	Device type	Source	Description
0136	Disable Indicator	Common control indicator	EDGE LCD	For internal use only.
0137	Test Indicator	Common control indicator	EDGE LCD	For internal use only.
0138	Indicator 1	Common control indicator	EDGE LCD	For internal use only.
0139	Indicator 2	Common control indicator	EDGE LCD	For internal use only.
0140	Indicator 3	Common control indicator	EDGE LCD	For internal use only.
0141	Indicator 4	Common control indicator	EDGE LCD	For internal use only.
0600	Fail-safe	Fail safe	CPU board	A module or slot has bent pin on the rails, module incorrectly installed or a defective CPU, can cause the Fail Safe Event. Remove one module off the rail at the time, and power up the system after each and see if the Fail Safe Event returns. Continue this process until the faulty piece of hardware is located. The Fail Safe Event changes to the active state when a device asserts the rail alarm-not line and the CPU board on the main electronics assembly has not registered an alarm event. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0600	Annunciator	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 SA-DACT	Module is faulty, missing, or not properly configured. Review the project configuration to assure it matches the board and module installation. Check all connections and positions of modules in the hardware and operator layers. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0601	Loop Controller Reset Extension	Loop reset extension	CPU board	Loop controller stayed in reset mode longer than expected. Power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0601	LRM Communication	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 SA-DACT	Communication failure on the chassis rail. Verify all LRMs in the configuration are physically installed on the chassis. If so, power down the problem node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0601	CAN Communication	Local trouble	EDGE 24L series EDGE LCD	Communication failure on the UI frame assembly rail. Verify all operator layer modules in the configuration are physically installed on the chassis Once the configuration is checked, power down the problem node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0601	R-Series Communication	Local trouble	R-Series annunciator	Communication failure between the panel and remote annunciator. Verify remote annunciators in the configuration are physically installed. If so, power down the problem node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0602	Service Device Supervision	Service device supervision	CPU board	Operator canceled Service Group test while a circuit under test remained active. Clear the active state of the device under test before canceling the Service Group.

Address	Label	Device type	Source	Description
0602	Firmware Mismatch	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 SA-DACT EDGE 24L series	Mismatch between module firmware and EDGE-CU database. Perform a complete EDGE-CU download. If the trouble persists, review the download results and events to the node failed to update. Locate the modules that have failed and perform a revision report on the panels with failures. Check history for other troubles such as Download Fail and CAN or LRM communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If the failure persists, contact Edwards Technical Support prior to replacing the module in question. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0603	User Triggered	User trouble	CPU board	Operator forced a trouble into the system.
0603	Download Fail	Local trouble	EDGE-SLC-250 EDGE-SLC-500 SA-DACT	Firmware download to the module failed. Perform a complete EDGE-CU download. If the trouble persists, review the download results and events to see if the node failed to update. Locate the modules that have failed and perform a revision report. Check history for other troubles such as CAN or LRM communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the module in question. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0604	External Database Incompatibility	External database incompatibility	CPU board	Different database is in the control panel. Perform a complete EDGE-CU download, including firmware. If the trouble persists, review the download results and events to see the node failed to update. Perform a Revision report. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary, and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the module in question. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0604	Unhandled Condition, Restart required	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 SA-DACT EDGE 24L series R-Series annunciator	The CPU board on the main electronics assembly experienced an unexpected failure. This could have been due to an internal fault. Review the event history for specific details. Restart the node. If restart does not clear the issue, review the event history and record the internal fault details including the info text and contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review. **Note:** Reset required [1]
0605	Reboot Fault, Reset Required	Reboot fault	CPU board	The CPU board on the main electronics assembly is interrupted unexpectedly. The CPU board experienced an unexpected restart. This could have been due to a watchdog failure or internal fault. Review the event history for specific details. **Note:** Reset required [1]
0605	Data	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 SA-DACT EDGE 24L series R-Series annunciator	Corrupt configuration or invalid module. The project configuration does not match the existing installed hardware or has been corrupted either during transfer or for some other reason. Review the event history details to determine the relevant module. Check the module revision and type to be sure it is compatible with the current panel version. Replace or reconfigure as needed.

Address	Label	Device type	Source	Description
0606	Code	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 SA-DACT EDGE 24L series R-Series annunciator	Corrupt executable program. The panel firmware has been corrupted either during transfer or for some other reason. Review the EDGE-CU project and panel firmware versions to be sure you are using the latest versions compatible with the installed hardware (see product release notes). Retrieve the proper version from the My-Eddie website if necessary and import the firmware into the EDGE-CU. Verify within the project that the node is configured for the correct firmware version and download the project to the system. If the failure persists, contact Edwards Technical Support prior to replacing any nodes. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0607	SDC 1 Supervision	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Loose card connection on the CPU expansion slot. Power down the system and check all hardware and operator layer connections. Make sure all modules are seated properly and the configuration matches what is physically installed. Repower the system.
0608	Watchdog Violation	Task failure	CPU board	EDGE task failed to execute properly. The CPU board on the main electronics assembly experienced an unexpected restart caused by a watchdog failure or internal fault. Review the event history for specific details. The watchdog failure may have been a result of another issue. Reboot the system.
0608	SDC 2 Supervision	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Loose card connection on the CPU expansion slot. Power down the system and check all hardware and operator layer connections. Make sure all modules are seated properly and the configuration matches what is physically installed. Repower the system.
0609	Configuration	Local trouble	Power supply board EDGE-SLC-250 EDGE-SLC-500 EDGE 24L series R-Series annunciator	Module is in the wrong rail slot. For R-Series annunciators, the configuration does not match the actual hardware or the expander is not communicating with the annunciator. Verify the configuration matches what is physically installed. Power down the system and check all hardware and operator layer connections. Make sure all modules are seated properly. Repower the system.

Address	Label	Device type	Source	Description
0609	Configuration Mismatch	Local trouble	CPU board	Card in slot xx cannot perform as programmed. The project database and node is not the same version. Review the events and Revision report at the node to determine if it has the incorrect version. Re-execute the project download. If possible, connect directly to that node.
0610	Rail Voltage	Local trouble	Power supply board	• Rail voltage is >30 VDC or <21 VDC • Excessive rail current load • Faulty or misadjusted rail Power down the system and check all hardware layer (LRM) connections. Make sure all modules are seated properly and verify the power supply connections are secure. Repower the system. If the problem persists, review the detailed history to check for a specific LRM with communication or power issues. Power down and remove any card(s) with power or communications issues. Repower the system. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0610	LCD Supervision	Local trouble	EDGE LCD	Internal wiring fault detected on the LCD module or low backlight current, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0610	R-Series Class A	Local trouble	R-Series annunciator	Communication with R-Series annunciators configured as redundant Class B/DCLA failed. Check RS-485 wiring on CPU board and annunciators.
0611	Rail Voltage Below Battery	Local trouble	Power supply board	Excessive rail current load. Power down the system and check all hardware layer connections. Make sure all modules are seated properly and verify the power supply connections are secure. Repower the system. If the problem persists, review the detailed history to check for a specific LRM with communication or power issues. Power down and remove any card(s) with power or communications issues. Repower the system. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0611	Annun Rail Voltage Fault	Local trouble	EDGE LCD	UI detects less than 6.2V on its power line. Power down the system. Verify enclosure vents are clear and there are no loose connections. Repower the system. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0611	R-Series Annun Firmware Mismatch	Local trouble	R-Series annunciator	Mismatch between R-Series annunciator CPU firmware and EDGE-CU database. Perform a firmware download from the Panel Commands menu on the EDGE control panel user interface. See “Updating R-Series annunciator firmware” on page 96. If the trouble persists, review the download results/events to see if the annunciator failed to update. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to changing hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0612	Heat Sink Temperature	Local trouble	Power supply board	Power supply is too hot • Clogged enclosure vents • Heat sink not fastened properly Power down the system. Verify enclosure vents are clear and there are no loose parts in the power supply. Repower the system. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0612	LCD Backlight Fault	Local trouble	EDGE LCD	High/Low backlight current for the LCD touch screen. Check the HDMI cable connection.

Address	Label	Device type	Source	Description
0612	R-Series Annun Download Fail	Local trouble	R-Series annunciator	Firmware download to the R-Series annunciator CPU failed. Perform a complete EDGE-CU download. If the trouble persists, review the download results and events to see if the annunciator firmware failed to update. Locate the annunciators that have failed and perform a revision report. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the module in question. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0613	Low Battery Cutoff	Local trouble	Power supply board	Battery voltage is below 19.5 VDC when on standby battery. This is a latched trouble condition with non silenceable buzzer. The system will shut down when the Low Battery cutoff timer expires unless AC is provided. Reconnect AC to the system.
0613	Buzzer Fault, Restart Required	Local trouble	EDGE LCD	Invalid buzzer pattern received from CPU to LCD. **Note:** Reset required [1]
0614	AC	Local trouble	Power supply board	AC line voltage is below 95 VAC at 50/60 Hz. Power down the system. Check the building AC voltage. Check the AC cable wiring to the power supply board. **Note:** To program a delay for AC fail reporting, see “Central Monitoring Station AC failure reporting” on page 91.
0615	Battery	Local trouble	Power supply board	• Open detected on wiring. • Battery voltage is below 20.4 V. • Battery internal resistance too high (load test failure). Check battery wiring connections. If AC is not connected, reconnect AC and let the batteries charge back up to appropriate levels. If AC is connected, load test the batteries prior to replacing them.

Address	Label	Device type	Source	Description
0617	Power Supply	Local trouble	Power supply board	• Loose connection between the power supply and CPU. • Defective power supply. Power down the system. Check wiring between the power supply and monitor card. Repower the system. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0619	Driver Power Supply	Local trouble	Power supply board	Defective power supply card or monitor card. Power down the system. Check wiring between the power supply and monitor card. Repower the system. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0620	Battery Internal Resistance	Local trouble	Power supply board	Measured battery internal resistance is out of bounds.
0621	Charger Pump	Local trouble	Power supply board	Charger pump voltage is above 30 V.
0622	Rail Overcurrent	Local trouble	Power supply board	Current measured beyond 11 A specification.
0623	Battery Charger Circuit	Local trouble	Power supply board	Battery charger circuit not functional.
0624	Manufacturing Mode	Local trouble	Power supply board	Power supply in manufacturing mode where there is no task supervision. **Note:** Used in factory and not for end customer.
0625	System Overcurrent	Local trouble	Power supply board	Power supply has detected a system over current.

Address	Label	Device type	Source	Description
0628	Database Sync	Card database incompatibility	CPU board	CPU reporting mismatch between actual data and expected data. Perform a complete EDGE-CU download including firmware to the EDGE system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0647	Annunciator	Local trouble	CPU board	Internal wiring fault on node. Verify all operator layer modules in the configuration are physically installed on the chassis. If so, power down the problem node and check all connections, power and communications, including making sure any loop cards are seated properly. Power up the node. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0648	Ground	Ground fault	CPU board	• Wiring fault. • Conductor connected to data card has continuity to ground. Follow steps to find the connection to earth ground.
0649	Audio	Local trouble	CPU board	Short or open detected on a riser. Check wiring to and from the audio riser and audio source. Restart the node. If the trouble persists contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0650	Internal, Restart Required	Local trouble	CPU board	Module failure. If the fault persists or returns, review the event history and record the internal fault details. Contact Edwards Technical Support. **Note:** Restart required [1]
0651	Database	Local trouble	CPU board	Corrupt database. Perform a complete EDGE-CU download to the EDGE system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0652	Code	Local trouble	CPU board	Corrupt executable program. Perform a complete EDGE-CU download including firmware to the EDGE system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0653	Download In Progress	Local trouble	CPU board	EDGE-CU database download in progress or incomplete. If this event persists after an EDGE-CU download for more than 1 hour, perform a complete EDGE-CU download including firmware to the EDGE system. If the trouble persists, review the download results/events to see if any nodes failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0654	Unexpected Module	Local trouble	CPU board	Undefined module detected. Review the configuration against what is physically installed in the cabinet. Correct, as necessary. If the failure persists, contact Edwards Technical Support prior to replacing the hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0655	Invalid Instruction, Reset Required	Local trouble	CPU board	• Invalid instruction for programmed response. • Corrupt database. If restart does not clear the issue, perform a complete EDGE-CU download including firmware to the system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to replacing the hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review. **Note:** Restart required [1]
0656	Main Program Fault	Local trouble	CPU board	CPU detected internal fault on the main board. If restart does not clear the issue, review the event history and record the internal fault details including the info text, and then contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review. **Note:** Restart required [1]
0657	Communication	Local trouble	CPU board	Communication failed between CPU daughter card and CPU. Contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0658	eth0 Ground	Ground fault	CPU board	Ground fault on eth0. Follow steps to find the connection to earth ground on the ethernet wiring.
0659	eth1 Ground	Ground fault	CPU board	Ground fault on eth1. Follow steps to find the connection to earth ground on the ethernet wiring.

Address	Label	Device type	Source	Description
0662	usb0 Network Link	Local trouble	CPU board	USB cable not connected to USB port on the node card, an unexpected device or the EDGE-CU is connected to the USB port. This pseudo point will report when the EDGE-CU is connected to the EDGE. If that is not the case, verify nothing unexpected is connected to the USB port. Verify the configuration matches the actual node to node USB connections.
0663	usb1 Network Link	Local trouble	CPU board	USB cable not connected to USB port on the node card, an unexpected device or the EDGE-CU is connected to the USB port. This pseudo point will report when the EDGE-CU is connected to the EDGE. If that is not the case, verify nothing unexpected is connected to the USB port. Verify the configuration matches the actual node to node USB connections.
0664	usb Power Current Overload	Local trouble	CPU board	Connected device consuming too much current from the USB. Make sure the USB cables between nodes in the cabinet are connected properly. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0665	Power Supply Fault	Local trouble	CPU board	• Loose or missing cable between power supply and CPU. • Defective power supply. If the problem persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0669	Main Board Database Fault	Local trouble	CPU board	Corrupt database on the CPU board. Perform a complete EDGE-CU download including firmware to the system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to changing hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0670	Main Board Code Fault	Local trouble	CPU board	Corrupt firmware on the CPU board. Perform a complete EDGE-CU download including firmware to the system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to changing hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.

Address	Label	Device type	Source	Description
0670	Executing Bootloader	Local trouble	EDGE-SLC-250 EDGE-SLC-500	EDGE-CU attempting download. If the trouble persists for more than 60 minutes, review the download results and events to see if the node failed to update. Locate the modules that have failed and perform a revision report. Verify the versions installed are supported as defined in the EDGE-CU release notes. Check history for other troubles such as LRM communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0671	Main Board Config Supervision Fault	Local trouble	CPU board	Bad microcode configuration on the CPU. Perform a complete EDGE-CU download including firmware to the system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to changing hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0671	Line SDC 1	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Wiring fault on SLC 1. Check loop 1 wiring on the relevant SLC module for short or open circuits.
0672	Network Neighbor Authentication Fault	Local trouble	CPU board	N/A (future use)

Address	Label	Device type	Source	Description
0672	Map Flaw SDC 1	Local trouble	EDGE-SLC-250 EDGE-SLC-500	• Mismatch detected between actual data and expected data on SLC 1 • Defective wiring on SLC 1 (e.g., un-tightened wire terminals) • Defective device on SLC 1 Verify detectors, modules and base types installed on the SLC match the configuration. Check event history for any related device communication issues. Check and correct any wiring issues. Measure AC and DC inductance on the SLC wiring. Make use of the SIGA-HDT to diagnose the fault. Perform an upload to the EDGE-CU of the Signature Data. Correct any mapping errors and redownload the updated project to the control panel.
0673	Main Board Firmware Mismatch	Local trouble	CPU board	Mismatch between CPU firmware and EDGE-CU database. Perform a complete EDGE-CU download including firmware to the system. If the trouble persists, review the download results/events to see if the node failed to update. Check history for other troubles such as network communication failures. If any exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If necessary and possible, retry the download while connected directly to the node. If the failure persists, contact Edwards Technical Support prior to changing hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0673	Mapping In Progress SDC 1	Local monitor	EDGE-SLC-250 EDGE-SLC-500	SLC1 currently mapping field devices.
0674	Mapping Off SDC 1	Local monitor	EDGE-SLC-250 EDGE-SLC-500	SLC1 mapping manually disabled

Address	Label	Device type	Source	Description
0674	FWAL Under Attack	Local monitor	CPU board	One or more of the Ethernet ports is experiencing an overload of messages, possibly a cyberattack. The services on the ETH port are temporarily stopped until the messages stop or return to normal. The local IT department should be notified and all building network routers, switches, and firewalls should be checked and settings updated for proper protections. **Note:** The following options are preferred for Internet connection. 1. Use a wired connection as opposed to an unmanaged switch. Routers ensure that clients receive network traffic intended just for them. 2. It is not recommended to use a switch, but if a managed switch is used, configure the port used to be isolated so traffic from/to other clients is not sent. 3. To isolate network traffic, set up a VLAN.
0675	Performance Fault	Local trouble	CPU board	N/A (future use)
0675	Maintenance Alert SDC 1	Local monitor	EDGE-SLC-250 EDGE-SLC-500	Dirty detector on SLC1. Detector has become dusty or dirty. Follow recommended cleaning procedures
0676	Unprogrammed Device SDC 1	General alarm	EDGE-SLC-250 EDGE-SLC-500	Device on SLC1 circuit not defined in EDGE-CU is in alarm or trouble state. Remove the relevant device or add it to the project configuration.
0677	Ground SDC 1	Ground fault	EDGE-SLC-250 EDGE-SLC-500	• Wiring fault on SLC1. • Conductor connected to SLC1 data card has continuity to ground. Run the SIGA-HDT Ver. 1.8 or later with compatible firmware on the SLC to diagnose the fault. Check wiring on the SLC and devices for connections to ground.
0678	Restoring Line SDC 1	Local monitor	EDGE-SLC-250 EDGE-SLC-500	N/A
0678	eth0 Isolate Fault	Non-supervised output	CPU board	Isolates eth0 port to determine which Ethernet link is generating a ground fault.
0679	eth1 Isolate Fault	Non-supervised output	CPU board	Isolates eth1 port to determine which Ethernet link is generating a ground fault.

Address	Label	Device type	Source	Description
0680	Fail Safe Database	Local trouble	CPU board	Control panel in fail safe mode due to corrupted database or unexpected unit behavior (CPU is able to communicate with LRMS and recover). Perform a complete EDGE-CU download to the system. If the trouble persists, review the download results/events to see if the node failed to update. If any failures exist, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If the failure persists, contact Edwards Technical Support before replacing any hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0680	Unused SDC 1	Local trouble	EDGE-SLC-250 EDGE-SLC-500	N/A
0681	Line SDC 2	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Wiring fault on SLC 2. Check loop 2 wiring on the relevant SLC module for short or open circuits.
0681	Test Logging	Non-supervised output	CPU board	N/A (future use)
0682	Internal, Reset Required	Local trouble	CPU board	For internal use only. **Note:** Restart required [1]
0682	Map Flaw SDC 2	Local trouble	EDGE-SLC-250 EDGE-SLC-500	• Mismatch between actual data and expected data on SLC 2 • Defective wiring on SLC 2 • Defective device on SLC 2 Verify detectors, modules and base types installed on the SLC match the configuration. Check event history for any related device communication issues. Check and correct any wiring issues. Measure AC and DC inductance on the SLC wiring. Make use of the SIGA-HDT to diagnose the fault. Perform an upload to the EDGE-CU of the Signature Data. Correct any mapping errors and redownload the updated project to the control panel.
0683	Internal, Reset Required	Local trouble	CPU board	CPU ran into an unexpected internal failure. Contact Edwards Technical Support before replacing any hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review. **Note:** Restart required [1]

Address	Label	Device type	Source	Description
0683	Mapping In Progress SDC 2	Local monitor	EDGE-SLC-250 EDGE-SLC-500	SLC 2 currently mapping field devices.
0684	CAN Download In Progress	Local trouble	CPU board	EDGE-CU database download in progress to devices on UI frame assembly rail.
0684	Mapping Off SDC2	Local monitor	EDGE-SLC-250 EDGE-SLC-500	SLC2 mapping manually disabled.
0685	CPU Card	Local trouble	CPU board	Main CPU board mismatch. Review the configuration and verify the CPU type is configured correctly. Perform a complete EDGE-CU download to the system. If the trouble persists, review the download results/events to see if the node failed to update. If failure exists, power down the node and check all connections, power, and communications, including making sure all loop cards are seated properly. Power up the node and retry the download. If the failure persists, contact Edwards Technical Support before replacing any hardware. Have the node diagnostics, panel history, and copy of the exported project available for technical support review.
0685	Maintenance Alert SDC 2	Local monitor	EDGE-SLC-250 EDGE-SLC-500	Dirty detector on SLC 2. Detector has become dusty or dirty. Follow recommended cleaning procedures.
0686	Configuration Utility Logged In	Local monitor	CPU board	EDGE-CU log on to control panel executed. If this appears but there is no active EDGE-CU connection to the node, reboot the fire system.
0686	Unprogrammed Device SDC 2	General alarm	EDGE-SLC-250 EDGE-SLC-500	Device on SLC 2 not defined in EDGE-CU is in alarm or trouble state. Remove the relevant device or add it to the project configuration.
0687	Ground SDC 2	Ground fault	EDGE-SLC-250 EDGE-SLC-500	• Wiring fault on SLC 2. • Conductor connected to SLC 2 data card has continuity to ground. Run the SIGA-HDT Ver. 1.8 or later with compatible firmware on the SLC to diagnose the fault. Check wiring throughout the system for connections to ground.
0687	Network	Local trouble	CPU board	Expected node is not communicating on the network. Check network wiring to and from the node. Download the project configuration directly to the node that is not communicating on the network.
0688	Restoring Line SDC2	Local monitor	EDGE-SLC-250 EDGE-SLC-500	N/A

Address	Label	Device type	Source	Description
0688	Unexpected CAN Device	Local trouble	CPU board	N/A (future use)
0689	Unexpected ASD device	Local trouble	CPU board	N/A (future use)
0690	Unused SDC 2	Local trouble	EDGE-SLC-250 EDGE-SLC-500	N/A
0690	Lamp Test	Local monitor	CPU board	Lamp test has been activated at the node.
0691	Map Mismatch SDC 1	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Mismatch between actual data and expected data on SLC 1. Verify detectors, modules and base types installed on the SLC match the configuration. Check event history for any related device communication issues. Check and correct any wiring issues. Rerun the mapping operation.
0691	Auxiliary 2	Local trouble	CPU board	Overcurrent condition detected on Aux2 of the main board.
0692	Map Mismatch SDC 2	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Mismatch between actual data and expected data on SLC2. Verify detectors, modules and base types installed on the SLC match the configuration. Check event history for any related device communication issues. Check and correct any wiring issues. Rerun the mapping operation.
0692	Auxiliary	Local trouble	CPU board	Overcurrent condition detected on Aux1 of the main board.
0693	Extra Devices SDC 1	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Number of devices on SLC 1 exceeds maximum allowed. Reduce the number of devices connected to the SLC, 125 or less modules and 125 or less detectors.
0693	R-series Network Download in Progress	Local trouble	R-Series annunciator	EDGE-CU firmware download to remote annunciators in progress.
0694	Extra Devices SDC 2	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Number of devices on SLC 2 exceeds maximum allowed. Reduce the number of devices connected to the SLC, 125 or less modules and 125 or less detectors.
0695	INF Mode Bypassed SDC 1	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Inhibition of device LED flashing was bypassed (LEDs will flash according to state) **Note:** Applies to DH and DS nonmapping devices
0696	INF Mode Bypassed SDC2	Local trouble	EDGE-SLC-250 EDGE-SLC-500	Inhibition of device LED flashing was bypassed (LEDs will flash according to state) **Note:** Applies to DH and DS nonmapping devices

Address	Label	Device type	Source	Description
0697	NAC 1	Local trouble	CPU board	NAC 1 circuit short/open/overcurrent conditions. **Note:** In cases where the system first detects a short followed by an overcurrent, and eventually followed with an open fault detection, the system may display three troubles for the same NAC number: Trouble Short, Local Trouble, and Trouble Open. A system reset is required to restore any resolved troubles.
0698	NAC 2	Local trouble	CPU board	NAC 2 circuit short/open/overcurrent conditions. **Note:** In cases where the system first detects a short followed by an overcurrent, and eventually followed with an open fault detection, the system may display three troubles for the same NAC number: Trouble Short, Local Trouble, and Trouble Open. A system reset is required to restore any resolved troubles.
0699	NAC 3	Local trouble	CPU board	NAC 3 circuit short/open/overcurrent conditions. **Note:** In cases where the system first detects a short followed by an overcurrent, and eventually followed with an open fault detection, the system may display three troubles for the same NAC number: Trouble Short, Local Trouble, and Trouble Open. A system reset is required to restore any resolved troubles.
0700	NAC 4	Local trouble	CPU board	NAC 4 circuit short/open/overcurrent conditions. **Note:** In cases where the system first detects a short followed by an overcurrent, and eventually followed with an open fault detection, the system may display three troubles for the same NAC number: Trouble Short, Local Trouble, and Trouble Open. A system reset is required to restore any resolved troubles.
0777	Telephone Calls In	Local monitor	CPU board	N/A (future use)
0778	Page By Telephone	Audio source	CPU board	N/A (future use)
0779	All Call Active	Audio source	CPU board	N/A (future use)
0780	All Call Minus Active	Audio source	CPU board	N/A (future use)
0781	Page To Evacuated	Audio source	CPU board	N/A (future use)
0782	Page To Alerted	Audio source	CPU board	N/A (future use)
0783	Page To Emergency	Audio source	CPU board	N/A (future use)
0784	Page To Other	Audio source	CPU board	N/A (future use)
0785	External Audio To Page	Audio source	CPU board	N/A (future use)
0786	External Audio To All	Audio source	CPU board	N/A (future use)

Address	Label	Device type	Source	Description
0787	External Audio to Page/Auxiliary/General	Audio source	CPU board	N/A (future use)
0788	External Audio To Evacuated	Audio source	CPU board	N/A (future use)
0789	External Audio To Alerted	Audio source	CPU board	N/A (future use)
0790	External Audio To Emergency	Audio source	CPU board	N/A (future use)
0791	External Audio To Auxiliary	Audio source	CPU board	N/A (future use)
0792	External To Other	Audio source	CPU board	N/A (future use)
0800	AUDTEL Firmware Mismatch	Local trouble	CPU board	N/A (future use)
0801	AUDTEL Communication	Local trouble	CPU board	N/A (future use)
0802	AUDTEL Integrity	Local trouble	CPU board	N/A (future use)
0803	AUDTEL Data	Local trouble	CPU board	N/A (future use)
0804	AUDTEL Code	Local trouble	CPU board	N/A (future use)
0805	AUDTEL Configuration	Local trouble	CPU board	N/A (future use)
0806	AUDTEL MIC	Local trouble	CPU board	N/A (future use)
0807	AUDTEL Riser	Local trouble	CPU board	N/A (future use)
0808	Telephone Riser On	Non-supervised output	CPU board	N/A (future use)
0809	Audio Input	Audio source	CPU board	N/A (future use)
0810 – 0812	Audio Input 2 - Audio Input 4	Audio source	CPU board	N/A (future use)
0813	Preamplifier	Audio source	CPU board	N/A (future use)
0814	Preamplifier Channel	Local relay	CPU board	N/A (future use)
0815 - 0821	Preamplifier 1 Channel 2 - Preamplifier 1 Channel 8	Local relay	CPU board	N/A (future use)
0822	Preamplifier 1 Channel Page	Local relay	CPU board	N/A (future use)
0823	Preamplifier 2	Audio output	CPU board	N/A (future use)
0824	Preamplifier Channel (1)	Local relay	CPU board	N/A (future use)
0825 - 0831	Preamplifier 2 Channel 2 - Preamplifier 2 Channel 8	Local relay	CPU board	N/A (future use)
0832	Preamplifier 2 Channel Page	Local relay	CPU board	N/A (future use)
0833	Preamplifier 3	Audio output	CPU board	N/A (future use)
0834	Preamplifier Channel (2)	Local relay	CPU board	N/A (future use)
0835 - 0841	Preamplifier 3 Channel 2 - Preamplifier 3 Channel8	Local relay	CPU board	N/A (future use)

Address	Label	Device type	Source	Description
0842	Preamplifier 3 Channel Page	Local relay	CPU board	N/A (future use)
0843	Preamplifier 4	Audio output	CPU board	N/A (future use)
0844	Preamplifier Channel (3)	Local relay	CPU board	N/A (future use)
0845 - 0851	Preamplifier 4 Channel 2 - Preamplifier 4 Channel8	Local relay	CPU board	N/A (future use)
0852	Preamplifier 4 Channel Page	Local relay	CPU board	N/A (future use).
2001	Telephone Line 1 Fault	Local trouble	CPU board	DACT Line 1 Voltage Out of Range.
2002	Telephone Line 1 Ground Fault	Ground Fault	CPU board	DACT Line 1 Ground Fault.
2003	Dialer Line 1 Phone Fault	Local trouble	CPU board	DACT Line 1 No Phone Present
2004	Dialer Line 2 Fault	Local Trouble	CPU board	DACT Line 2 Voltage Out of Range
2005	Dialer Line 2 Ground Fault	Ground Fault	CPU board	DACT Line 2 Ground Fault
2006	Dialer Line 2 Phone Fault	Local Trouble	CPU board	DACT Line 2 No Phone Present
2007	Dialer Line 1 Test Transmit Failed	Local Monitor	CPU board	DACT Line 1 Fail Message transmission.
2008	Dialer Line 2 Test Transmit Failed	Local Monitor	CPU board	DACT Line 2 Fail Message transmission.
2009	Dialer Account 1 Msg Transmit Failed	Local Trouble	CPU board	DACT failed to transmit a message to Account 1.
2010	Dialer Account 2 Msg Transmit Failed	Local Trouble	CPU board	DACT failed to transmit a message to Account 2.
3001	User	Local monitor	CPU board	User log on input
3002 - 3020	User (1) - User (19)	Local monitor	CPU board	User x log on input
4001 - 4006	Virtual Switch 1 - Virtual Switch 6	Local Monitor	CPU board	Virtual switch activation.
4101 - 4130	Unconfigured R-Series module 1 - Unconfigured R-Series module 30	Local trouble	R-Series annunciator	The R-Series annunciator is connected but not configured. Add the annunciator to the CU project and configure it.

[1] If the event persists after a panel reset, call Edwards Technical Support at +1 800 655 4497.