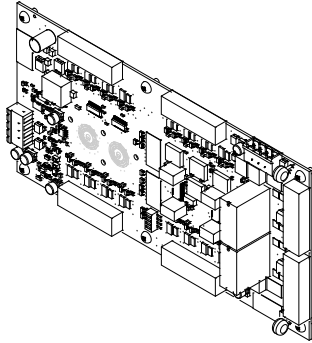# RZI16-2 Remote Zone Interface Module Installation Sheet

Description

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

The module recognizes the CleanMe signal from detectors that support this feature.

The RZI16-2 requires 18 consecutive addresses on the signaling line circuit (SLC). Addresses are assigned electronically. There are no address switches.

The RZI16-2 incorporates two 8-segment DIP switches that are used to set the default device type for each of the 16 IDC circuits. The default can be set to alarm or supervisory. If you need to select a device type other than the default, this must be accomplished through programming.

The module also includes one 4-segment DIP switch used to set the default output device type to relay or NAC. If you need to select a device type other than the default, this must be accomplished through programming.

The RZI16-2 supports 3.9 kΩ and 4.7 kΩ end-of-line resistors for IDCs and 15 kΩ end-of-line resistors for NAC circuits.

LED operation

Diagnostic LEDs (shown in Figure 1) provide visible indication of the status of the module:

- Normal: green LED flashes
- Alarm/active: red LED flashes

Table 1: RZI16-2 input device types [1]

Setting	Description
ALARM	Alarm - NO latching (Class B): Configures the module for normally open dry contact initiating devices. When the NO input contact of an initiating device is closed, an alarm signal is sent to the control panel and the alarm condition is latched at the module.
SUPV	Active - NO nonlatching (Class B): *US marketplace*. Configures the module for normally open dry contact initiating devices. When the NO input contact of an initiating device is closed, a supervisory signal is sent to the control panel and the supervisory condition is not latched at the module.
	Active - NO latching (Class B): *Canadian marketplace*. Configures the module for normally open dry contact initiating devices. When the NO input contact of an initiating device is closed, a supervisory signal is sent to the control panel and the supervisory condition is latched at the module.

[1] Additional device types are available through front panel programming or the configuration utility. Refer to the applicable control panel technical reference manual.

Table 2: RZI16-2 output device types [1]

Setting	Description
RLY	Signal - dry contact output: Configures the module as a dry relay contact to control external appliances (door closers, fans, dampers) or equipment shutdown.
NAC	Continuous silenceable: Configures the module to be used with strobes and notification appliances that generate a noncoded tone.

[1] Additional device types are available through front panel programming or the configuration utility. Refer to the applicable control panel technical reference manual.

Jumper and switch settings

Caution: Placing JP1, JP2, JP3, or JP4 jumpers in the wrong position may damage the module.

Configure the module jumper and switch settings *before* installing the module. See Figure 1 for the location of the jumpers and switches.

The jumpers are used in combination with the NAC/RLY DIP switches to set NAC or relay outputs. Set the jumpers and DIP switches as described in Table 3.

Table 3: Jumper and switch settings

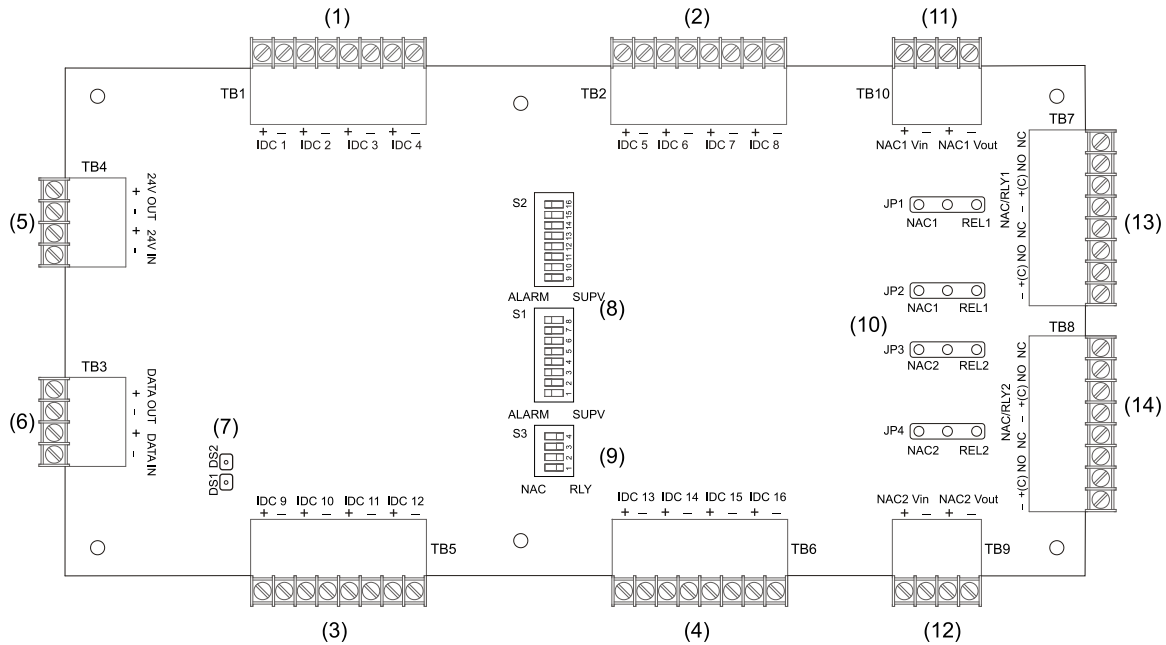| NAC/RLY	Jumper	S3 Switch
NAC1	JP1 and JP2 set to NAC	S3-1 set to NAC
REL1	JP1 and JP2 set to REL	S3-1 set to RLY
NAC2	JP3 and JP4 set to NAC	S3-2 set to NAC
REL2	JP3 and JP4 set to REL	S3-2 set to RLY

Installation

The RZI-MPL bracket is used to mount the RZI16-2 Addressable Remote Zone Interface Module in the following enclosures.

- MFC(A) Accessory Enclosure
- Auxiliary Power Supply (APS) Enclosure
- iO1000 and VS4 Cabinet Enclosures

All mounting hardware is supplied with the RZI16-2.

Figure 1: RZI16-2 connections, jumpers, and switches

Item	Designator	Description
(1) (2) (3) (4)	TB1, IDC 1 through IDC 4 TB2, IDC 5 through IDC 8 TB5, IDC 9 through IDC 12 TB6, IDC 13 through IDC 16	Connections for conventional two-wire smoke detectors. You can also use IDC1 through IDC16 for connecting alarm or nonalarm dry contact initiating devices.
(5)	TB4, 24V IN/OUT	Connection for 24 VDC from the control panel AUX2 output or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems.
(6)	TB3, DATA IN/OUT	Connections for the signaling line circuit (SLC) from the fire panel
(7)	DS1 and DS2	LED indicators that show the module status. DS1 = Green LED (normal) DS2 = Red LED (alarm/active)
(8)	S1 and S2	Switch S1 is used to individually set IDC 1 through IDC 8 as an alarm or supervisory/monitor input. Switch S2 is used to individually set IDC 9 through IDC 16 as an alarm or supervisory/monitor input.
(9)	S3	S3-1 is used to select the function for NAC1 and RLY1 circuits as either a NAC or a relay output. S3-2 is used to select the function for NAC2 and RLY2 circuits as either a NAC or a relay output. The position selected must match the jumper positions for JP1 and JP2. S3-3 and S3-4 are not used.
(10)	JP1, JP2	Jumpers JP1 and JP2 are used with switch S3-1 to select NAC1 and REL1 circuits as either a NAC or a relay output.
	JP3, JP4	Jumpers JP3 and JP4 are used with switch S3-2 to select NAC2 and REL2 circuits as either a NAC or a relay output.
(11)	TB10, NAC1 Vin/Vout	Connections for NAC1 power from a 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems. Note: Use a dedicated 24 VDC AUX circuit to power the TB4 24V IN and a separate 24 VDC AUX circuit to power the TB10 NAC1 Vin for NAC1 devices.
(12)	TB9, NAC2 Vin/Vout	Connections for NAC2 power from a 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems. Note: Use a dedicated 24 VDC AUX circuit to power the TB4 24V IN and a separate 24 VDC AUX circuit to power the TB9 NAC2 Vin for NAC2 devices.
(13)	TB7, NAC1/RLY1	Connections for NAC1 and RLY1 circuits. TB7 provides two identical sets of terminals for the relay and NAC circuits, however only one relay or one NAC can be wired to TB7. NAC1 is used to connect a supervised output circuit to a signal riser. RLY1 is an unsupervised dry contact output used to control external devices.
(14)	TB8, NAC2/RLY2	Connections for NAC2 and RLY2 circuits. TB8 provides two identical sets of terminals for the relay and NAC circuits, however only one relay or one NAC can be wired to TB8. NAC2 is used to connect a supervised output circuit to a signal riser. RLY2 is an unsupervised dry contact output used to control external devices.

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

Caution: Risk of equipment damage. Make sure the RZI mounting bracket is installed with the RZI module mounting standoffs facing away from the enclosure. These mounting standoffs provide clearance between the RZI module PCB circuitry and the bracket.

Notes

- The module is shipped from the factory as an assembled unit; it contains no user-serviceable parts and should not be disassembled.
- This module does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- Install the RZI16-2 within the same room as the device it is controlling if the RZI16-2 is configured as a relay output.
- The RZI16-2 24 VDC input power maximum wire run distance should be calculated using the specifications of the source used to power the module. Refer to the panel documentation for detailed information.

Install and wire the RZI116-2 in accordance with applicable national and local codes, ordinances, and regulations.

To install the RZI16-2 module:

1. Configure the jumper and switch settings on the RZI16-2 module in accordance with "Jumper and switch settings" on page 1.

2. Mount the RZI16-2 module and RZI-MPL bracket in the applicable enclosure as follows:

   MFC(A) enclosure:

   a) Mount the RZI-MPL bracket in the MFC(A) enclosure and secure using four self-tapping screws as shown in Figure 2.

   b) Mount the RZI16-2 on the RZI-MPL bracket using six washers and screws as shown in Figure 2.

   APS enclosure:

   a) Mount the RZI-MPL bracket in the APS enclosure and secure using four self-tapping screws as shown in Figure 3.

   b) Mount the RZI16-2 on the RZI-MPL bracket using six washers and screws as shown in Figure 3.
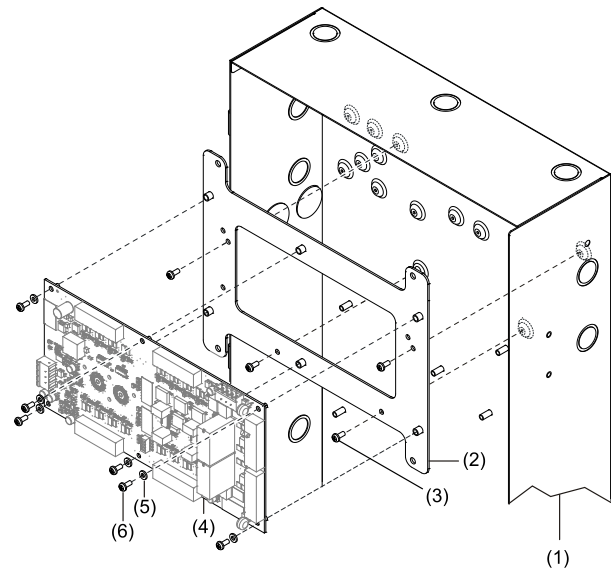
   iO1000 or VS4 cabinet enclosure:

   a) Mount the RZI-MPL bracket in the iO1000 or VS4 cabinet enclosure and secure using four 8-32 K-nuts as shown in Figure 4.

   b) Mount the RZI16-2 on the RZI-MPL bracket using six washers and screws as shown in Figure 4.

Figure 2: Mounting a MFC(A) enclosure
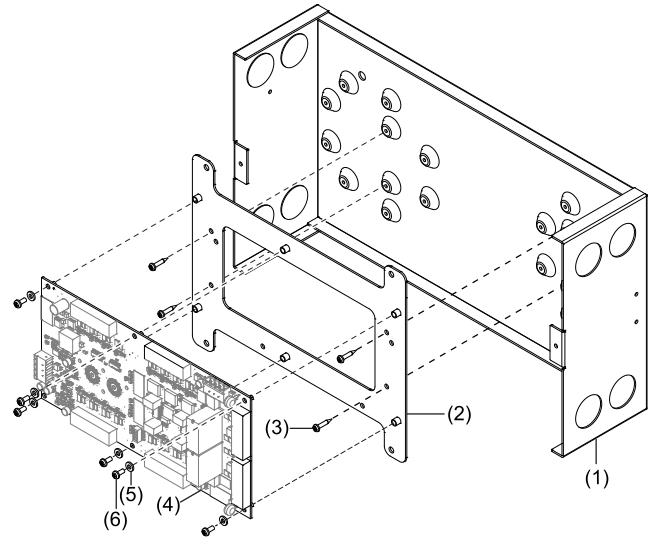
(1) MFC(A) enclosure	(4) RZI16-2 module
(2) RZI-MPL mounting bracket	(5) Polycarbon washer #6
(3) #6-32 × 5/16 self-tapping screws (4X)	(6) #6-32 × 5/16 screws (6X)

Figure 3: Mounting in an APS enclosure

(1) APS enclosure	(4) RZI16-2 module
(2) RZI-MPL mounting bracket	(5) Polycarbon washer #6
(3) #6-32 × 5/16 screws (4X)	(6) #6-32 × 5/16 screws (6X)

Figure 4: Mounting in an iO1000 or VS4 cabinet enclosure
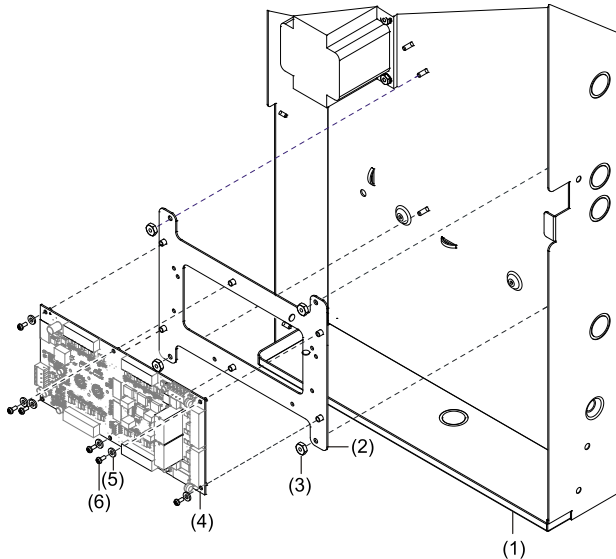
(1)	iO1000 or VS4 enclosure	(4)	RZI16-2 module
(2)	RZI-MPL mounting bracket	(5)	Polycarbon washer #6
(3)	8-32 K-nuts (4X)	(6)	#6-32 × 5/16 screws (6X)

3. Bring the field wiring into the enclosure.

4. Make the required wiring connections specified in Wiring.

Wiring

Notes
*   Each terminal on the module is limited to a single conductor.
*   The signaling line circuit (SLC) circuit is power-limited and supervised.
*   Refer to the panel documentation for SLC, NAC, and 24V IN wire run distance calculation information.

To wire the module:

1. Verify that all field wiring is free of opens, shorts, and ground faults.

2. Make all required wiring connections as shown in Figure 5 and Figure 6. Refer to Figure 1 for the location of terminal blocks, switches, and jumpers.

Specifications

Voltage	
24V/Aux nominal:	24 VDC
24V IN compatibility range	18.4 VDC to 28.3 VDC
NAC1 and NAC2 nominal:	24 VDC
Current:	
Supervisory	250 mA at 24 VDC nominal
Alarm (16 inputs active)	850 mA at 24 VDC nominal
Low battery alarm (16 inputs active)	1000 mA at 19 VDC
Wire sizes	
TB1, TB2, TB5, TB6	12 to 18 AWG
TB3, TB4	12 to 14 AWG
TB7, TB8, TB9, TB10	12 AWG
Relay outputs	
Quantity	2
Type	Programmable
Rating	24 VDC at 2.5 A
Input circuit wiring resistance	25 Ω per wire

Initiating device circuits (IDC)	
Quantity	16
EOL resistor	4.7 kΩ (US)
	3.9 kΩ (Canada)
Zone voltage	23.9 V for 4.7 kΩ (US)
	23.2 V for 3.9 kΩ (Canada)
	Vmax 24.1 V at 35 mA
Alarm current	33.2 mA per channel at nominal voltage 35 mA max.
Smoke detector current	3.0 mA
Alarm impedance range	< 680 Ω
Trouble impedance range	> 6.0 kΩ
IDC ground fault	< 3.5 kΩ
Supervised output circuits	
EOL resistor	15 kΩ
Quantity	2
Short circuit detection	< 2.6 kΩ
Open circuit detection	> 66.0 kΩ
Contact ratings	24 VDC at 2.5 A (5 A for two NACs).
NAC ground fault	< 5 kΩ
Compatible cabinets	MFC(A), iO1000, VS4, APS
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	0 to 93% noncondensing at 90°F (32°C)

## Regulatory information

FCC compliance	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
UL, ULC	UL 864, CAN/ULC S527
FCC and Industry Canada	Canadian ICES-001, ICES-003.

Figure 5: NAC and relay circuits (typical)
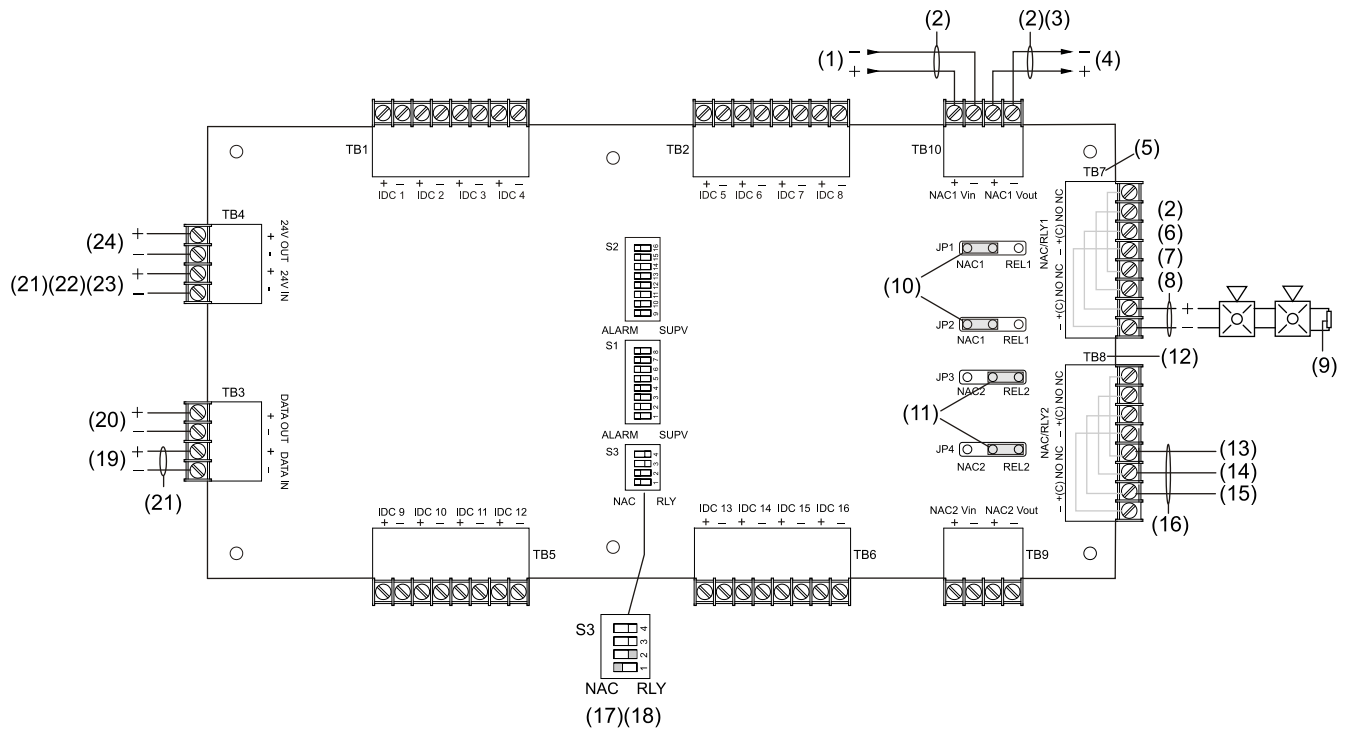
(1) NAC Vin: 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC Listed for fire protective signaling systems.
Note: Use a dedicated 24 VDC power riser to power the RZI16-2 module (TB4, 24V IN). Use a separate riser to power notification appliances and auxiliary devices (TB9 and TB10, NAC Vin).

(2) Regulated 24 VDC and power-limited

(3) If the NAC power riser is used for more than one notification zone, in accordance with the requirements for survivability from attack by fire specified in NFPA 72.

(4) NAC Vout: 24 VDC to next device or end of line supervision relay

(5) TB7 provides two identical sets of terminals for the relay and NAC circuits, however only one relay or one NAC can be wired to TB7.

(6) Signal polarity shown when the circuit is active. Polarity reverses when the circuit is in a normal supervision state.

(7) T The maximum line resistance value must be calculated using the power source documentation. Refer to the *Auxiliary Power Supply Manual* (P/N 3100970) or the *Remote Booster Power Supply Manual* (P/N 3100485) for calculation details.

(8) Synchronized NAC devices are permitted

(9) 15 kΩ ohm end of line resistor. Use P/N EOL-15.

(10) Position JP1 and JP2 jumpers to NAC1

(11) Position JP3 and JP4 jumpers to REL2

(12) TB8 provides two identical sets of terminals for the relay and NAC circuits, however only one relay or one NAC can be wired to TB8.

(13) Normally closed (NC) contact

(14) Normally open (NO) contact

(15) Common (C)

(16) Not supervised. Power-limited unless connected to a nonpower-limited source. If the source is nonpower-limited, eliminate the power-limited mark and maintain a minimum of 0.25 in. (6.4 mm) space from power-limited wiring. For other mounting methods, see enclosure and bracket installation sheets to maintain separation of power-limited and nonpower-limited wiring. The wire size must be capable of handling fault current from a nonpower-limited source.
— or —
Use type FPL, FPLR, FPLP, or permitted substitute cables, provided these power-limited cable conductors extending beyond the jacket are separated by a minimum of 0.25 in. (6.4 mm) space or by a nonconductive sleeve or nonconductive barrier from all other conductors. Refer to the NFPA 70 *National Electric Code* for more details.

(17) Set switch S3-1 to NAC (NAC1 circuit)

(18) Set switch S3-2 to RLY (RLY2 circuit)

(19) Signaling line circuit (SLC) from previous device

(20) Signaling line circuit (SLC) to next device

(21) Power limited.

(22) 24V IN: From the control panel AUX2 output circuit (configured for 1Amp continuous) or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power circuit listed for fire protective signaling systems. For ground fault detection, see "Ground Fault Enabled" in the *Auxiliary Power Supply Technical Reference Manual* (P/N 3100970).
Note: Use a dedicated 24 VDC AUX circuit to power the TB4 24V IN and a separate 24 VDC AUX circuit to power the TB9 and TB10 NAC1/2 Vin for NAC devices.

(23) Only one RZI16-2 24V IN can be powered from the control panel AUX2 output circuit (configured for 1Amp continuous) or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply circuit. The power riser wire distance limit must be calculated using the specific power source's NAC/AUX wire run limit based on this module's 24V IN minimum voltage specification.

(24) 24V OUT: To riser supervision relay.

Figure 6: IDC circuits (typical)
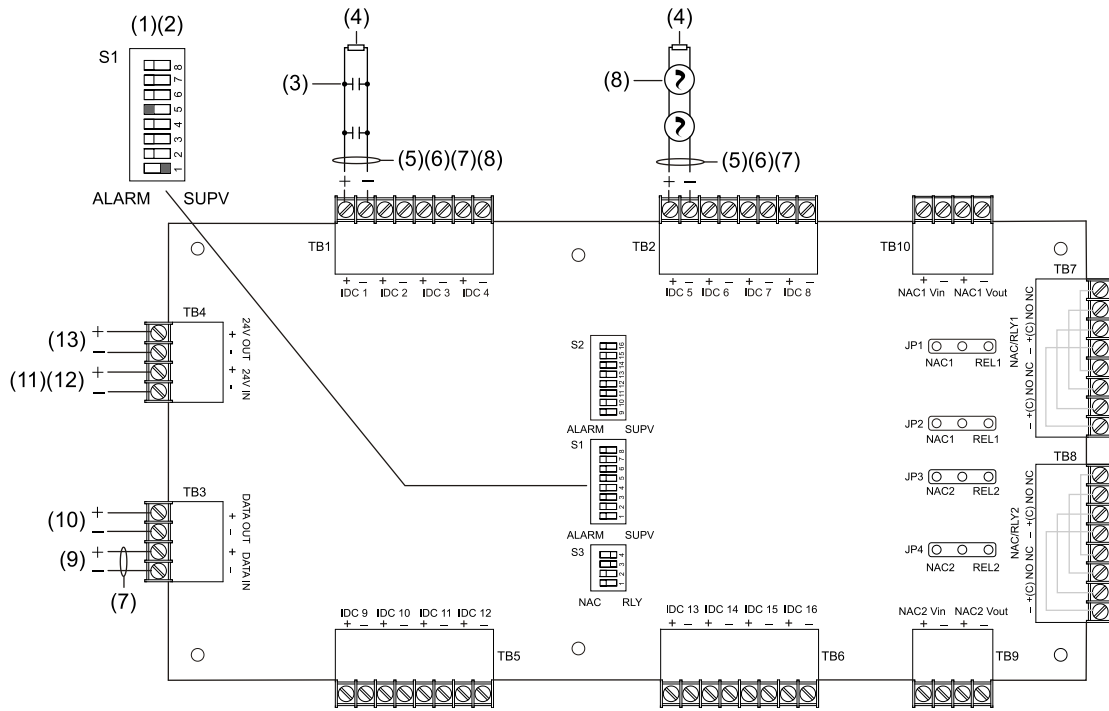
(1) For IDC1 circuit example, set switch S1-1 to SUPV
(2) For IDC5 circuit example, set switch S1-5 to ALARM
(3) Typical initiating device
(4) 4.7 kΩ (US). Use P/N EOL-4.7.
    3.9 kΩ (Canada). Use P/N EOL-3.9.
(5) Maximum 25 Ω resistance per wire
(6) Maximum 12 AWG (4 mm^2) wire; minimum 18 AWG (1.0 mm^2) wire
(7) Supervised and power-limited
(8) Typical smoke detector device
(9) Signaling line circuit (SLC) from previous device
(10) Signaling line circuit (SLC) to next device
(11) 24V IN: From the control panel AUX2 output circuit (configured for 1Amp continuous) or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power circuit listed for fire protective signaling systems. For ground fault detection, see "Ground Fault Enabled" in the Auxiliary Power Supply Technical Reference Manual (P/N 3100970).
    Note: Use a dedicated 24 VDC AUX circuit to power the TB4 24V IN and a separate 24 VDC AUX circuit to power the TB9 and TB10 NAC1/2 Vin for NAC devices.
(12) Only one RZI16-2 24V IN can be powered from the control panel AUX2 output circuit (configured for 1Amp continuous) or from a dedicated 24 VDC AUX power riser that originates from a power-limited and regulated 24 VDC auxiliary/booster power supply circuit. The power riser wire distance limit must be calculated using the specific power source's NAC/AUX wire run limit based on this module's 24V IN minimum voltage specification.
(13) 24V OUT: To riser supervision relay.

Contact information

For contact information, see www.edwardsfiresafety.com.