Aura Fire Alarm Control Panel Installation Manual

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COMPLIANCE INFORMATION

Underwriters Laboratories (UL)

Fire Alarm Equipment

SHIELD Fire, Safety & Security Ltd

The Aura Fire Alarm Control Panel is suitable as follows:

- Types of signaling services are automatic fire alarm and manual fire alarm
- Class A, B, and/or X Signaling Line Circuits
- Class A and/or B for Notification Appliance Circuits
- Protected Premises Unit (PPU) for Local Service, Remote Station Service, Center Station Service, Proprietary Service, Auxiliary Service.

NFPA

Install this product in accordance with NFPA 72, NFPA 70, and NEC 70 and all local codes.

Install SLC detectors with spacing as specified in section NFPA 72. Units employing "multiple detector operation" shall include guidelines for installing of a minimum of two detectors in each protected space and to reduce the detector installation spacing to 0.7 times the linear spacing in accordance with National Fire Alarm Code, NFPA 72.

All field wiring should be installed using fire rated cables according to the NFPA 72. Riser conductors shall be installed in accordance with the survivability from attack by fire requirements in National Fire Alarm Code, NFPA 72, Section 12.3. Riser conductors shall employ either a 2 hour rated cable system, or meet requirements approved by the AHJ.

FM Global Technologies LLC (FM APPROVALS)

SHIELD Fire, Safety & Security Ltd

INTRODUCTION

Technical Support

For technical support, contact Shield at +44 1708 377731 or e-mail elv@shieldglobal.com. Shield technical support is available Monday through Friday, 8:00 AM to 5:00 PM.

Limited Returns and Repairs Policy

In-Warranty Items

All equipment supplied by Shield is provided with a warranty, these warranties are between Shield (the Seller) and the company that placed the order upon the seller (the Buyer). The warranty Period is valid for 36 months from the delivery date and is non-transferable.

Damaged Goods

In the event of damage to equipment during transit or any defect in the quality of goods, the Buyer shall Notify Shield within seven days of delivery.The goods may then be returned to the Customer Service Department of Shield for repair, or replacement parts may be supplied (by arrangement).

Component Failure

In the event of a defect of the supplied equipment during the warranty period, due to defective materials or workmanship, then replacement parts shall be supplied to the Buyer using the Service Replacement Item (SRI) scheme.

Service Replacement Items

The Buyer shall request the replacement part(s) required from the Customer Service Department. This Request shall be made by fax to +44 1708 347637 or e-mail to elv@shieldglobal.com and shall include the Parts required the panel Works Order (W/O) Number and the required delivery address.

If the Buyer is not aware of the required replacement part(s), additional advice may be obtained from the Technical Support Department. Once the SRI has been approved, items are normally dispatched for next day delivery subject to stock availability.

SRI parts are supplied on the following terms and conditions:

- SRI parts are loan items and are not available for resale.
- All SRI parts must be returned to the Customer Service department of Shield within 14 days of delivery.
- Any SRI parts that have not been returned within 28 days of delivery will be invoiced at the price given in the Shield Price List, less discount.
- Any returned items that are found to have failed due to fair wear and tear, willful damage, negligence, abnormal working conditions, misuse or alteration or repair without the Suppliers approval or failure to follow the seller's instructions will be subjected to a repair fee of up to the price given in the Shield Price List, less discount.
- Any returned items that are not part of the original equipment or are not in warranty will be invoiced at the price given in the Shield Price List, less discount where applicable.
- All SRI parts shall be returned in the same packaging as the replacement parts were supplied in. Failure to ensure that adequate anti-static precautions are taken during the replacement of parts, or in the return of SRI parts may result in an invoice of up to the price given in the Shield Price List, less discount.
- Any SRI parts returned without the completed SRI delivery report or any SRI reference documentation will be invoiced at the price given in the Shield Price List, less discount. The right to receive Service Replacement Items is regularly reviewed and may be withdrawn from persistent abusers of this facility. Shield reserve the right not to supply SRI items without prior notice.

Out Of Warranty Items

Shield provides a test and repair facility for most standard and special build products. This facility can also recondition control panels, subject to availability of components.

Customer Repairs

Items for repair shall be returned to the Customer Service Department of Shield. Any items returned for repair must be accompanied with the following:

- A request for repair work to be undertaken.
- A customer contact name.
- Details of the company requesting the repair.

Failure to supply the required information will result in the returned items being quarantined for a period not exceeding 60 days. If the items are not identified within 60 days of receipt, then Shield reserves the right to dispose of these items or return them.

A written quotation will be provided for all items to be repaired that are not included in the repair prices section of the Shield Price list. No repairs or refurbishment will be undertaken without prior authorization from the customer and a written order for the repair work. Returned equipment will be held awaiting authorization for a period not

exceeding 60 days from the date of quotation. After this period, Shield reserves the right to dispose of these items or return them.

Repair Warranties

Repaired items are not covered by the normal Warranties and Liability conditions. Subsequent failures of repaired items will only be covered if the failure is due to a material or workmanship defect directly associated with the repair and for a period not exceeding three months from the date of the repair. Shield are under no liability if the repaired or replaced components are found to have failed due to fair wear and tear, willful damage, negligence, abnormal working conditions, misuse or alteration or repair without approval or failure to follow the sellers instructions.

Items Returned For Credit

Items shall only be accepted for credit by written approval with the Operation Manager of Shield. Items will only be eligible for credit in the first 3 months from the supply date.

Before any items are returned for credit, an RMA reference number must be obtained from the Sales / Operations Department. This number must be used for any correspondence relating to the goods. All goods Returned for credit must be approved before receipt.Written approval will then be issued using a Goods Return Application Form. A copy of this form must be supplied with the returned goods. The RMA reference number must be clearly marked on the outer packaging when returning goods to the company. Goods must be returned to Shield within 30 days of the issue of the Goods Return Application Form. Only items listed on this from must be returned under the RMA reference. Items returned without prior request for an RMA reference may be returned to the customer.

Failure to supply the required information will result in the returned items being quarantined for a period not exceeding 60 days. If the items are not identified within 60 days of receipt, then Shield reserves the right to dispose of these items.

Any items returned for credit will be tested and returned to a production release condition. Any material and labor costs associated with this process shall be deducted from the credit amount in accordance with the Returned Goods Policy in the Shield price list and at the discretion of the Managing Director.

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INSTALLATION

This section provides instructions for connecting cables, mounting, and testing the Aura Fire Alarm Control Panel for installation. The following is a general checklist for the installation of the panel. Detailed instructions are provided for each step.

WARNING!   Disconnect AC and battery power before making any field connections. Double-check all termination points before applying power to the panel! Incorrectly terminated wiring may cause permanent damage to the panel.

IMPORTANT!   The Aura Fire Alarm Control Panel installation must be performed by qualified service personnel. Maintain extreme care when anchoring the cabinet to the premises wall. Electronic components within the panel are vulnerable to physical damage from severe shock and vibration. Remove the cabinet door and fascia for the installation of the panel. Detailed instructions are provided for each step.

	Task
❑	Obtain required mounting hardware, tools, and batteries.
❑	Disconnect ribbon and ground cables.
❑	Open and remove the fascia from the cabinet.
❑	Open and remove the door from the cabinet.
❑	Remove the backplate and any installed batteries from the cabinet.
❑	Anchor the empty cabinet to the premises wall.
❑	Thread the cabling into the cabinet.
❑	Reattach the backplate to the cabinet.
❑	Secure the cabling to the terminals.
❑	Place standby batteries in the base of the cabinet and connect them to the power supply.
❑	Reconnect the ribbon and ground cables.
❑	Reattach the fascia and door.
❑	Apply power to the panel from the AC source.
❑	Program the panel.
❑	Test the installation.

Preparing for Installation

1. Refer to the checklist provided above before beginning the installation process. For detailed information, refer to the appropriate, referenced section in this document.

2. Select a suitable operation environment. The site should be clean, dry, and not subject to shock or vibration. Ensure that the environment is free from wire ends, knockout tabs, and other debris.

3. Familiarize yourself with the panel and components.
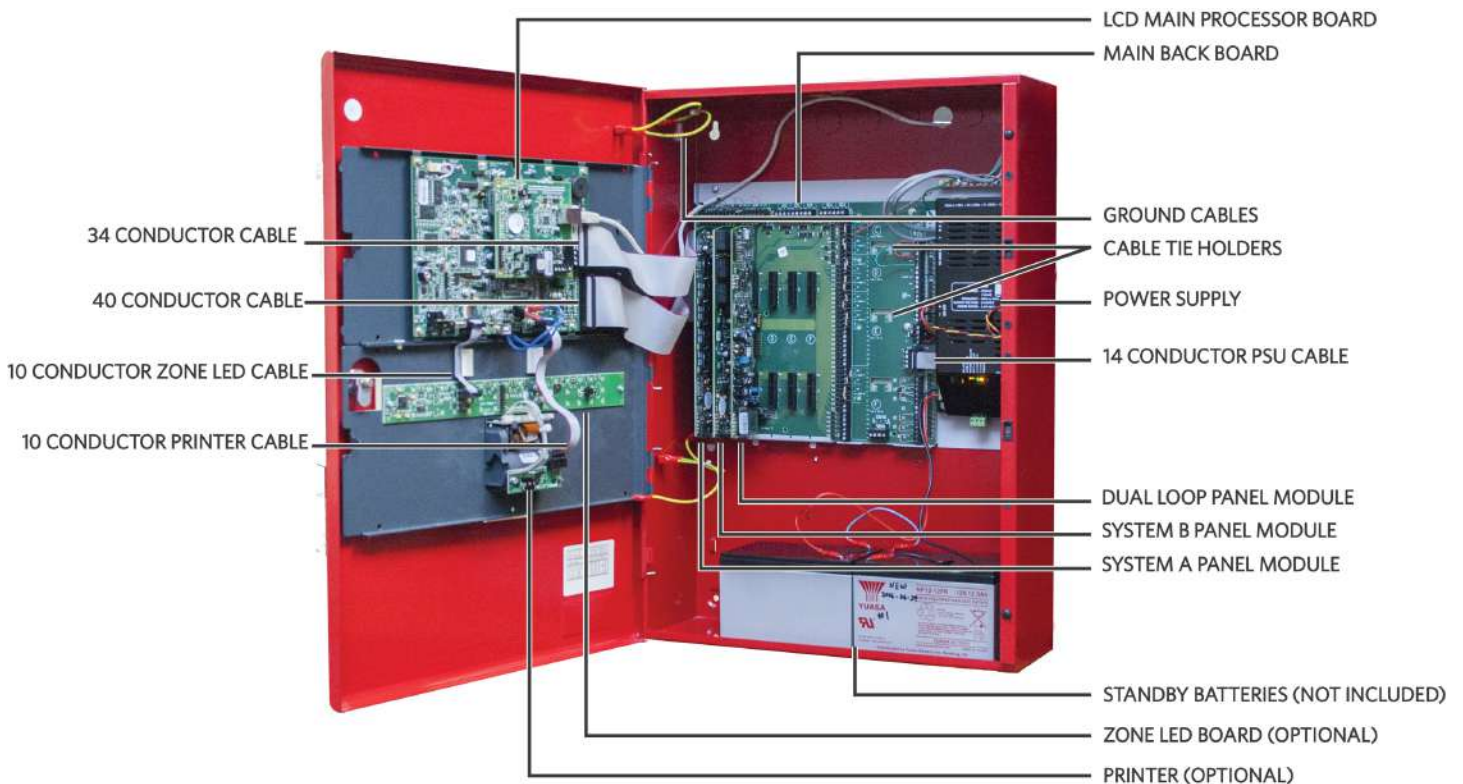
Item	Description
Power Supply	Depending on the model, the Aura Fire Alarm Control Panel will have either a 5.25 Amp or 10.25 Amp power supply.
Main Back Board	The Main Back Board contains slots for six circuit boards, and accepts the System A Panel Module, System B Panel Module, Dual Loop Panel Module(s), and various optional panel modules.
LCD Main Processor Board	The LCD Main Processor Board provides operation of the panel GUI.
System A Panel Module	System A Panel Module is required for operation of the fire alarm control panel. All models of the Aura Fire Alarm Control Panel contain one System A Panel Module.
System B Panel Module	System B Panel Module is required for operation of the fire alarm control panel. All models of the Aura Fire Alarm Control Panel contain one System B Panel Module.

Item	Description
Dual Loop Panel Module	The Dual Loop Panel Module provides two addressable loop functions for the fire alarm control panel. All models of the Aura Fire Alarm Control Panel contain at least one Dual Loop Panel Module.
Ground Cable(s)	Ground cabling is green and yellow, insulated wire containing connecting lugs. Ground cabling provides common electrical grounds of the cabinet to the lid, fascia, and backplate.
14 Conductor PSU Cable	The 14 Conductor PSU Signal Cable connects from the power supply to the Main Back Board.
34 Conductor Cable	The 34 Conductor Cable connects the Main Back Board to the LCD Main Processor Board.
40 Conductor Cable	The 40 Conductor Cable connects the Main Back Board to the LCD Main Processor Board.
10 Conductor Zone LED Cable (optional)	The 10 Conductor Zone LED Cable connects from the Zone LED Module to the LCD Main Processor Board.
10 Conductor Zone LED to LED Cable (optional)	The 10 Conductor Zone LED to LED Cable connects from one Zone LED Module to the next Zone LED Module. This cable is required when two or more Zone LED Modules are installed on the fascia.
10 Conductor Printer Cable (optional)	The 10 Conductor Printer Cable connects the printer assembly to the LCD Main Processor Board.

4. The following items are not included with the Aura Fire Alarm Control Panel, but may be required for the installation:

- Two 12 VDC VRLA (Valve-Regulated Lead Acid) Standby Batteries - Required
- Mounting Hardware - Mounting hardware that secures the panel to the wall is not provided. Screws should be either a #10 or #12.
- A Ground Strap is required for handling circuit boards.

Mounting the Aura Fire Alarm Control Panel

IMPORTANT! Electronic components within the panel are vulnerable to damage from electrostatic discharge. Ground straps must be worn by installers before handling circuit boards to prevent damage from electrostatic discharge.

Mount the cabinet box on a flat, dry surface and align it so that it is at eye-level with the center of the panel GUI. Use the cabinet box as a template and mark the position of the mounting holes while ensuring that the wall is flat at the chosen location.

The Aura Fire Alarm Control Panel must be mounted in an accessible location. It must not be mounted in another enclosure or near sources of excessive heat. The Aura Fire Alarm Control Panel is intended for indoor, dry use only.

Use knockout tabs of the cabinet box to route external cabling into the panel.

IMPORTANT! Drilling additional holes in the cabinet will void the product warranty.

Removing Cabinet Components

Remove the fascia, lid, backplate, and batteries before mounting the cabinet box. The fascia contains the LCD Main Processor Board and, optionally, Zone LED indicators and a printer. The backplate contains the Main Back Board, power supply, and grounding terminals. To remove these components:

1. Disconnect the four ground jumper cables from the cabinet.

2. Disconnect the ribbon cables from the LCD Main Processor Board, leaving the cable ends connected to the Main Back Board.

3. Remove the hinge pins of the fascia and then remove it from the cabinet box. Return the hinge pins to the hinges of the cabinet box for safekeeping.

4. Remove the hinge pins of the cabinet lid and then remove the cabinet lid from the cabinet box of the fire control panel. Return the two hinge pins to the hinges of the cabinet box for safekeeping.

5. Remove the retaining screws from the backplate, slide the backplate tabs up, and remove the backplate from the cabinet. The empty cabinet box is now prepared for mounting on the premises wall.

6. If the power supply is not mounted to the backplate (as with an extension board), disconnect the power supply and remove it from the cabinet.

7. Mark hole locations on the wall for mounting the empty cabinet.

8. Drill four holes in the premises wall.

9. Anchor the empty cabinet box to the wall using appropriate mounting hardware to secure it.

10. Remove the necessary number of knockout tabs from the cabinet box and feed external cabling into the Aura Fire Alarm Control Panel.

Replacing Cabinet Components

1. Replace the backplate and power supply.

2. Replace the door and fascia.

3. Reconnect the cabling.

Connecting and Dressing Cabling

This section describes connections between the power supply and the Main Back Board of the Aura Fire Alarm Control Panel. Separate high and low voltage wiring in the enclosure with a minimum gap of 0.25".

Connecting 24V and 14 Conductor Wiring

Refer to **Connecting Field Wiring** for specific details about proper wiring. To connect 24V wiring of the power supply to the Main Back Board:

1. Connect the red wire from the positive (+) 24V terminal of the power supply to the positive (+) terminal on the Main Back Board.

2. Connect the black wire from the negative (-) RTN terminal of the power supply to the negative (-) terminal on the Main Back Board.

3. Connect the 14 Conductor Cable from the power supply to the Main Back Board.

Installing Power Supplies

Aura Fire Alarm Control Panels can be equipped with either a 5.25 Amp or 10.25 Amp power supply. Set DIP switches on the 5.25 Amp and 10.25 Amp Power Supplies before completing the installation process. Refer to DIP Switch Settings. The power supply settings must be performed to establish the optimal charge current of the standby batteries. These power supplies can be set to operate at an input of 230 VAC. For more information about the power supplies and their functions, see Power Supplies.

The 5.25 Amp Power Supply

Refer to Connecting Field Wiring for specific details about wiring the power supplies. Provide an AC power connection to the terminal block from a 15 Amp branch circuit. The following figure illustrates AC connections of the 5.25 Amp Power Supply:

1. Connect a wire from the ground terminal (⏚) to the grounding block of the cabinet box.

2. Connect a wire from the grounding block of the cabinet box to a ground. Provide this connection in close proximity to the cabinet box.

3. Connect a wire from the neutral terminal (N) to the neutral of the power source.

4. Connect a wire from the line terminal (L) to the line of the power source.

The 10.25 Amp Power Supply

Provide an AC power connection to the terminal block from a 15 Amp branch circuit. To connect AC power to the 10.25 Amp Power Supply:

1. Connect a wire from the ground terminal (⏚) to the grounding block of the cabinet box.

2. Connect a wire from the grounding block of the cabinet box to a ground. Provide this connection in close proximity to the cabinet box.

3. Connect a wire from the neutral-terminal (N) to the neutral of the power source.

4. Connect a wire from the line-terminal (L) to the line of the power source.

Connecting Standby Batteries

The Aura Fire Alarm Control Panel provides connections for two standby batteries. Refer to Calculations for determining the minimum required battery capacity for your fire alarm system. If your required battery capacity exceeds the space available in the cabinet, an appropriately-sized auxiliary UL listed battery cabinet suitable for fire alarm service will be required. If needed, install that cabinet (wired close-nippled) adjacent to the panel to minimize battery lead length.

WARNING! Battery terminals and leads are not power-limited. Shorts can cause a fire or an explosion. Use extreme caution while connecting standby batteries.

Refer to Connecting Field Wiring for specific details about connecting the standby batteries.

1. Place two 12 VDC, VRLA, rechargeable, standby batteries in the base of the cabinet.

2. Orient terminals of the standby batteries so that the positive (+) terminal of one standby battery is facing the negative (-) terminal of the other.

3. Connect the black wire of the power supply to the negative (-) terminal of Battery 1.

4. Connect the red wire of the power supply to the positive (+) terminal of Battery 2.

5. Connect the jumper wire from the (+) of Battery 1 to the (-) of Battery 2.

6. Route battery leads at least 0.25" from all other cabling.

The series connection described provides the 24 V standby voltage required by the panel. Do not connect the two batteries in parallel. A parallel connection will not provide the 24 V required for operating the panel in a standby condition.

The battery connections can be made while AC power on or off. If AC power is off, the battery connection will not be recognized (and the unit will remain unpowered) until AC is restored. Once AC power is on and the batteries are connected, examine the LED Status Indicators on the power supply:

- Confirm that the AC NORMAL and DC OUT ON indicators are both illuminated, and the HEARTBEAT indicator is blinking yellow.
- Confirm that BATTERY DISCON is off. If it is on, recheck the battery connections and test or replace the batteries.
- Wait 3 minutes and confirm that no trouble indicators are illuminated.

Using a volt meter, measure the voltage across each battery separately. Typically, the voltage of each battery will measure 12.0 to 14.5 volts depending on the level of charge. Voltages below 12.0 are possible if the battery is severely discharged. Compare the two battery voltages. A difference of more than 1 volt may indicate a problem with the batteries.

Installing Optional Panel Modules

Panel modules are installed at the factory according to customer requirements. In some situations, it may be necessary to install additional panel modules to satisfy site configuration requirements. This section describes procedures for installing and configuring panel modules. Before installing optional panel modules, check and set the DIP switch settings, if applicable.

DIP Switch Settings

Each panel module of the Aura Fire Alarm Control Panel must contain a unique setting before being connected to the Main Back Board. The binary setting of the DIP switch sets the specific address for the panel module. The numeric order of the address setting between modules does not impact operation, but each panel module must be assigned a separate / unique address.

The black portion of the DIP switch identifies the switch actuator.
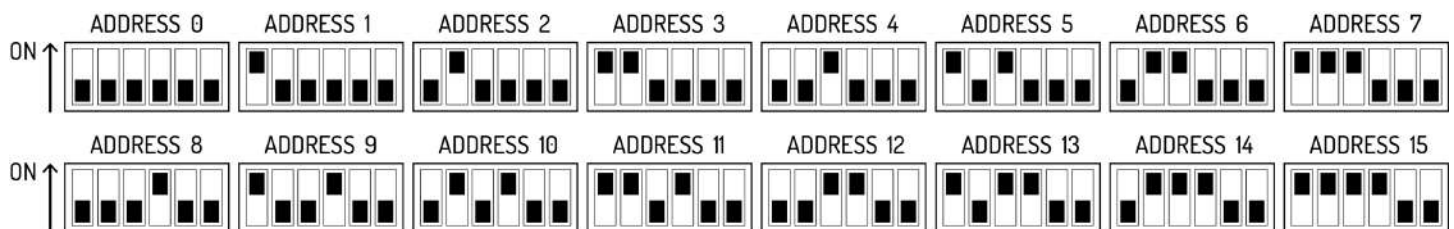
Address 0 is shown above for illustrative purposes only. Address 0 should never be used.

For addresses above 15, switches 5 and 6 will need to be used.

- For address 16-31, switch 5 should be in the ON position. Switch 5 ALONE adds 16 to the address number. For example, for address 20, set the switch position to address 4 shown above and switch 5 in the ON position.
- For address 32-47, switch 6 should be in the ON position. Switch 6 ALONE adds 32 to the address number.
- For address 48-63, switches 5 AND 6 should be in the ON position. Switches 5 and 6 TOGETHER adds 48 to the address number.

Placement

To install modules on the Aura Fire Alarm Control Panel:

1. Disconnect AC power and standby batteries prior to performing the module installation.

2. Remove the retaining screw and plastic cover.

3. Remove the panel module from the protective packaging using adequate electrostatic protection.

4. Point the conductor side of the panel module toward the backplate.

5. Insert the notched end of the panel module in the metal guide notch of the backplate at an angle, as shown.
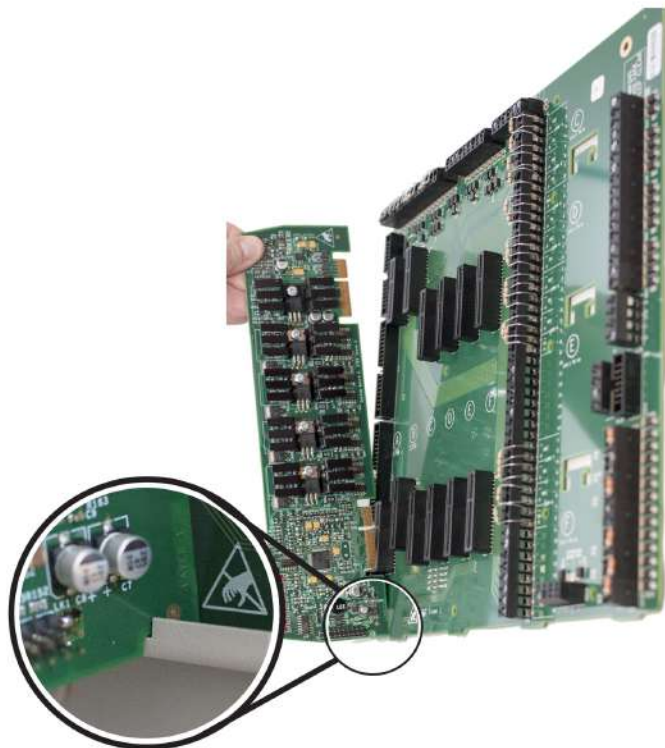
The photo above is an example of panel module placement and may not be representative of the specific module and slot placement described in this guide. Refer to the checklist above for details on placement.

6. Rotate the panel module until all conductors are securely inserted into connectors of the Main Back Board.

7. Replace the cover onto the Main Back Board.

8. Reconnect the batteries and restore AC power.

Installing the Network Module

The Network Module provides enhanced high-speed communication for networking up to 127 fire control panels, (addressed from 1-127). To install the network module of the Aura Fire Alarm Control Panel:

1. Switch off AC power and disconnect the battery .

2. Connect the 40 conductor connector of the Network Module to the 40 conductor connector of the LCD Main Processor Board as shown.
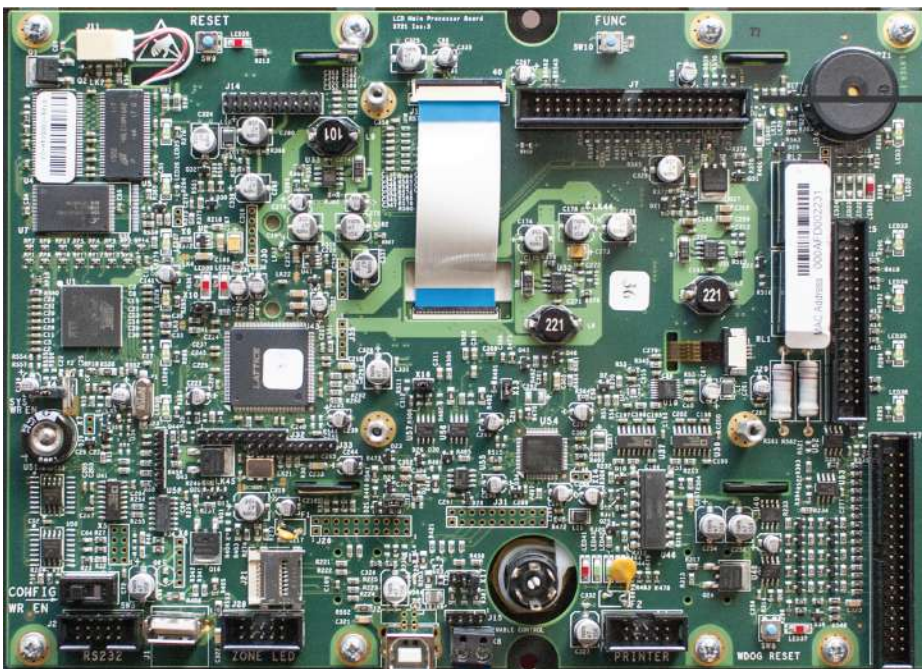
3. Secure the Network Module to the LCD Main Processor Board with supplied hardware .

4. Reconnect the battery and restore AC power.

Network Connections

Provide network connections to NETWORK IN and NETWORK OUT terminals of the Aura Fire Alarm Control Panel's Main Back Board after installing the Network Module. The following figure illustrates the typical network connections of a 3 panel, Class X network:
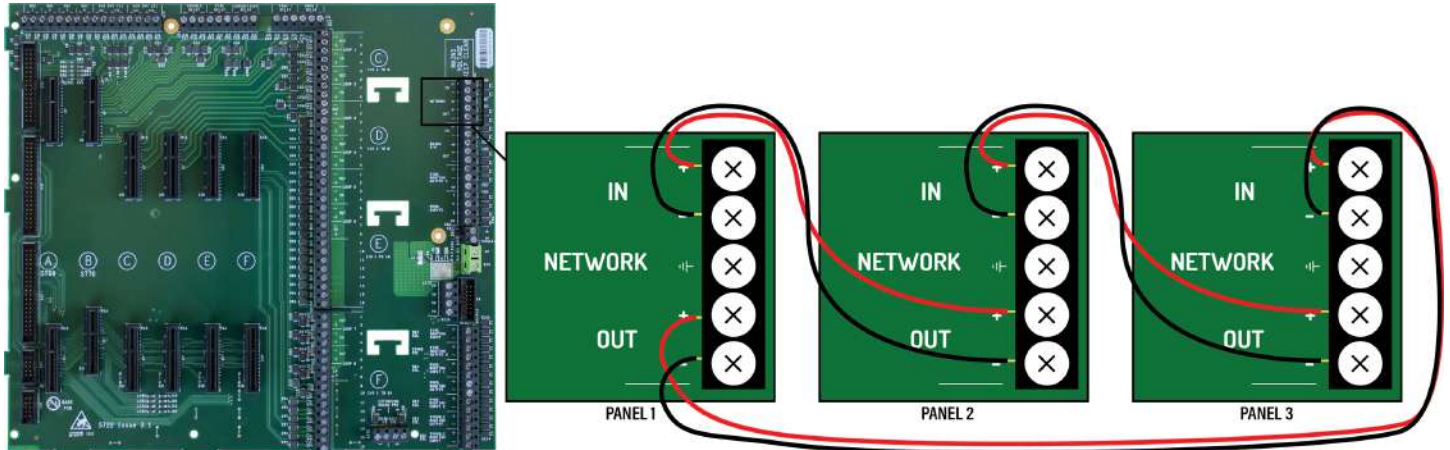
Because network connections are supervised, if a network module is installed and there are no other devices on the network, the IN and OUT network terminals must be connected together to prevent an
OPEN CIRCUIT TROUBLE indication.
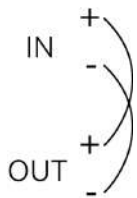
Bridge networking is supported for Omega and OmegaX panels. Advanced features are not available when using bridge networking.

Fiber Optic Networking

When designing or installing a network of panels, any network segment or combination of segments can be connected with fiber optic cable instead of copper wire. Two fiber optic converters are required per segment as shown. Connections between the panel and the converter must be within 20 feet and wired in conduit (or equivalently protected against mechanical injury). Converter DIP Switch settings must be set as shown . Refer to the Equipment List for the model numbers of the fiber converters.

	Single-Mode	Multi-Mode
Fiber Types	9/125 µm, 8.3/125 µm, 7/125 µm, or 10/125 µm	50/125 µm, 62.5/125 µm, or 100/140 µm
Wiring Distance	24.8 miles (40 km)	3.1 miles (5 km)

Serial Connection RS-485-2W		Built-in 120 Ohm Terminator Enable	Fiber Mode Point-to-Point Mode
SW1	**SW2**	**SW3**	**SW4**
OFF	ON	ON	OFF
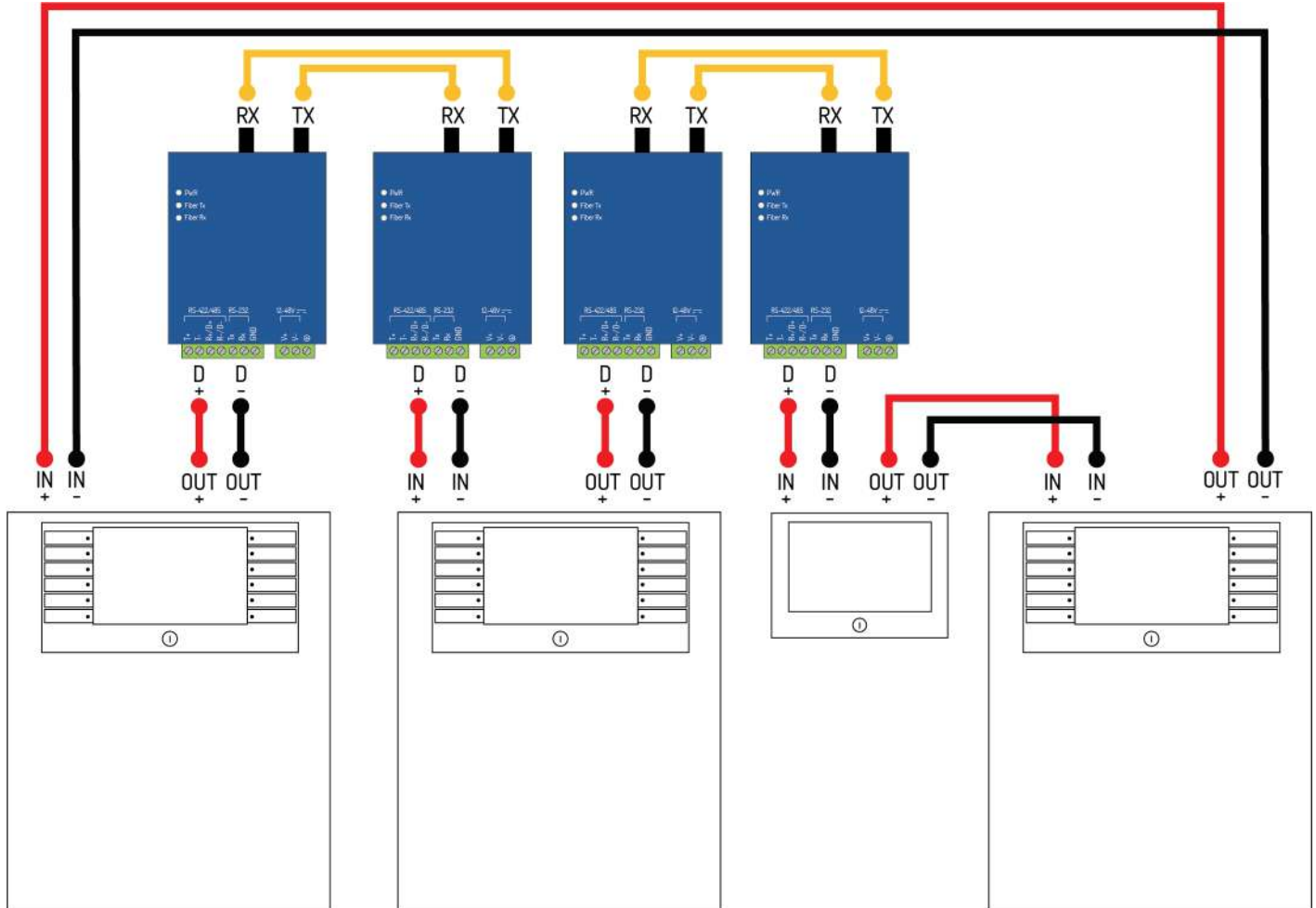
Example Wiring Diagram of a Mixed-Wire (fiber and copper) network
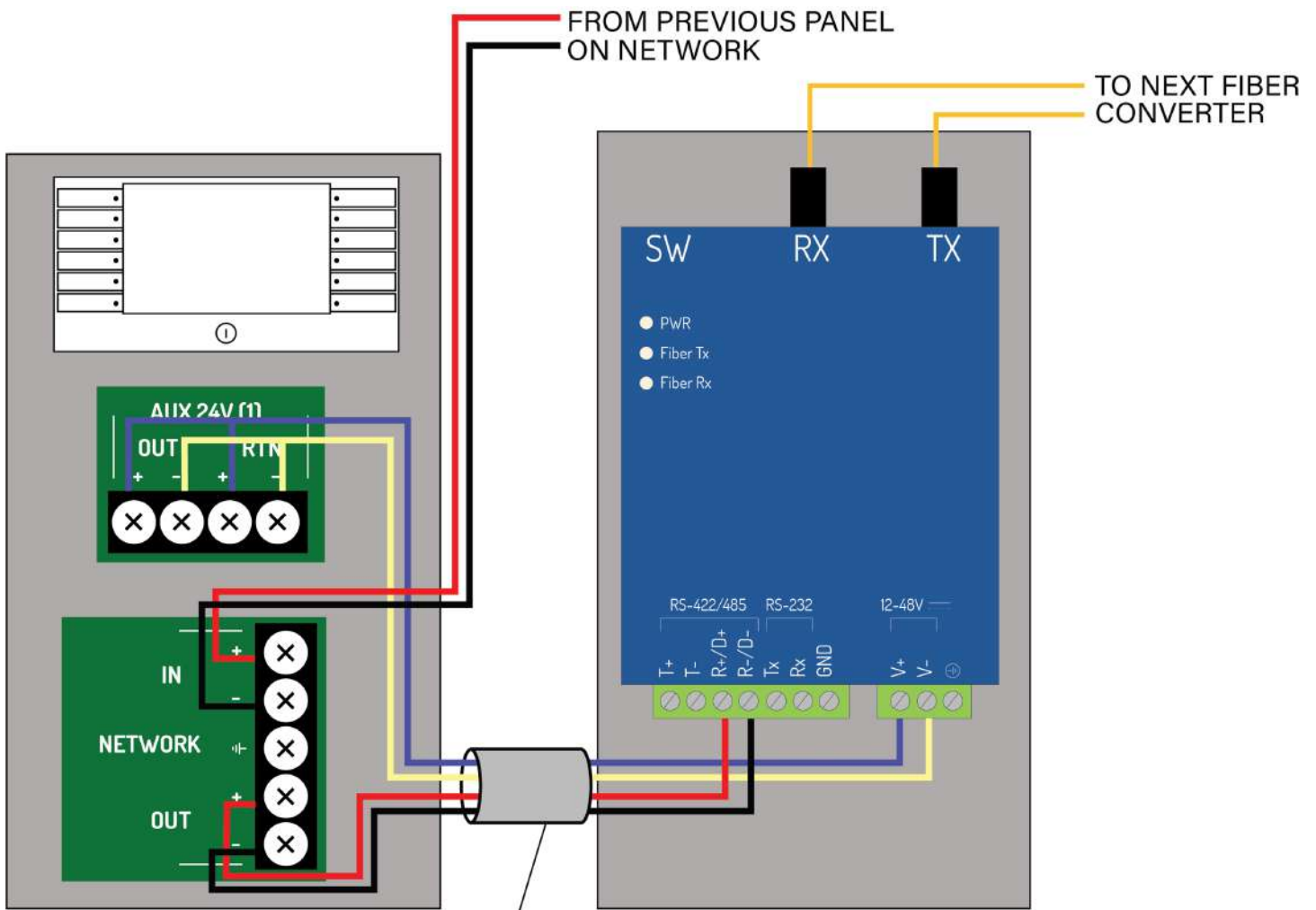
FROM PREVIOUS PANEL
ON NETWORK

TO NEXT FIBER
CONVERTER

SW   RX   TX

● PWR
● Fiber Tx
● Fiber Rx

AUX 24V (1)

OUT   RTN

+   -   +   -

IN

NETWORK

OUT

RS-422/485   RS-232   12-48V

T+ T- R+/D+ R-/D- Tx Rx GND   V+ V- ⏚

Connections between the panel and the converter must be within 20 feet
and wired in conduit (or equivalently protected against mechanical injury).

Detailed Fiber Converter Wiring Diagram

Do not insert more than one conductor per terminal. Use wire nuts or other suitable splice connectors to connect the 24V DC cables to both the AUX 24V OUT and RTN terminals.

Connecting Field Wiring

Power-limited conductors must be installed using Types FPL, FPLR, FPLP, or equivalent cables. When connecting field wiring, separate high and low voltage wiring in the enclosure with a minimum gap of 0.25".

WARNING!   Disconnect AC and battery power before making any field connections.

WARNING!   Do not route low-voltage cabling through the same conduit as AC lines. AC power lines should be threaded through a dedicated conduit. Refer to the following illustration when connecting any wiring.

Ferrite Installation

To reduce the impact of electromagnetic interference (EMI), the ferrite provided with the Aura Fire Alarm Control Panel must be installed onto the incoming AC wiring. These photos illustrate how the ferrite should be installed.

Internal View

External View

Closed View
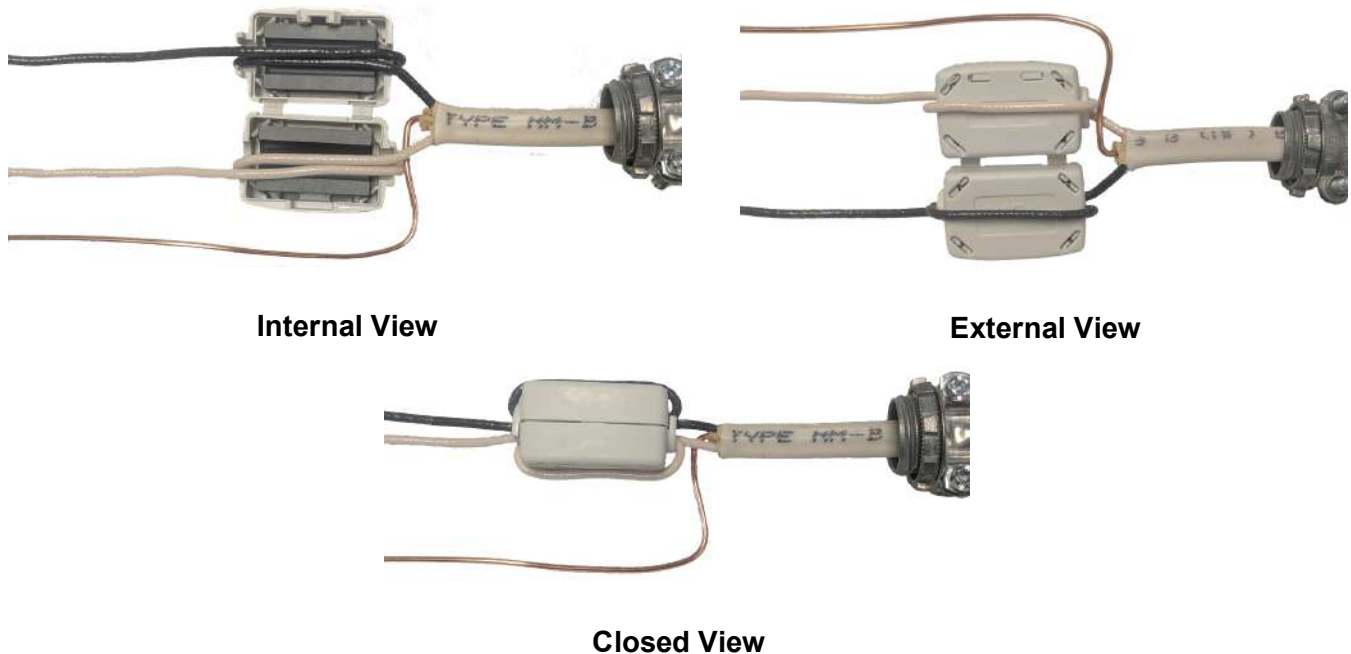
Live and Neutral wire cores must be doubled around the ferrite. When the cores are in place, close the ferrite with a 'click' sound.
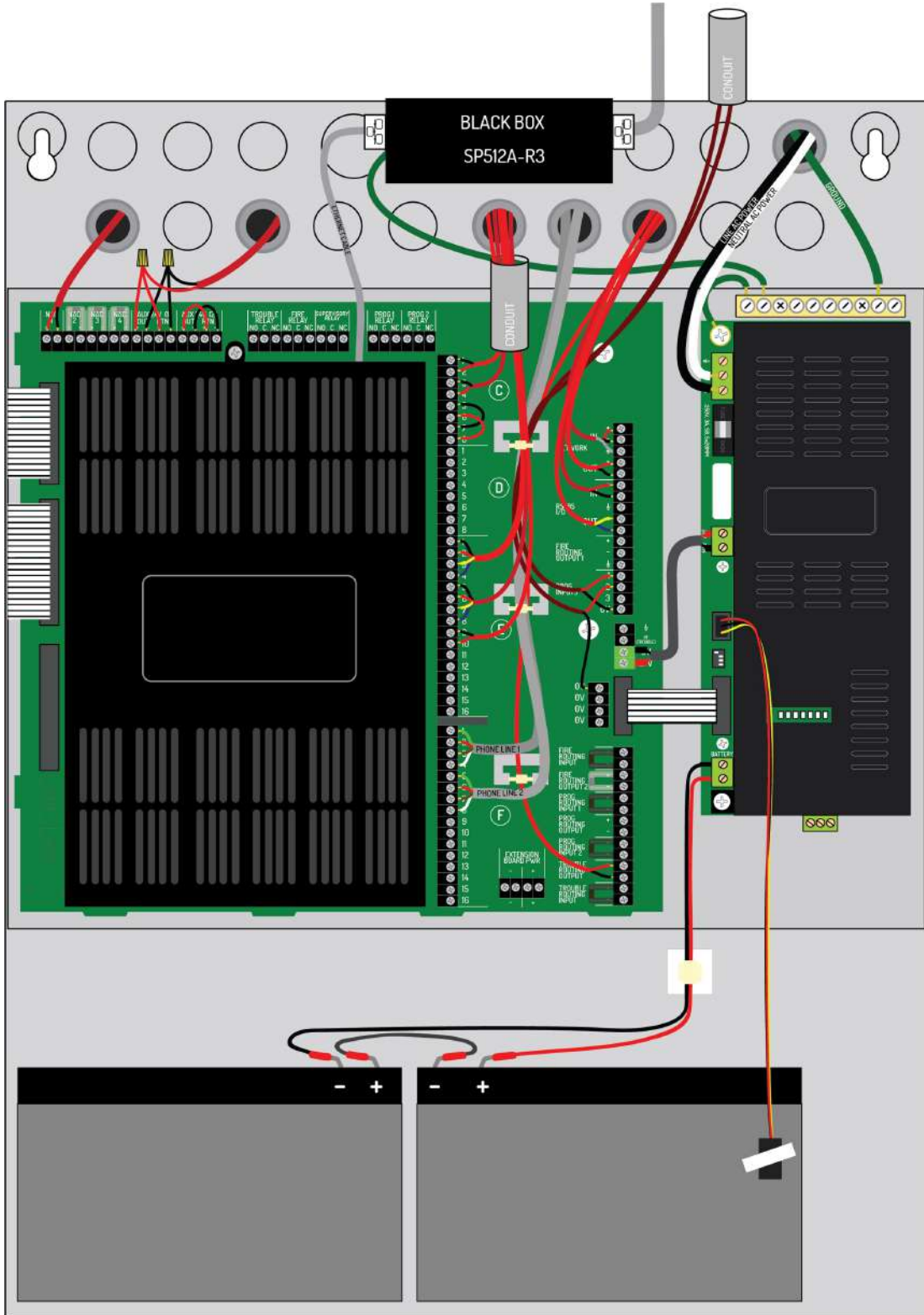
Class A SLC Loops

1. Connect Class A loops to the terminal strip of the Aura Fire Alarm Control Panel.

2. When the loop is unused, the loop termination jumpers provided with the panel should be replaced with 14-22 AWG SLC cable.

The Aura Fire Alarm Control Panel provides a trouble signal when unused loops are not terminated. All loops are supervised.

Follow NFPA guidelines for placement of isolators with Class A wiring.

CLASS A LOOP CONNECTION CONTAINING SIX ADDRESSABLE SENSORS
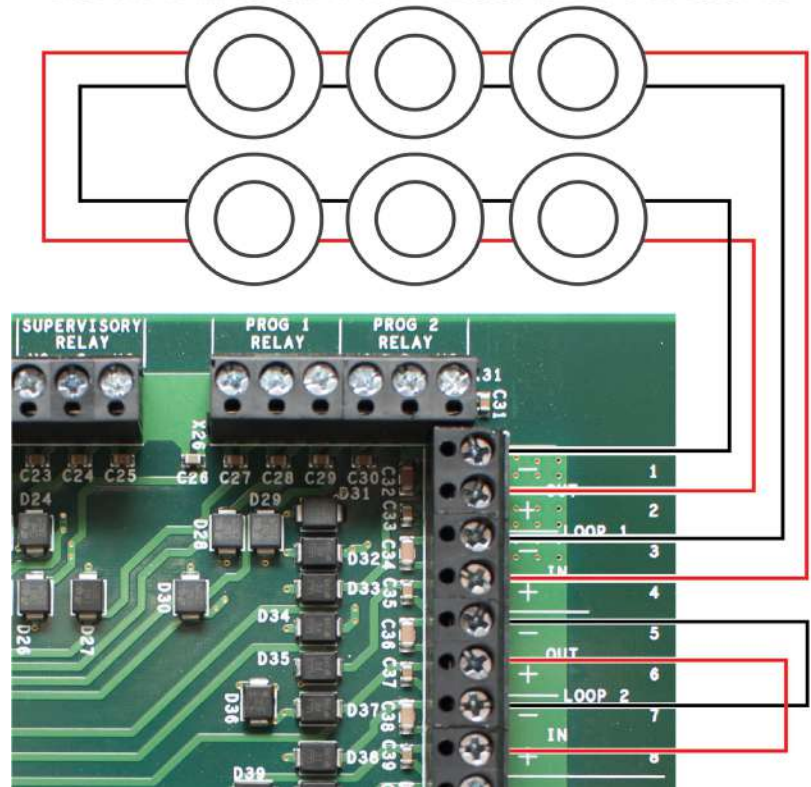
Class B SLC Loops

Class B loops may not be permitted in all regions. Check local codes of practice before using Class B SLC circuit configurations.

1. Connect Class B loops to both the IN and OUT terminals of the terminal strip. Do not insert more than one conductor per terminal. Use wire nuts or other suitable splice connectors to connect the Class B loop cable to both the IN and OUT terminals.

2. When the loop is unused, the loop termination jumpers provided with the panel should be replaced with 14-22 AWG SLC cable.

SLC cabling must be sized according to length and device load to ensure that the voltage-drop of the cable does not result in an inadequate operating voltage on the circuit.

Refer to the Aura Fire Alarm Control Panel Installation Manual (MAN-1431VS) for an example of how isolators may be used on a Class B circuit.

CLASS B LOOP CONNECTION CONTAINING THREE ADDRESSABLE SENSORS

Class X SLC Loops

1. Connect Class X loops to the terminal strip of the Aura Fire Alarm Control Panel.

2. When the loop is unused, the loop termination jumpers provided with the panel should be replaced with 14-22 AWG SLC cable.

CLASS X LOOP CONNECTION
CONTAINING SIX ADDRESSABLE SENSORS
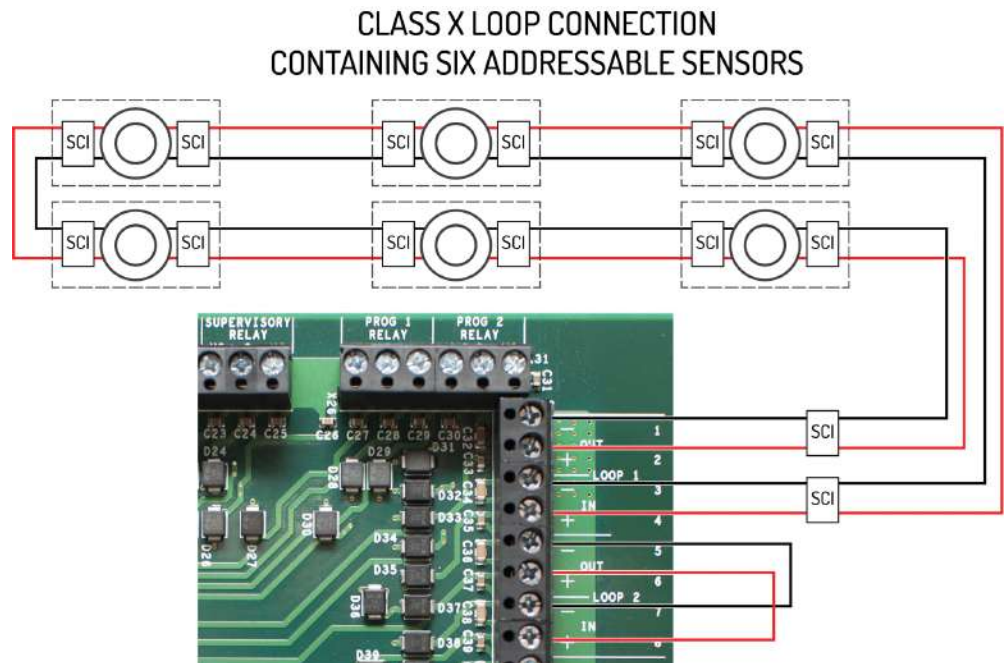
The Aura Fire Alarm Control Panel provides a trouble signal when unused loops are not terminated. All loops are supervised. Follow NFPA guidelines for placement of isolators with Class X wiring.

When using Class X wiring, SCI Short Circuit Isolators must be installed before and after each analog addressable device on the SLC loop. Alternatively, analog devices with built-in SCI may be used.

The wiring from the control panel to the first SCI and from the last SCI back to the control panel must be in conduit.

Notification Appliances

Notification appliance circuits can be configured in pairs for Class A operation. Class A operation can be assigned to the first pair of notification appliance circuits (NAC1&2) or the second pair (NAC3&4) or both pairs.

When wiring a pair of NACs for Class A operation, only one of the two End-of-Line diodes is used. Remove the one from the +/- terminals of the first NAC. Leave the other in-place on the terminals of the second NAC.

For Class B operation, the End-of-Line diode must be removed from the NAC terminals and connected across the terminals of the last device on the NAC circuit.

Branching of Class A or Class B notification appliance circuits prevents proper circuit supervision and is not permitted.

Connecting Notification Appliances
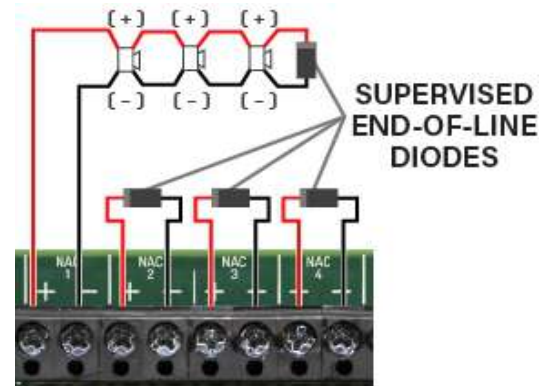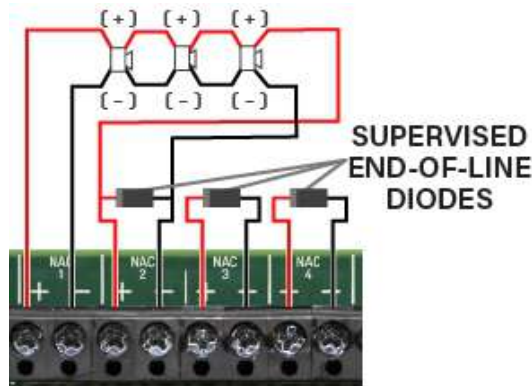
Connection of notification appliances in a Class A configuration.

Connection of notification appliances in a Class B configuration.

Do not insert more than one conductor per terminal. Use wire nuts or other suitable splice connectors to connect the end-of-line diode and Class A loop return wire. Cable gauge must be sized according to length and device load to ensure that voltage-drop of the cable does not result in less than the minimum operating voltage of the notification appliances. Different limitations will apply for devices with a higher or lower minimum working voltage. Refer to Specifications for cabling information.

To install notification appliances on the Aura Fire Alarm Control Panel:

1. Connect notification appliances and End-Of-Line diodes to the NAC output.
2. Connect End-Of-Line diodes to unused NAC outputs.
3. Maintain the limit for maximum wire length of the circuit.

Notification appliances connected to NAC outputs on a single panel are synchronized. Notification appliances connected to SLC loops on a single panel are synchronized. However, notification appliances on separate panels are not synchronized. Per NFPA 72,

Audible Devices	The installation of one group of synchronized-audible notification appliances shall not be installed in hearing range of another group of synchronized-audible NACs.
Visual Devices	The installation of one group of synchronized-visual notification appliances shall not be installed in line-of-sight of another group of synchronized-visual notification appliances.

Refer to Equipment List for synchronization devices that are UL listed and authorized for use with the Aura Fire Alarm Control Panel. Refer to Calculations to determine wire size requirements for your application.

Connections for NAC Power Output Modes

There are 3 NAC power output modes: continuous constant power, door holder, and resettable. NAC power outputs can be wired as 2-wire or 4-wire circuits as shown. When wired using 2-wire configuration, select "Class B" in the configuration menu. When wired using 4-wire configuration, select "Class A" in the configuration menu.
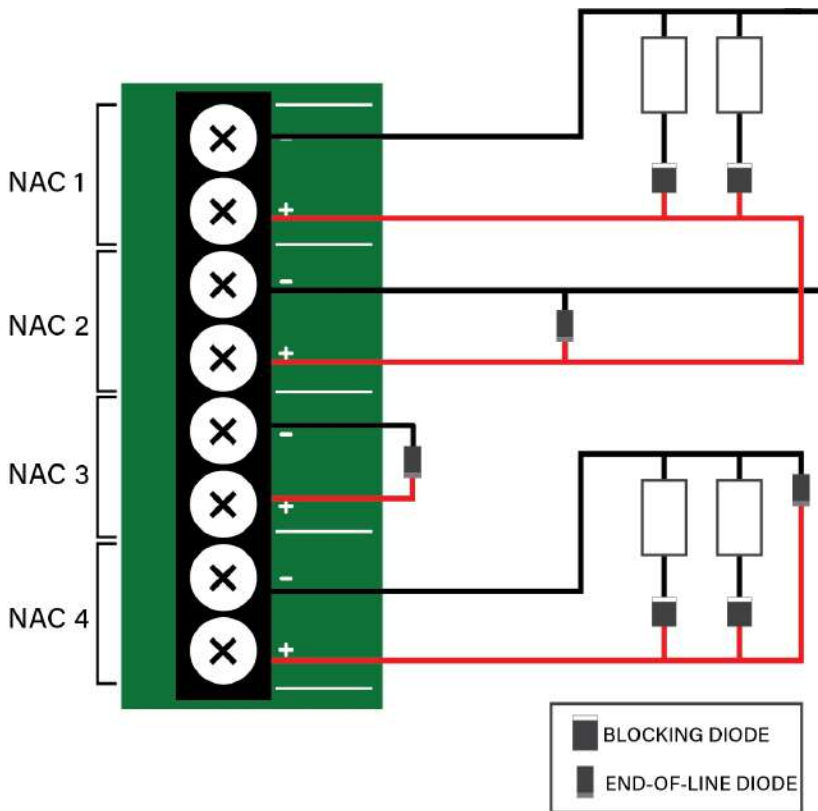
When using a NAC in a power output mode, each device requires a blocking diode (not provided) to be connected in series. These diodes can be any of the following:

- Diodes, Inc., Part No.: 6A1-T
- SMC Diode Solutions, Part No.:6A1TA
- Micro Commercial Co., Part No.: 6A1-TP
- Any equivalent standard silicon diode with parameters of:
  - Radial Lead Diameter: 1.0 mm minimum
  - Peak Reverse Voltage: 40 V minimum
  - Average Forward Rectified Current: 6.0 A minimum

Regardless of the wiring schema,

When the NAC is used in **continuous constant power mode**, it is a special application output with a voltage range of 20.0 - 26.4V. The wiring loss must not exceed 4V.

When configuring for **door holder**, the circuit is a regulated 24V output and meets the requirements for a Class D circuit.

When the NAC is used in **resettable** mode, it is a special application output with a voltage range of 20.0 - 26.4V. It can be used to power the following:

- System Sensor i3 series Models: 4W-B, 4WT-B, 4WTA-B, 4WTR-B, 4WTAR-B, 4WITAR-B
- System Sensor i4 Series Models: COSMO-4W, COSMOD4W
- System Sensor End-of-Line Relay: EOLR-1

When powering these devices, the circuit acts as a Class B pathway only when an EOLR-1 is the last device on the circuit and the relay contacts are supervised. The wiring loss must not exceed 8V. Refer to the **System Sensor Installation Instructions** for wiring information.

AUX 24V 1 and AUX 24V 2

The AUX 24V output terminals provide regulated, non-programmable 24V DC for powering ancillary devices such as loop modules, I/O boards, and remote displays. The outputs are fused at 900 mA and include a maximum load rating of 900 mA. Outputs of AUX 24V 1 and AUX 24V 2 are also supervised for circuit trouble conditions.
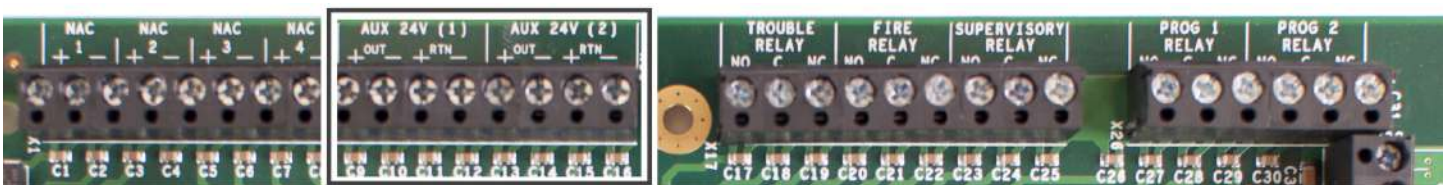
Wiring gauge on AUX 24V 1 or AUX 24V 2 outputs must be sized as a function of cable length and device load to ensure that voltage-drop of the cable does not result in less than the minimum operating voltage at the ancillary devices.

Connect the ancillary devices to the OUT terminals. The OUT terminals supply 24V power and provide short circuit monitoring.

Connect RTN terminals to the last ancillary device. The RTN terminals provide open circuit monitoring.

If open circuit monitoring is not required, the RTN terminals must be connected to the OUT terminals to prevent reporting of OPEN CIRCUIT TROUBLE.
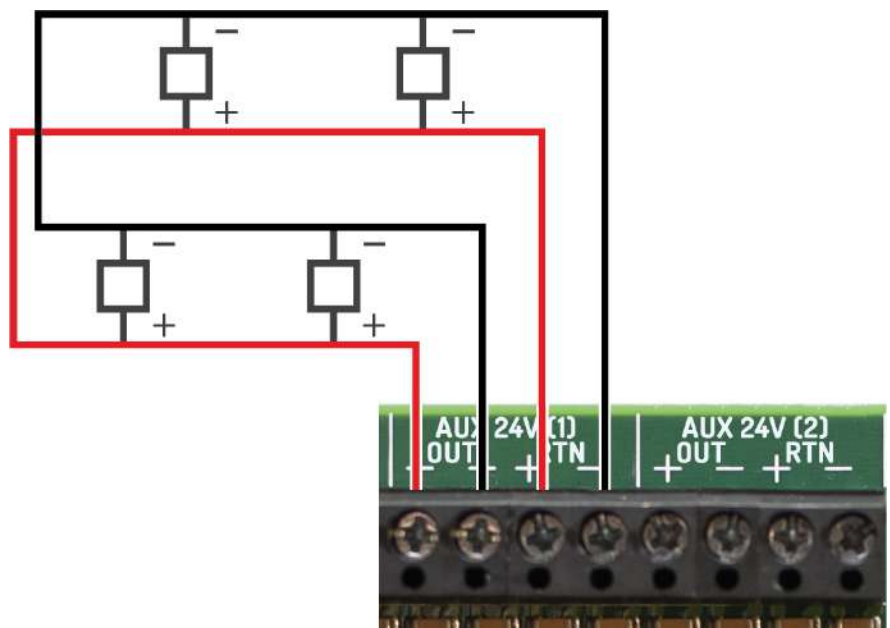
This illustrates a Class B circuit that provides open circuit monitoring.

Relay Contacts

The Aura Fire Alarm Control Panel contains five programmable relays that provide volt-free changeover. These relays include:

TROUBLE RELAY	Activates on any trouble and clears when all troubles are clear.
FIRE RELAY	Activates on any fire condition and remains active until all fire conditions are clear.
SUPERV RELAY	Activates on any supervisory condition and remains active until all supervisory conditions are clear.
PROG 1 RELAY	User-definable. Not programmed by default.
PROG 2 RELAY	User-definable. Not programmed by default.

Each relay has three volt-free changeover contacts labeled NO, COM, and NC respectively.

Dry contacts between the NO terminal and the COM terminal are open when the output is inactive, and closed when the output is active.

Dry contacts between the NC terminal and the COM terminal are closed when the output is inactive, and open when the output is active.

Each relay can be configured independently through Loop Explorer 2 or the panel GUI using Access Level 3. Refer to the Programming the Panel for LE2 information. Refer to Specifications for operating characteristics of these field terminals.

Network

These terminals provide Class X connections for intra-panel and annunciator networking and allow for individual panels to communicate the following data with each other:

1. Trouble, Supervisory signals
2. Alarms: CO, Fire
3. Other events tab information

Data passed can be reported at each panel GUI and trigger panel responses such as the buzzer or fire alarms. Networked panels that go off-line will appear as missing at networked panels. Refer to Network Connections for wiring information.

RS-485 I/O

These terminals provide data communication between the panel and legacy products, such as the 16 Channel I/O Interface Card. Connections are:
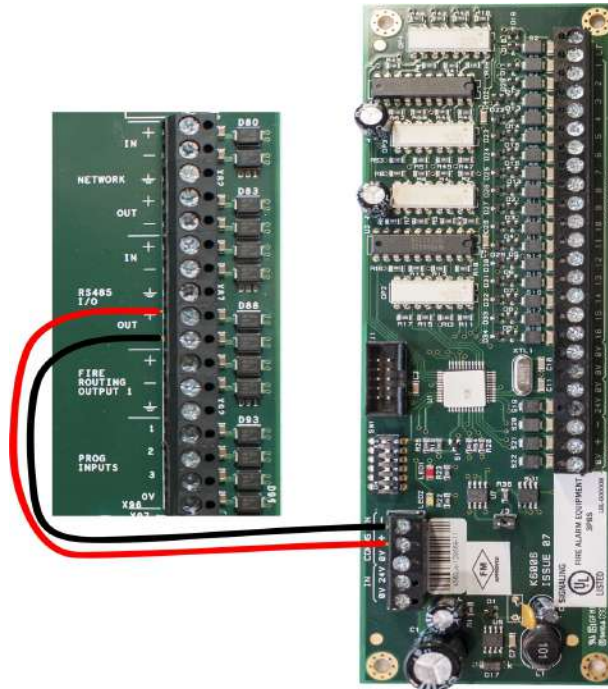
Fire Routing Output 1

Reserved for future use.

Prog Input

There are three programmable Inputs (PROG INPUT) and one 0V terminal. The inputs are non-supervised and are designed to be activated by voltage-free contacts. To activate, connect a PROG INPUT to the 0V terminal. Do not insert more than one conductor per terminal. There are additional 0V terminals if needed.

The default configuration of all three programmable inputs is non-latching, transparent. They must be configured to perform a function. The line impedance of the circuit connection to the Prog Input terminals must be less than 50 ohms. Each programmable input can be separately configured to provide actions, delays, zones, and location messaging using the panel GUI.

Terminal	Designation	Condition
1	P1 - Programmable 1	on / off
2	P2 - Programmable 2	on / off
3	P3 - Programmable 3	on / off
4	0V	0 volts
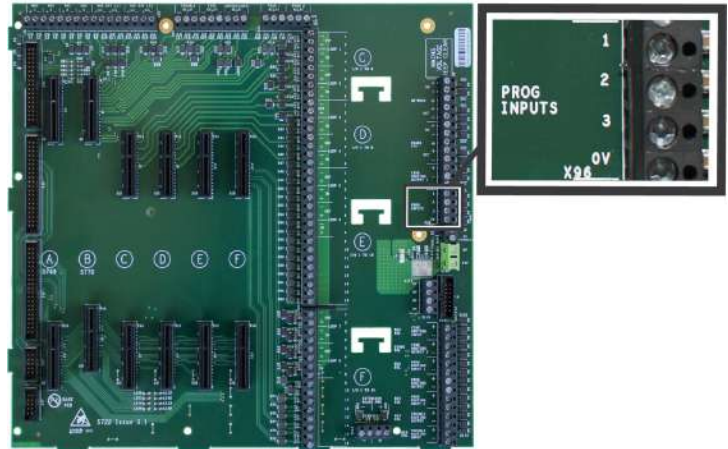
For wiring Programmable Inputs:

- The interconnected equipiment must be located in the same room as the Aura Fire Alarm Control Panel.
- Wiring must be in conduit (or equivalently protected against mechanical injury) and connections must be made within 20 feet.

Installing Addressable Devices

This section describes installation requirements and constraints for addressable devices on the Aura Fire Alarm Control Panel. The addressable devices described in this section include SLC Devices.

SLC Detector Spacing

Install SLC detectors with spacing as specified in NFPA 72.

SLC Device Detector Sensitivity

SLC device sensitivity is configurable using the panel GUI or LE2. Refer to the Programming the Panel for LE2 information. Sensitivity levels should be determined and planned in advance.

Detector Calibration / Drift Compensation

Detector calibration automatically occurs once per day. The Aura Fire Alarm Control Panel is responsible for drift compensation of individual smoke sensors. It will make automatic sensitivity checks and sensor adjustments once per day.

Addressing an SLC Module

Shield Protocol

All SLC modules must have a unique address number that acts as a point of reference for the panel. An SLC module address number can be any number from 1-126. SLC sounder base addressing methods differ depending on the model of the base. Refer to the installation instructions supplied with the specific sounder base for details.

Detectors are addressed using a "smart card" installed in the detector base. All other devices are addressed by setting DIP switches on the device. Refer to the installation instructions included with the specific device for complete details.

Connecting SLC Devices

Shield Protocol
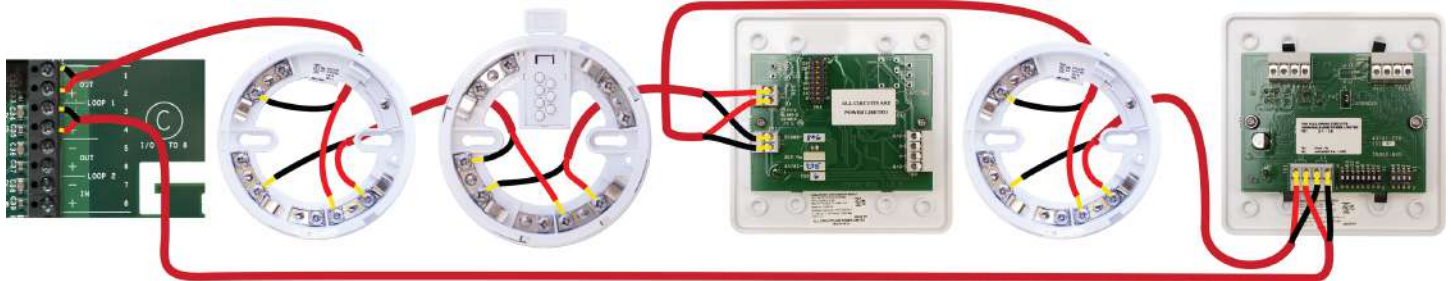
Class A SLC Wiring Example - Shield Protocol
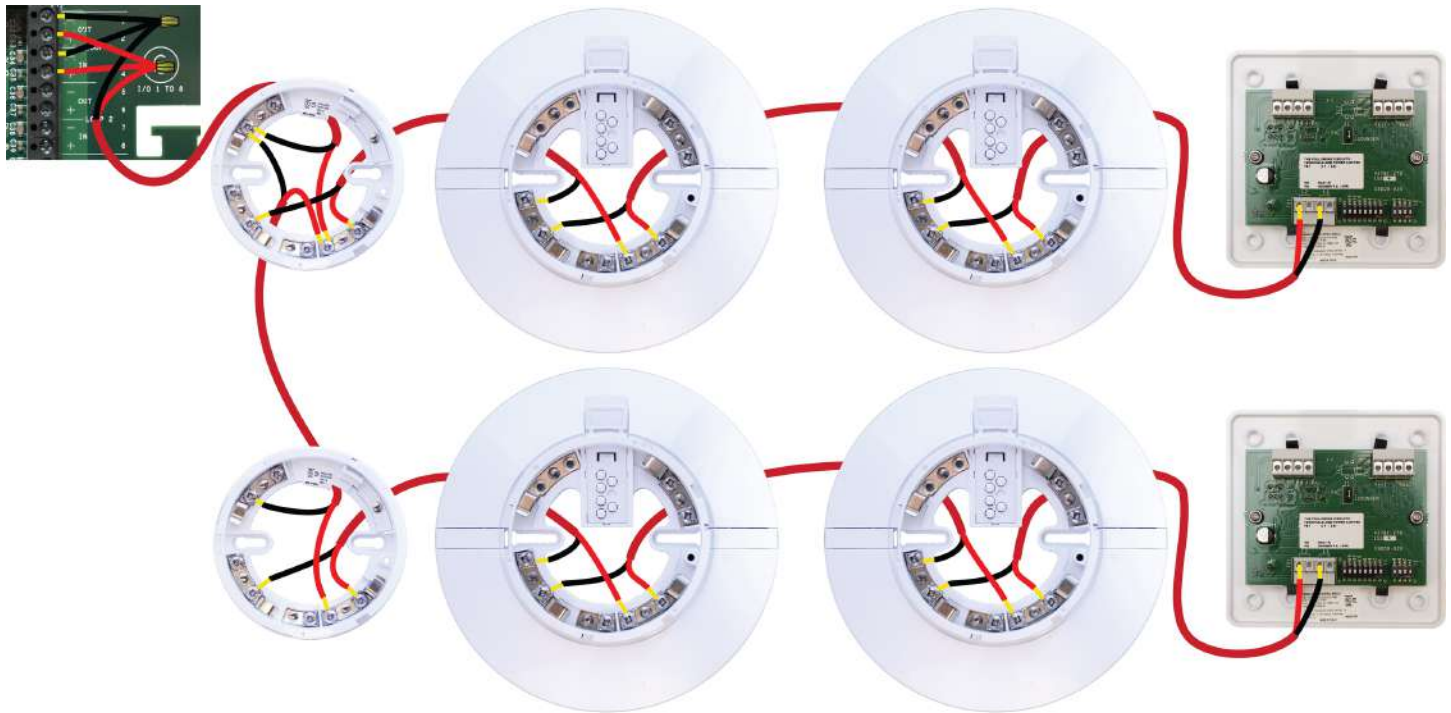
Class B SLC Wiring Example - Shield Protocol

SCIs should be located at or near the panel.

Installing Municipal Boxes

The figure below illustrates typical municipal box connections of the Aura Fire Alarm Control Panel:
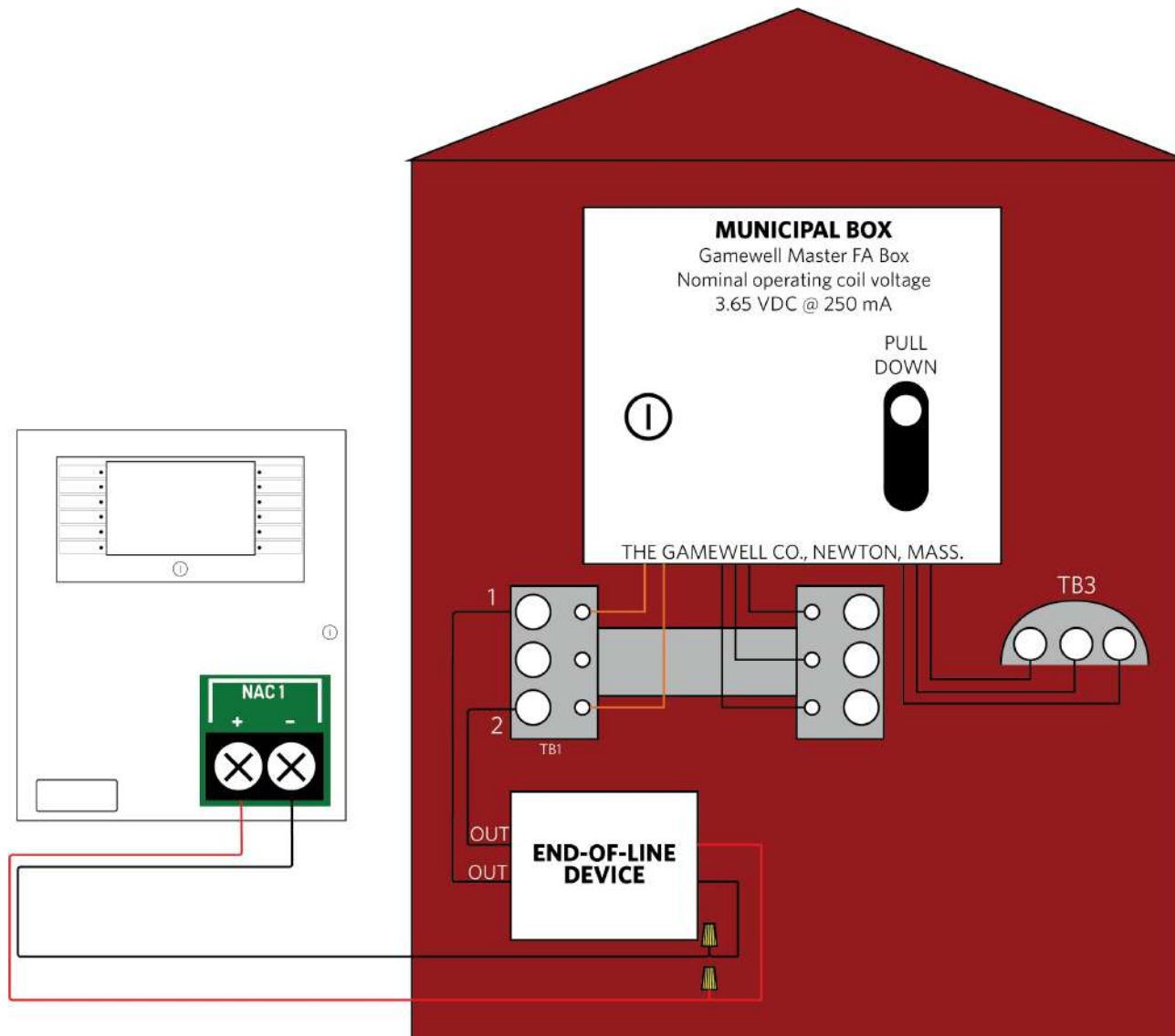
Perform this installation to connect the Gamewell Master F. A. Box for municipal-station notification. Install this product in accordance with NFPA 72, NEC 70, the National Electrical Code and all local codes. The NAC output can provide a non-pulsing, regulated 24 VDC, 2.5A maximum output when a fire condition is reported to the Aura Panel. The OUT leads of the EOLD (K14070) shall connect directly to the terminal block of the municipal box.

Testing the Installation

Once all field wiring connections are complete, test the power supply, field circuits, and panel GUI to ensure proper operation of the Aura Fire Alarm Control Panel.

Panel Start-up

1. Connect the batteries and apply AC power to the Aura Fire Alarm Control Panel.

2. Allow the panel to go through its start-up process.

    - Black screen with Bootloader version displayed. (<1 min.)
    - Blank screen. (< 1 min.)
    - Animated loading circle with brief Lamp Test. (< 1 min.)
    - Splash-screen with **Loading Graphics**. (< 1 min.)

3. After **Loading Graphics** clears, press **Controls & Other Events**> **Other Events** to display details of ongoing start-up processes. **Other Events** will always include initialization of the SLC loops, but may include additional items as well, such as **User Logged In** and **Bootloader Update** events.

At this stage, it is common for many trouble events to be reported. The most common is "Unexpected Device". This is a normal part of panel commissioning.

The start-up process is complete when all of the panel's **Other Events** clear.

4. If **Bootloader Update** events were present during the start-up process in step 2, power down the panel and repeat Panel Start-up.

Do not power-down the panel during a Bootloader Update.

• **User Logged In** indicates that a key switch is turned to the Enable position or a user access code has been entered.
• **Bootloader Update** indicates software on panel modules is being updated by the main panel. This typically occurs
   only when a panel module is changed or the main panel firmware is updated.
• If the panel is part of a network, some status events may reflect the status of other network nodes.

Loading Configuration

1. Load (or import) the appropriate configuration from Loop Explorer 2. After the import, the panel will begin device initialization.

The node address must be set on the panel before importing a configuration from LE2.

2. Press **Controls & Other Events** > **Other Events** to display details of the ongoing device initialization process.
3. Once initialization is complete, address any outstanding troubles that may be reported.
4. Confirm that the **Fire System Normal** condition is displayed.

Testing the Power Supply

Perform the following tests to confirm operation of the power supply:

1. Apply AC and battery power to the Aura Fire Alarm Control Panel.
2. Check that the AC Normal LED is illuminated on the power supply.
3. Check that the Heartbeat LED is flashing on the power supply.
4. Remove AC power and ensure that the standby batteries are powering the fire control panel. The AC Normal LED on the power supply switches off after 30 seconds to indicate the loss of power.
5. Reapply AC power to the Aura Fire Alarm Control Panel.
6. Disconnect the red wire from the Standby Battery terminal. The Battery Disconnect LED on the Power Supply illuminates and the fire control panel continues to operate.
7. Reconnect the red wire from the Standby Battery terminal.

Check connections and test voltages at the primary and secondary of the power supply if the panel does not operate as described above.

Testing the Field Circuits

Perform the following field circuit tests to confirm proper connections of the loops, NACs, inputs, and outputs:

1. Connect external devices to field terminal loops, NACs, inputs, and outputs.
2. Confirm that correct connections exist between the batteries and the power supply.
3. Apply AC power to the Aura Fire Alarm Control Panel.

4. Perform the **Learn Panel** function on the panel GUI. Buzzer activation occurs when performing the **Learn Panel** function.

Buzzer activation during the **Autolearn Panel** function is part of configuration process. Once Autolearn is complete, the panel will initialize loop devices with the default settings.

5. Once device initialization is complete, address any outstanding troubles that may be reported.

6. Confirm that the **Fire System Normal** condition is displayed following the booting cycle.

A "comms time-out" trouble occurs following the booting sequence when the Aura Fire Alarm Control Panel includes a network card. Reset the panel in Access Level 2 of the menu to obtain the **Fire System Normal** condition when this trouble condition occurs.

7. Test and verify that all inputs and outputs operate as intended and in accordance with NFPA 72 guidelines.

Testing the Panel GUI

Perform the following tests to confirm proper operation of the buzzer, panel GUI, indicator lamps, and the fire control panel system.

The **Fire System Normal** screen displays when the Aura Fire Alarm Control Panel is operating properly and indicates that the installation was successful. Determine that the **Fire System Normal** condition is visible on the panel GUI before initiating the **Panel Tests**. **Fire System Normal** condition is displayed following the booting cycle and occurs when trouble conditions are not reported.

Panel Tests

Panel Tests are provided through the **No User Group** of the panel GUI. **No User Group** contains a limited set of operations and does not require password authorization to initiate. The **No User Group** menu is immediately

available for operation following the booting cycle.

Lamp & Buzzer Test

This test confirms operation of the indicator lamps and the buzzer. To perform the **Lamp & Buzzer Test**:

1. Press the panel GUI during the Fire System Normal condition.
2. Press **Panel Tests** and then **Lamp & Buzzer Test**. The internal buzzer of the fire control panel sounds and all indicator lamps light for 5 seconds. Contact Technical Support if fascia lamps do not light.

Display Test

Perform the **Display Test** to confirm operation of the panel GUI.

1. Press the panel GUI during the Fire System Normal condition.
2. Press **Panel Tests** and then **Display Test**. A confirmation window will appear.
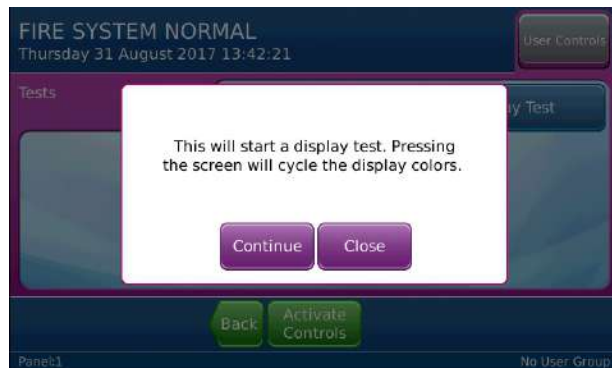
3. Press **Continue** to test the display. The panel GUI cycles through a series of blank raster colors.

System Information

The **System Information** window includes details such as Software Version, File manager, LED Controller, I/O Board Controller, Configuration Manager, and the Event Log. View the System Information to determine the operating status of the Aura Fire Alarm Control Panel. To view system information on the Aura Fire Alarm Control Panel:

1. Press the panel GUI during the Fire System Normal condition.
2. Press **System Information**. Press **More** to display subsequent System Information windows.

Event Log

View the Event Log to determine the status of initiating devices, signaling line circuits, and notification appliances. To view the Event Log of the Aura Fire Alarm Control Panel:

1. Press the panel GUI during the Fire System Normal condition.

2. Press **View Event Log** on the User Controls window.

3. Press **More Details** to display additional information about the posted event message.

Programming the Panel

The Aura Fire Alarm Control Panel can be configured in the following ways:

- Panel GUI using access level 3
- Loop Explorer 2 via computer (USB Type B) or USB flash drive (USB Type A).

Most features can be programmed using the panel GUI. However, some advanced features can only be programmed using the Loop Explorer 2 utility.

Loop Explorer 2

Many of the Aura Fire Alarm Control Panel features and settings can be configured using the program Loop Explorer 2 (LE2). Licenses can be obtained through your sales representative. The following features are configurable via LE2.

- SLC configuration, including SLC Detector sensitivity, SLC device input action, and SLC device delay.
- Zone settings (Alarm Verification, Pre-Signal, Positive Alarm Sequence)
- Network settings
- Common or Zonal Mode setting
- Panel Module settings
- Panel NACs
- Ring Mode options
- Maintenance date keeping
- Unique device labels (i.e., ALK-V can be renamed "APT 101 Bedroom 1")
- Unique panel labels (i.e., Node 1 can be renamed "Building 10")

OVERVIEW

The Aura Fire Alarm Control Panel provides connections for addressable devices in 2 to 16 loop model configurations. All model configurations support SLC loads up to 400 mA per loop. Networked models can support over 200,000 addressable devices and 65,000 programmable inputs and outputs. A 16 loop model of the panel can support up to 2032 addressable points and 512 additional programmable inputs and outputs.

This manual describes 2 to 16 loop models of the Aura Fire Alarm Control Panel. In order for the product to comply with the requirements in the **Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 10th Edition**, certain programming features or options must be limited to specific values or not used at all as indicated below. Refer to Equipment List for the specific models described in this table.

Program Feature or Option	Configurable Range	Range Permitted in UL 864
AC Fail Delay	0 - 1800 minutes in GUI 0 - 99 minutes in LE2	60 - 180 minutes
5.25A Power Supply DIP Switches SW1 / SW2	OFF / OFF OFF / ON ON / OFF ON / ON	ON / ON OFF / OFF
10.25A Power Supply DIP Switches SW1 / SW2	OFF / OFF OFF / ON ON / OFF ON / ON	OFF / ON
Enable / Disable Buzzer	Enable / Disable *Not settable in LE2*	Enable
Enable / Disable Ground Trouble	Enable / Disable *Not settable in LE2*	Enable
Set Buzzer Silence Access Level	1 or 2	2
First and Second Global Delay	0 - 10 minutes	0 minutes
Duct Detector Relay Delay	0 - 10 minutes	0 minutes
Contact Module Delay (All models)	0 - 180 seconds	0 seconds
Dual Relay Module Delay	0 - 10 minutes	0 minutes
Resound Alarm in Same Zone	Yes / No	This must be set to YES to comply with UL requirements, with limited exceptions as defined in UL 864, Section 46.3.2.
Alarm Verification	0-55 seconds	30-55 seconds
Pre-Signal	Enable / Disable	Enable / Disable
Positive Alarm Sequence (PAS)	Enable / Disable	Enable / Disable **NOTE!** PAS can be enabled and disabled in the User Access Level 2 menu.

Required Modules for Minimum Operation and Basic Function

Modules can be added, configured, and replaced without altering field wiring connections. This modularity allows each Aura Fire Alarm Control Panel to be customized for a specific operation. Required modules for minimum operation of an addressable Aura Fire Alarm Control Panel include:

- System A Panel Module
- System B Panel Module
- Dual Loop Panel Module

Minimum operation describes the Aura Fire Alarm Control Panel as an operating fire control panel. All modules are field replaceable.

System A Panel Module (AUL-9069)

System A Panel Module provides essential functions on the Aura Fire Alarm Control Panel. These functions include:

Functions	Description
NAC 1 and NAC 2	Class A or two Class B. Default Class B.
NAC 3 and NAC 4	Class A or two Class B. Default Class B.
PSU monitor	Battery disconnected, power failure, battery low, PSU ground trouble, charger trouble.
Power fail input	A connection of <2K to 0V will indicate a power fail
Ground trouble	A connection of 30K or less between a back board terminal (except volt-free terminals) and the ground will be indicated by a trouble.

LED 1 - LED 6 PROVIDE STATUS INFORMATION

EDGE CONNECTOR FOR TERMINATION AT SLOT A OF THE MAIN BACK BOARD

EDGE CONNECTOR FOR TERMINATION AT SLOT A OF THE MAIN BACK BOARD
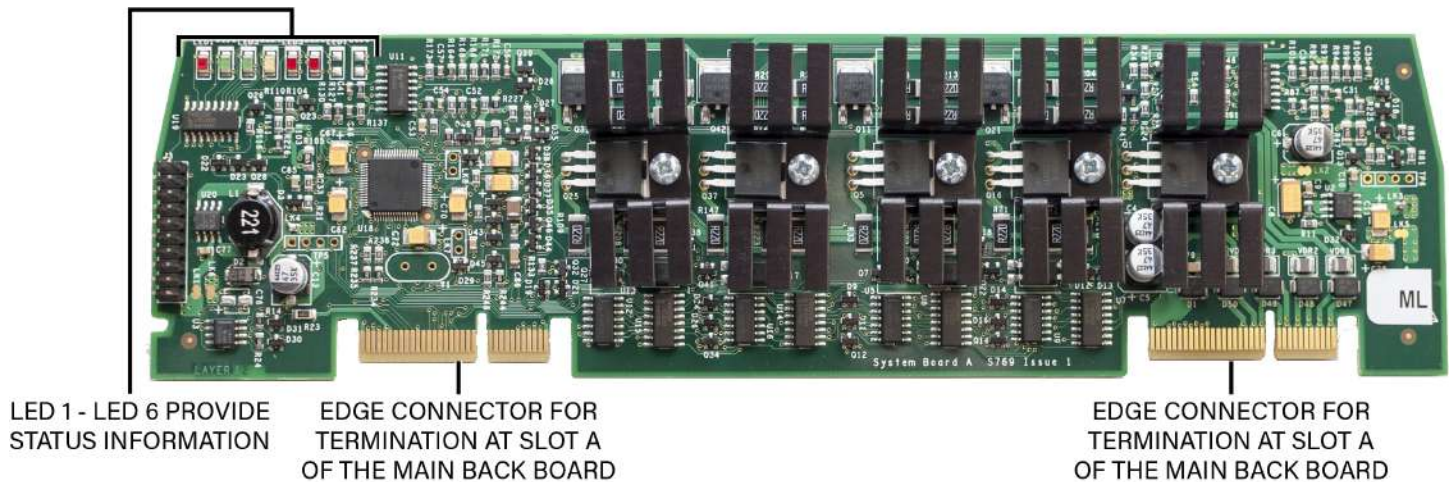
System A Panel Module fits into slot A of the Back Board and contains power supply monitoring, trouble monitoring, and four NAC circuits.

LED Label	Name	Color	Description
LED 1	Heartbeat	Red	Identifies functional status of System A Panel Module.
LED 2	Rx Comms	Green	A blinking green light indicates that the module is receiving data.
LED 3	Tx Comms	Green	A blinking green light indicates that the module is transmitting data.
LED 4	Trouble	Yellow	A flashing yellow identifies an error condition.
LED 5	Input Active LED	Red	Indicates that an input is active.
LED 6	Output Active LED	Red	Indicates that an output is active.

System B Panel Module (AUL-9070)

System B Panel Module monitors and controls essential input and output functions on the Aura Fire Alarm Control Panel. The System B Panel Module includes the following input and output functions:

Input and Output Functions	Description
AUX 24 Output 1	24V DC output
AUX 24 Output 2	24V DC output
Fire Routing Output 2	0V output in standby, switches to 24V when activated, requires End-of-Line (EOL) diode
Fire Routing Input	Supervised input, requires 3.3K Ohm EOL resistor
Trouble Routing Output	24V output in standby, switches to 0V when activated, requires 3.3K Ohm EOL resistor

Input and Output Functions	Description
Trouble Routing Input	Supervised input, requires 3.3K Ohm EOL resistor
Prog Routing Output	Volt-free output measures 3.3K Ohms in standby, switches to 680 Ohms when activated
Prog Routing Input 1	Supervised input, requires 3.3K Ohm EOL resistor
Prog Routing Input 2	Supervised input, requires 3.3K Ohm EOL resistor
Fire Relay	Volt-free contact rated at 30V DC, 1A, Resistive
Trouble Relay	Volt-free contact rated at 30V DC, 1A, Resistive
Superv Relay	Volt-free contact rated at 30V DC, 1A, Resistive
Programmable Relay 1	Volt-free contact rated at 30V DC, 1A, Resistive
Programmable Relay 2	Volt-free contact rated at 30V DC, 1A, Resistive
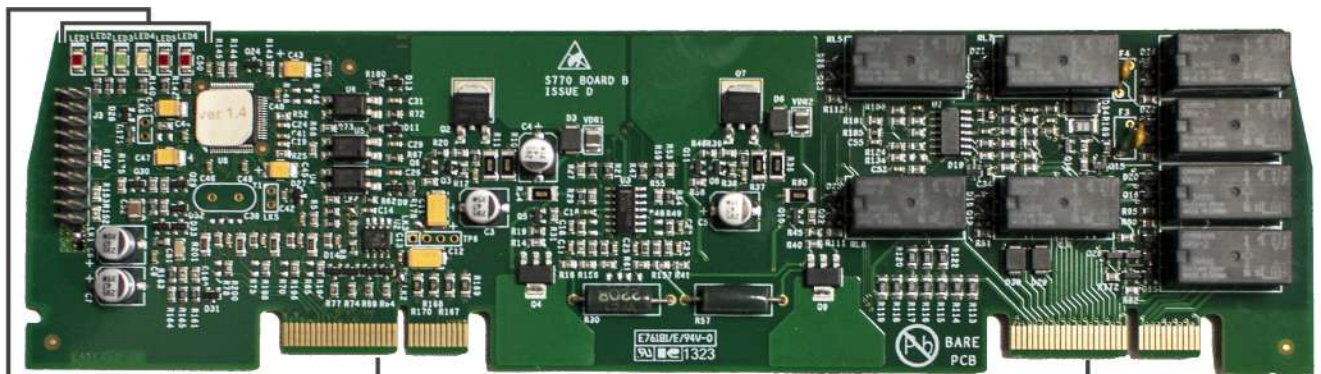
LED 1 - LED 6 PROVIDE STATUS INFORMATION

EDGE CONNECTOR FOR TERMINATION AT SLOT B OF THE MAIN BACK BOARD

EDGE CONNECTOR FOR TERMINATION AT SLOT B OF THE MAIN BACK BOARD

The System B Panel Module fits into slot B of the Main Back Board and controls the fire, trouble, and programmable relays, auxiliary 24 volt, fire routing, trouble routing, and programmable inputs and outputs. This figure illustrates System B Panel Module of the Aura Fire Alarm Control Panel.

LED Label	Name	Color	Description
LED 1	Heartbeat	Red	Identifies functional status of System B Panel Module.
LED 2	Rx Comms	Green	A blinking green light indicates that the module is receiving data.
LED 3	Tx Comms	Green	A blinking green light indicates that the module is transmitting data.
LED 4	Trouble	Yellow	A blinking yellow light indicates that an error condition.
LED 5	Input Active LED	Red	Indicates that an input is active.
LED 6	Output Active LED	Red	Indicates that an output is active.

Dual Loop Panel Module (AUL-9058)

The Dual Loop Panel Module monitors loop device status and provides status to the panel processor. It holds device configurations and operates in a standalone manner when catastrophic failures occur. The Dual Loop Panel Modules can be connected in any available slot (C-K) on the Main Back Board to provide this operating function.

LED STATUS INDICATORS

EDGE CONNECTOR FOR TERMINATION AT SLOT C, D, E, AND F OF THE MAIN BACK BOARD AND SLOTS G, H, J, AND K OF THE EXTENSION BOARD

EDGE CONNECTOR FOR TERMINATION AT SLOT C, D, E, AND F OF THE MAIN BACK BOARD AND SLOTS G, H, J, AND K OF THE EXTENSION BOARD

LED D8 - LED D11 PROVIDE STATUS INFORMATION

SIX POSITION DIP SWITCH S1 FOR SETTING LOOP BUS ADDRESS
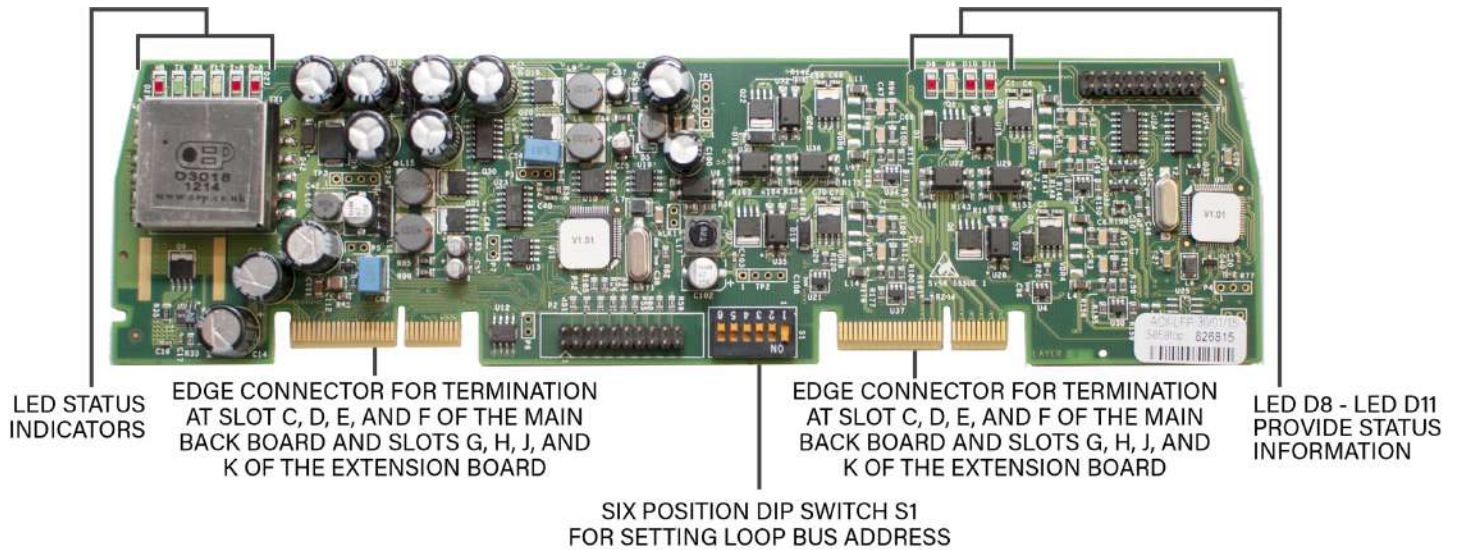
LED Label	Name	Color	Description
LED 1	Heartbeat	Red	Identifies functional status of Dual Loop Panel Module.
LED 2	Rx Comms	Green	A blinking green light indicates that the module is receiving data.
LED 3	Tx Comms	Green	A blinking green light indicates that the module is transmitting data.
LED 4	Trouble	Yellow	A blinking yellow light indicates that an error condition.
LED 5	Input Active LED	Red	Factory diagnostic / Reserved for future use.
LED 6	Output Active LED	Red	Factory diagnostic / Reserved for future use.
LED D8	Heartbeat for Processor 2	Red	A blinking red light flashes red to identify functional status of Processor 2.
LED D9	Trouble status for Processor 2	Yellow	A blinking yellow light flashes to identify the trouble status of Processor 2.
LED D10	Loop 1 State	Red	Factory diagnostic / Reserved for future use.
LED D11	Loop 2 State	Red	Factory diagnostic / Reserved for future use.

Notification Appliances

Notification Appliances operate with the Aura Fire Alarm Control Panel in a special application or regulated mode. The panel supports the simultaneous operation of regulated and special application outputs between NACs.

The Aura Fire Alarm Control Panel does not support the simultaneous operation of regulated and special application outputs on the same NAC channel.

The panel supports special application outputs when operating:

- Gentex NAC devices
- System Sensor NAC devices
- Wheelock NAC devices
- Amseco NAC devices

Synchronization modules are not required and should not be used on special application outputs.

Synchronization

NAC synchronization can be performed across all NAC channels of an individual panel. NAC synchronization cannot be performed across multiple panels.

The Aura Fire Alarm Control Panel provides internal device synchronization between the outputs of NACs when operating NAC devices from Gentex, Amseco, System Sensor, or Wheelock without the use of an external synchronization module. External synchronization modules must not be used on the NAC outputs when operating in the synchronization mode.

While most systems only use one device manufacturer, the Aura panel can synchronize strobe devices from any two manufacturers simultaneously. Devices from different manufacturers cannot be combined on the same channel. Audible synchronization across manufacturers can only be accomplished between Gentex and System Sensor.

The maximum number of strobes that can be synchronized for each brand is

- Amseco 2.37A / 88mA = 27 appliances
- Gentex 2.5A / 78mA = 32 appliances
- System Sensor 1.32A / 66mA = 20 appliances
- Wheelock 2.5A / 60mA = 41 appliances

Configuring NAC Outputs

Settings are provided in the panel GUI and Loop Explorer 2 for controlling the NAC outputs of the Aura Fire Alarm Control Panel. Selections are available in these utilities for providing outputs with synchronization or various forms of constant power. Settings are also provided to allow the Alarm Silence button to operate on the front panel in various modes.

Review the settings described below to configure each NAC output for operation.

Output Options	General Alarm and Emergency are selected as default conditions. Alternative output options for this field include Auxiliary Output, Pre-Alarm Output, Supervisory Alarm, and Trouble. Do not select the General Alarm option if the NAC channel is to be controlled by cause-and-effect programming.
Strobe	Strobe Output is not selected for operation as a default condition. Selecting this field allows the user to define which synchronization protocol to be used.
NAC AUX 24V DC	When the Strobe option above is not selected, Off is selected as the default operating condition. Options for this output are continuous constant power, door holder, and resettable. • Continuous constant power provides a voltage output comparable to AUX 24V. • Door holder outputs lose power during fire alarm conditions and/or during AC power loss. • Resettable causes power loss that lasts 4-5 seconds each time the panel is reset.
Alarm Silence	Each NAC is configurable in reaction to the Alarm Silence button on the front panel. Edit properties of the NAC channel in Loop Explorer 2. Select the box for Silencing if NAC silencing is required on this channel. If Internal Synchronization Protocols are in use, an option is also available to Silence the strobe. Failure to check the Strobe Silence box will cause horns to be silenced with continued operation of the strobe.

For more details, refer to NAC Output Specifications.

Optional Modules and Assemblies

Optional modules of the Aura Fire Alarm Control Panel are available for zone alarm indications and networking. Modules providing these functions include the:

- Network Module
- Dual Loop Panel Module
- Printer
- Zone LED Module
- 16 Channel I/O Interface Card
- Aura Network Vision Annunciator
- Media Gateway™ Panel Module
- 8 Channel Relay Panel Module

Aura Network Module (AUL-9023)

The Aura Network Module provides supervised, enhanced high-speed communication for networking up to a maximum of 127 fire control panels. The network provided by this module can support combinations of Aura Fire Alarm Control Panels and Aura Vision Annunciators.

Aura Fire Alarm Control Panels can receive events from other panels in the network. The Class X networking used in conjunction with the Network Module provides tolerance against open and short circuit trouble conditions.

The Aura Network Module can be configured to operate in a "bridge mode", which enables the Aura Fire Alarm Control Panel to operate on a network with Omega and OmegaX panels. The Omega and OmegaX network can support up to 64 fire control panels, and has other limitations, such as more limited text-field lengths, zones, C&E relationships, etc.

For more information about the Aura Network Module, refer to the **Aura Network Module Information Guide (MAN-1436)**.

Printer (AUL-9068)

The Aura Printer is an optional feature for printing fire system events as they occur. The printer is located on the fascia, below the Zone LEDs (if present). It is a thermal printer and never requires replacement ink. Printing is performed on heat-sensitive paper rolls. A trouble message is reported when the paper runs out. The printer includes a front loading feature for replacing paper rolls. Refer to Equipment List for the part number and description of the paper roll replacement.
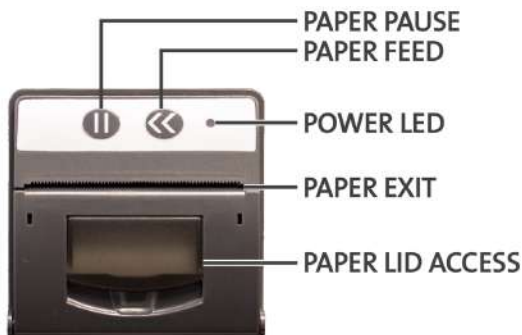
To load paper rolls in the printer:

1. Lift the latch on the face of the printer to access the paper chamber.

2. Load the paper in the paper chamber with the paper edge exiting from the top and with the shiny-side facing the top of the fire control panel.

3. When the LED indicator is on and the printer is not in standby, you can press the **<<** button on the face of the printer to test feed the paper.

When using a printer with a Aura Fire Alarm Control Panel fitted with a Plex-Door, the paper may adhere to the door because of the static generated when removing the protective film. To combat this, wipe the surface of the door with a slightly damp, soapy cloth before the first use.

Zone LED Module (AUL-9071)

The Zone LED module contains 48 LEDs and is connected to the LCD Main Processor Board of the Aura Fire Alarm Control Panel. A maximum of three Zone LED modules can be connected to provide the fascia with 144 Zone LED indicators. The following figure illustrates the component-side of the Zone LED Module:

The component side of the Zone LED module is visible when the cabinet door is open. Zone LED indicators are not present on the component-side of the Zone LED module. The opposite side of the image shown contains Zone LED indicators.

LED Number	Description
LED 49	Flashes red to identify receiving data.
LED 50	Flashes red to identify functional status of the Zone LED module.

16 Channel I/O Interface Card (AUL-9072)

The 16 Channel I/O Interface enhances the versatility of the alarm system by providing additional input and output capabilities to the Aura Fire Alarm Control Panel. Inputs and outputs can be selected for up to 16 individual channels. All inputs and outputs are configured in the same way as devices connected to addressable loops of the panel. The 16 Channel I/O Interface can be configured to contribute or act upon cause and effect logic.

Use Case Examples

The 16 Channel I/O Interface can be used to interface the Aura panel to a NAC extender or Voice Evacuation system, by providing

- inputs to the Aura panel for dry contact closures such as General Trouble, AC Power Trouble, or Battery Trouble from these devices.
- outputs from the panel to control various NAC or Voice Evacuation outputs.

The 16 Channel I/O Interface can be used to interface the Aura panel to a secondary panel or releasing panel, by providing

- inputs to the Aura panel for dry contact closures such as Fire, Supervisory, and Trouble from these panels, and various stages of release from the releasing panel.
- outputs from the panel to activate NAC outputs on these panels.

Restrictions

Inputs are intended for use as control signals from other life safety equipment. Inputs of this device are not supervised, and therefore cannot be used directly as initiating circuits for life safety applications within a UL listed system. Outputs are intended for use as control signals to other life safety equipment. Outputs of this device are not supervised, and cannot be directly connected to notification or releasing-type appliances in a UL listed system.

In a UL listed system, the 16 Channel I/O Interface:

- must be housed in a separately-listed enclosure.
- must be located in the same room as the Aura panel.
- must be located in the same room as the equipment being interfaced.
- must be wired in conduit (or equivalently protected against mechanical injury) and within 20 feet of equipment being interfaced.
- must not be used to control the release of extinguishants.
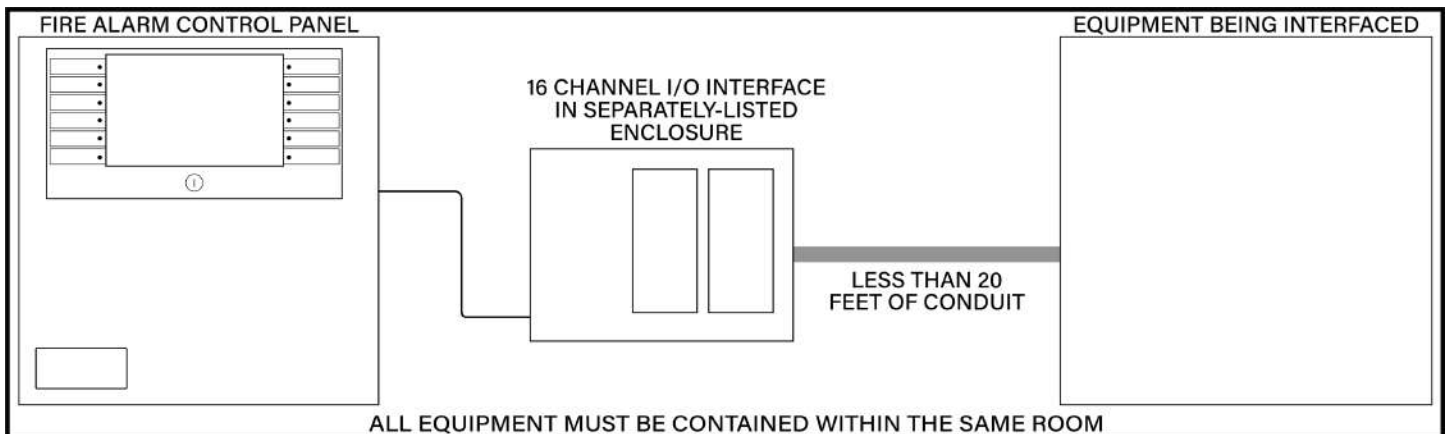
For more information about the 16 Channel I/O Interface, refer to the 16 Channel I/O Interface Information Guide (MAN-1438).

Aura Network Vision Annunciator (AUL-9087)

Aura Network Vision Annunciator

AUL-91000R (Red), AUL-91000G (Gray), AUL-91000B (Black)

The Aura Network Vision Annunciator is a display and control unit which duplicates the indications and primary controls of Aura Fire Alarm Control Panels connected to the same network. The Annunciator connects via the network interface, and any number of repeaters can be connected up to the maximum number of nodes allowed by the network.

Aura Network Vision Annunciators can be configured to replicate fire control panel functionality or to operate as simple, display-only devices for applications where access to fire alarm controls are inappropriate. The Annunciator can be configured to display events from any combination of nodes on the network.

For more information about the Aura Network Vision Annunciator, refer to the **Aura Network Vision Annunciator Information Guide (MAN-1434)**.

Media Gateway™ Panel Module (AUL-9088)

The Media Gateway™ is a communication panel module for the Aura Fire Alarm Control Panel. It provides connectivity to a remote monitoring center via Sur-Gard Fibro or dial-up. SIA is the recommended format for usage, but Contact ID is also supported. Transmission can be made through one or two telephone lines, and/or IP through Ethernet. Standard reporting codes have been pre-defined, although the user may customize these codes through the Loop Explorer 2 programming application.

For more information about the Media Gateway Panel Module, refer to the Media Gateway Panel Module Information Guide (MAN-1439).

8 Channel Relay Panel Module (AUL-9091)

The 8 Channel Relay Panel Modules have 8 voltage-free, unsupervised changeover relay contacts, each of which can be individually programmed.

All outputs are configurable in the same way as devices connected to the loops and all may be acted upon by cause and effect logic. These boards are typically used in applications which require more than the four standard relay outputs, such as signaling to other systems or plant control.

For more information about the 8 Channel Relay Panel Module, refer to the 8 Channel Relay Panel Module Information Guide (MAN-1440).

Batteries

Batteries are used as a secondary power source for the Aura Fire Alarm Control Panel, in the event that the primary power source (AC) fails.

Required standby battery capacity is dependent on the required standby period and load of the Aura Fire Alarm Control Panel system. Determine the current consumption of the fire alarm system for alarm and standby conditions. Use these maximum current values to determine the minimum required battery capacity of the fire alarm system.

Perform the installation only after calculations have been completed and a suitable battery capacity determined. Refer to Calculations or Loop Explorer 2 to determine the minimum required standby battery capacity of the system.

Standby Battery Type

The Aura Fire Alarm Control Panel is a 24 volt system designed to use Valve Regulated Lead Acid (VRLA) batteries as a secondary (backup) power source. VRLA batteries are not commonly available in 24V, so two 12V batteries are typically used, wired in series.

FASCIA

This section describes the features (standard and optional) of the Aura Fire Alarm Control Panel that are located on the fascia.

LED Panel Indicators	Refer to LED Status Indicators below for details.
Panel GUI	The 7 inch, full-color, high-resolution panel GUI provides a resistive touchscreen that allows operation when users are wearing gloves.
Key Switch	The key switch on the Aura Fire Alarm Control Panel provides level 2 access to the panel, which allows the user to silence alarms and reset the system. These functions can also be accessed by using a 6-digit access level 2 code.
Cabinet Lock	This provides access to panel electronics. Some models of the Aura Fire Alarm Control Panel place all user controls behind glass. In these models, the cabinet lock provides access to all controls, including access level 2 controls.
Fire In Zone Indicators (Optional)	Refer to Fire In Zone Indicators below for details.
Printer (Optional)	The Aura Printer is an optional feature located on the lower portion of the fascia. It is a thermal printer that never requires replacement ink and uses thermal paper rolls accessible from the fascia.

LED Status Indicators

Panel LEDs

For complete information about each event type, refer to Events and Status.

Fire	A fire alarm or fire drill condition exists.
CO Alarm	A CO alarm condition exists.
Supervisory Alarm	A supervisory condition exists.
Pre-Alarm	A pre-alarm condition exists.
Delay Active	Output(s) are delayed from activating.
NAC Trouble / Disabled	A trouble exists on one of the NACs OR Connections at this location are faulty or disabled.
General Trouble	A General Trouble condition exists. Other LEDs may be illuminated that identify the nature of the trouble.
Power Trouble	A power-related trouble condition exists.
Disablements	One or more devices are intentionally disabled.
On Test	Some or all of the fire system is in a test mode.
NAC Silenced	The NAC silence feature is activated.
AC Power On	AC power is on. In the FIRE SYSTEM NORMAL status, this LED is illuminated and all other LEDs are off.

Fire In Zone Indicators

Fire In Zone indicators are an optional feature provided on the fascia of the Aura Fire Alarm Control Panel in single, double, or triple bank configurations. The following figure illustrates a single bank of 48 Fire In Zone indicators:

Single bank configurations contain 48 Fire In Zone indicators. Two bank configurations contain 96 Fire In Zone indicators, and three bank configurations contain 144 Fire In Zone indicators.

MAIN BACK BOARD (AUL-9022)

The Main Back Board of the Aura Fire Alarm Control Panel provides slots for required and optional panel modules, as well as for field wiring and power supply terminations.

Minimum functions of the Aura Fire Alarm Control Panel are provided when Slot A of the Main Back Board contains System A Panel Module, Slot B contains System B Panel Module, and Slots C, D, E, or F contain a Dual Loop Panel Module. Two addressable loops are provided by the Dual Loop Panel Module in this configuration. The following figure illustrates the Main Back Board and the Power Supply of the cabinet box:
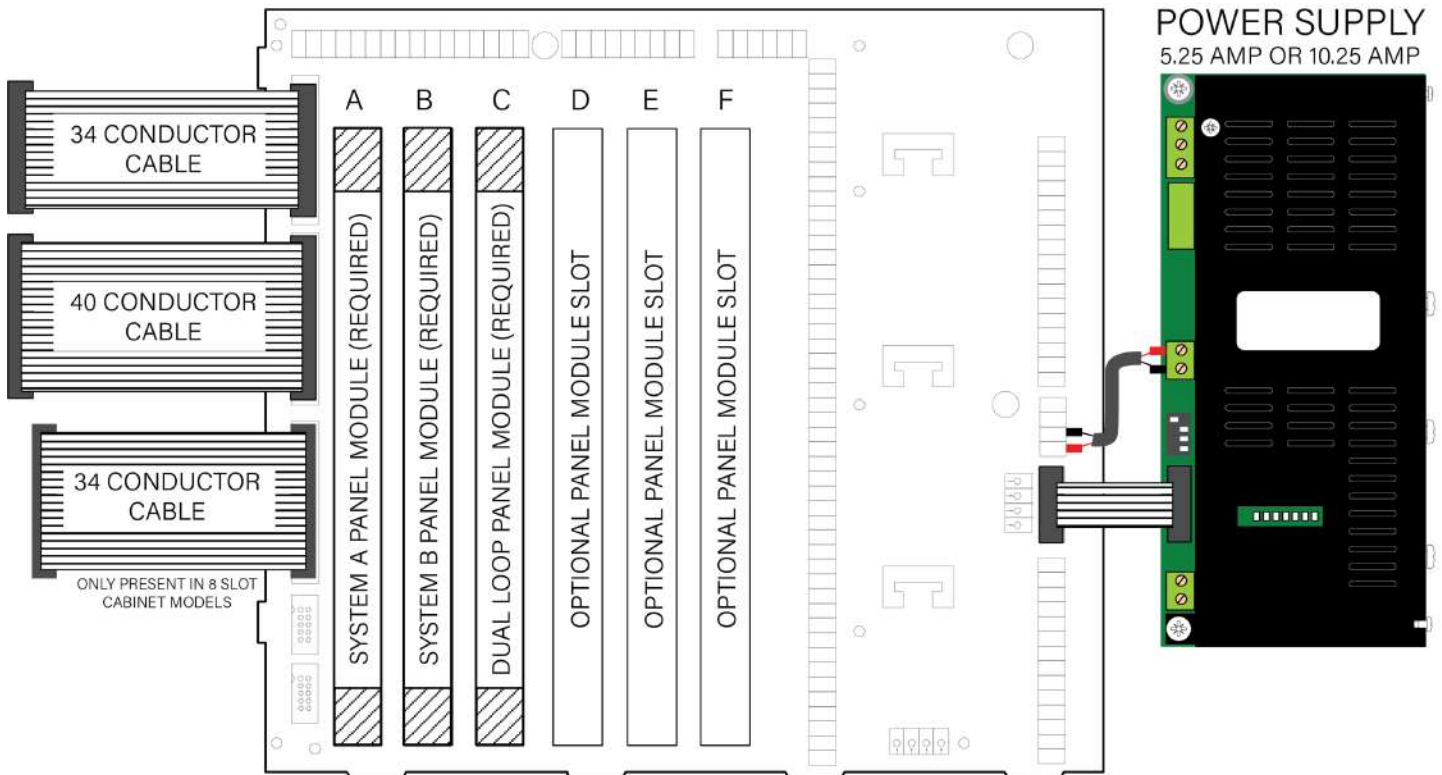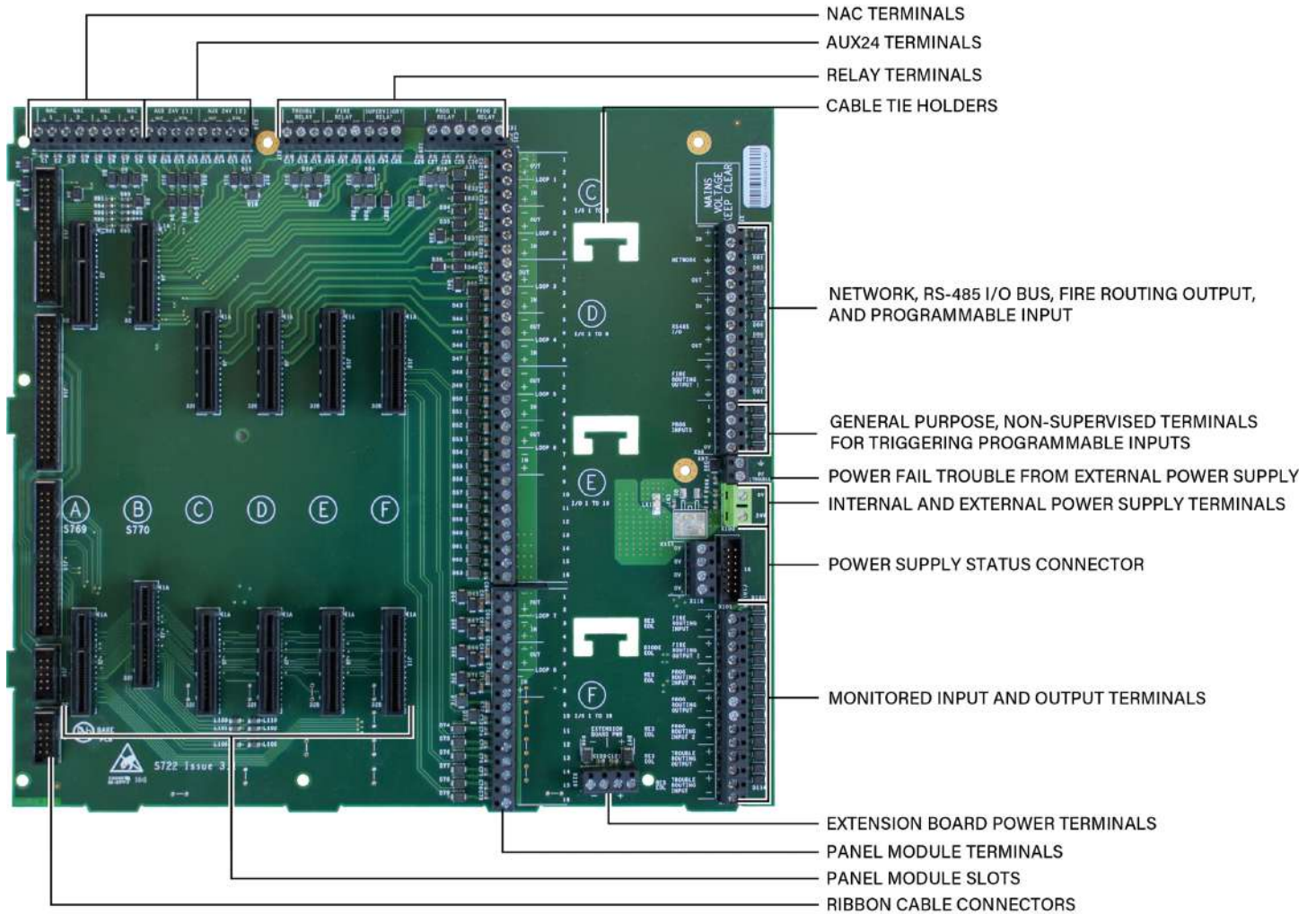
The Main Back Board contains connector slots A through F. Operation of the Aura Fire Alarm Control Panel requires that one Dual Loop Panel Module is connected in slots C, D, E, or F to meet minimum operating requirements.

The Dual Loop Panel Module can be connected in slots C, D, E, or F of the Main Back Board. Slot C of the Main Back Board is the factory location for the Dual Loop Panel Module connection.

NAC and AUX 24V Terminals

NAC terminals 1 to 4 provide 24 VDC @ 2.5 A. In the default state, these circuits can be connected as four Class B supervised outputs. However, they can be configured as two Class A or two Class B and one Class A output. Power limited circuits should be routed separately from non-power limited circuits. The following figure illustrates the NAC and AUX 24V terminals of the Main Back Board:
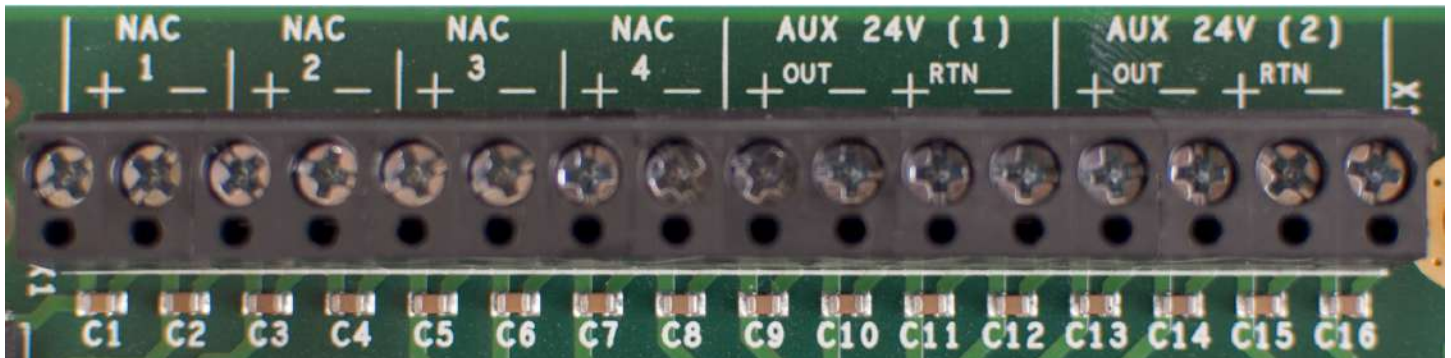
Field Terminals	Designation	Supervision	Power Limited
(+) and (-)	NAC 1	using EOL diode	Yes
(+) and (-)	NAC 2	using EOL diode	Yes
(+) and (-)	NAC 3	using EOL diode	Yes
(+) and (-)	NAC 4	using EOL diode	Yes
OUT (+) and (-) RTN (+) and (-)	AUX 24V (1)	Supervision by connecting the end of the cable back to the RTN	Yes
OUT (+) and (-) RTN (+) and (-)	AUX 24V (2)	Supervision by connecting the end of the cable back to the RTN	Yes

Terminals

The default designation is as shown below, however all 5 relays are user-configurable.
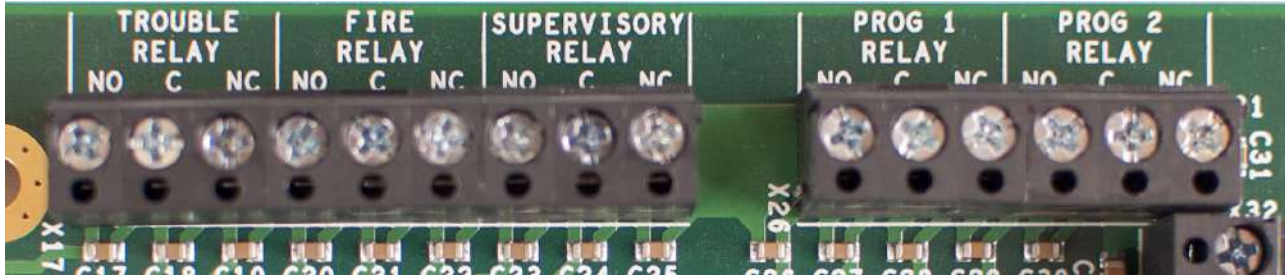
Field Terminals	Default Operation	Default Setting
NO, C, and NC	TROUBLE RELAY	Trouble
NO, C, and NC	FIRE RELAY	Fire
NO, C, and NC	SUPERV RELAY	Supervisory
NO, C, and NC	PROG 1 RELAY	Transparent
NO, C, and NC	PROG 2 RELAY	Transparent

Panel Module Slots

The following figure illustrates the Panel Module Slots of the Main Back Board:

FIELD WIRING TERMINALS FOR PANEL MODULES

PANEL MODULE SLOTS

SLOT B FOR SYSTEM B PANEL MODULE

SLOT A FOR SYSTEM A PANEL MODULE
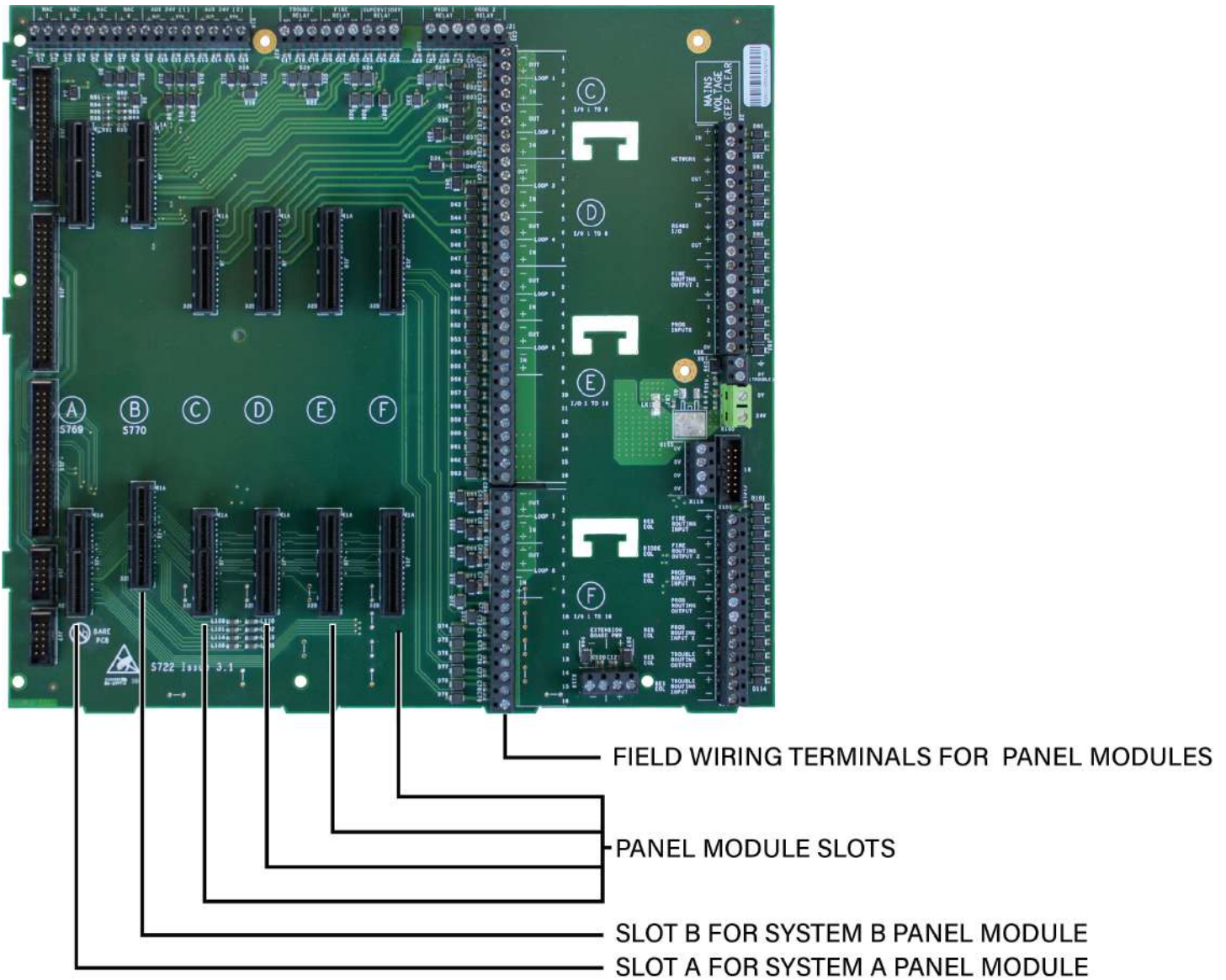
Field Terminal Assignments

Panel module slot positions on the Main Back Board correspond to specific field terminal locations on the Main Back Board.

Slot	Field Terminal Location
C	Addressable Loops 1 and 2
D	Addressable Loops 3 and 4
E	Addressable Loops 5 and 6 or 8 Channel Relay.
F	Addressable Loops 7 and 8 or 8 Channel Relay, or Media Gateway

Slots A and B do not contain corresponding lettering on field terminals of the Main Back Board. These slots are dedicated system boards that operate primary functions. System A Panel Module must connect to slot position A on the Main Back Board and System B Panel Module must connect to slot position B on the Main Back Board.
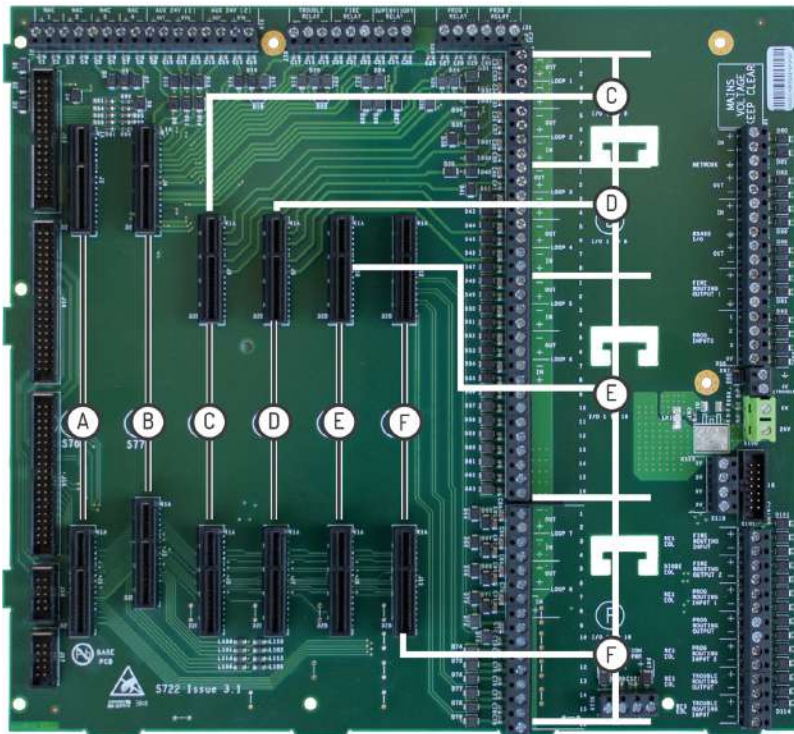
Panel Module Slots

Board Slot C

The following figure illustrates the Board Slot C terminals of loops 1 and 2:
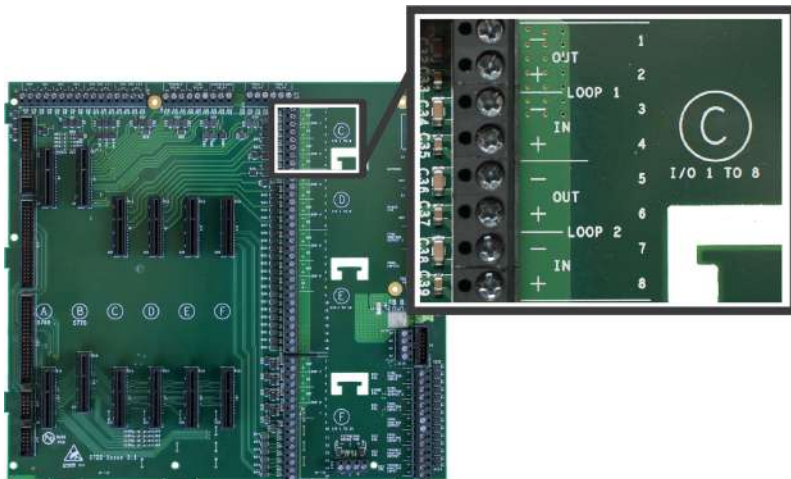
Field Terminals	Board Location	Function
1-4 and 5-8	Slot C	Loop 1 and Loop 2

Board Slot D

The following figure illustrates the Board Slot D terminals of loops 3 and 4:
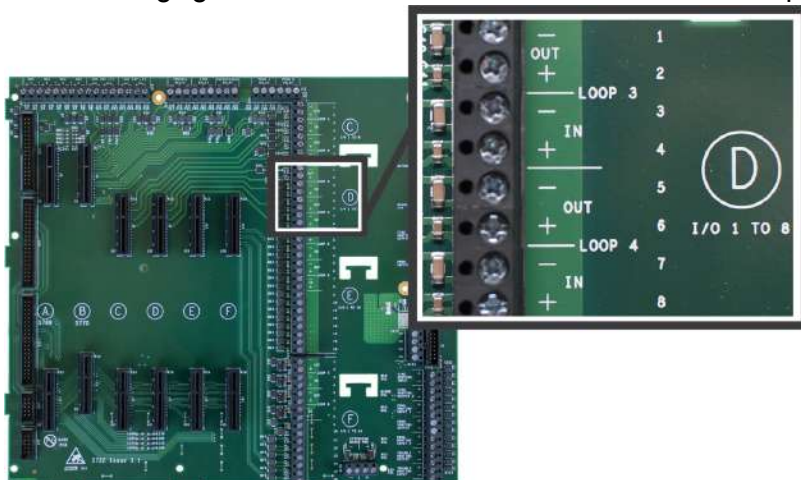
Field Terminals	Board Location	Function
1-4 and 5-8	Slot D	Loop 3 and Loop 4

Board Slot E

The following figure illustrates the Board Slot E terminals of loops 5 and 6:
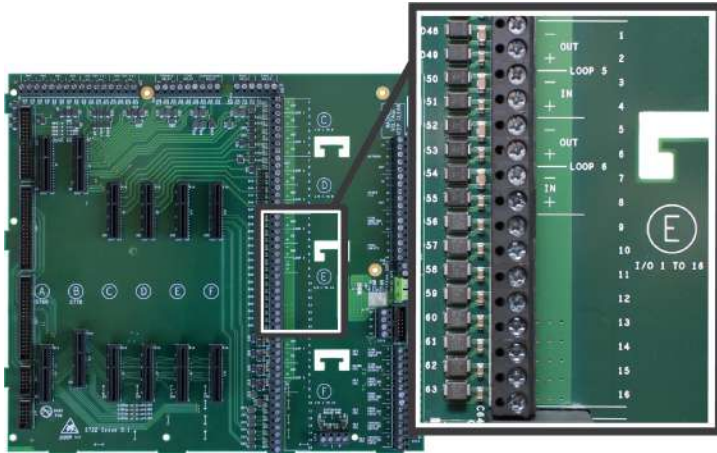
Field Terminals	Board Location	Function
1-4 , 5-8, and 9-16	Slot E	Loop 5 and Loop 6

Board Slot F

The following figure illustrates the Board Slot F terminals of Loops 7 and 8:
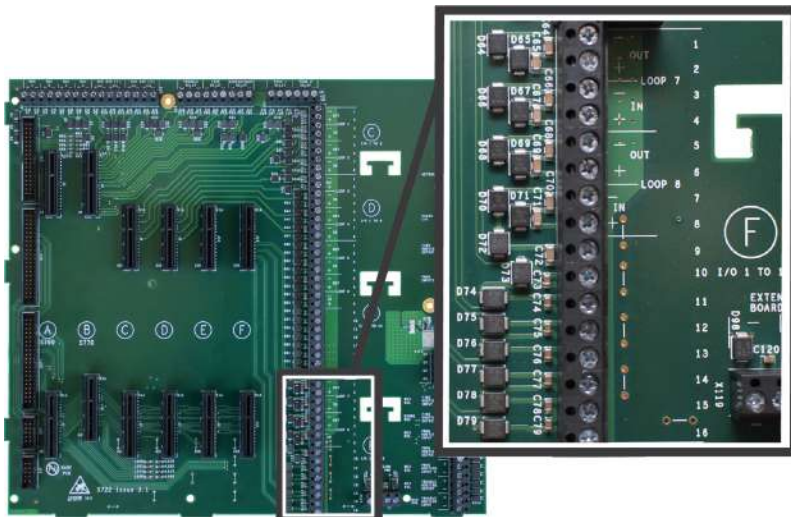
If you have, or plan to obtain, a Media Gateway Panel Module, it must be installed into Board Slot F.

Field Terminals	Board Location	Function
1-4 , 5-8, and 9-16	Slot F	Loop 7 and Loop 8

Extension Board Power Terminals

This figure illustrates Extension Board Power Terminals of the Main Back Board. These terminals are non-power limited.

Field Terminals	Description
(-)	Two terminals for providing 0 VDC return-power (-).
(+)	Two terminals for providing 24 VDC power (+).

These terminals are used for factory wiring purposes only.
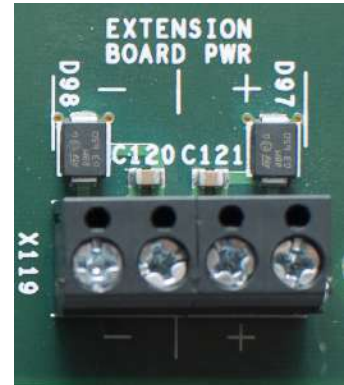
Network, RS-485 I/O, Fire Routing Output 1, and Prog Input

The following figure illustrates Network, RS-485 I/O, Fire Routing Output 1, and Prog Input of the Main Back Board:
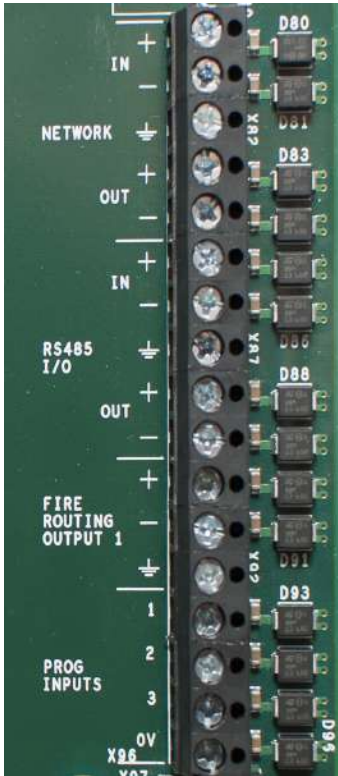
Field Terminals	Description
NETWORK	Provides Class X connections for intra-panel and annunciator networking.
RS-485 I/O	Provides ancillary RS-485 connections for external modules.
FIRE ROUTING OUTPUT 1	Not used. Reserved for future use.
PROG INPUTS	Provides three programmable inputs that operate on active low thresholds.

Power Supply Terminals

Power Supply Terminals of the
Main Back Board are used for
factory wiring purposes only.
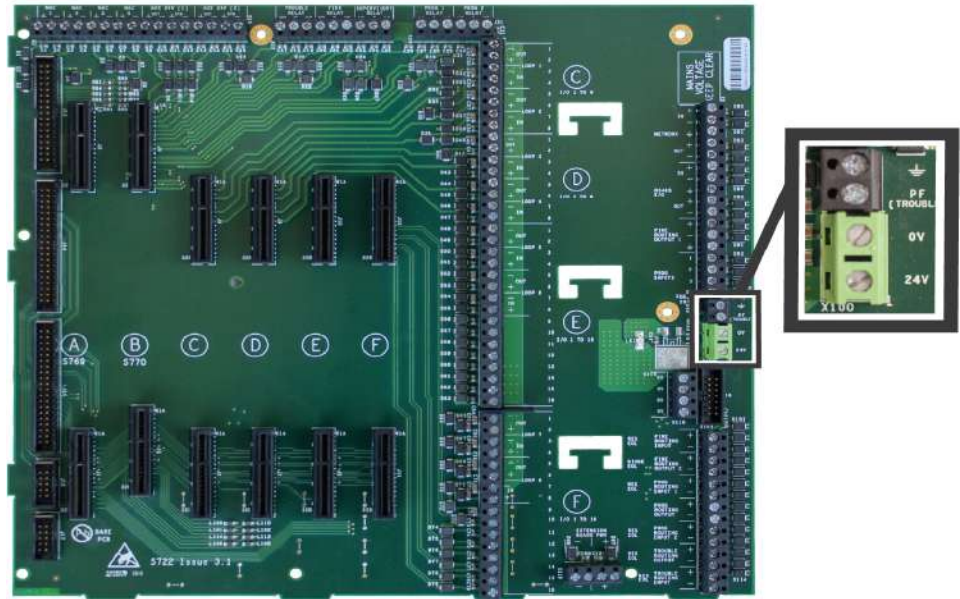
Field Terminals	Description	Power Limited
⏚	Ground terminal connection	N/A
TRBL	Power trouble input. Active when connected to negative terminal (-).	Yes
(-)	Negative terminal connection from the 24V DC power supply	Non-power limited
(+)	Positive terminal connection from the 24V DC power supply	Non-power limited

0V Terminals

This figure illustrates 0V terminals of the Main Back Board. These terminals provide general purpose 0V and are non-power limited.
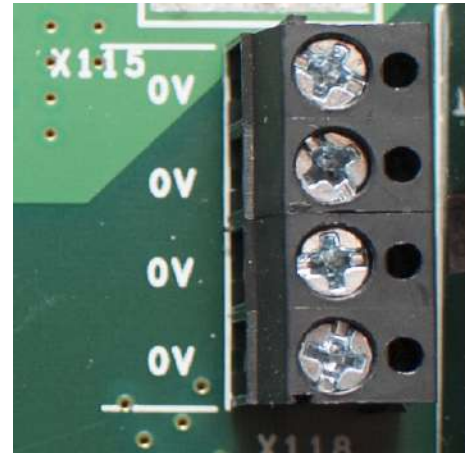
Power Supply Trouble Signaling Connector

The following figure illustrates the Power Supply Trouble Signaling Connector of the Main Back Board. This terminal provides power and trouble signaling from the power supply.
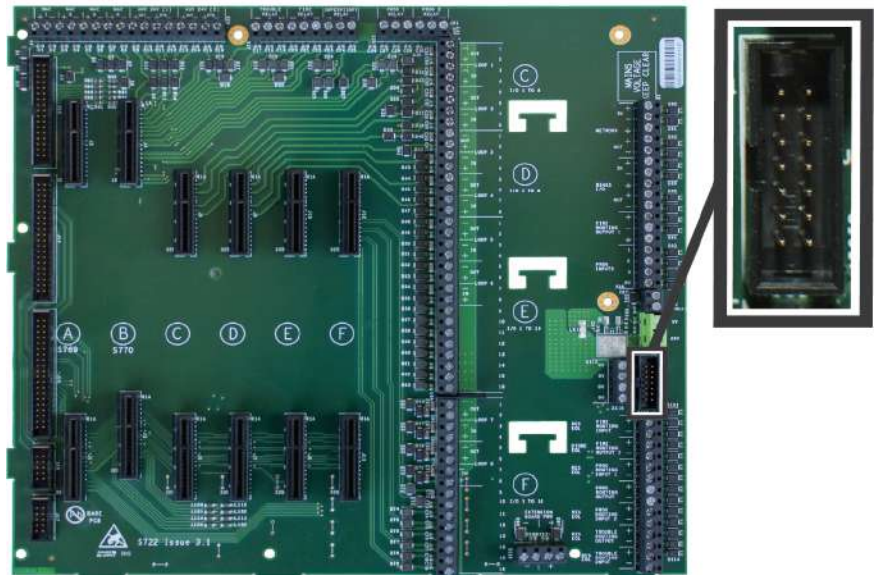
Supervised Input and Output Terminals

Fire and Trouble routing outputs provide supervised, 24V DC voltage with reversing outputs. Refer to Main Back Board Specifications for detailed information about these terminals.
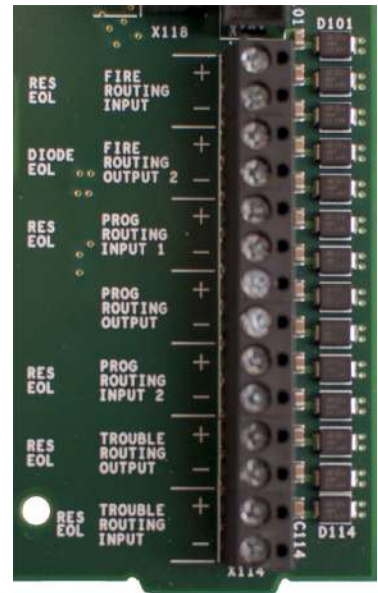
EXTENSION BOARD (AUL-9086)

Eight slot cabinet models include an extension board. This provides connections for 4 additional modules to be used with the Aura Fire Alarm Control Panel. In this type of configuration, the extension board is installed to the right of the Main Back Board on the backplate.

WARNING!   Separate high and low voltage wiring in the enclosure with a minimum gap of 0.25". AC power lines should be routed through a dedicated conduit.

Refer to the following illustration when wiring the Extension Board.
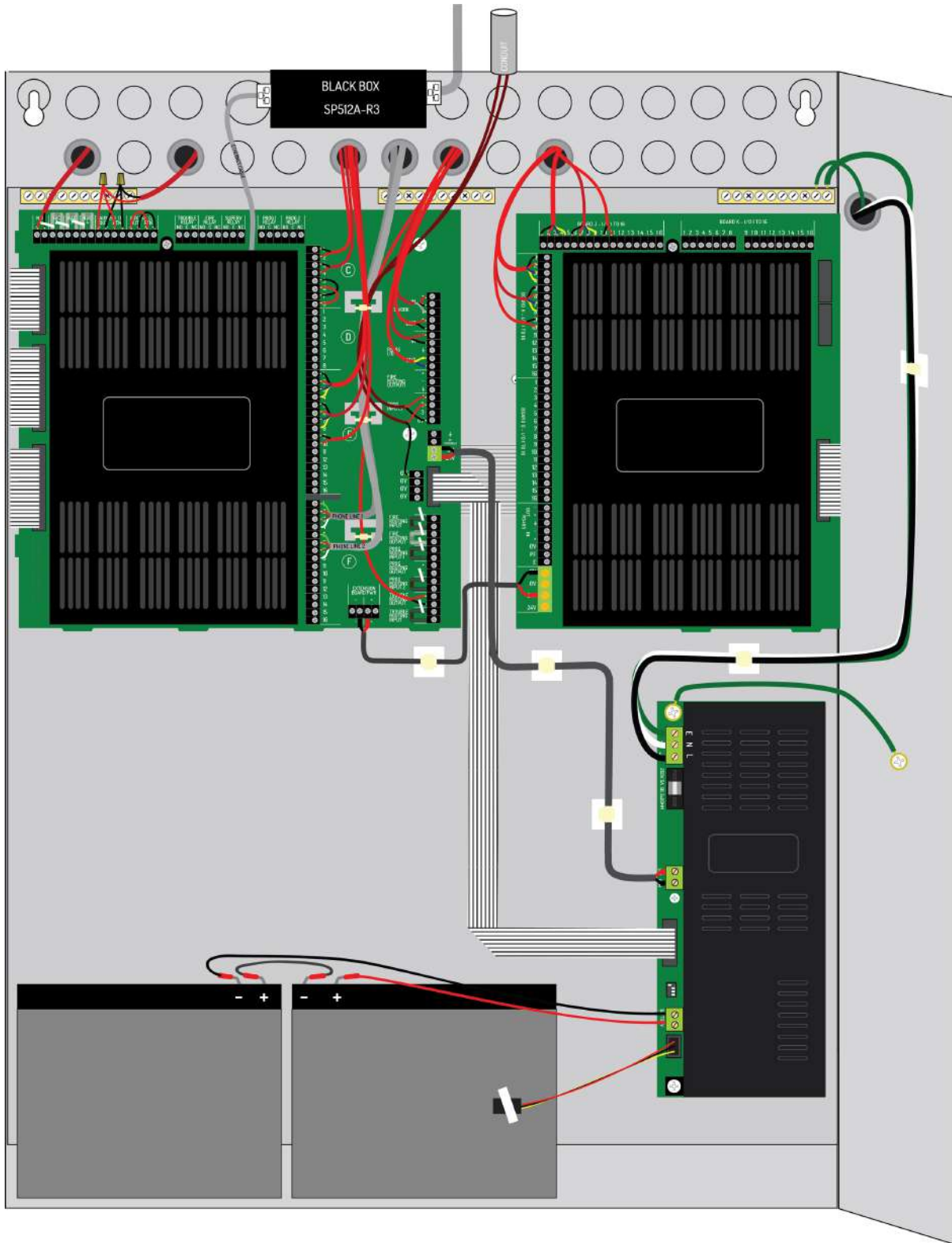
Extension Board Features

The following figure illustrates the Extension Board features:
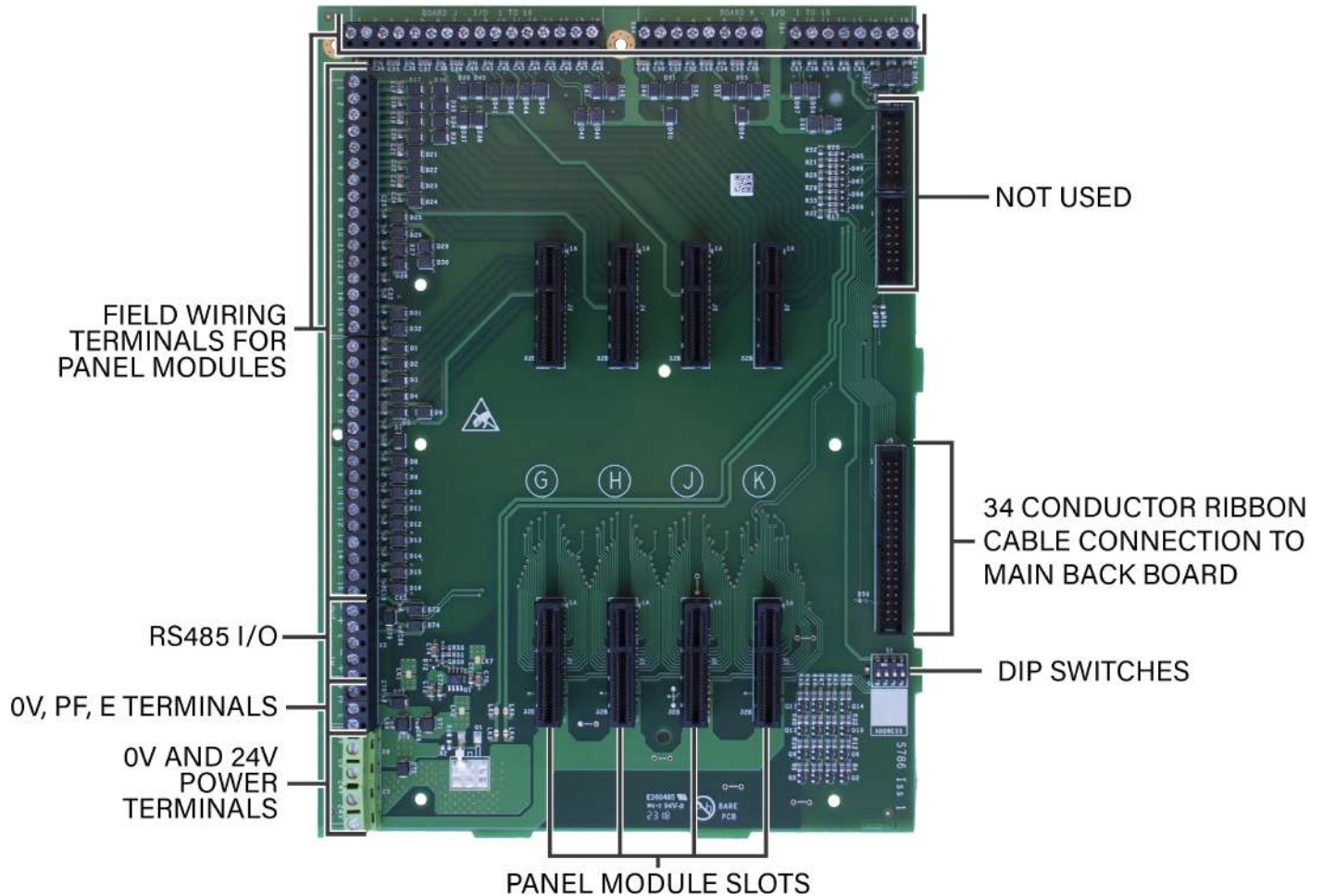
The extension board is connected to the Main Back Board through the Extension Board Power Terminals and a 34 Conductor ribbon cable. The DIP switches should be set as shown.
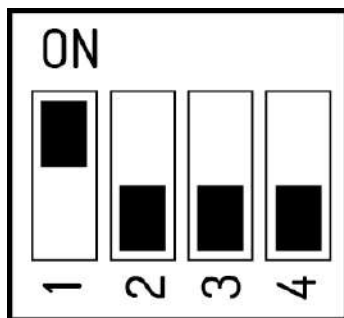
Panel Module Slots and Terminals

Panel module slots and field terminals of the Aura Fire Alarm Control Panel contain corresponding lettering to identify position on the Extension Board. Slots G, H, J, and K correspond to terminals G, H, J, and K of the Extension Board.

Location	Field Wiring Terminals	Function
Slot G	1-4 , 5-8, and 9-16	Loop 9 and Loop 10
Slot H	1-4 , 5-8, and 9-16	Loop 11 and Loop 12
Slot J	1-4 , 5-8, and 9-16	Loop 13 and Loop 14
Slot K	1-4 , 5-8, and 9-16	Loop 15 and Loop 16
RS-485 I/O	N/A	Not currently used. For future use.
0V, PF, E	N/A	Not currently used. For future use.
24V and 0V Power Terminals	N/A	Used to power the board through a connection to the Main Back Board.

LCD MAIN PROCESSOR BOARD (AUL-9021)

The LCD Main Processor Board provides the touch display, central processing, and memory for the Aura Fire Alarm Control Panel. The LCD Main Processor Board mounts to the fascia of the Aura Fire Alarm Control Panel and includes hardware features such as connectors, ports, switches, LED indicators, and the internal buzzer.

The LCD Main Processor Board, optional Zone LED module(s), and optional Aura Printer are mounted on the fascia of the Aura Fire Alarm Control Panel. The LCD Main Processor Board can operate a maximum of three Zone LED modules. One Zone LED module provides 48 LED indicators, two provides 96 LED indicators, and three Zone LED modules provide 144 LED indicators.

Zone LED modules connect to the LCD Main Processor Board through a 10 conductor cable. Subsequent Zone LED modules are connected in sequence through additional 10 conductor cables.
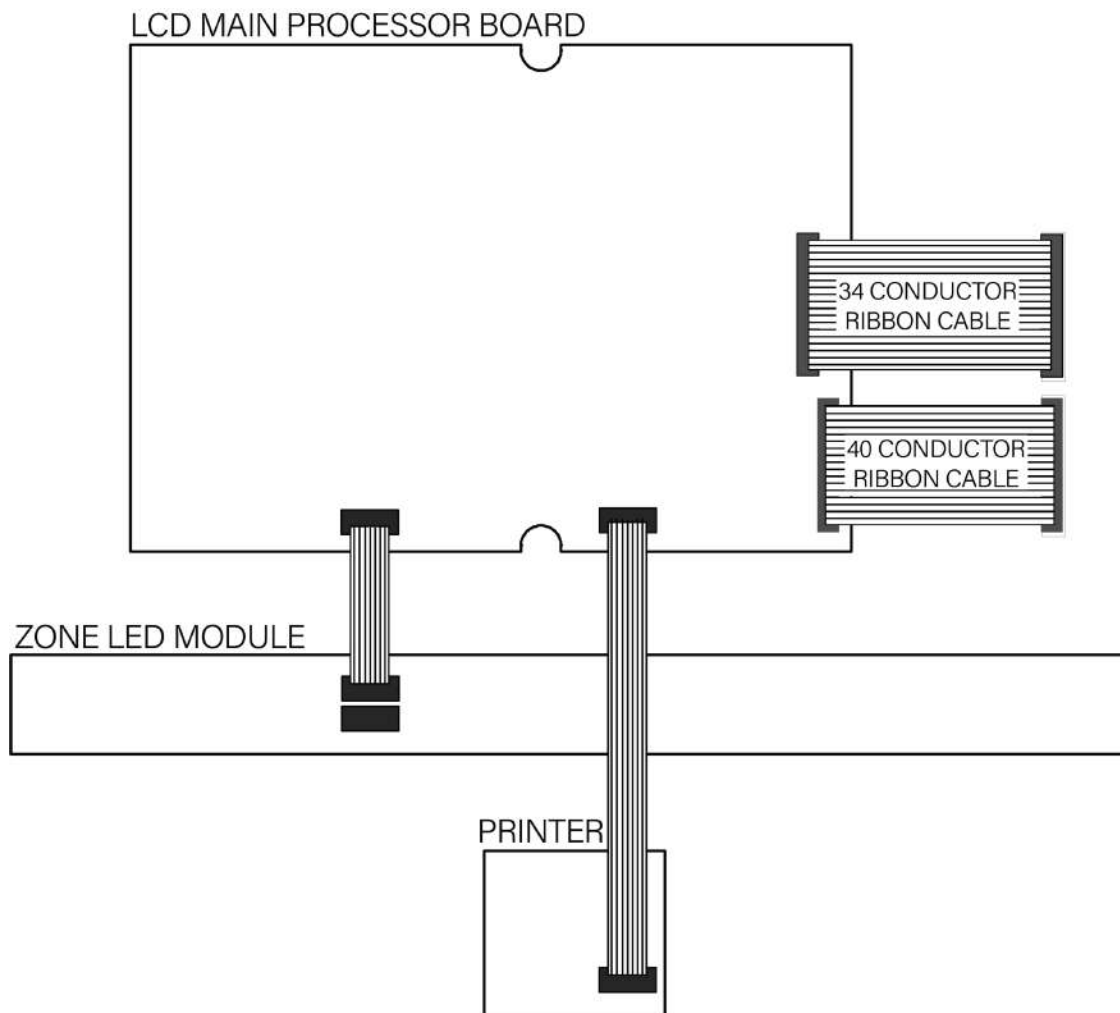
Connectors and Ports

The following figure illustrates connectors and ports of the LCD Main Processor Board:

- 40 CONDUCTOR CONNECTOR FOR CONNECTING THE NETWORK MODULE
- CONNECTS TO THE MAIN BACK BOARD VIA 34 CONDUCTOR RIBBON CABLE
- CONNECTS TO THE MAIN BACK BOARD VIA 40 CONDUCTOR RIBBON CABLE
- RS232 PRINTER CONNECTOR
- PANEL SOFTWARE UPGRADE PINS
- USB B - USED FOR PC CONNECTIONS AND CONFIGURATION DATA TRANSFER
- MICRO SD CARD FOR MEMORY EXPANSION, LOGGING, OR CONFIGURATION DATA STORAGE
- ZONE LED MODULE CONNECTOR
- USB A - USED TO CONNECT USB MASS STORAGE DEVICES
- AUXILIARY RS232 PORT 1

Switches, LED Indicators, and Internal Buzzer

The following figure illustrates switches, LED indicators, and the internal buzzer of the LCD Main Processor Board:
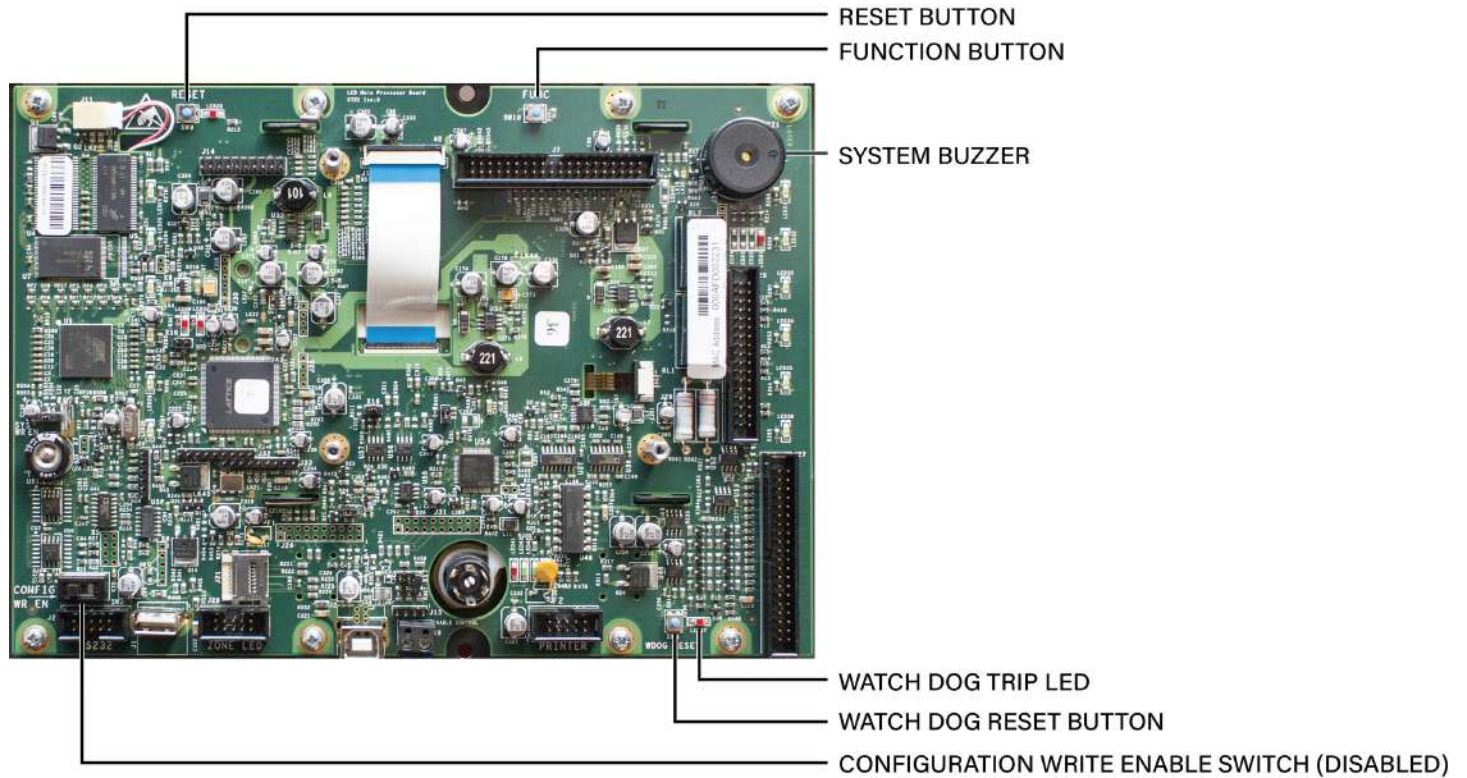
POWER SUPPLIES

Models of the Aura Fire Alarm Control Panel can include the 5.25 Amp or the 10.25 Amp power supply. 5.25 Amp power supplies are capable of charging batteries with capacities ranging from 7 to 60 Ah. 10.25 Amp power supplies are capable of charging batteries with capacities ranging from 12 to 100 Ah. Both power supplies provide an output voltage of 24V and accepts an input voltage of 230 VAC.

Features

Features of the power supplies include:

Features	Description
Deep Discharge Prevention	Prevents deep-discharge of the standby batteries by disconnecting the load when the standby battery-voltage drops below 19 +/- 1V DC. A deep-discharge can cause permanent damage to standby batteries. Preventing this condition allows standby batteries to recharge for continued operation after extended power outages.
Battery Backup	Provides battery power to the load when the AC input of the power supply falls below the rated level. The voltage at the load remains within the specified range during these switching-transitions.
Battery Boost	Boosts standby battery voltage to maintain a constant 22 VDC when the voltage drops below the 22 VDC level.
Short-Circuit Protection	Provides a shut down on the load side of the power supply when the load-current exceeds the maximum level.
Automatic Retry	Restores output to the load when operating conditions return to nominal levels. This feature restores voltage levels at the load following conditions such as over-current and AC restore.
Battery Impedance	Provides a trouble warning when the impedance of the battery reaches a level that could prevent proper system operation.
Battery Supervision	Battery presence and low battery voltage supervision
Ground Trouble Detection	Ground Trouble Detection
General Trouble Relay	All troubles are reported over the common trouble contacts.

DIP Switches

DIP switches are located on the edge of the power supply.

5.25 Amp Power Supply

The following figure illustrates the location of DIP switches on the 5.25 Amp Power Supply:

The tables below describe DIP switch settings 1 through 4 of the 5.25 Amp Power Supply. For UL compliance, DIP switches should be set to the defaults, as shown.

SW1&2 together define the Battery Load Test (also known as Battery Impedance Test)

Switch 1	Switch 2	Description
Off (DEFAULT)	Off (DEFAULT)	Recommended for standard operation. Load test the battery every 59 minutes. Measured voltage drop > 900mV fails the test.
Off	On	NOT USED. Load test the battery every 59 minutes. Measured voltage drop > 1100mV fails the test.
On	Off	Disable trouble reporting of disconnected standby batteries. Load test the battery every minute. Measured voltage drop > 900mV fails the test. This setting also masks BATTERY_ MISSING troubles.
On	On	Disable trouble reporting of standby battery impedance. No load test performed.
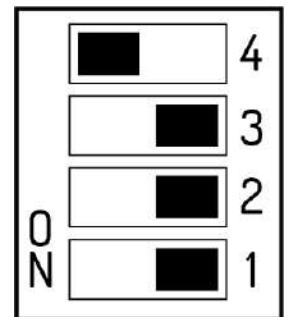
Switch setting 3 is not used on the 5.25 Amp Power Supply and should be set to OFF.

SW4 defines Battery Manufacturer.

Switch 4	Description
On (DEFAULT)	Sets standby batteries for the Powersonic manufacturer.
Off	Sets standby batteries for the Yuasa manufacturer.
Other manufacturer batteries can be used. Consult the manufacturer's datasheet for proper settings.	

10.25 Amp Power Supply

The tables below describes DIP switch settings 1 through 4 of the 10.25 Amp Power Supply.

For UL compliance, DIP Switches 1 and 2 must be set to the default, as shown.

Switch 1: Operating Mode	
On	Special Application Mode
Off (DEFAULT)	Recommended for standard operation.
Switch 2: Ground Trouble Detection	
On (DEFAULT)	Static: Setting required for interfacing to legacy products. Ground is pulled to a static voltage between 24V and RTN (1/2 of 24V-OUT).
Off	Dynamic: Ground is pulled to a dynamic voltage, varying from 6-18V over a 6 second period.
Switch 3: Battery Size	
On	Sets standby battery capacity ≤ 18 Ah.
Off	Sets standby battery capacity > 18 Ah.
Switch 4: Battery Manufacturer	
On	Sets standby batteries for the Powersonic manufacturer.
Off	Sets standby batteries for the Yuasa manufacturer.
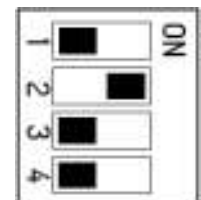
- Disabling Battery Indication - Set DIP switch 1 to the ON position, DIP switch 3 to the ON position and DIP switch 4 to the OFF position to disable the "BATTERY DISCONNECTED" warning indication.

- Disabling the Impedance Test - Set DIP switch 1 to the ON position and DIP switch 3 to the OFF position to disable the battery impedance test and trouble reporting.

Special Application Mode Table

SW1	SW2	SW3	SW4	Battery Mfr.	Battery Size	Ground Trouble Detection	Impedance Test Intervals	Battery Missing Trouble
ON	ON	ON	ON	RESERVED FOR FUTURE USE				
ON	ON	OFF	ON	PowerSonic	> 18 Ah	Static	Disabled	Reported
ON	ON	ON	OFF	Yuasa	< 18 Ah	Static	1 min	Masked
ON	ON	OFF	OFF	Yuasa	> 18 Ah	Static	Disabled	Reported

Light shading of the table indicates "production" or "demo" use.

Dark shading of the table indicates a "normal, but impedance test disabled" use.

Status Indicators

LED Indicator	Condition
AC NORMAL	The AC power is connected.
EARTH FLT	The 24V DC supply is connected to the ground.
CHARGER FAULT w/ abnormal HEARTBEAT	An internal fault has been detected in the power supply module. The HEARTBEAT indicator blinks different patterns to indicate the fault. 1-1 AC Power is on and 24V output is not in regulation. 1-2 The battery voltage is too high. 1-3 The battery charge current is too high. 1-4 The battery charge current is low while the charger output current control is MAXed.
BATTERY LOW (no CHARGER FAULT)	The unit is operating from battery and the battery voltage is below 21 V OR The unit is operating from AC power and the battery voltage is below 24 V.
BATTERY LOW and CHARGER FAULT	The battery impedance exceeds the acceptable limit. Install new batteries.
BATTERY DISCON	Standby batteries are disconnected.
HEARTBEAT	The power supply is functioning.
DC OUT ON	The 24V DC supply is supplying power to the load.

EVENTS AND STATUS

This section describes events and the status of the panel GUI while operating the Aura Fire Alarm Control Panel. The following events are described:

- Fire
- CO
- Trouble
- Supervisory
- Disablement
- Other Events

These event types correspond to the tabs displayed at the top of the Panel GUI. The event tabs will numerically indicate active events on the panel; the event type with the highest active event priority will automatically be displayed. Any event type can be accessed by pressing the associated tab.

Fire

In the event of a fire,

- the **Fire** indicator on the front of the panel flashes red
- the applicable indicator on the Zone LED Board flashes (if connected)
- the panel GUI displays details about the **Fire** event
- fire warning notification appliances activate as programmed
- panel outputs programmed to operate in the event of a fire, such as the Fire Relay and the Fire Routing Output 2, will activate
- the panel buzzer activates

With Access Level 2 or higher, the following functions are available:

- **Silence Alarms:** Press **Activate Controls**> **Silence Alarms** to silence notifications. The notifications can be reactivated by pressing the **Re-Sound Alarm** button.

- **Buzzer Silence:** Press **Buzzer Silence** to silence the panel buzzer.
- **Reset System:** Press **Reset System**.

CO

In the event of a CO Alarm, the following things happen:

- the **CO Alarm** indicator on the front of the panel illuminates yellow
- the applicable indicator on the Zone LED Board flashes (if connected)
- the panel GUI displays details about the **CO Alarm**
- CO warning notification appliances activate as programmed
- the panel buzzer activates

With Access Level 2 or higher, the following functions are available:

- **Silence Alarms:** Press **Activate Controls**> **Silence Alarms** to silence notification appliances. They can be reactivated by pressing the **Re-Sound Alarm** button.
- **Buzzer Silence:** Press **Buzzer Silence** to silence the panel buzzer.
- **Reset System:** Press **Reset System**.

Trouble

If there is a trouble on the system, the following things will happen:

- the **General Trouble** indicator on the front of the panel flashes yellow

There may be other trouble LED indications which identify the nature of the trouble.

- panel outputs programmed to operate in the event of a trouble, such as the Trouble Relay and Trouble Routing outputs, will activate
- the panel GUI displays details about the **Trouble**
- the panel buzzer activates

Troubles will typically reset automatically once the condition has cleared. With Access Level 2 or higher, the following functions are available:

- **Silence Alarms:** Press **Activate Controls**> **Silence Alarms** to silence notification appliances. They can be reactivated by pressing the **Re-Sound Alarm** button.
- **Buzzer Silence:** Press **Buzzer Silence** to silence the panel buzzer.
- **Reset System:** Press **Reset System**.

Supervisory

If there is a Supervisory Alarm on the system:

- the **Supervisory Alarm** indicator on the front of the panel illuminates yellow
- panel outputs programmed to operate in the case of a Supervisory event, such as the Supervisory Relay, will activate
- the panel buzzer activates
- the panel GUI displays details about the **Supervisory Alarm**

Supervisory Alarms will typically reset automatically once the condition has cleared (device may be programmed latching or non-latching). With Access Level 2 or higher, the following functions are available:

- **Silence Alarms:** Press **Activate Controls**> **Silence Alarms** to silence notification appliances. They can be reactivated by pressing the **Re-Sound Alarm** button.
- **Buzzer Silence:** Press **Buzzer Silence** to silence the panel buzzer.
- **Reset System:** Press **Reset System**.

Disablement

If there is a Disablement on the system:

- the **Disablements** indicator on the front of the panel illuminates yellow
- the panel buzzer activates
- the panel GUI displays details about the **Disablement**

If one or more disablements are active, the panel generates a trouble. Refer to the Trouble section above. Disablements will reset automatically once the device or zone has been re-enabled. With Access Level 2 or higher, the following functions are available:

- **Silence Alarms:** Press **Activate Controls**> **Silence Alarms** to silence notification appliances. They can be reactivated by pressing the **Re-Sound Alarm** button.
- **Buzzer Silence:** Press **Buzzer Silence** to silence the panel buzzer.
- **Reset System:** Press **Reset System**.

Other Events

Other event statuses are displayed in the **Controls & Other Events** tab.

MAINTENANCE AND REPAIR

This section provides procedures to maintain and repair the Aura Fire Alarm Control Panel over the operating life of the product. Refer to Equipment List for component part numbers described in this section.

IMPORTANT!   The Aura Fire Alarm Control Panel maintenance and repair must be performed by qualified service personnel.

Batteries

Load test the batteries and inspect their connections to the power supply as part of annual system maintenance.

WARNING!   Battery terminals and leads are not power-limited. Shorts can cause a fire or an explosion. Use extreme caution while connecting standby batteries.

Replacing Battery Leads

When replacing leads, disconnect them from the battery before disconnecting them from the power supply.

Replacing Standby Batteries

Typical battery life is 5 years. Specify replacement batteries that are Valve Regulated Lead Acid (VRLA) types.

Removing the Standby Batteries

To remove the existing standby batteries:

1. Disconnect the jumper between Battery 1 and Battery 2.
2. Disconnect the black lead from the positive terminal of Battery 1.
3. Disconnect the red lead from the negative terminal of Battery 2.
4. Remove Battery 1 and Battery 2 from the bottom of the Aura Fire Alarm Control Panel cabinet.
5. Recycle Battery 1 and Battery 2 according to the manufacturer procedures provided in the battery packaging.

Installing the Standby Batteries

Refer to Connecting Standby Batteries for information describing the standby battery installation process.

Fuses

The Aura Fire Alarm Control Panel contains fuses to protect it against overloads. During the life of the product it may be necessary to replace one or both of the fuses. Replace fuses only after addressing the cause which resulted in the fuse failure.

Battery Lead Fuse on 5.25A Power Supply

Failure of the battery lead fuse will result in a **Battery Missing** trouble. Verify that the fuse is the problem by disconnecting the fused-lead from the battery, and measuring the resistance of the lead from end-to-end with an ohm meter. The resistance should measure less than 1 ohm. If it measures higher, replace the fuse with a UL listed slow blow fuse. After replacing the fuse, measure the resistance again. If it still measures higher than 1 ohm, replace the lead. Refer to the Equipment List for fuse part numbers.

Once the replacement is complete, reconnect the lead to the battery terminal and verify the **Battery Missing** trouble has cleared.

Refer to Equipment List for parts supporting the assembly and connection of the fuse.

Replacing the Power Supply Fuse

Failure of the power supply fuse will result in a **Power Failed** trouble. Verify that the internal fuse is the problem by checking that the proper AC voltage is present across the L & N terminals on the AC-in terminal block of the power supply.

WARNING!   This is high voltage area. An electrical shock hazard exists. Use extreme care.

If the terminals have proper AC voltage and the green AC NORM indicator on the power supply is not lit, disconnect AC power at the source and replace the fuse.

Replace the power supply fuse by removing it from the fuse housing contained on the circuit board of the power supply. Install the replacement fuse in the fuse housing and then test the power supply to determine that it operates. The following figure illustrates the fuse of the power supply:

Removing the Power Supply Fuse

1. Turn off the AC power feed to the fire control panel. It is not necessary to disconnect the batteries.

WARNING!   This is a high voltage circuit area. An electrical shock hazard exists in this area when the fire control

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panel is operating. Do not remove the fuse while powering the fire control panel. Remove AC power at the source before attempting to remove the fuse of the power supply.

2. Locate the housing containing the fuse.

3. Remove the upper-half of the fuse housing with long nose pliers.

4. Remove the fuse from the upper-half of the fuse housing.

Installing the Replacement Power Supply Fuse

WARNING! This is a high voltage circuit area. An electrical shock hazard exists in this area when the fire control panel is operating. Do not replace the fuse while powering the fire control panel. Remove AC power at the source before attempting to replace the fuse of the power supply.

1. Insert and center the replacement fuse in the upper housing.

For the 5.25A power supply, use only a UL listed 250V, 3A, slow blow, 5x20mm fuse.

For the 10.25A power supply, use only a UL listed 250V, 5A, slow blow, 5x20mm fuse.

2. Press the upper housing on the lower housing until the halves snap together. The following figure illustrates the closed fuse housing:
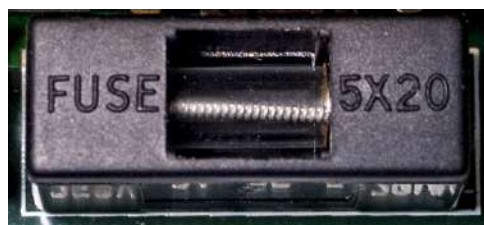
3. Restore AC power.

4. Monitor the AC NORMAL and DC OUT ON LED indicators on the power supply of the Aura Fire Alarm Control Panel to determine that trouble conditions are not reported following fuse replacement.

Replacing Internal Components

It may be necessary to remove and replace internal components during the operating life of the panel. The fascia contains the LCD Main Processor Board, optional Zone LED module, and optional printer. The backplate contains the Main Back Board, the power supply, and grounding terminals. Refer to Removing Cabinet Components for instructions on removing and replacing internal components. Ensure that AC power is off before replacing internal components.

RED (+) AND BLACK (-)
24 VDC WIRES

RED (+) AND BLACK (-)
24 VDC WIRES
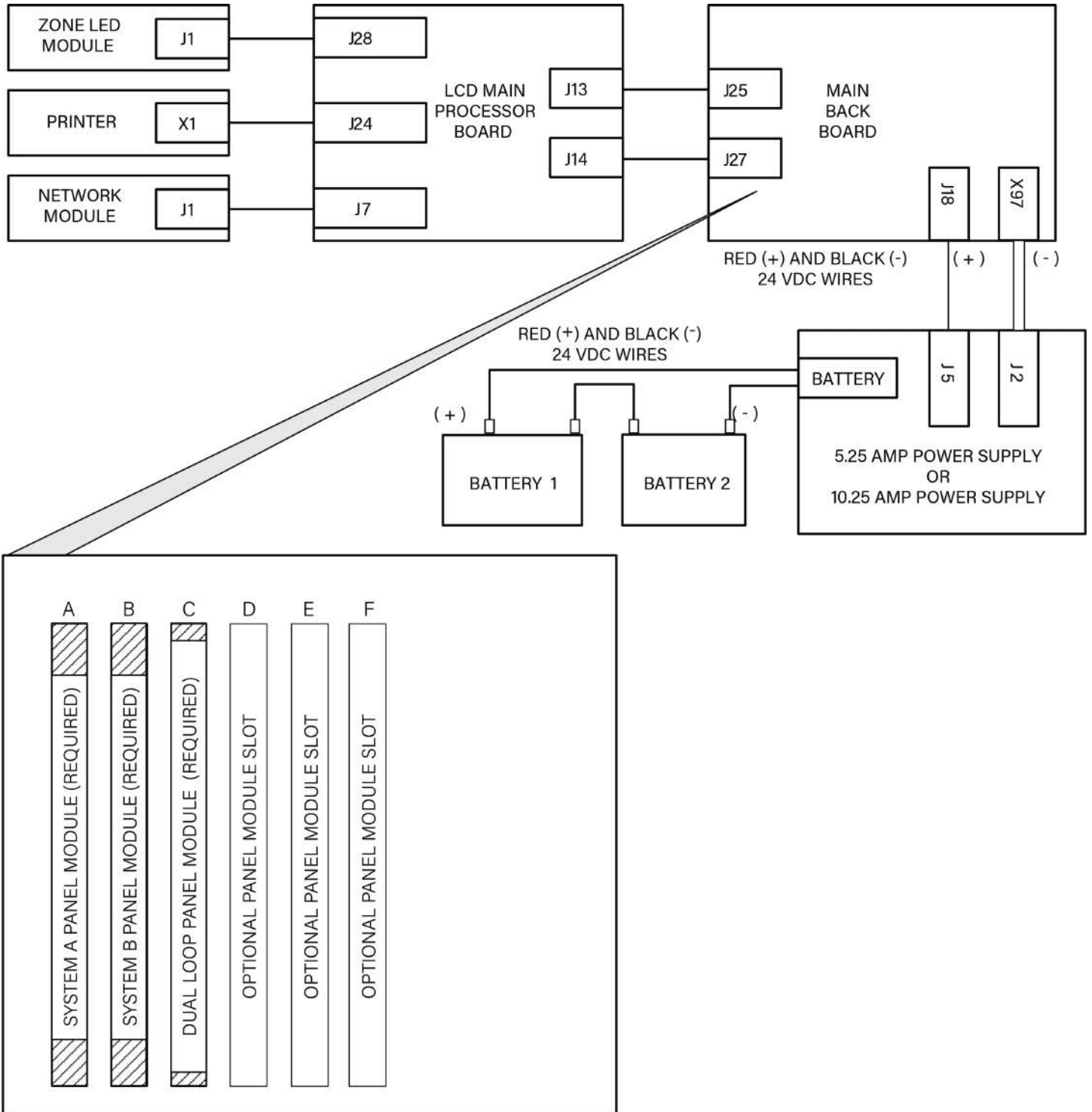
APPENDIX A: SPECIFICATIONS

This appendix provides electrical and environmental specifications for the Aura Fire Alarm Control Panel. Current levels provided in the tables of this appendix are maximum ratings unless otherwise indicated.

Operating Constraints

Installation of the Aura Fire Alarm Control Panel must include the operating constraints of the system to maintain continuous signal monitoring and reporting. Operating constraints are based on the current-driving capability of the panel while maintaining external loading caused by devices and cabling.

External loading must be selected within the limits of the Aura Fire Alarm Control Panel to provide continuous operation. External loading is caused by individual or multiple combinations of Signaling Line Circuits, Notification Appliance Circuits, and Initiating Devices. It is also caused by the size and length of cabling connections. Refer to Calculations to determine the appropriate size and length of cabling.

Electrical

AC Input Ratings

Terminal	Description	Power Supply	Power
L	AC line	5.25 A	0 .915 Amps Max @ 230 V, 50/60 Hz
		10.25 A	1.25 Amps Max @ 230 V, 50/60 Hz
N	AC neutral		
⏚	Ground		

AC line and AC neutral terminals are supervised for open and short circuits, provided standby batteries are functional.

Power Supply

Fuses

Power Supply	Description
5.25 A	AC Input, 3 A, 250 VAC, slow blow, 5 x 20 mm
10.25 A	AC Input, 5 A, 250 VAC, slow blow, 5 x 20 mm

24 VDC Output Ratings

Designation	Description
Output voltage	22V DC minimum, 26.4V DC maximum
Ripple Voltage	1 V Maximum
Maximum Standby Current	Rated maximum output current which can be supplied continuously in normal standby.
5.25A Power Supply	1.9 A
10.25A Power Supply	3.4 A
Maximum Alarm Current	Rated maximum output current which can be supplied in alarm.
5.25A Power Supply	4 A
10.25A Power Supply	8 A

Standby Battery Ratings

Designation	Description
AH max	Maximum battery capacity in amp hours for 5.25 A and 10.25 A Power Supplies
5.25 A	60 AH maximum
10.25 A	100 AH maximum
Ri max	Maximum series resistance in battery charging circuit before a trouble is indicated.
5.25 A	1 Ohm
10.25 A	0.4 Ohm

Ground Trouble Indication

A ground trouble indication occurs on the Aura Fire Alarm Control Panel when 30K Ohms or less exists between the ground and either DC RTN or +24 VDC of the power supply.

System Power

When AC power is present, the system operates entirely from AC power (primary). During an AC power failure, the entire system load is transferred to the standby batteries (secondary).

Standby and Alarm Current

Standby and Alarm Currents of the Aura Fire Alarm Control Panel with two loops are provided below. Two loop operation includes System A Panel Module, System B Panel Module, and the Dual Loop Panel Module. Two loop operation represents the minimum board configuration of the Aura Fire Alarm Control Panel. The data excludes all external loads. Primary loads assume a fully charged battery.

5.25 A Power Supply

Standby Load (mA)	Alarm Load (mA)	Description
162 mA @ 230 VAC	177 mA @ 230 VAC	Line current for standby and alarm when battery charge current is less than 30 mA.
560 mA @ 24 VDC	650 mA @ 24 VDC	Battery current for standby and alarm when AC power failure condition is present.

10.25 A Power Supply

Standby (mA)	Alarm (mA)	Description
176 mA @ 230 VAC	181 mA @ 230 VAC	Line current for standby and alarm when battery charge current is less than 30 mA.
550 mA @ 24 VDC	620 mA @ 24 VDC	Battery current for standby and alarm when AC power failure condition is present.

The data provided above for standby and alarm current includes loads of a two loop fire control panel alone and excludes current loads from external devices or equipment.

Battery

Rechargeable Standby Battery Circuit

Designation	Description
Standby Battery Type	Two 12 VDC, rechargeable, valve-regulated, lead-acid batteries wired in series
Charger Type	Temperature compensated, current limited float charger
Low Battery Disconnect Voltage	19 V (+/- 1 volt)
Standby Battery Capacity	Installation-dependent. Refer to Determining the Standby Battery Capacity to determine the amp hour rating of the standby batteries.
Standby Battery Charge Voltage	27.6 V nominal, temperature-compensated and current-limited
Charge Current	Maximum charging current of standby batteries.
5.25 Amp Power Supply	1.25 A
10.25 Amp Power Supply	2.25 A

Standby Battery Loads

Standby battery loads are generated by measuring the series battery current of the power supply following a power failure condition. Standby and alarm current of the Aura Fire Alarm Control Panel can include all or part of the following loads:

Loads	Standby Current	Alarm Current
5.25 A Power Supply	78 mA	78 mA
10.25 A Power Supply	80 mA	80 mA
Dual Loop Panel Module	115 mA	115 mA
NAC Outputs	0 mA (per output)	2500 mA (per output)
Aura Fire Alarm Control Panel *	350 mA max	450 mA max
	335 mA typical	435 mA typical
Zone LED Module	5 mA	5 mA + 3 mA per LED
Aura Network Module	80 mA	80 mA
Aura Printer	0 mA	1500 mA (only during printing)
*LCD Main Processor Board, Main Back Board, System A Panel Module, System B Panel Module		

Cabling

Specify cabling that meets or exceeds NFPA 72 and UL 864 guidelines.

Cable Maximum Parameters for Network

Property	Ratings
Resistance	100 Ω total for both conductors
Core to Core Capacitance	300 nF
Core to Screen Capacitance	450 nF
Inductance Per Core	600 µH

RS-485 Serial Data and Terminal Capacity

Property	Description
Serial Data Connection	up to 3900 feet of 18/2 FPLR
Maximum Terminal Capacity	14 AWG
Cable Maximum Parameters	25 Ω per conductor, 600 µH per conductor, 300 nF

SLC Loop Ratings

The following ratings represent Shield Protocol SLC loops of the Aura Fire Alarm Control Panel.

Connection	Rating
LOOP (- OUT), (+ OUT)	27 V DC @ 400 mA
LOOP (- IN), (+ IN)	27 V DC @ 400 mA

Maximum Cable Capacitance: 1 µF

Maximum Wiring Voltage Loss: 6.4 V

Refer to SLC Loop Cabling for maximum allowable cable length calculations.

Main Back Board

NAC Outputs

NAC Outputs	Terminal
NAC 1	(+), (-)
NAC 2	(+), (-)
NAC 3	(+), (-)
NAC 4	(+), (-)

NAC 1 and 2 can be configured to provide one Class A circuit (NAC 1&NAC 2) or two Class B circuits (NAC 1 and NAC 2).

NAC 3 and 4 can be configured to provide one Class A circuit (NAC 3&NAC 4) or two Class B circuits (NAC 3 and NAC 4).

Each NAC *circuit*, whether Class A or Class B, has the following ratings:

AUX Power Output Range	Channels configured to power non-NAC devices are rated special application 20V - 26.4V at 2A max, power-limited. Refer to NAC Power Output Modes for compatible devices.
Quiescent Current Consumption	30 mA
Maximum Current Consumption	50 mA (exclude current draw on outputs)
Current per NAC Output	2.5 A per channel, power-limited
Fuse (Electronic)	Average Current Limit: 1 to 2.5 A, programmable Peak Current Limit: 3.0 A, fixed per channel
Supervision	Reverse-polarity
End-of-Line Device	Diode
Short Circuit Threshold	130 Ohms +/- 20%
Maximum Line Impedance	4V loss (load-dependent)

Regulated NAC Outputs

NAC outputs operate in a regulated mode when conforming to specific levels of continuous or pulsed DC. NAC outputs meet requirements for regulated levels when the output current does not exceed the constraints described below.

Regulated Non-Pulsing Output Current	Currents cannot exceed 2.5A from any single NAC output: **Combined currents of all four NAC outputs cannot exceed 5A**

	System must not exceed maximum power supply output rating.
Regulated Pulsing Output Current	**5.25A Power Supply - Regulated pulsing DC output = Max 500mA total across all NACs** **10.25A Power Supply - Regulated pulsing DC output = Max 600mA from any NAC output, Max 2.4 A per Board** System must not exceed maximum power supply output rating.

Refer to Specifications for operating NAC outputs in the regulated mode.

Special Application NAC Outputs

NAC outputs can operate in a special application mode. NACs configured for special application have specific loading limitations, as detailed below.

Manufacturer	Maximum No. of Devices per Channel	Maximum Current Draw per Channel	Power Supply	Maximum Current Draw Across All NACs[1]
Amseco	27	2.4A	5.25A	2.5A
			10.25A	5A
Gentex	32	2.5A	5.25A	2.5A
			10.25A	5A
System Sensor	20	1.32A	500'S	2.1A
			10.25A	5A
Wheelock	41	2.5A	5.25A	2.5A
			10.25A	5A

[1] When System Sensor is used in combination with any other manufacturer, the 2.1A limit applies across all NACs.

Refer to Specifications for operating NAC outputs in the special application mode.

AUX 24V

Terminal	Rating
AUX 24V (1) OUT (+) and (-)	Regulated 24 VDC @ 900 mA
AUX 24V (1) RTN (+) and (-)	Supervision only. Not an output.
AUX 24V (2) OUT (+) and (-)	Regulated 24 VDC @ 900 mA
AUX 24V (2) RTN (+) and (-)	Supervision only. Not an output.

Relay Ratings

Terminals	Connection	Ratings
(NO), (C), and (NC)	TROUBLE RELAY	• Volt-free, Form C contacts • 30V DC @ 1 A maximum, Resistive • Programmable • ACTIVE during complete power loss • Not supervised
(NO), (C), and (NC)	FIRE RELAY SUPERV RELAY PROG 1 RELAY PROG 2 RELAY	• Volt-free, Form C contacts • 30V DC @ 1 A maximum, Resistive • Programmable • INACTIVE during complete power loss • Not supervised

Network (RS-485)

Terminal	Rating
⏚	Ground for cable shield (if applicable)
(+), (-) IN	Data 3.3 V, current-limited
(+), (-) OUT	Data 3.3 V, current-limited

RS-485 I/O

Terminal	Rating
⏚	Ground for cable shield (if applicable)
(+), (-) IN	Reserved for future use.
(+), (-) OUT	Data 3.3 V, current-limited

The RS-485 I/O utilizes standard RS-485 signaling in multi-drop mode with 120 Ohm terminations.

Fire Routing Output 1

Reserved for future use.

Prog Inputs

Terminals	Rating
1, 2, 3	Supervision: None Open Circuit Voltage: 24 VDC Activation: Short to 0V terminal (< 100 ohms) Activation current: 3.3 mA typical

Fire Routing Input

Supervised input to receive confirmation signal from fire routing equipment. Reprogrammable for any input event type.

Terminals	Rating
(+), (-)	Supervision: Class B Open Circuit Voltage: 10V End-of-Line device: 3.3K Ohm resistor Activation device: 680 Ohm resistor

Fire Routing Output 2

Reprogrammable for any output event type.

Terminals	Rating
(+), (-)	Regulated 24V DC @ 60 mA Fuse: Self-resetting Supervision: Reverse-polarity DC End-of-line device: Diode

Prog Routing Input 1

Programmable for any input event type.

Terminals	Rating
(+), (-)	Supervision: Class B Open Circuit Voltage: 10V End-of-Line device: 3.3K Ohm resistor Activation device: 680 Ohm resistor

Prog Routing Output

Terminals	Rating
(+), (-)	24V max. Impedance between (+) and (-) terminals measures 3.3K ohms when inactive. Impedance between (+) and (-) terminals measures 680 ohms when active.

Prog Routing Input 2

Programmable for any input event type.

Terminals	Rating
(+), (-)	Supervision: Class B Open Circuit Voltage: 10V End-of-Line device: 3.3K Ohm resistor Activation device: 680 Ohm resistor

Trouble Routing Output

Reprogrammable for any output event type.

Terminals	Rating
(+), (-)	Regulated 24V DC @ 60 mA Fuse: Self-resetting Supervision: Load > 5 mA End-of-line device: 3.3K ohms if load < 5 mA

Trouble Routing Input

Reprogrammable for any input event type.

Terminals	Rating
(+), (-)	Supervision: Class B Open Circuit Voltage: 10V End-of-Line device: 3.3K Ohm resistor Activation device: 680 Ohm resistor

System Information

Property	Description
Software Zones	2000 zone capacity
Software Groups	5000 group capacity
Event Log	10,000 event capacity, 1 second resolution. Filterable and printable.
Cause and Effects	5000

Mechanical

Fascia Components

Property	Description
Display	Full color 800 x 480 LCD with resistive touch screen and automatic backlight dimming
Aura Printer	40 column, front loading thermal (optional)
Zone LED Indicators	Up to 3 banks of 48 (144) (optional)

Operating Environment

Dry indoor use only.

Temperature Range	23°F (-5°C) - 120°F (49°C)
Relative Humidity	Up to 95%, non-condensing

Cabinet Housing

Housing	Description
Dimensions	4 Slot Standard Cabinet - 420mm (W) x 590mm (H) x 153mm (D), approximately 16.5in (W) x 23.2in (H) x 6in (D)
	8 Slot Standard Cabinet - 540mm (W) x 720mm (H) x 160mm (D), approximately 21.3in (W) x 28.3in (H) x 6.3in (D)
	4 Slot Deep Cabinet - 420mm (W) x 590mm (H) x 203mm (D), approximately 16.5in (W) x 23.2in (H) x 8in (D)
	8 Slot Deep Cabinet - 540mm (W) x 720mm (H) x 212mm (D), approximately 21.3in (W) x 28.3in (H) x 8.3in (D)
Construction	Standard and Deep Cabinet Models
	These models include: • Mild sheet steel enclosure, 1.2 mm • Removable equipment chassis • All epoxy powder coated • Knockouts top and back, one on each side • Hinged lid with single locks • Hinged bridge plates containing fascia indications • Optional printer
Finish	Epoxy powder coated
Color	Lid & Box - Red or Gray
	Control Plate - RAL7016
Cable Entry	Standard and Deep Cabinet Models - 28 knockouts top, 19 knockouts back, 1 knockout each side
Mounting	Minimum size #12, Maximum size #14. 40mm (1.5in.) length

This following figures illustrate the Aura Fire Alarm Control Panel cabinet housing options. All cabinets can be ordered with an optional second aperture to accommodate a printer or Fire In Zone LED indicators.

4 Slot Standard Enclosure
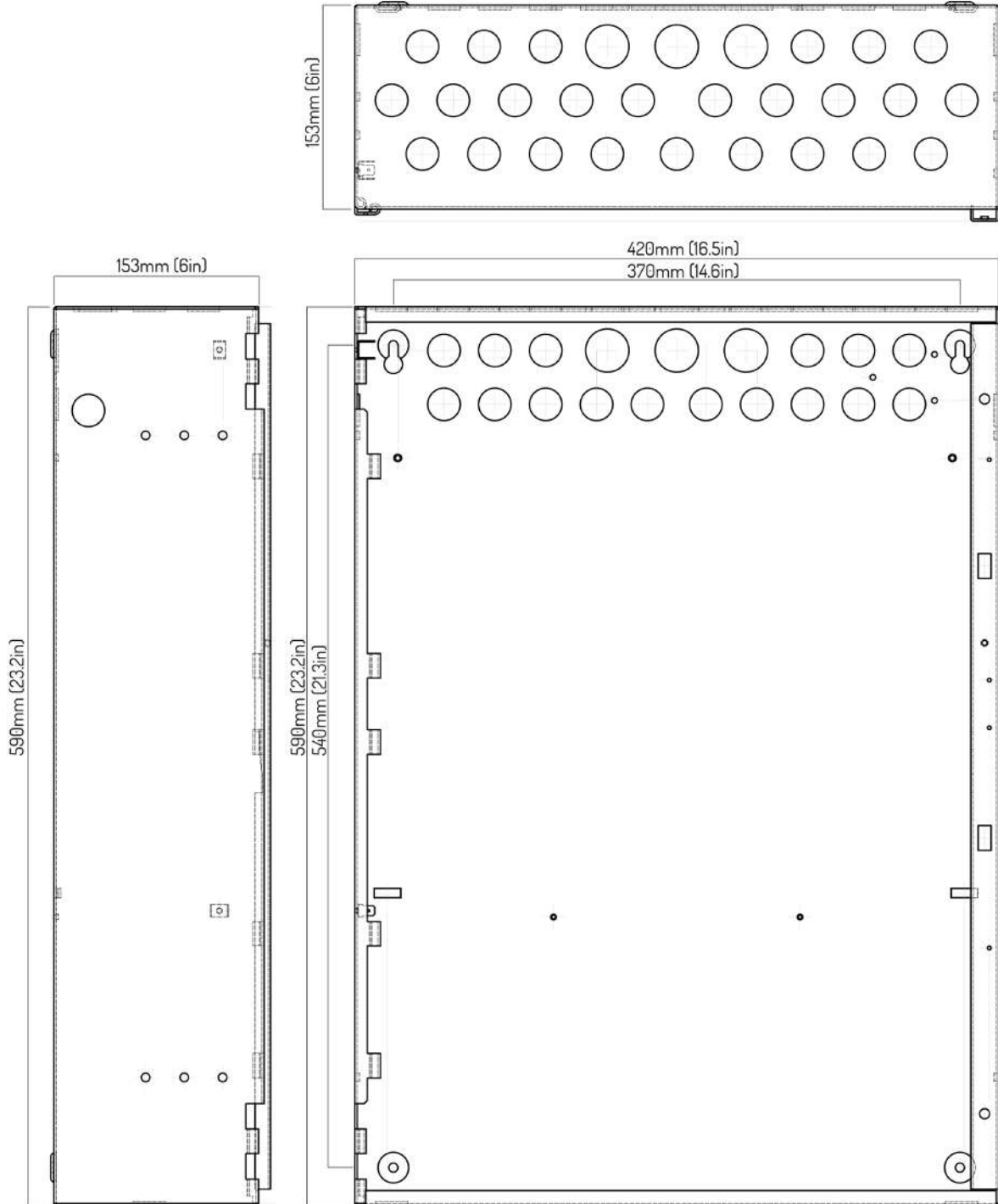
8 Slot Standard Enclosure

4 Slot Deep Enclosure

8 Slot Deep Enclosure
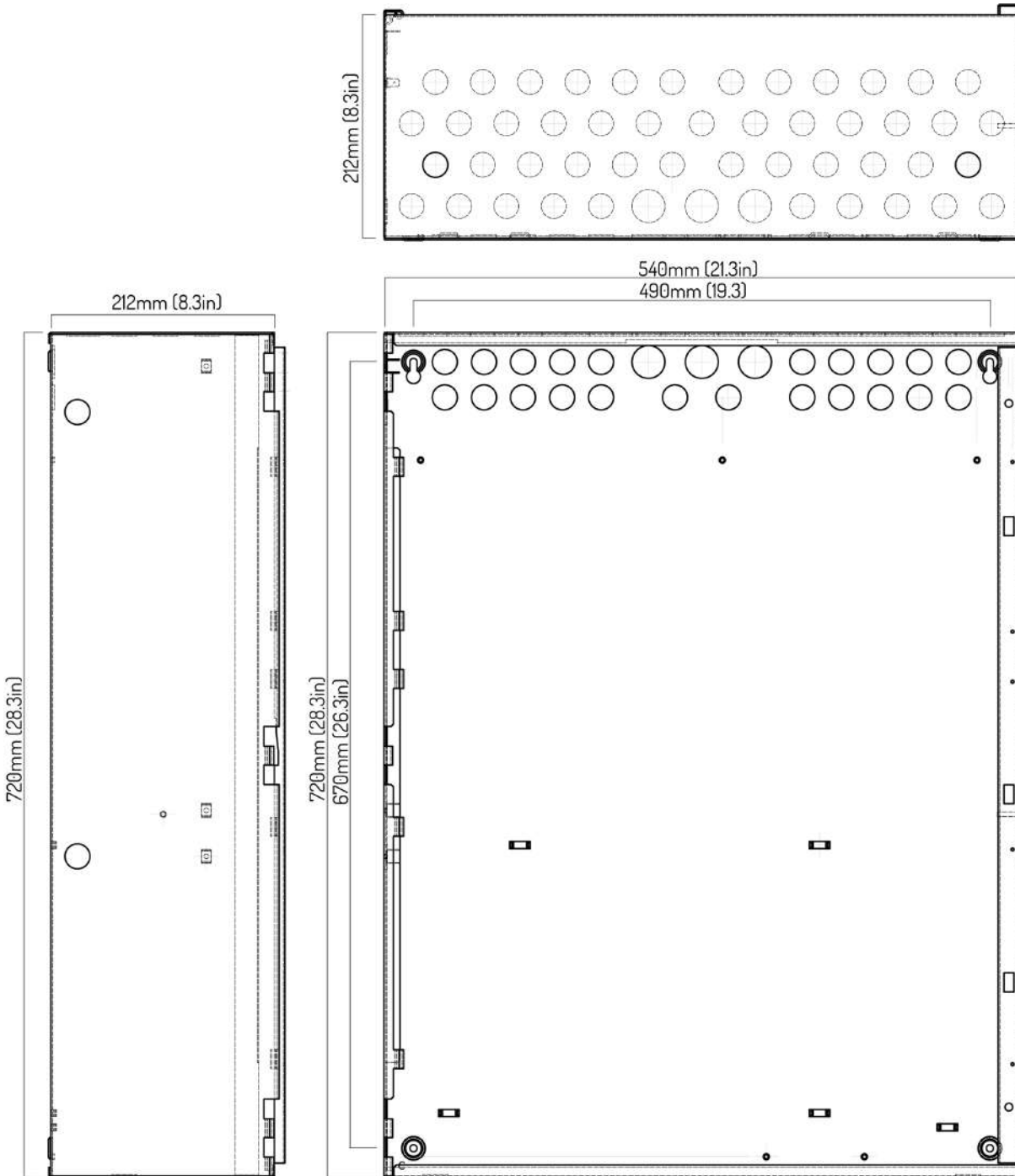
APPENDIX B: EQUIPMENT LIST

Panel Model Numbers

The following models are available for the Aura Fire Alarm Control Panel.

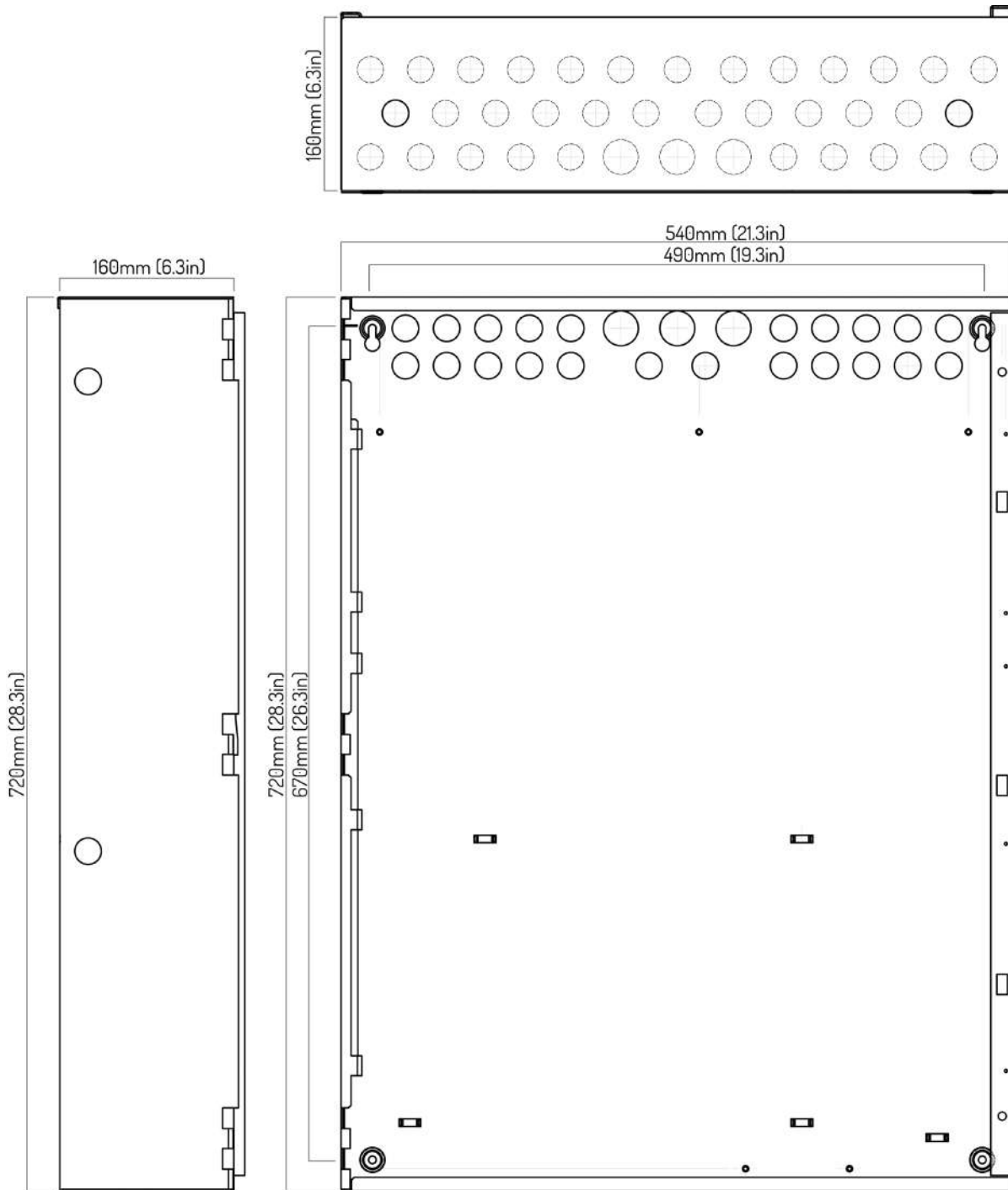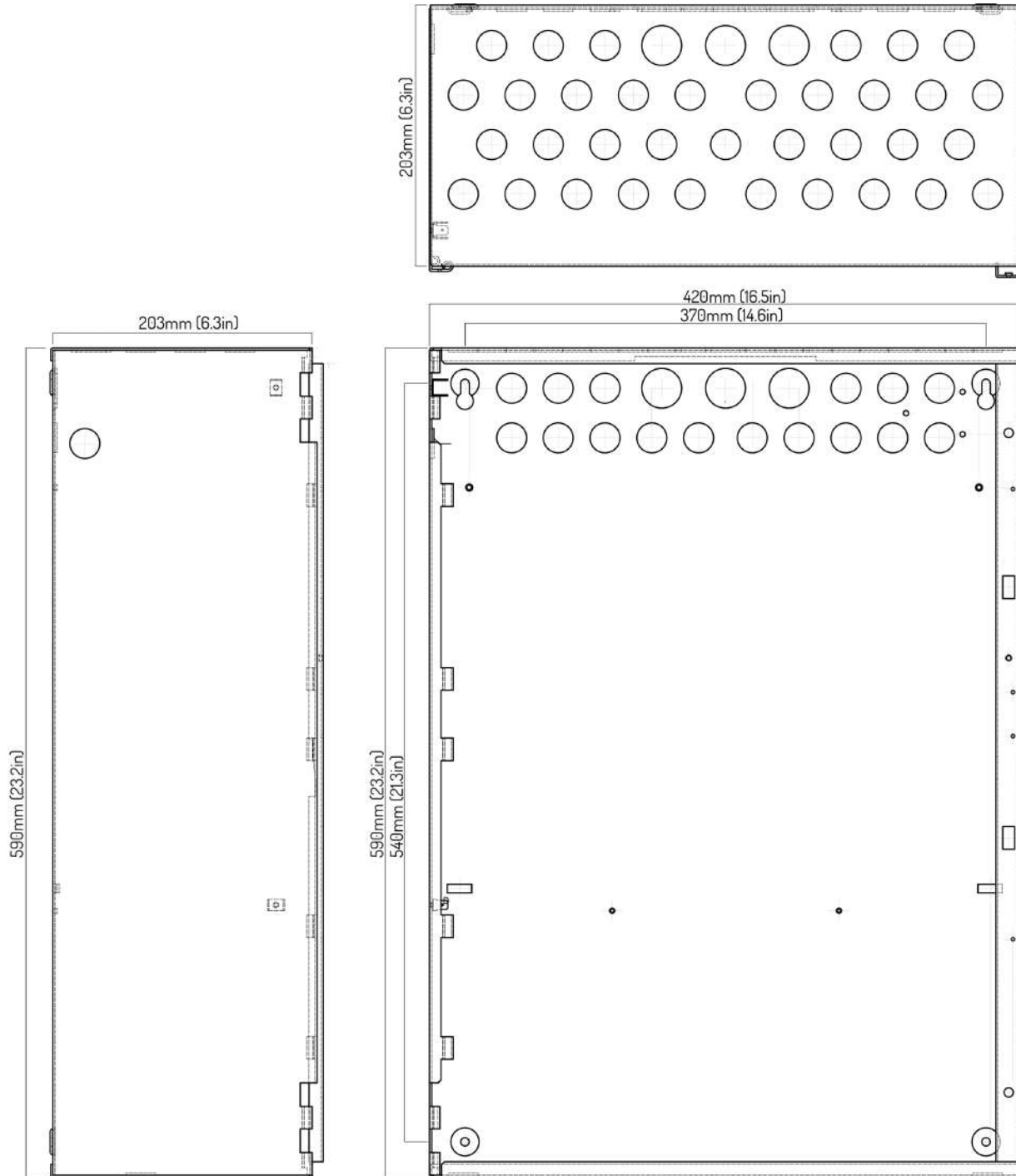| Part Number	Description
AUL-85512R	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Red, No Printer, No LEDs, UL listed
AUL-85512G	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Gray, No Printer, No LEDs, UL listed
AUL-85512B	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Black, No Printer, No LEDs, UL listed
AUL-85522R	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Red, No Printer, 48 LEDs, UL listed
AUL-85522G	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Gray, No Printer, 48 LEDs, UL listed
AUL-85522B	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Black, No Printer, 48 LEDs, UL listed
AUL-85524R	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Red, Printer, 48 LEDs, UL listed
AUL-85524G	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Gray, Printer, 48 LEDs, UL listed
AUL-85524B	Aura, 4 slot, Standard Enclosure, English, 5.25A 230V, 2 Loop, Black, Printer, 48 LEDs, UL listed
AUL-85112R	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Red, No Printer, No LEDs, UL listed
AUL-85112G	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Gray, No Printer, No LEDs, UL listed
AUL-85112B	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Black, No Printer, No LEDs, UL listed
AUL-85122R	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Red, No Printer, 48 LEDs, UL listed
AUL-85122G	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Gray, No Printer, 48 LEDs, UL listed
AUL-85122B	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Black, No Printer, 48 LEDs, UL listed
AUL-85124R	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Red, Printer, 48 LEDs, UL listed
AUL-85124G	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Gray, Printer, 48 LEDs, UL listed
AUL-85124B	Aura, 4 slot, Standard Enclosure, English, 10.25A, 2 Loop, Black, Printer, 48 LEDs, UL listed
AUL-95112R	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Red, No Printer, No LEDs, UL listed
AUL-95112G	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Gray, No Printer, No LEDs, UL listed
AUL-95112B	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Black, No Printer, No LEDs, UL listed
AUL-95122R	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Red, No Printer, 48 LEDs, UL listed
AUL-95122G	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Gray, No Printer, 48 LEDs, UL listed
AUL-95122B	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Black, No Printer, 48 LEDs, UL listed
AUL-95124R	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Red, Printer, 48 LEDs, UL listed
AUL-95124G	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Gray, Printer, 48 LEDs, UL listed
AUL-95124B	Aura, 4 slot, Deep Enclosure, English, 10.25A, 2 Loop, Black, Printer, 48 LEDs, UL listed
AUL-96112R	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Red, No Printer, No LEDs, UL listed
AUL-96112G	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Gray, No Printer, No LEDs, UL listed
AUL-96112B	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Black, No Printer, No LEDs, UL listed
AUL-96122R	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Red, No Printer, 48 LEDs, UL listed
AUL-96122G	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Gray, No Printer, 48 LEDs, UL listed
AUL-96122B	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Black, No Printer, 48 LEDs, UL listed

Part Number	Description
AUL-96124R	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Red, Printer, 48 LEDs, UL listed
AUL-96124G	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Gray, Printer, 48 LEDs, UL listed
AUL-96124B	Aura, 8 slot, Deep Enclosure, English, 10.25A, 2 Loop, Black, Printer, 48 LEDs, UL listed
AUL-91000R	Aura Network Vision Annunciator – Surface Mount, Red
AUL-91000G	Aura Network Vision Annunciator – Surface Mount, Gray
AUL-91000B	Aura Network Vision Annunciator – Surface Mount, Black

Replacement Parts

The following replacement parts are provided for the Aura Fire Alarm Control Panel.

Shield Part Number	Description
AUL-9023	UL network module (Ethernet and IFAM)
AUL-9058	2 Loop card
AUL-9072	UL 16 Channel I/O card
AUL-9091	UL 8 Way Relay Module
AUL-9088	Media Gateway Module
AUL-9068	UL Printer
AUL-9021	UL Front Panel Board
AUL-9022	UL Back Board
AUL-9086	UL Extension Board
AUL-9071	UL Zone LED module
AUL-9069	UL System A Board
AUL-9070	UL System B Board
AUL-9087	UL Vision Module Kit
AUL-9606	5.25 Amp Power Supply Kit (230V)
AUL-9810	10.25 Amp Power Supply Kit

Accessories

Model Number	Devices
SP512A-R3	CAT5e Surge Protector, manufactured by Black Box
VF1155-00	Multi-mode Fiber Converter TCF-142M-ST
VF1156-00	Multi-mode Fiber Converter TCF-142M-SC
VF1157-00	Single-mode Fiber Converter TCF-142S-ST
VF1158-00	Single-mode Fiber Converter TCF-142S-SC

Loop Devices

The following loop devices and accessories are authorized for use with the Aura Fire Alarm Control Panel:

Part Number	Description
S-A4011	Photo-Electric Smoke Detector
S-A4012	Ionization Smoke Detector
S-A4013	Heat Detector
S-A4014	Multisensor Detector
S-A4021	Open Area Sounder (Red)
S-A4022	Open Area Sounder (White)
S-A4023	Sounder beacon base (amber)
S-A4024	Sounder beacon base (red)
S-A4025	UL Open Area Sounder /Beacon
S-A4042	Dual Priority Switch Monitor Module
S-A4043	Switch Monitor Module
S-A4044	Priority Switch Monitor Module
S-A4045	Switch Monitor Input/Output Module
S-A4046	Sounder Control Module
S-A4047	Mini Priority Switch Monitor Module
S-A4048	Mini Switch Monitor Module
S-A4050	Relay Output Module
S-A4051	Isolator module
S-A4061	Dual action pull station

Special Application NAC Outputs

Amseco Compatible NAC Devices

The following series of Amseco NAC devices are compatible for use on the special application outputs of NACs when these outputs are configured for Amseco synchronization protocol.

Name of Series	Environment	Model	Description	Mount
Select-A-Strobe/Chime	Indoor	CM24C	Chime	Ceiling
Select-A-Strobe/Chime	Indoor	SCM24C	Chime Strobe	Ceiling
Select-A-Horn	Indoor/Outdoor	H-1224	Horn	Wall
Select-A-Strobe/Horn	Indoor	SH-1224	Horn Strobe	Wall
Select-A-Strobe/Horn	Outdoor	SH-1224WP	Horn Strobe	Wall
Select-A-Strobe/Horn	Indoor	SH24C-177	Horn Strobe	Wall/Ceiling
Select-A-Strobe/Horn	Indoor	SH24C-3075110	Horn Strobe	Wall/Ceiling
Speaker/Strobe Square	Indoor/Outdoor	SSS-2	Speaker Strobe	Wall
Speaker/Strobe Square	Indoor/Outdoor	SSS-8	Speaker Strobe	Wall
Speaker/Strobe Round	Indoor/Outdoor	SSR-2	Speaker Strobe	Wall/Ceiling
Speaker/Strobe Round	Indoor/Outdoor	SSR-8	Speaker Strobe	Wall/Ceiling
Speaker/Strobe Round	Indoor	SSC-2	Speaker Strobe	Wall/Ceiling
Speaker/Strobe Round	Indoor	SSC-8	Speaker Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	SL-1224	Strobe	Wall
Select-A-Strobe	Indoor/Outdoor	SL-1224-WP	Strobe	Wall
Select-A-Strobe	Indoor	SL24C-3075110	Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	SL24C-177	Strobe	Wall/Ceiling
Bell/Select-A-Strobe	Indoor	SB24	Bell Strobe	Wall/Ceiling
Select-A-Strobe/Chime	Indoor	SCM24W-153075	Chime Strobe	Wall
Select-A-Strobe/Chime	Indoor	SCM24W-75110	Chime Strobe	Wall
Select-A-Horn	Indoor	H24W	Horn	Wall/Ceiling
Select-A-Strobe/Horn	Indoor	SH24W-1530	Horn Strobe	Wall
Select-A-Strobe/Horn	Indoor	SH24W-75110	Horn Strobe	Wall
Indoor/Outdoor Horn/Strobe	Indoor/Outdoor	SHB24-75	Horn Strobe	Wall
Speaker/Strobe	Indoor	SSC25-177	Speaker Strobe	Wall/Ceiling
Select-A-Strobe/Speaker	Indoor	SSC25-3075110	Speaker Strobe	Wall/Ceiling

Name of Series	Environment	Model	Description	Mount
Speaker/Strobe	Indoor	SSC70-177	Speaker Strobe	Wall/Ceiling
Select-A-Strobe/Speaker	Indoor	SSC70-3075110	Speaker Strobe	Wall/Ceiling
Select-A-Strobe/Speaker	Indoor	SFH45-153075	Speaker Strobe	Wall/Ceiling
Select-A-Strobe/Speaker	Indoor	SFH47-75110	Speaker Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	SL24W-1530	Strobe	Wall
Select-A-Strobe	Indoor	SL24W-75110	Strobe	Wall
Indoor/Outdoor Strobe	Indoor/Outdoor	SLB24-75	Strobe	Wall
Select-A-Strobe	Indoor/Outdoor	SB24	Strobe	Wall/Ceiling
Select-A-Strobe/Horn	Indoor	SH24W-153075	Horn Strobe	Wall
Select-A-Strobe	Indoor	SL24W-153075	Strobe	Wall
Select-A-Strobe	Indoor	ASH-2475110R	Horn Strobe	Wall
Select-A-Strobe	Indoor	RSB24-153075	Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	RSD24-153075	Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	RSD24-75110	Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	SA24 SERIES	Strobe	Wall
Select-A-Strobe	Indoor	SAD24-153075	Strobe	Wall/Ceiling
Select-A-Strobe	Indoor	SAD24-75110	Strobe	Wall

Gentex Compatible NAC Devices

The following series of Gentex NAC devices are compatible for use on the special application outputs of NACs when these outputs are configured for Gentex synchronization protocol.

Model	Description
GCC24	Indoor Horn Strobe, Ceiling
GCC24CR	Horn/Strobe, Ceiling Red Multi-Candela (GCC)
GCC24CW	Horn/Strobe, Ceiling White Multi-Candela (GCC)
GCS24	Indoor Strobe, Ceiling
GCS24CR	Strobe, Ceiling Red Multi-Candela (GCS)
GCS24CW	Strobe, Ceiling White Multi-Candela (GCS)
GEC3-24	Indoor Horn Strobe, Wall
GEC3-24WR	Horn/Strobe, Wall Red Multi-Candela (GEC3)
GEC3-24WW	Horn/Strobe, Wall White Multi-Candela (GEC3)
GEC24	Indoor Horn Strobe, Wall

Model	Description
GEH24-R	Horn, Wall Red (GEH)
GEH24-W	Horn, Wall White (GEH)
GEH24	Indoor Horn, Wall
GEH24	Indoor Horn, Wall
GEH24	Outdoor Horn, Wall
GES3-24	Indoor Strobe, Wall
GES3-24WR	Strobe, Wall Red Multi-Candela (GES3)
GES3-24WW	Strobe, Wall White Multi-Candela (GES3)
GES24	Indoor Strobe, Wall
GX93	Indoor Mini Horn, Wall
SSPK24CLP	Indoor Speaker Strobe, Ceiling
SSPK24WLP	Indoor Speaker Strobe, Wall
WGEC24-75WR	Weatherproof Horn/Strobe (Gentex) Red
WGEC24	Outdoor Horn Strobe, Wall
WGES24	Outdoor Strobe, Wall
WSSPK24-15/75	Outdoor Speaker Strobe, Wall

System Sensor Compatible NAC Devices

The following series of System Sensor NAC devices are compatible for use on the special application outputs of NACs when these outputs are configured for System Sensor synchronization protocol.

Name of Series	Environment	Model	Series Description	Mount
SpectrAlert Advance	Indoor	SPS	Speaker Strobe	Wall
SpectrAlert Advance	Indoor	SPSC	Speaker Strobe	Ceiling
SpectrAlert Advance	Outdoor	SPS (K)	Speaker Strobe	Wall
SpectrAlert Advance	Outdoor	SPSC (K)	Speaker Strobe	Ceiling
SpectrAlert Advance	Indoor	P2	Horn Strobe, 2-Wire	Wall
SpectrAlert Advance	Indoor	P4	Horn Strobe, 4-Wire	Wall
SpectrAlert Advance	Indoor	S	Strobe	Wall
SpectrAlert Advance	Indoor	PC2	Horn Strobe, 2-Wire	Ceiling
SpectrAlert Advance	Indoor	PC4	Horn Strobe, 4-Wire	Ceiling
SpectrAlert Advance	Indoor	SC	Strobe	Ceiling
SpectrAlert Advance	Indoor	H	Horn	Wall/Ceiling

Name of Series	Environment	Model	Series Description	Mount
SpectrAlert Advance	Outdoor	P2 (K)	Horn Strobe, 2-Wire	Wall
SpectrAlert Advance	Outdoor	P4 (K)	Horn Strobe, 4-Wire	Wall
SpectrAlert Advance	Outdoor	S (K)	Strobe	Wall
SpectrAlert Advance	Outdoor	PC2 (K)	Horn Strobe, 2-Wire	Ceiling
SpectrAlert Advance	Outdoor	PC4 (K)	Horn Strobe, 4-Wire	Ceiling
SpectrAlert Advance	Outdoor	SC (K)	Strobe	Ceiling
SpectrAlert Advance	Outdoor	H (K)	Horn	Wall/Ceiling
SpectrAlert Advance	Indoor	CH	Chime	Wall/Ceiling
SpectrAlert Advance	Indoor	CHS	Chime Strobe	Wall
SpectrAlert	Indoor	CH24MC	Chime Strobe	Wall
SpectrAlert	Indoor	CH1224	Chime	Wall/Ceiling
SpectrAlert	Indoor	SP2x1224MC	Speaker Strobe	Wall
SpectrAlert	Indoor	SP3x1224MC	Speaker Strobe	Wall
SpectrAlert	Outdoor	SP2R1224MCK	Speaker Strobe	Wall
SpectrAlert		S1224MC	Strobe	Wall
SpectrAlert		P1224MC	Horn Strobe, 4-Wire	Wall
SpectrAlert		H12/24	Horn	Wall/Ceiling

Wheelock Compatible NAC Devices

The following series of Wheelock NAC devices are compatible for use on the outputs of NACs when these outputs are configured for Wheelock synchronization protocol.

Model Number Series	Description
AH-24-R	Horn, Red (AH)
AH-24-W	Horn, White (AH)
AH-24WP-R	Weatherproof Horn, Red (AH)
AH-12, AH-24	Audible
AHWP	Audible - outdoor
AMT-241575	Mutilating Strobe (NYC) - 1575 cd, Wall
AMT-241575, AMT-24MCW	Mutilating Strobe - 1575cd or 15,30,75,110 cd, Wall
AMT-241575W-FR	Audible Multitone /Strobe Red 15/75cd
AMT-2475W-FR	Audible Multitone /Strobe Red 75cd
AMT-12/24-R	Audible Multitone Addressable Red

Model Number Series	Description
AMT-12/24-W	Audible Multitone Addressable White
AMT-12/24	Mutilating - 3 inputs
AMT-12/24 Audible Only	Mutilating Audible only
AS-241575W-FR	Audible Strobe Wall Mounted Red 15/75cd
AS-241575W-FW	Audible Strobe Wall Mounted White 15/75cd
AS-241575W-FW	Audible/Strobe Wall Mounted White 15/75cd
AS-121575, AS-241575	Audible Strobe - 1575 cd, Wall
AS-24MCC	Audible Strobe - 15,30,75,95 cd, Ceiling
AS-24MCC-FR	Horn/Strobe, Ceiling, Multi-Candela, Red (AS)
AS-24MCC-FW	Horn/Strobe, Ceiling, Multi-Candela, White (AS)
AS-24MCCH	Audible Strobe - 115,177 cd, Ceiling
AS-24MCCH-FR	Horn/Strobe, Ceiling, 115/177, Red (AS)
AS-24MCCH-FW	Horn/Strobe, Ceiling, 115/177, Red (AS)
AS-24MCW	Audible Strobe - 15,30,75,110 cd, Wall
AS-24MCW-FR	Horn/Strobe, Wall, Multi-Candela, Red (AS)
AS-24MCW-FW	Horn/Strobe, Wall, Multi-Candela, White (AS)
AS-24MCWH	Audible Strobe - 135,185 cd, Wall
AS-24MCWH-FR	Horn/Strobe, Wall, 135/185, Red (AS)
AS-24MCWH-FW	Horn/Strobe, Wall, 135/185, White (AS)
ASWP-2475	Audible Strobe - 180 cd, weatherproof
ASWP-2475W-FR	Weatherproof Horn/Strobe, Red (AS)
CH90-24-W	Chime Round, White
CH90-24MCC	Chime - 15,30,75,95 cd, Ceiling
CH90-24MCC-FR	Chime/Strobe, Ceiling, Multi-Candela, Red (CH)
CH90-24MCC-FW	Chime/Strobe, Ceiling, Multi-Candela, White (CH)
CH90-24MCCH-FW	Chime/Strobe White Round 15/30/75/95 cd
CH90-2475C-FW	Chime/Strobe Round White 75cd
CH90-24100C-FW	Chime/Strobe Round White 100cd
CH90-MCCH	Chime - 115,177 cd, Ceiling
CH70-241575-FR	Chime/Strobe Square Red 15/75cd
CH70-24-R	Chime Square, Red
CH70-24-W	Chime Square, White
CH70-24MCW	Chime - 15,30,75,110 cd, Wall

Model Number Series	Description
CH70-24MCW-FR	Chime/Strobe, Wall, Multi-Candela, Red (CH)
CH70-24MCWH-FR	Chime/Strobe Red Wall 135/185 cd
CH70-24MCWH-FW	Chime/Strobe White Wall 135/185 cd
CH70-241575	Chime - 1575 cd, Wall
CH70-241575W-FW	Chime/Strobe Square White 15/75cd
CH70-MCWH	Chime - 135,185 cd, Wall
CH70, CH90	Chime
CJ70-24MCW-FW	Chime/Strobe, Wall, Multi-Candela, White (CH)
E90-24MCC	Speaker Strobe - 15,30,75,95 cd, Ceiling
E90-24MCC-FR	Speaker/Strobe Round 2 watt Multi-Candela 15/30/75/110 Red
E90-24MCCH	Speaker Strobe - 115,177 cd, Ceiling
E90-24MCCh-FW	Speaker/Strobe Ceiling White 115/177 cd
E90-254MCC-FW	Speaker/Strobe Round 2 watt Multi-Candela 15/30/75/110
E70-24MCW	Speaker Strobe - 15,30,75,110 cd, Wall
E70-24MCW-FR	Speaker/Strobe, Wall, Multi-Candela, Red (E Series)
E70-24MCW-FW	Speaker/Strobe, Wall, Multi-Candela, White (E Series)
E70-24MCWH	Speaker Strobe - 135,185 cd, Wall
E70-24MCWH-FR	Speaker/Strobe, Wall, 135/185, Red (E Series)
E70-24MCWH-FW	Speaker/Strobe, Wall, 135/185, White (E Series)
E70-241575	Speaker Strobe - 1575 cd, Wall
E70-241575W-FR	Speaker/Strobe Square 2 watt Red 15/75cd
E70-241575W-FW	Speaker/Strobe Square 2 watt White 15/75cd
E60-24MCC	Speaker Strobe 15,30,75,95 cd, Ceiling
E60-24MCC-FW	Speaker/Strobe Ceiling Mount 2 Watt Multi-Candela White
E60-24MCCH-FR	Speaker/Strobe Ceiling Mount 2 Watt High Multi-Candela Red
E60-24MCCH-FW	Speaker/Strobe Ceiling Mount 2 Watt High Multi-Candela White
E60-MCC-FR	Speaker/Strobe Ceiling Mount 2 Watt Multi-Candela Red
E60-MCCH	Speaker Strobe 115/177 cd, Ceiling
E50-24MCW-FR	Speaker/Strobe Wall Mount 2 Watt Multi-Candela Red
E50-24MCW-FW	Speaker/Strobe Wall Mount 2 Watt Multi-Candela White
E50-24MCWH-FR	Speaker/Strobe Wall Mount 2 Watt High Multi-Candela Red
E50-24MCWH-FW	Speaker/Strobe Sq. 2 Watt Multi-Candela White 135/185
E50-241575W	Speaker Strobe-Wall

Model Number Series	Description
E50-241575W-FR	Speaker/Strobe Square 2 Watt Red 15/75cd
E50-241575W-FW	Speaker/Strobe Square 2 Watt White 15/75cd
E50-MCW	Speaker Strobe - 15,30,75,110 cd, Wall
E50-MCWH	Speaker Strobe - 135,185 cd, Wall
E70A, E70B, E90A, E90B	Speaker Strobe - amber or blue lens
ET-1080-IS-24-V	Speaker/Strobe Vandal Proof 8 watt Flush White 75cd
ET-1080-LS-24-V	Speaker/Strobe Vandal-Proof 8 Watt Flush White 15cd
ET-1080-LS-24-V	Speaker/Strobe Vandal-Proof 8 Watt Flush Red 15cd
ET-1080-LSM-24-	Speaker/Strobe Vandal Proof 8 Watt Flush White 15/75cd
ET-1080-LSM-24-	Speaker/Strobe Vandal-Proof 8 Watt Flush Red 15/75cd
ET-1080-MS-24-V	Speaker/Strobe Vandal Proof 8 Watt Flush White 30cd
ET-1080-MS-24-V	Speaker/Strobe Vandal Proof 8 Watt Flush Red 30cd
ET-1080-SLM-24-	Speaker/Strobe Vandal Proof 8 watt Flush White 15/75cd
ET-1080-SLM-24-	Speaker/Strobe Vandal Proof 8 watt Flush Red 15/75cd
ET-108-IS-24-VF	Speaker/Strobe Vandal Proof 8 watt Flush Red 75cd
ET90-24MCC	Speaker Strobe - 15, 30, 75, 95 cd, Ceiling
ET90-24MCC-FW	Speaker/Strobe, Ceiling, Multi-Candela, Red (ET Series)
ET90-24MCCH	Speaker Strobe - 115, 177 cd, Ceiling
ET90-24MCCH-FW	Speaker/Strobe White Ceiling 8 Watt 115/177 cd
ET90-24150C-FW	Speaker/Strobe Round 8 Watt White 150cd
ET90-24177C-FW	Speaker/Strobe Round 8 watt White 177cd
ET80-24MCW	Speaker Strobe - Vandal resist, 15, 30, 75, 110 cd, Wall
ET80-24MCWH	Speaker Strobe - Vandal resist, 135, 185 cd, Wall
ET70-24MCW	Speaker Strobe - 15, 30, 75, 110 cd, Wall
ET70-24MCW-FR	Speaker/Strobe, Wall, Multi-Candela, Red (ET Series)
ET70-24MCW-FW	Speaker/Strobe, Wall, Multi-Candela, White (ET Series)
ET70-24MCWH	Speaker Strobe - 135, 185 cd, Wall
ET70-24MCWH-FR	Speaker/Strobe Wall Red 135/185 cd
ET70-24MCWH-FW	Speaker/Strobe Wall White 135/185 cd
ET70-241575	Speaker Strobe - 1575 cd, Wall
ET70-241575W-FW	Speaker/Strobe Square 8 watt White 15/75cd
ET7-241575W-FR	Speaker/Strobe Square 8 watt Red 15/75cd
ET70WP-2475	Speaker Strobe - Weatherproof

Model Number Series	Description
ET70WP-2475W-FR	Weatherproof Speaker Strobe, Wall
HNR	Exceder Horn - Red / Wall Mount
HNRC	Exceder Horn - Red / Ceiling Mount
HNW	Exceder Horn - White / Wall Mount
HNWC	Exceder Horn - White / Ceiling Mount
HNx	Audible, Wall
HNxC	Audible, Ceiling
HS-24	Audible
HS4-24MCW	Audible Strobe - 15, 30, 75, 110 cd, Wall
HS4-24MCW-FR	Horn/Strobe 4-Wire, Multi-Candela, Red (NS)
HS4-24MCW-FW	Horn/Strobe 4-Wire, Multi-Candela, White (NS)
HS4-24MCWH	Audible Strobe - 135, 185 cd, Wall
HS4-24MCWH-FR	Horn/Strobe Wall 4 Wire Red 135/185 cd
HS4-24MCWH-FW	Horn/Strobe Wall 4 Wire White 135/185 cd
HS4-241575	Audible Strobe - 15, 75 cd, Wall
HSR	Exceder Multi-Candela Horn / Strobe Red Wall Mount
HSRC	Exceder Multi-Candela Horn / Strobe Ceiling Mount Red
HSW	Exceder Multi-Candela Horn / Strobe White Wall Mount
HSWC	Exceder Multi-Candela Horn / Strobe Ceiling Mount White
HSx	Audible Strobe - 15,15/75,30,75,95,110,135,185 cd, Wall
HSxC	Audible Strobe - 15,30,60,75,95,115,150,177 cd, Ceiling
MIZ-24S	Mini Horn - Continuous, code-3, sync
MIZ-24S-R	Mini Horn, Red
MIZ-24S-W	Mini Horn, White
MT	Multi-tone
MT-241575W-FR	Audible Multitone Strobe Flush Red 15/75cd
MT-121575, MT-241575, MT-24MCW	Multi-tone Strobe - 1575 cd or 15,30,75,110 cd, Wall
MT-2475W-FR	Audible Multitone Strobe Flush Red 75cd
MT-12/24-R	Multi-Tone Flush Red
MT-12/24-W	Multi-Tone Flush White
MTWP-2475	Multi-tone Strobe - Weatherproof
MTWP-2475W-FR	Audible Multitone Strobe Weatherproof Red 75cd

Model Number Series	Description
MTWP B or A	Multi-tone Strobe - Weatherproof - Blue or Amber Lens
NH	Audible
NH-12/24-R	Horn, Red (NH)
NH-12/24-W	Horn, White (NH)
NS-241575W-FR	Horn/Strobe Wall Mount Flush Red 15/75cd
NS-241575W-FW	Horn/Strobe Wall Mount Flush White 15/75cd
NS-121575, NS-241575	Audible Strobe - 1575 cd, Wall
NS-24MCC	Audible Strobe - 15, 30, 75, 95 cd, Ceiling
NS-24MCCH	Audible Strobe - 115, 177 cd, Ceiling
NS-24MCCH-FR	Horn/Strobe, Ceiling, Round, 115/177cd, Red
NS-24MCW	Audible Strobe - 15, 30, 75, 110 cd, Wall
NS-24MCW-FR	Horn/Strobe, Multi-Candela, Red (NS)
NS-24MCW-FW	Horn/Strobe, Multi-Candela, White (NS)
PS-24-8MC	NAC Extender, 8 Amp, 4 Output, Red
RSS-241575, RSSP-241575	Strobe - 1575 cd, Wall
RSS-241575W-FR	Strobe Wall Mount Red 15/75 cd
RSS-241575W-FW	Strobe Wall Mount White 15/75cd
RSS-121575	Strobe - 1575 cd, Wall
RSS-35288C-FW	Strobe Ceiling Mount White 177cd
RSS-24185W-FR	Strobe Wall Mount Red 185cd
RSS-24177CR-FW	Strobe Ceiling Mount Round White 177cd
RSS-24177W-FR	Strobe Wall Mount Red 177 cd
RSS-24150C-FW	Strobe Ceiling Mount White 150cd
RSS-24150CR-FW	Strobe Ceiling Mount Round White 150cd
RSS-24150W-FR	Strobe Wall Mount Red 150cd
RSS-24100CR-FR	Strobe Ceiling Mount Round Red 100cd
RSS-24100CR-FW	Strobe Ceiling Mount Round White 100cd
RSS-2475CR-FR	Strobe Ceiling Mount Round Red 75cd
RSS-2475CR-FW	Strobe Ceiling Mount Round White 75cd
RSS-2430CR-FR	Strobe Ceiling Mount Round Red 30cd
RSS-2430CR-FW	Strobe Ceiling Mount Round White 30cd
RSS-2415CR-FR	Strobe Ceiling Mount Round Red 15cd
RSS-2415CR-FW	Strobe Ceiling Mount Round White 15cd

Model Number Series	Description
RSS-24MCC-FR	Strobe Ceiling Multi-Candela, Red (RSS)
RSS-24MCC-FW	Strobe Ceiling Multi-Candela, White (RSS)
RSS-24MCC, RSS-24MCCR	Strobe - 15, 30, 75, 95 cd, Ceiling (Round or Square)
RSS-24MCCH-FR	Strobe Ceiling, 115/177cd, Red (RSS)
RSS-24MCCH-FW	Strobe Ceiling, 115/177cd, White (RSS)
RSS-24MCCH, RSS-24MCCHR	Strobe - 115, 177 cd, Ceiling (Round or Square)
RSS-24MCCHR-FR	Strobe Red Multi Ceiling Round 115/177 cd
RSS-24MCCHR-FW	Strobe White Multi Ceiling Round 115/177 cd
RSS-24MCCR-FR	Strobe Ceiling Multi-Candela, Round, Red (RSS)
RSS-24MCCR-FW	Strobe Ceiling Multi-Candela, Round, White (RSS)
RSS-24MCW-FR	Strobe Wall Multi-Candela Red (RSS)
RSS-24MCW-FW	Strobe Wall Multi-Candela White (RSS)
RSS-24MCW, RSSP-24MCW	Strobe - 15, 30, 75, 110 cd, Wall
RSS-24MCWH-FR	Strobe, Wall, 135/185cd, Red (RSS)
RSS-24MCWH-FW	Strobe, Wall, 135/185cd, White (RSS)
RSS-24MCWH, RSSP-24MCWH	Strobe - 135, 185 cd, Wall
RSSP-241575W-FR	Strobe Wall Mount Retrofit Plate Red 15/75cd
RSSP-24185W-FR	Strobe Wall Mount Retrofit Plate Red 185cd
RSSP-24177W-FR	Strobe Wall Mount Retrofit Plate Red 177cd
RSSP-24150W-FR	Strobe Wall Mount Retrofit Plate Red 150cd
RSSP-24MCW-FR	Strobe Retro Multi-Candela, Red
RSSP-24MCW-FW	Strobe Retro Multi-Candela, White
RSSP-24MCWH-FR	Strobe Wall Mount Red Multi cd 135/185
RSSWP-2475W-FR	Strobe Wall Weatherproof, 75cd, Red
S8, S8-24MCC, S8-24MCCH	Speaker or Speaker Strobe - 8-inch, Ceiling
SA-S90-24MCC	Speaker Strobe - Amplified, 15, 30, 75, 95 cd, Ceiling
SA-S70-24MCW	Speaker Strobe - amplified, 15,30,75,115 cd, Wall
STH-4R24MCCH110	Cluster Speaker with three strobes
STH MCCH	Cluster Speakers - with 115/177 cd strobe
STH w/opt strobe	Cluster Speakers - with optional DC-MAX strobe
STR	Exceder Multi-Candela Strobe Wall Mount Red
STRC	Exceder Multi-Candela Strobe Ceiling Mount Red
STW	Exceder Multi-Candela Strobe Wall Mount White

Model Number Series	Description
STWC	Exceder Multi-Candela Strobe Ceiling Mount White
STx	Strobe - 15,15/75,30,75,95,110,135,185 cd, Wall
STxC	Strobe - 15,30,60,75,95,115,150,177 cd, Ceiling

Riser conductors shall be installed in accordance with the survivability from attack by fire requirements in National Fire Alarm Code, NFPA 72, Sections 6.8.6.3, and 6.9.4. Riser conductors shall employ either a 2 hour rated cable system, or meet requirements approved by the AHJ, or installation of the Supervised Output Module using NFPA Style 7 configuration.

Maximum Line Impedance

Refer to Calculations to determine the maximum line impedance for your NAC application.

Compatible Devices for Auxiliary 24V

Model	Description
AUL-91000 -R, -G, -B	Aura Network Vision Annunciator
AUL-9072	16 Channel I/O Interface Module

Power connections of the remote display and annunciators must be terminated at the 24V terminals of the 24V OUT or AUX 24V on the Aura Fire Alarm Control Panel.

APPENDIX C: CALCULATIONS

Current loading of the Aura Fire Alarm Control Panel is limited to the capacity of the power supplies. Installers must determine the loading placed on these power supplies by adding the sum of device loads to the no load alarm current of the Aura Fire Alarm Control Panel. The result obtained from this calculation must be below the operating current of the power supply.

The 5.25 Amp Power Supply operates the fire control panel and external loads with 5.25 Amps and reserves 1.25 Amps for charging the standby batteries.

The 10.25 Amp Power Supply operates the fire control panel and external loads with 10.25 Amps and reserves 2.25 Amps for charging the standby batteries.

Current limits are provided in Specifications for outputs of the Aura Fire Alarm Control Panel. Total device currents must be below limits provided for all outputs of the fire control panel.

The calculation of total current loading must include the sum of device loads on the circuit outputs of the Aura Fire Alarm Control Panel. Circuits to be included in this calculation for total current loading are:

- SLC Loops
- NAC Outputs
- 24V OUT
- AUX 24V
- Peripheral Interface Modules
- Network Module
- Panel Standby and Alarm Currents

The current limits provided in Specifications are maximums for individual outputs of the fire control panel. These output-levels are not intended to be summed together to determine the total current available from the Aura Fire Alarm Control Panel. Refer to these levels only when determining the limit of device-loading on each output circuit.

Determining the Total Load Current

The following example demonstrates the process for determining the total load current of the Aura Fire Alarm Control Panel:

1. Identify the current draw of each device on the circuit connection.

2. Add the device currents together in each circuit connection.

3. Compare the sum of the device currents with the current limit of each circuit connection to verify that the summed level is below the current limit value.

4. Add the device load currents together that were obtained for each of the circuit connections:

Circuit Connection	Maximum Current Limit	Example Load Current
SLC Loop 1	400 mA	150 mA
SLC Loop 2	400 mA	50 mA
AUX 24V	900 mA	0
NAC 1	2.5 A	750 mA continuous DC
NAC 2	2.5 A	925 mA continuous DC
Total Device Load		**1.875 A**

5. Add the **Total Device Load** to the no-load alarm current to obtain the **Total Load Current**.

6. Total Device Load + Aura Fire Alarm Control Panel No-Load = Total Load Current

1.875 + 200 mA = 2.075 A
Total Load Current = 2.075 A

7. Verify that the current level is below 4 Amps: 2.075 A < 4 A

8. This example demonstrates that device loading does not exceed the 4 Amp capacity of the power supply.

1.25 A of the 5.25 A power supply is reserved for battery charging.

Refer to Specifications for the maximum current limits provided in the example calculation above.

Determining the Standby Battery Capacity

This section provides guidelines for determining the standby battery rating. For power supply applications that do not include fire alarm equipment, alarm current is the dynamic current present during operation of the power supply. Standby current is the static current present when the power supply is not operating an alarm.

Battery Rating Equation

The equation below describes the method for determining the amp hour rating of the standby batteries:

Battery Rating = (Battery De-Rating Factor) x [(Standby amp hours) + (Alarm amp hours)]
OR
Battery Rating = (Battery De-Rating Factor) x [(24 hours x Standby-Current) + (5 Minutes x Alarm Current)]
where the battery de-rating factor = 1.2 and 5 minutes = 5 / 60 minutes = 1/12 = .0833 hours

To determine the amp hour rating of standby batteries:

1. Record the standby current of the power supply.

2. Record the standby current of the fire control panel. This current includes the LCD Main Processor Board, the Main Back Board, System A Panel Module, and System B Panel Module. It does not include current of the power supply and circuit boards in Slots C through F.

3. Record the standby current of circuit boards populating Slots C through F.

4. Record the standby current of SLC, NAC, and auxiliary devices.

5. Total standby currents.

6. Record the alarm current of the power supply.

7. Record the alarm current of the fire control panel. This current includes the LCD Main Processor Board, the Main Back Board, System A Panel Module, and System B Panel Module. It does not include current of the power supply and circuit boards in slots C through F.

8. Record the alarm current of circuit boards populating slots C through F of the panel.

9. Record the alarm current of SLC, NAC, and auxiliary devices.

10. Total alarm currents.

11. Multiply the total standby current with the standby-time of 24, 48, or 72 hours to provide the result in amp hours.

12. Multiply the total alarm current with the alarm time 5 or 15 minutes to provide the result in amp hours.

13. Combine the sum of amp hours for total standby and alarm.

14. Determine the minimum required amp hour capacity of the standby battery by multiplying the combined Amp hours with the 1.2 de-rating factor.

15. Select a battery with a capacity rating equal or greater than the minimum required amp hour capacity determined from this calculation.

Amp Hour Rating

Complete the worksheet below to tabulate the total current load and to determine the minimum required amp hour rating of the standby batteries. Select a corresponding standby battery based on these calculations:

	Category	Instruction	Standby Current	Alarm Current
1	Power Supply Standby Current	Current of the power supply with AC input failure.	80 mA	
2	Fire Control Panel Standby Current	Current of the fire control panel with AC input failure.	Amps	
3	Panel Module Standby Current	Current from panel modules in slots C through F with Standby and AC input failure.	Amps	
4	External Device Standby Current	Current of SLC, NAC, and auxiliary devices with Standby and AC input failure.	Amps	
5	Total Standby Current	Total all standby currents.	Amps	
6	Power Supply Alarm Current	Current of the power supply with Alarm and AC input failure.		80 mA
7	Fire Control Panel Alarm Current	Current of the fire control panel with Alarm and AC input failure.		Amps
8	Panel Module Alarm Current	Current from panel modules in slots C through F with Alarm and AC input failure.		Amps
9	External Device Alarm Current	Current of SLC, NAC, and auxiliary devices with Alarm and AC input failure.		Amps
10	Total Alarm Current	Total all alarm currents.		Amps
11	Standby Amp Hours	Multiply total standby current with 24, 48, or 72 hours to provide the result in amp hours.	Amp Hours	
12	Alarm Amp hours	Multiply total alarm current with 5 or 15 minutes to provide the result in Amp hours: 5 minutes = .0833 hours 15 minutes = .25 hours		Amp Hours
13	Sum Standby and Alarm Amp Hours	Combine the sum of amp hours for total standby and alarm.	Amp Hours	
14	Standby Battery Amp Hour Capacity	Multiply the combined amp hours with the de-rating factor of 1.2	Amp Hours	

Supervising Station Requirements for Combination Systems

Due to system constraints, the use of a supervising station is required when the Aura panel is used for providing Carbon Monoxide detection.

GLOSSARY

SYMBOLS

⏚

Indicates a ground terminal

A

AHJ

Authority Having Jurisdiction. The government body, organization, office, or individual having the power to enforce and/or interpret laws, codes, and rules.

Ancillary Device

A device connected to a fire alarm system not required by the fire alarm standard, but may be required by other standards, e.g. door holders, smoke control fans, remote LED indicators, remote alarm, or trouble units.

AWG

American Wire Gauge. The standard American designation of wire sizes. Wire size is an inverse relation to gauge numbers that range from 0000 to 40 AWG. Also called Brown and Sharpe or B&S gauge.

C

Class A

A wiring classification of circuits capable of transmitting an alarm signal during a single open or non-simultaneous ground fault on a conductor.

Class B

A wiring classification of circuits NOT capable of ransmitting an alarm signal beyond a single open or during a short between conductors.

Class X

A wiring classification capable of transmitting an alarm signal during a single open, short, or non-simultaneous ground fault on a conductor.

D

DIP Switch

A group of two-position electrical contacts mounted in a Dual Inline Package (DIP), typically used to set address or function information.

E

End-Of-Line Device (EOL)

An electronic component physically installed as the furthest device from the control panel; whose presence on the circuit is used to monitor the integrity of the circuit.

L

Loop Explorer 2

Windows-based configuration software for the Fire Alarm Control Panel

N

NAC

Notification Appliance Circuit. A supervised output circuit that connects horns, strobes, speakers, etc. to the control panel.

S

SLC

Signaling Line Circuit. A Signaling Line Circuit (SLC) carries data to and from the field devices for the fire alarm system, and also carries power from the control panel to the devices.

Supervision

Monitoring the integrity of a circuit or device to detect a fault condition that would prevent normal operation.

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