8 Channel Conventional Zone Module (S792) Information Guide
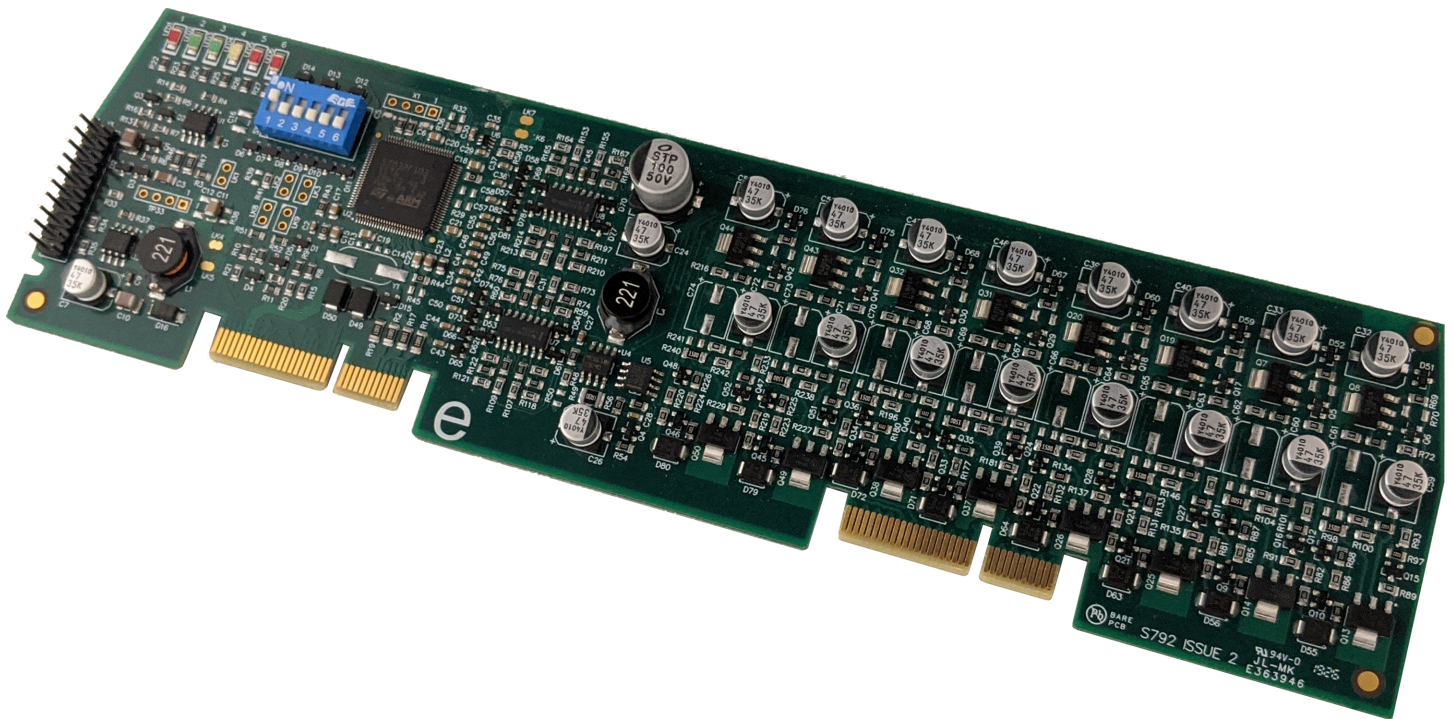
CONTENTS

COMPLIANCE

Underwriters Laboratories (UL)

Fire Alarm Subassembly
Hochiki America

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Installation Manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Any changes or modifications not expressly approved by Hochiki America could void the user's authority to operate this equipment under the rules and regulations of the FCC.

Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Installation

Install this product in accordance with NFPA 13, NFPA 72, NFPA 70, and NEC 70 and all local codes.

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.

INTRODUCTION

Technical Support

For technical support, contact Hochiki America at 800.845.6692 or technicalsupport@hochiki.com. Hochiki technical support is available Monday through Friday, 7:00AM to 5:00PM, PST.

Prior to contacting technical support, have the following information available:

- Product part number
- Purchase order or order number
- Product serial number
- Current function of the product
- Expected function of the product
- Installation of the product

Return Material Authorization (RMA)

Contact Technical Support to obtain an RMA for any product to be returned. Returns will not be accepted without an accompanying RMA number. An RMA number is assigned when:

- Tech Support acknowledges a possible product failure.
- A product was damaged during shipping
- An incorrect product was shipped
- An order was placed using an incorrect part number *
- An order was placed using an incorrect part quantity *
- An order is no longer required *

* Restocking fees may apply.

All returned products are tested to confirm operating failures experienced in the field. If the product is found to be functional, contractors must absorb expenses for return shipping, as well as the cost and shipping of the advanced replacement product.

Prominently display the RMA number on all packages sent for return.

Ship all return products to:

Attention: RMA # _____
Hochiki America

7051 Village Park Drive, Suite 100
Buena Park, CA 90621

Warranty Service

Technical Support can replace or repair a defective product when the original purchase is within the warranty period defined in the sales contract. Check your contract for more information, or contact your sales representative about your specific warranty period.

Advanced Replacements

Products that fail to operate in the field can be replaced quickly using the advanced replacement process. The advanced replacement process is available to all contractors who maintain an acceptable line of credit.

Initiate the advanced replacement process by requesting an RMA number from a Tech Support representative. Advanced replacements can be shipped to your location when the product is covered under warranty and when a replacement product is in stock.

- Advanced replacements can be expedited at the request of the contractor. Shipping costs associated with this process are the responsibility of the contractor.
- Products returned using the advanced replacement process must be received within 30 days of the RMA issue date.

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OVERVIEW
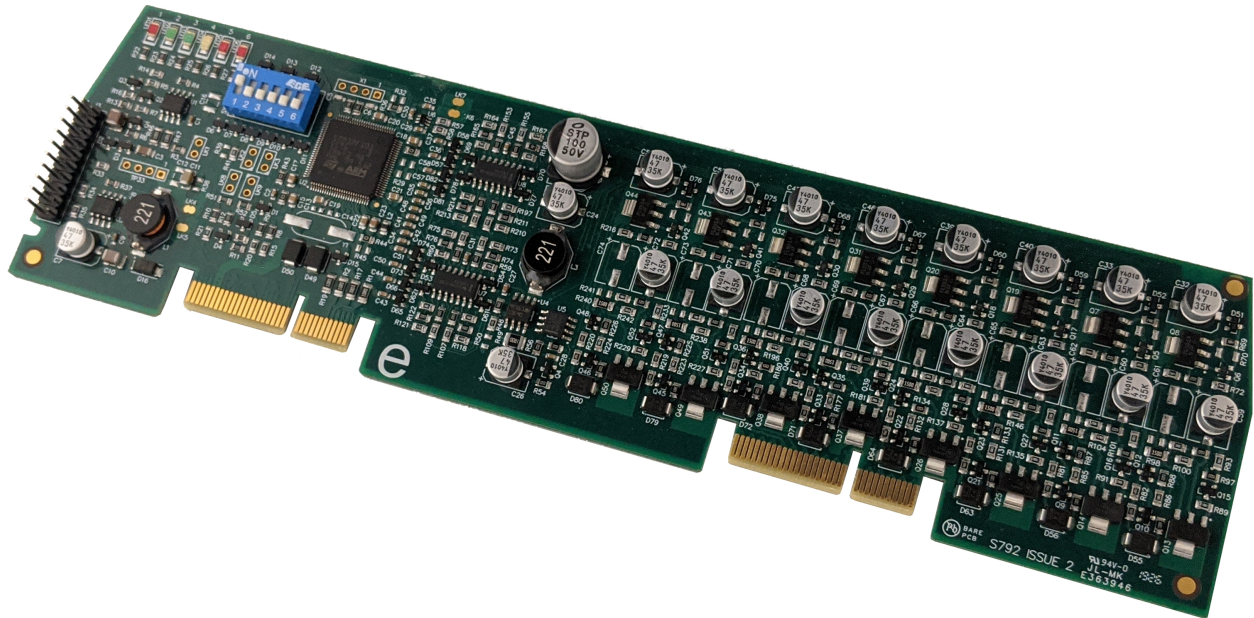
8 Channel Conventional Zone Panel Module (S792)

The 8 Channel Conventional Zone Panel Module has 8 supervised detection circuits (Class B). If Class A circuits are needed, they can be made from Class B circuit pairs (1 & 2, 3 & 4, 5 & 6, 7 & 8). Each circuit, regardless of class, can support up to 20 conventional detectors and approved devices. Individual circuits may be configured for trigger resistor or short circuit activation. These circuits may be used for any of the standard input actions and can be configured to contribute to cause and effect logic.

Detector models from Apollo, Hochiki, and System Sensor are compatible for use on these Initiating Device Circuits. All detectors on a given circuit must be from the same manufacturer. Detectors from these manufacturers can be mixed between separate circuits as long as each contains detectors from a single manufacturer.

Package Contents

- (1) Installation sheet
- (1) Wiring Terminal Labels
- (1) S792 8 Channel Conventional Zone Panel Module
- (8) 6.8K Ohm resistor (S2027) End-of-Line devices

NOTE   Activation device: 470 Ohm resistor (S2051) is not included, but can be purchased separately.

INSTALLATION

This section provides instructions for connecting cables, mounting, and testing the 8 Channel Conventional Zone Panel Module for installation.
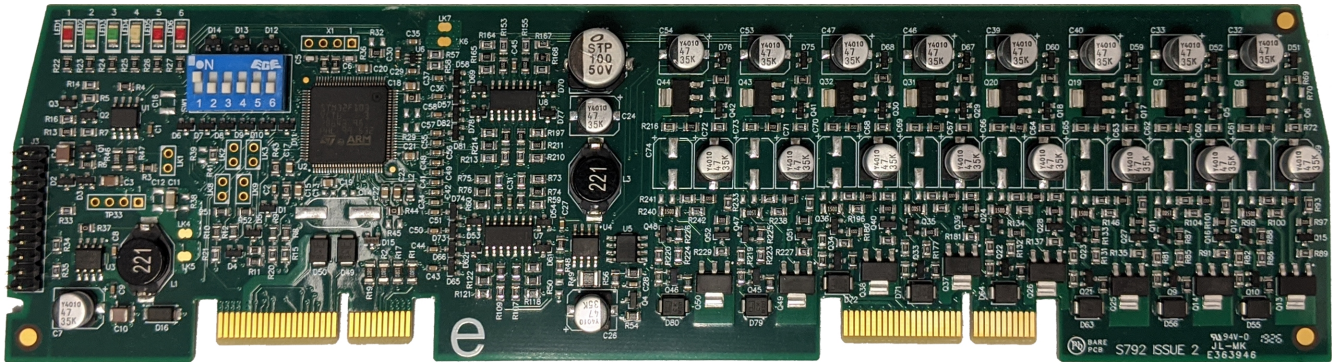
❑	Using Loop Explorer 2, add the panel module to the existing configuration and configure it as required for the system. For detailed information on the configuration settings, refer to the Configuration section.
❑	Notify the monitoring center and location security that the L@titude Fire Alarm Control Panel will be temporarily out of service.
❑	Remove the module from its packaging and check its contents.
❑	Set the address of the module as configured in Loop Explorer 2. Refer to Setting the Address for details.
❑	Determine the slot (E or higher) where the panel module will be installed and place the provided sticker label on the corresponding field terminals.
❑	Connect field wiring. For class B circuits, install appropriate end-of-line resistors (included with module) after the last device on each circuit.
❑	Transfer the new configuration from Loop Explorer 2 into the panel.
❑	Wait for the "Sending configuration to panel" (in LE2) and "Saving configuration" (on the panel) steps to complete.
❑	Remove AC and battery power from the panel.
❑	Remove the black plastic cover.
❑	Install the module into selected slot on the Main Back Board or an Extension Board of the panel.
❑	Restore AC and battery power.
❑	Wait for the panel start-up process to complete. Refer to the **L@titude Fire Alarm Control Panel Installation Manual (MAN-1431HA)** for more information.
❑	Test communication from the panel via the LED Status Indicators.
❑	Resolve any troubles related to the new field wiring.
❑	Activate each circuit and verify that all connected devices function properly.
❑	Replace the black plastic cover.

Install this product in accordance with NFPA 72, the National Electrical Code, and all local codes.

> **IMPORTANT!** The module must be installed by personnel familiar with electronic components. Electronic components within the module are vulnerable to damage from electrostatic discharge. Ground straps must be worn by installers before handling to prevent electrostatic discharge damage.

Before You Begin

The following item is not included with the L@titude Fire Alarm Control Panel, but is required for the installation:

- A Ground Strap is required for handling circuit boards.

Setting the Address

Panel modules should use addresses 1-8. Each panel module of the L@titude 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.
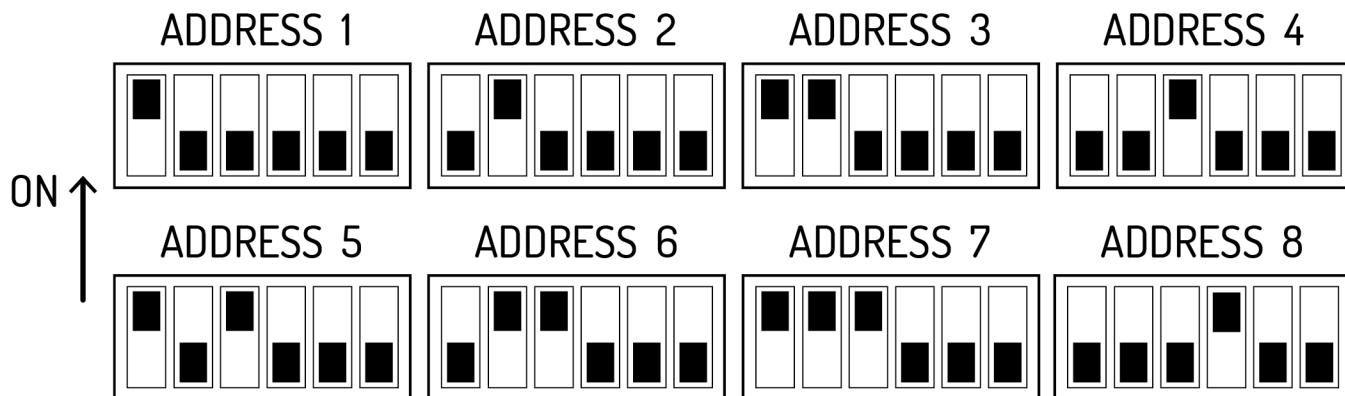
Placement

To install modules on the L@titude 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.
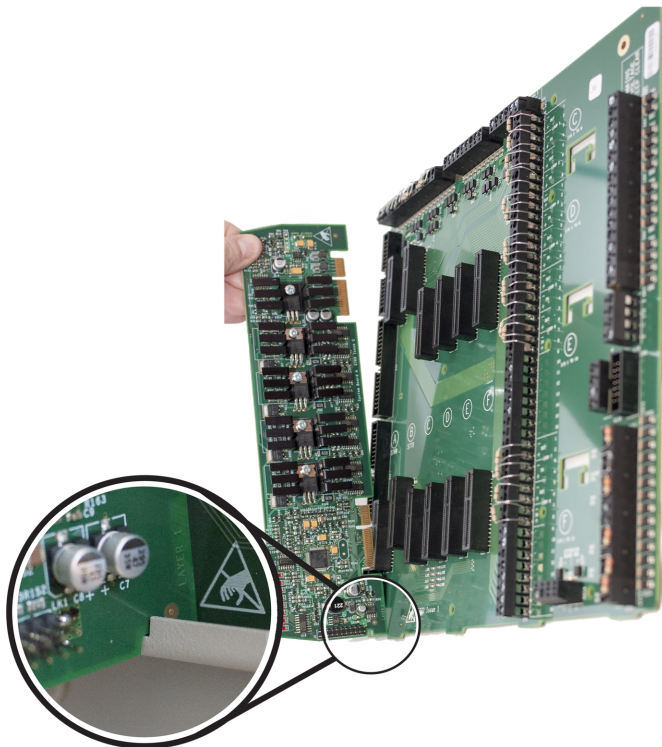
The photo above is an example of panel module placement and may not be representative of the specific module and slot placement described in this guide. Refer to the checklist above for details on placement.

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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.

Wiring

The 8 Channel Conventional Zone Panel Module has 8 supervised detection circuits (Class B). If Class A circuits are needed, they can be made from Class B circuit pairs (1 & 2, 3 & 4, 5 & 6, 7 & 8). Each circuit, regardless of class, can support up to 20 conventional detectors and approved devices. Individual circuits may be configured for trigger resistor or short circuit activation. These circuits may be used for any of the standard input actions and can be configured to contribute to cause and effect logic.

CLASS A

CLASS B

END-OF-LINE
RESISTOR (6.8k)

END-OF-LINE
RESISTOR (6.8k)

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Zone 7
Zone 8

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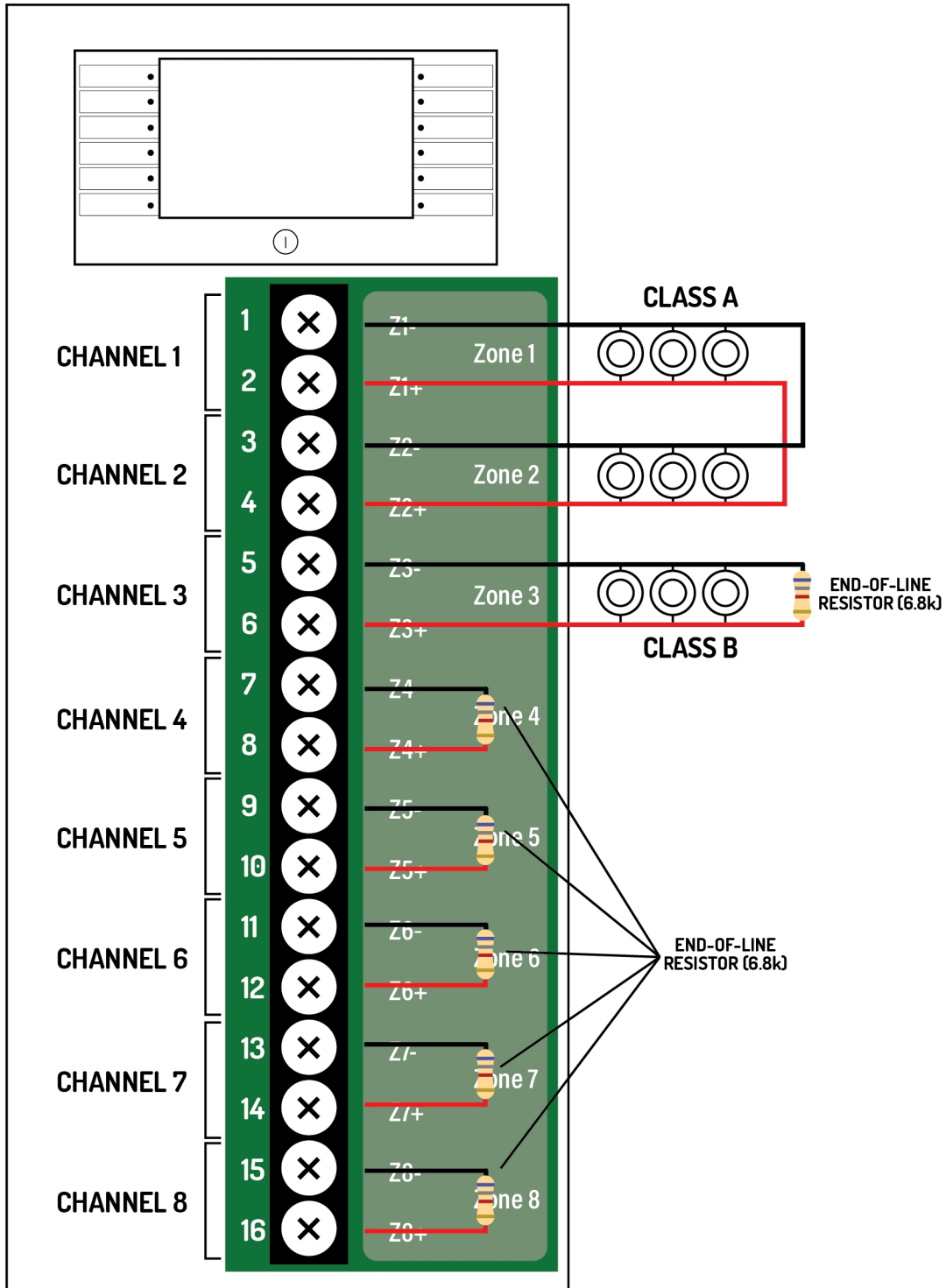
Circuit Activation

Circuit activation should be achieved with the use of trigger resistors. This enables the panel to report a trouble in the event of a short circuit in the wiring.

When trigger resistors are not used, **Short Circuit Activation** must be enabled in the panel programming. When **Short Circuit Activation** is enabled, the panel cannot discriminate between a device activation and a short circuit in the wiring. A short circuit will result in an activation.

Refer to the Configuration section for specific details.

> **NOTE** The maximum number of devices supported on each circuit is dependent on the device type. Refer to the Compatible Devices list in the Specifications section for specifics.

CLASS A
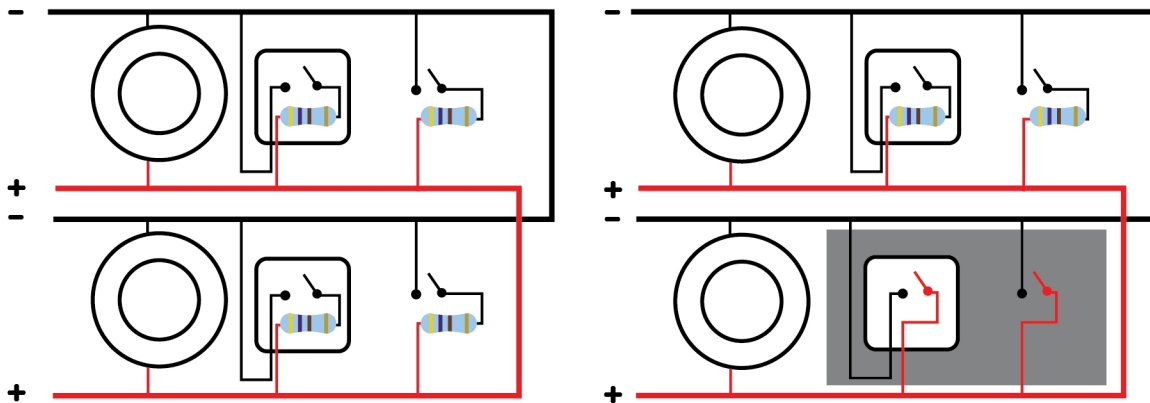
CLASS B

470 OHM TRIGGER RESISTOR (NOT INCLUDED)

6.8k END-OF-LINE RESISTOR (EOLR) (INCLUDED)

DETECTOR

PULL STATION

SHORT CIRCUIT ACTIVATION PROGRAMMING REQUIRED

NORMALLY OPEN VOLT-FREE CONTACT

> **NOTE** Each trigger resistor must be in the same enclosure (or a close-nippled enclosure) as its normally-open volt-free contact.

Testing the Installation

1. Confirm communication from the panel via the LED status indicators. LED indicators provide functional and diagnostic information as shown below.

2. Resolve any troubles related to the new field wiring.

3. Activate each circuit and verify that all connected devices function properly.

Refer to the Troubleshooting section for information on clearing abnormal conditions.

LED Label	Name	Color	Description
LED 1	Heartbeat	Red	Flashes every 2 seconds when the board is operating.
LED 2	Rx Comms	Green	Flashes every 2 - 3 seconds when the module is receiving data from the panel.
LED 3	Tx Comms	Green	Flashes every 2 - 3 seconds when the module is transmitting data to the panel.
LED 4	Trouble	Yellow	Flashes every 2 seconds when one or more outputs have a trouble condition.
LED 5	Input Active LED	Red	Flashes every 2 seconds when one or more inputs are active.
LED 6	Output Active LED	Red	Not used.

CONFIGURATION

The 8 Channel Conventional Zone Panel Module can be configured via LE2 or the Panel GUI. The following instructions detail configuration via LE2.

NOTE The panel module must be added to the configuration via Loop Explorer 2 or an Autolearn on the panel.

To configure each input,

1. Choose a **Device Setting** from the drop-down list. The default setting is Detector. ***This step must be done first, as it will affect the remaining configuration selections.***

2. Choose an **Input Action**. The default setting is Fire. For the default device setting (Detector), the setting can be changed to Supervisory or Carbon Monoxide. Other device settings will have different allowable input actions available, based on each device's capabilities and limitations. For UL compliance, **Input Action** must not be set to Transparent.

IMPORTANT! Refer to the Device Settings / Input Actions section below for more information about these settings.

3. **Input Action Message** is automatically set based on the selected **Input Action**. If desired, a custom message can be entered.

4. Check the **Output Delay** Bypass box if activation of this circuit should immediately activate its associated outputs, even if those outputs have configured delays. For UL compliance, this field must be checked.

5. Set the **Input Delay** in seconds, up to 180 seconds. This setting delays the panel's response to an activation. No panel response will occur if the input state is restored to normal before time period expires. A non-latching input will not activate if restored before the time period expires. For UL compliance, this field must be set to 0.

6. Set the **Input Latch** field to Latching or Non-latching. For UL compliance, when **Input Action** is set to Fire or Carbon Monoxide, this field must be set to Latching.

7. Set the **Short Circuit Activation** field to Yes or No. Refer to Circuit Activation for detailed information.

- When set to yes, a short on the circuit results in activation.
- When set to no, a short on the circuit results in a trouble. To cause an activation, a trigger resistor must be used.

8. Set the **Wiring Class** to A or B for each circuit. Wiring class can only be selected in input pairs. When Class A is selected, the input pair forms a single circuit. When Class B is selected, the input pair forms two independent circuits.

9. Set the **Location Text**, up to 80 characters. This text is displayed when the circuit is activated.

10. Use the **Map to Zone** field to set the zone number for the circuit. Allowable values are 0-2000.

The circuit will not follow alarm verification zone settings.

UL Compliance Limitations

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.

Field	Configurable Range	UL Permitted Value / Range
Output Delay Bypass	Checked or Unchecked	Checked
Input Delay	0-180 seconds	0
Input Latch	Latching or Non-Latching	Latching, when Input Action is set to Fire or Carbon Monoxide
Input Action	Various	All options are UL compliant except Transparent.

Device Settings / Input Actions

Each input of the 8 Channel Conventional Zone module has a **Device Setting** and an **Input Action**.

- The **Device Setting** field describes the type of device that is connected to the input and determines the detailed response to the activation.
- The **Input Action** field describes what type of action the panel should take in response to an activation of the input. These fields are used together to define how the FACP reacts to activation of the input.

Depending on the **Device Setting**, restrictions are set on which **Input Action** values are permitted. For example, a **Device Setting** of *Manual Pull Station* is restricted to an **Input Action** of *Fire*.

Depending on the **Input Action** selected, restrictions are placed on other parameter values. For instance, an **Input Action** of type *Fire* can not be configured as Non-Latching.

A device setting of *General Purpose N/O EOL* allows the widest range of input actions. This selection will transmit a signal based on the selected **Input Action** to the off-premises monitoring station, with a general event type message. Available input actions for this setting are shown here:

- Fire
- Trouble
- Pre Alarm
- Supervisory

- Carbon Monoxide
- Auxiliary
- Silence
- Reset

- Transparent
- Disablement
- Test Mode
- Fire Drill

This chart shows an example of the signals sent from the Media Gateway to an off-premises monitoring station for the **Device Setting** of Detector (default) and the three possible **Input Actions** (*Fire*, *Supervisory*, and *Carbon Monoxide*).

```
                         DEVICE SETTING
                            DETECTOR
         ┌──────────────────────┼──────────────────────┐
   INPUT ACTION            INPUT ACTION            INPUT ACTION
      FIRE                  SUPERVISORY               CARBON
                                                     MONOXIDE
     ┌───┴───┐              ┌───┴───┐              ┌───┴───┐
   SIA       CID          SIA       CID          SIA       CID
  FA / FH    110         FS / FV    200         GA / GH    162
 FIRE ALARM FIRE ALARM  FIRE      FIRE         GAS ALARM  CARBON
                        SUPERVISORY SUPERVISORY           MONOXIDE
```
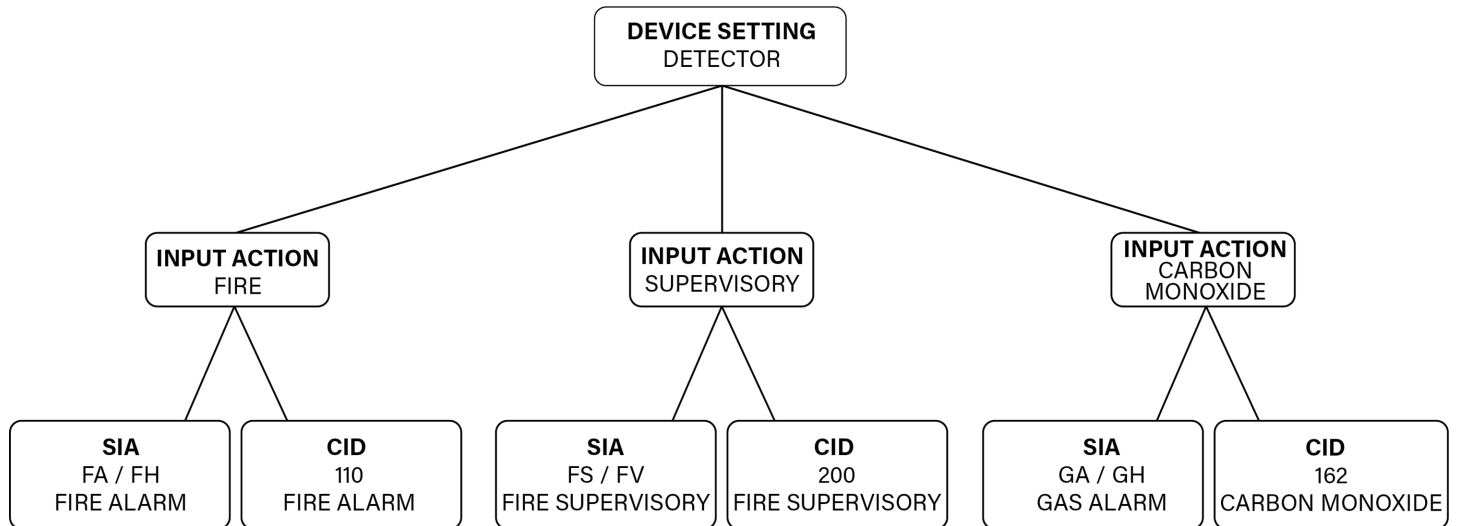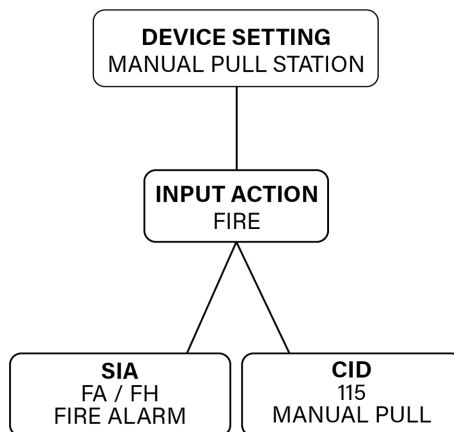
Selecting *Manual Pull Station* as the **Device Setting** will also send a fire signal. This chart shows an example of the signals sent from the Media Gateway to an off-premises monitoring station for this setting and the only possible **Input Action** (*Fire*).

The device setting of *Manual Pull Station* enabled the panel to send a more specific CID fire event type (115 Manual Pull) to the off-premises monitoring station. The SIA communication protocol does not have a more specific fire event type for a manual activation, so the SIA event type is the same in both cases.

```
        DEVICE SETTING
     MANUAL PULL STATION
             │
       INPUT ACTION
          FIRE
        ┌───┴───┐
      SIA       CID
     FA / FH    115
   FIRE ALARM  MANUAL PULL
```

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A **Device Setting** of *Water Flow Alarm Non Silence* restricts the operation of the Alarm Silence function. It will also cause the event type being transmitted to an off-premises monitoring station to indicate a more specific fire event type of *Waterflow*.

```
                    ┌──────────────────────────────┐
                    │       DEVICE SETTING         │
                    │ WATER FLOW ALARM NON SILENCE  │
                    └──────────────────────────────┘
                    /                              \
        ┌──────────────────┐              ┌──────────────────┐
        │   INPUT ACTION   │              │   INPUT ACTION   │
        │      FIRE        │              │   SUPERVISORY    │
        └──────────────────┘              └──────────────────┘
          /            \                     /            \
  ┌──────────────┐ ┌──────────────┐ ┌────────────────────┐ ┌──────────────────┐
  │     SIA      │ │     CID      │ │        SIA         │ │      CID         │
  │   SA / SH    │ │     113      │ │      SS / SR       │ │      200         │
  │SPRINKLER ALARM│ │  WATERFLOW   │ │SPRINKLER SUPERVISORY│ │ FIRE SUPERVISORY │
  └──────────────┘ └──────────────┘ └────────────────────┘ └──────────────────┘
```
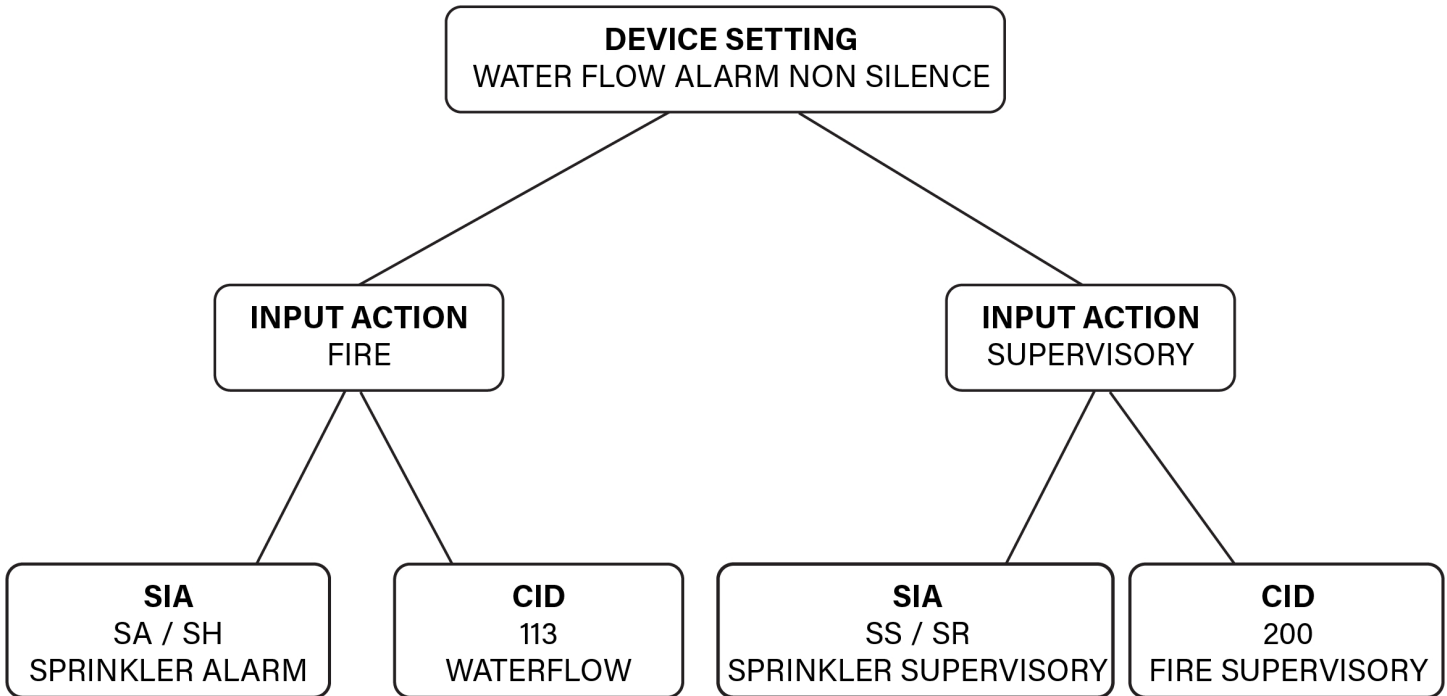
NOTE   Note that the SIA and CID signals for **Input Action**: *Fire* differ in each of these examples. This demonstrates how the **Device Setting** determines the final, detailed response to the activation.

SPECIFICATIONS

This appendix provides electrical and environmental specifications for the 8 Channel Conventional Zone Panel Module.

Electrical

Overall Module Electrical Ratings

Supply Voltage Range	24 V DC
Maximum Current Consumption	210 mA
Quiescent Current	70 mA

Initiating Circuit Characteristics

The 8 Channel Conventional Zone Panel Module compatibility identifier is ZI-S792.

NOTE   All initiating device circuits are power-limited with a maximum output voltage of 20V and a maximum short circuit current of 50mA.

Minimum Standby Voltage (VDC):	17.6
Maximum Standby Voltage (VDC):	26.4
Maximum Line Resistance (ohms):	20.3 (10.1 per conductor)
Maximum Ripple (mV, AC):	1000
Maximum Capacitance Loading (uF):	10
Minimum Alarm Impedance (ohms):	220
Maximum Alarm Impedance (ohms):	1100
Trigger Resistor Value (ohms):	470
Minimum Voltage with Minimum Alarm Impedance [V]:	4.6
Maximum Alarm Current [mA]:	50 (25 for Class B)
Maximum Alarm Reset Voltage (VDC):	1.1
Is Alarm Delay Employed? (Y/N):	N
Minimum Alarm Reset Time (sec):	1.8
Alarm Verification:	Not supported
Maximum Impedance Required for Second Alarm:	Not Applicable
Maximum Normal Load Current (mA):	2.0
Minimum Normal Standby Impedance (ohms):	1600
End-of-Line Standby Impedance (ohms):	6800 (Class B only)
Open-Circuit Trouble Threshold (ohms):	25 (Class A only)

Operating Environment

Dry indoor use only.

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

Physical Specifications

Dimensions	234.6mm x 62.8mm or 9¼" x 2½"

Compatible Devices

Apollo

All detectors listed below are compatible with the following Bases:

- Apollo 45681-200 / VES VF5695-00
- Apollo 45681-255

There is a maximum number of 13 devices per circuit.

VES Detector Models	Apollo Detector Models
VF5692-01	55000-139
VF5693-01	55000-142
VF5694-01	55000-145
VF5690-01	55000-226
VF5691-01	55000-326

System Sensor

Detector Models	Base Models	Maximum No. of Devices
2W-B, 2WT-B	N/A	18
2WTA-B	N/A	1

Hochiki

All detectors listed below are compatible with the following Bases:

- Hochiki NS4-220 / VES VF2050-00
- Hochiki NS6-220 / VES VF2051-00
- NS4-224
- NS6-224

There is a maximum number of 20 devices per circuit.

Hochiki Detector Models	VES Detector Models
DCD-135	VF2020-00

Hochiki Detector Models	VES Detector Models
DCD-190	VF2021-00
SOC-24V	VF2042-00
SOC-24VW	VF2043-00
SOC-24VN	VF2044-00
SIJ24	N/A
SLR-24H	VF2041-00
SLR-24V	VF5026-00
SLR-24VN	N/A
SLR-835	VF2030-00
SLR-835H	N/A
SLV-24	N/A
SLV-24V	VF2032-00
SLV-24N	N/A

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