



ALARM SAF

RM-APD16(F)

Operating and

Installation

Instruction Manual

Rack Mount 16-Zone Advanced Power Distribution

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MODEL NUMBERS

THIS MANUAL COVERS MODEL NUMBERS RM-APD16 AND RM-APD16F

Full product list available at www.alarmsaf.com

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WARNINGS AND NOTICES

WARNING: To reduce the risk of fire or electric shock, do not expose these products to rain or moisture.

WARNING: Installation and all servicing should be made by qualified service personnel and should conform to all local codes.

NOTICE: This equipment shall be installed in a manner which protects against unintentional operation by employees or other personnel working about the premises, damage from falling objects, building vibration or other causes.

NOTICE: This equipment is not intended for use within the patient care areas of a health care facility.

SYMBOL DEFINITIONS



WARNING: Read the instruction manual to avoid personal injury or property damage.



WARNING: Risk of electric shock. Service to be performed by a qualified service person.

INTRODUCTION

The RM-APD16(F) is an access control power distribution system providing 16 relay controlled, individually programmable and protected outputs. The system includes either two APD 8 (Class 2, power limited outputs) **or** two APD8F (fuse protected outputs) Advanced Power Distribution Modules in a single 2U rack mount cabinet. Each APD 8 or APD8F module provides the following features:

- Eight outputs - each individually programmable for fail-safe, failsecure, form-C dry contact, continuous output voltage, and FAI controlled.
- Eight inputs - each individually programmable for negative trip, positive trip, open collector / dry contact trip, or isolated trip
- Fire Alarm Interface - latching or non-latching

- Output voltage can be isolated from control voltage
- Visual status indication
 - Input Activation (Red)
 - Control Voltage Present (Green)
 - FAI Status (Red)

The RM-APD16(F) power distribution system fits neatly in standard IT equipment racks and features easily accessible, removable terminal strips for all field wiring. When combined with an AlarmSaf RMDC power system, the RM-APD16(F) offers flexible power management for systems integration applications including mag lock and door strike control, reader power, request to exit device power, system power and fire alarm interface (FAI) for emergency exit.

APPLICABLE STANDARDS / DOCUMENTS

NFPA STANDARDS

- NFPA 72 National Fire Alarm Code
- NFPA 70 National Electrical Code
- NFPA 731 Standard for the Installation of Electronic Premises Security Systems

OTHER STANDARDS

Applicable Local and State Building Codes
Requirements of the Local Authority Having Jurisdiction (LAHJ)

NOTE: Power distribution modules sub-assemblies APD8-Bd and APD8F-Bd have been tested and listed to UL/ANSI 294 for use with Listed compatible access control system equipment.

SECTION 1: SYSTEM OVERVIEW

1.1 ELECTRICAL RATINGS AND SPECIFICATIONS**Manufactured by**

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Product Use

When installed in accordance with all standards listed in Section 1 of this document, the RM-APD16(F) provides power distribution for use with typical 12 or 24VDC devices used in the access control or security industries such as, but not limited to, mag locks, door strikes, door holders, card readers, keypads, etc.

PRODUCT INFORMATION

Order Number	Model Number	Description
03029	RM-APD16	Rack mount power distribution box with 16 relay controlled and individually programmable Class 2, power limited outputs
03030	RM-APD16F	Rack mount power distribution box with 16 relay controlled and individually programmable fuse protected outputs
02827	APD8-Bd	Replacement board: advanced power distribution module, 8 power limited outputs
02828	APD8F-Bd	Replacement board: advanced power distribution module, 8 fuse protected outputs

ELECTRICAL RATINGS FOR SINGLE APD8 OR APD8F BOARD

Input Voltage	10 - 30V AC or DC
Input Power	0.4A@12VDC/0.2A@24VDC maximum control current + 8A maximum output current
Total Output Current	8A maximum output current or rating of power source - whichever is less
Zone Output Current	APD8 - 1.6A maximum; APD8F - 3.0A maximum
Zone Output Voltage	Dependant on input voltage
Input Trip Current	0.03A per input
FAI Trip Current	0.01A @ 24VDC

TEMPERATURE SPECIFICATIONS FOR SINGLE APD8 OR APD8F BOARD

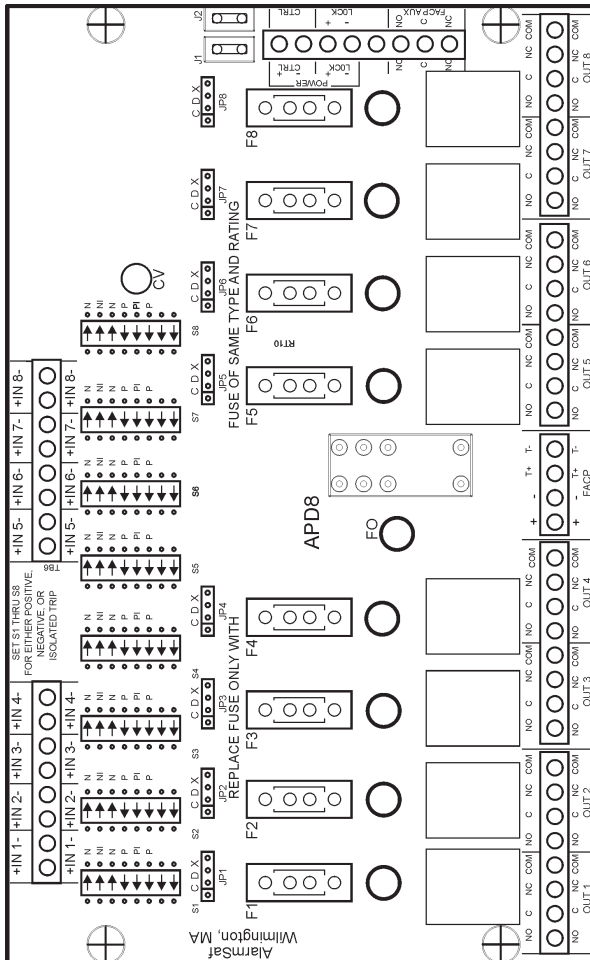
Ambient Temperature Range	0°C to 49°C f(32°Fto 120°F)
Ambient Humidity	93% at 32°C (90°F) Maximum

MECHANICAL SPECIFICATIONS FOR SINGLE APD8 OR APD8F BOARD

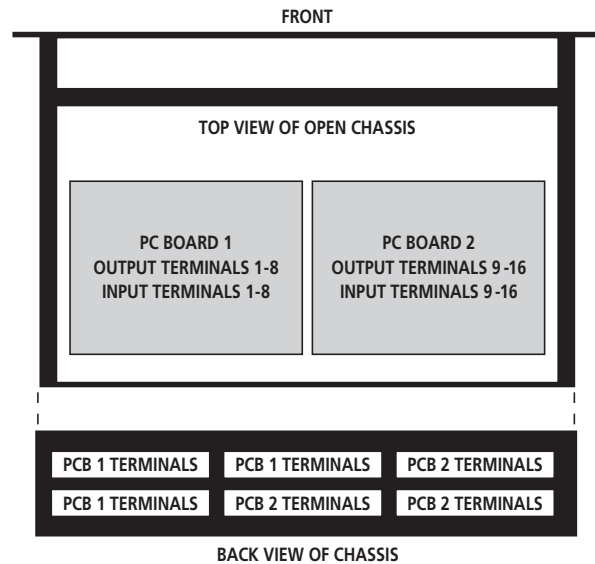
Weight	0.70lbs.
Size	7.75"L x 4.75"W x 1.25"H Max.

1.2 APD8(F) CONNECTOR DESCRIPTIONS AND ELECTRICAL RATINGS

TERMINAL / CONNECTOR	DESCRIPTION	RATING
TB7 - Power Inputs and FACP AUX Output		
CTRL+	Control Power Positive Input	10V-30V AC or DC - 0.4A at 12VDC, 0.2A at 24VDC Maximum
CTRL-	Control Power Common Input	
LOCK+	Lock Power Positive Input	10V-30V AC or DC - 8A Maximum - depending on output current and voltage rating of power source
LOCK-	Lock Power Common Input	
FACP AUX NO	FACP Relay Output - Normally Open	1A @ 24VDC Maximum
FACP AUX C	FACP Relay Output - Common	
FACP AUX NC	FACP Relay Output - Normally Closed	
TB8 - FACP Input		
FACP +	FAI Voltage Input Positive	9VDC-30VDC - 0.01A @ 24VDC
FACP -	FAI Voltage Input Common	
FACP T+	FAI Dry Contact Input Positive	0.01A @ 12VDC Nominal
FACP T-	FAI Dry Contact Input Common	
TB5 & TB6 - Zone Inputs		
IN x +	Zone x Positive Input	12VDC Nominal @ 0.03A
IN x -	Zone x Common Input	
TB1, TB2, TB3, & TB4 - Zone Outputs		
OUT x NO	Zone x Output Normally Open	Output voltage determined by Lock Input Voltage APD8 - 1.6A per zone maximum APD8F - 3.0A per zone maximum
OUT x C	Zone x Output Relay Common	
OUT x NC	Zone x Output Normally Closed	
OUT x COM	Zone x Output Power Common	



For field wiring, the board terminals are accessible on the back of the chassis. The board terminals on the above chart correspond to those on the back of the chassis as shown here.



Note: Wire should be sized appropriately for voltage drop and current carrying capability. All terminals are labelled for polarity where appropriate.

1.3 CONTROL POWER AND LOCK POWER CONNECTIONS

Each APD8(F) has two separate power inputs - a control power input, and a lock power input. Using two separate power inputs allows total separation of lock and control power sources. Typically, this is not required, and jumpers J1 and J2 should remain in. See Section 3.1 for more information on configuring the APD8(F) for using separate power inputs.

Note: If J1 and J2 are out, BOTH power inputs must be wired to a power source. If J1 and J2 are in place, either the control input or the power input may be used.

Note: If J1 and/or J2 are missing, the control power and lock power inputs can be connected together with wire jumpers if isolated power sources are not required.

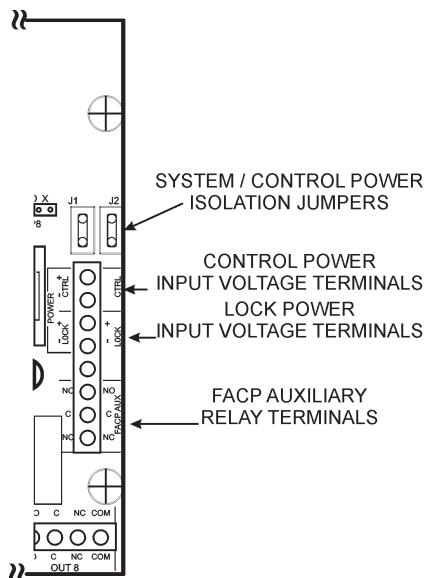
1.3.1 Control Power Input

If J1 and J2 are removed, this input provides power to the internal relays and related circuitry of the APD8(F). The Control Power common is tied to the zone input common connections (unless the zone input is set as an isolated input). If J1 and J2 are removed, the Control Power input or Zone Inputs have NO connection to the Lock Power input or the Zone Outputs.

1.3.2 Lock Power Input

If J1 and J2 are removed, this input provides power to the zone outputs of the APD8(F). The Lock Power common is tied to the zone output common connections. If J1 and J2 are removed, the Lock Power input or Zone Outputs have NO connection to the Control Power input or Zone Inputs.

Note: All wiring should be installed in accordance with (NEC760) NFPA70, NFPA72, and all local code requirements. Power limited wiring requires that power limited and non-power limited wiring remain physically separated. All power limited circuits must remain at least one quarter inch (1/4") away from any non-power limited circuit wiring. All power limited circuit wiring must enter and exit the cabinet through different knockouts than non-power limited wiring.



1.4 ZONE INPUTS

Each Zone Output has a corresponding Zone Input. Each Zone Input provides on/off control for its associated output. Inputs are programmable for a variety of input types, including:

- Normally Open Dry Contact - Positive Switching
- Normally Closed Dry Contact - Positive Switching
- Normally Open Dry Contact - Negative Switching
- Normally Closed Dry Contact - Negative Switching
- Non-Isolated Negative Trip
- Non-Isolated Positive Trip
- Isolated Voltage Trip
- Open Collector Input

See Appendix A for specific information and example wiring diagrams for connecting the Zone Inputs.

1.5 ZONE OUTPUTS

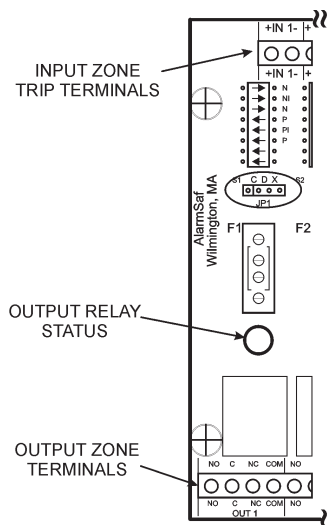
Each Zone Output of the RM-APD16(F) can be used as a dry contact output, or as either a fail-safe or fail-secure voltage output. Jumpers JP1 through JP8 select the type of output for each zone (see Section 3.1 for jumper information). See Appendix B for more information on the Zone Outputs.

1.5.1 If the Zone Output is configured as a dry contact output, the following connections apply:

- NO Normally Open relay contact
- C Relay Common
- NC Normally Closed relay contact

1.5.2 If the Zone Output is configured as a voltage output, the following connections apply:

- NO Outputs voltage when the zone relay is active
- C Always outputs voltage, regardless of relay condition
- NC Outputs voltage when the zone relay is inactive
- COM This terminal is the DC common associated with the output



1.6 FACP INPUT

Each APD8(F) has two FAI inputs, one which accepts a voltage input, and one that accepts a dry contact input. Consult the appropriate section below for Terminal Connections for the type of connection being used. See Appendix C for more information and specific wiring diagrams for the FACP Input.

1.6.1 Voltage FACP Input

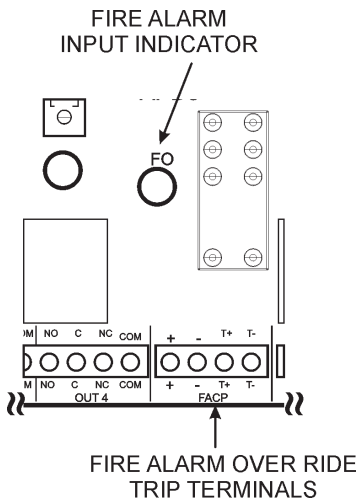
- FACP + FACP Input Positive
- FACP - FACP Input Common

1.6.2 Dry Contact FACP Input

- FACP T+ One leg of the FACP Dry Contact Input (This terminal is positive with respect to DC Common)
- FACP T- The other leg of the FACP Dry Contact Input

1.7 FACP AUX OUTPUT

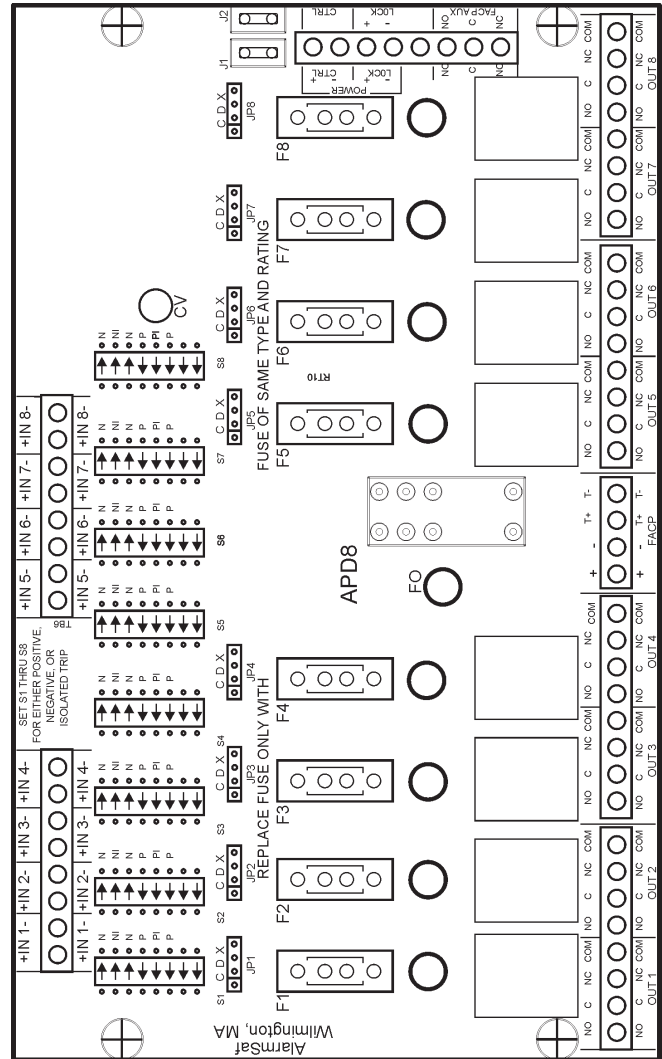
The FACP AUX output is a relay output which follows the FACP Input state. Typically, this output is used to activate the FACP Input on additional APD8(F) boards. See Appendix C and Appendix D for wiring details.



1.8 FUSING

The RM-APD16F uses 16 replacable fuses - one for each output zone. When replacing these fuses, only the equivalent type and rating are to be used. The RM-APD16F utilizes commonly available automotive blade-type fuses (Type ATC). All fuses are rated at 3A (ATC-3).

Only the RM-APD16F uses fuses. The RM-APD16 uses output PTCs.



SECTION 2: WIRING

All terminal blocks are located on the rear of the rack mount chassis to facilitate wiring.

2.1.1 Wire Routing

All wiring must be installed in accordance with NFPA70, NFPA72, and all local code requirements.

2.1.2 Control and Lock Power Inputs

Locate the power input terminal block on the rear of the rack mount chassis (TB7) and remove the terminal block from the header. Connect one or both power inputs as appropriate for the settings of J1 and J2 (See Sections 1.3 and 3.1). Power input wiring should be sized appropriately for the total current draw from the outputs of the RM-APD16(F). See Section 1.3 for details. Replace the terminal block on the header.

2.1.3 Zone Input Wiring

Locate the terminal block for the zone input to be wired on the rear of the rack mount chassis and remove the terminal block from the header. Connect the input in the manner appropriate for the type of input signal being applied. See section 1.4 and Appendix A for more information. Replace the terminal block on the header.

2.1.4 Zone Output Wiring

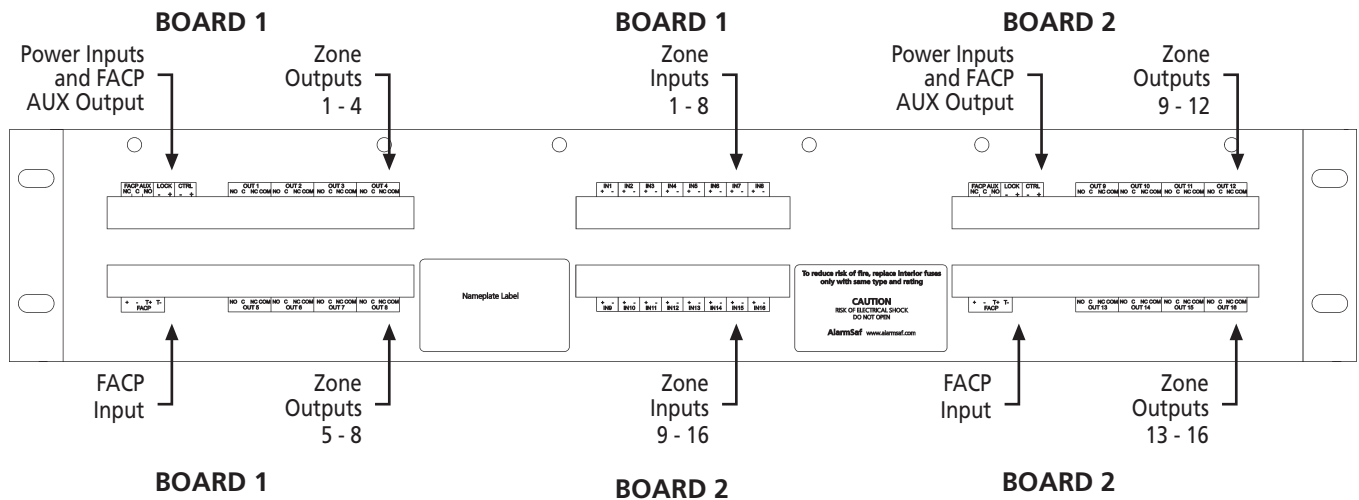
Locate the terminal block for the zone output to be wired on the rear of the rack mount chassis and remove the terminal block from the header. Connect the output in the manner appropriate for the application. See section 1.5 and Appendix B for more information. Zone Output wiring should be sized appropriately for the total current draw from the output. Replace the terminal block on the header and tighten the locking screws.

2.1.5 FACP Input

Locate the FACP Input terminal block on the rear of the rack mount chassis (TB8) and remove the terminal block from the header. Connect the proper input in the manner appropriate for the type of input signal being applied. See Section 1.6 and Appendix C for more information. Replace the terminal block on the header and tighten the locking screws.

2.1.6 FACP AUX Output

Locate the FACP AUX Output terminal block on the rear of the rack mount chassis (TB7) and remove the terminal block from the header. Connect the FACP AUX Output as needed. See Section 1.7, Appendix C, and Appendix D for more information. Replace the terminal block on the header and tighten the locking screws.



SECTION 3: OPERATING THE RM-APD16(F)

3.1 POWER SEPARATION JUMPER SETTINGS

The RM-APD16(F) gives the installer the ability to electrically isolate the Control power from the Zone Output power. This can be helpful in installations where noise-sensitive devices would be affected by lock noise.

To isolate the LOCK power input from the CTRL power input, jumpers J1 and J2 must BOTH be removed.

Note: *If J1 and J2 are out, BOTH power inputs must be wired to a power source. If J1 and J2 are in place, either the control input or the power input may be used.*

Note: *If J1 and/or J2 are missing, the control power and lock power inputs can be connected together with wire jumpers if power isolation is not required.*

3.2 ZONE INPUT CONFIGURATION SWITCH SETTINGS

Each zone of the APD8(F) has a set of DIP switches associated with its input. These switches configure the zone input for use with a variety of signal types, however three basic configurations will cover a majority of applications. See Appendix A for information on configuring additional input types.

Note: *Only switches 1 through 6 are used for each input - switches 7 & 8 are unused.*

Note: *The factory configuration of these switches (Negative Trip Mode) should work for most applications.*

3.2.1 Negative Trip Mode (Factory Default)

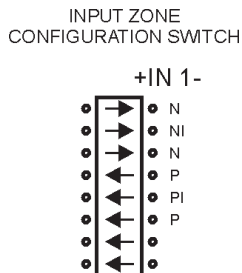
Negative Trip Mode will cover applications including Dry Contact (NO or NC) and Open Collector (including Casi-Rusco). To set the APD8(F) for Negative Trip Mode, Switches 1, 2, and 3 should be ON (Closed), and all other switches should be OFF (Open).

3.2.2 Positive Trip Mode

Positive Trip Mode covers applications where a positive voltage is applied to the input for activation. To set the APD8(F) for Positive Trip Mode, Switches 4, 5, and 6 should be ON (Closed), and all other switches should be OFF (Open).

3.2.3 External 12VDC Trip (Isolated)

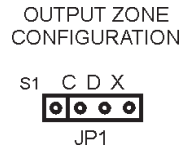
External Trip Mode covers applications with a completely isolated 12V source as an activation source. The source may or may not be common-grounded with the rest of the system. To set the 8-APD8(F) for External Trip Mode, Switches 2 and 5 should be ON (Closed), and all other switches should be OFF (Open). See chart in Appendix A.



3.3 OUTPUT CONFIGURATION JUMPER SETTINGS

Each Zone Output has a configuration jumper which must be set for one of three modes for proper operation.

- 'C' Position - The output is 'C'onstant, regardless of the FACP input. Only the Zone Input can change the state of the output.
- 'D' Position - The output will 'D'rop power when a valid FACP input is received, regardless of the state of the Zone Input.
- 'X' Position - The output is set as a dry contact output.



3.4 VISUAL INDICATORS

The RM-APD16(F) contains ten visual status indicators as described below.

LED	Description	Color	Conditions
CV (D33)	Control Voltage	Green	Lights when the internal power source is present.
FO (D1)	Fire Override	Green	Lights when there is no FACP input present.
(D10-D17)	Zone Relay	Red	Each LED lights when its associated Zone Output relay is powered.

3.4.1 CV (D33)

This LED lights when the RM-APD16(F)'s internal power source is operating properly.

3.4.2 FO (D1)

This LED illuminates when there is not a valid FACP signal being received. This LED extinguishes when an FACP signal is received and output power is dropped to zones set for 'D'.

3.4.3 Zone Output Relay LEDs (D10-D17)

Each Zone Output relay has an associated LED which lights when the relay is activated.

APPENDIX A: CONFIGURING THE ZONE INPUTS FOR ANY APPLICATION

Each zone of the RM-APD16(F) has a set of DIP switches associated with its input. These switches configure the zone input for use with a variety of signal types, including:

- Normally Open Dry Contact - Positive Switching
- Normally Closed Dry Contact - Positive Switching
- Normally Open Dry Contact - Negative Switching
- Normally Closed Dry Contact - Negative Switching

- Non-Isolated Negative Trip
- Non-Isolated Positive Trip
- Isolated Voltage Trip
- Open Collector Input

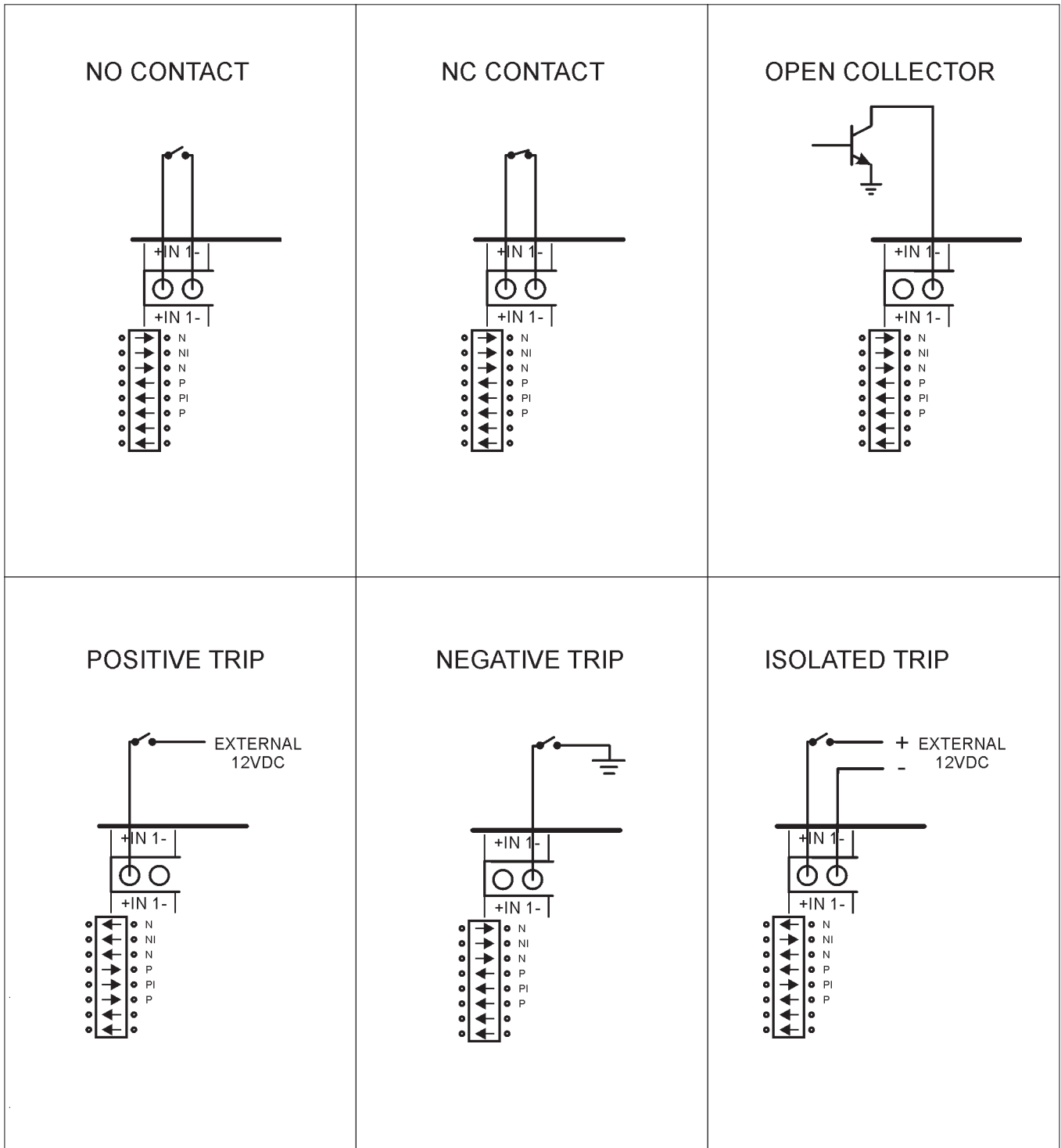
Note: Only switches one through 6 are used for each input - switches 7 & 8 are unused

	NO Dry Contact Positive	NO Dry Contact Negative	NC Dry Contact Positive	NC Dry Contact Negative	Non Isolated Negative Trip	Non Isolated Positive Trip	Isolated Voltage Trip	Open Collector Input
Switch 1	Off (Open)	On (Closed)	Off (Open)	On (Closed)	On (Closed)	Off (Open)	Off (Open)	On (Closed)
Switch 2	Off (Open)	On (Closed)	Off (Open)	On (Closed)	On (Closed)	Off (Open)	On (Closed)	On (Closed)
Switch 3	Off (Open)	On (Closed)	Off (Open)	On (Closed)	On (Closed)	Off (Open)	Off (Open)	On (Closed)
Switch 4	On (Closed)	Off (Open)	On (Closed)	Off (Open)	Off (Open)	On (Closed)	Off (Open)	Off (Open)
Switch 5	On (Closed)	Off (Open)	On (Closed)	Off (Open)	Off (Open)	On (Closed)	On (Closed)	Off (Open)
Switch 6	On (Closed)	Off (Open)	On (Closed)	Off (Open)	Off (Open)	On (Closed)	Off (Open)	Off (Open)

- NO Dry Contact Positive - This configuration will activate the zone's output relay when the normally open contact connected to the input closes. The NO contact is in series with the positive leg of the internal zone output relay coil.
- NO Dry Contact Negative - This configuration operates the same as the NO Dry Contact Positive configuration, except that the NO contact is in series with the ground side of the internal zone output relay coil. This is the most common configuration.
- NC Dry Contact Positive - This configuration holds the zone output relay active. The zone output relay deactivates when the NC contact opens. The NC contact is in series with the positive leg of the internal zone output relay coil.
- NC Dry Contact Negative - This configuration operates the same as the NC Dry Contact Positive configuration, except that the NC contact is in series with the ground side of the internal zone output relay coil.
- Non-Isolated Negative Trip - The positive source for the zone output relay coil is provided internally. A DC common connected to the input's '-' terminal will activate the zone output relay. No

connection is required to the input's '+' terminal. The DC common used to activate the zone must be common grounded with the control power input's DC common.

- Non-Isolated Positive Trip - The DC common for the zone output relay coil is provided internally. A positive 12VDC voltage connected to the input's '+' terminal will activate the zone output relay. No connection is required to the input's '-' terminal. The positive voltage used to activate the zone must be common grounded with the control power input's DC common. Do not use a 24V source to activate the input or damage to the zone output relay will occur.
- Isolated Voltage Trip - Connection of a 12VDC source across the input's '+' and '-' terminals will activate the zone output relay. When used in this mode, the zone input is completely isolated from the control power input and the lock power input. Do not use a 24V source to activate the input or damage to the zone output relay will occur.
- Open Collector Input - This configuration is identical to the NO Dry Contact Negative configuration, except that the dry contact is replaced with the open collector output.



APPENDIX B: USING THE ZONE OUTPUTS

The RM-APD16(F)'s outputs can be used in a variety of configurations, allowing flexibility and compatibility with virtually any application. Each output can individually be set up for disconnect on FAI, no action on FAI, or Dry Contact Output (no action on FAI) by setting the Zone Output Configuration jumpers for each zone (See Section 3.3). In addition to the jumper settings, each output may be wired in a variety of configurations to suit the required application.

■ **Dry Contact Output - 'X'** - When the zone output configuration jumper is set in the 'X' position, the zone output is disconnected from all voltage sources and acts as a dry contact output. The C, NC, and NO terminals act as a normal relay which is controlled by the zone's input terminals. The terminal labelled 'COM' is connected internally to the DC common of the Lock Power Input. When used as a dry contact output, the rating of the output is 3A.

Note: When configured as a dry contact output, the zone output protection (fuse / PTC) is not in the output circuit.

Note: The FACP input has no effect on a dry contact output.

■ **Voltage Output - Constant - 'C'** - When the zone output configuration jumper is set in the 'C' position, the zone output will supply the voltage applied to the Lock Power Input. Internally, the

Lock Input voltage is connected to the zone output relay's C terminal. Depending on the state of the zone output relay, the voltage is output via the NC or NO terminal as follows:

■ NO - Voltage is output on this terminal when the zone output relay is activated

■ C - Voltage is always present on this terminal, regardless of the state of the zone output relay

■ NC - Voltage is output on this terminal when the zone output relay is NOT active

■ COM - This terminal is the DC common ('-') for the zone output. It is connected internally to the Lock Input '-' terminal.

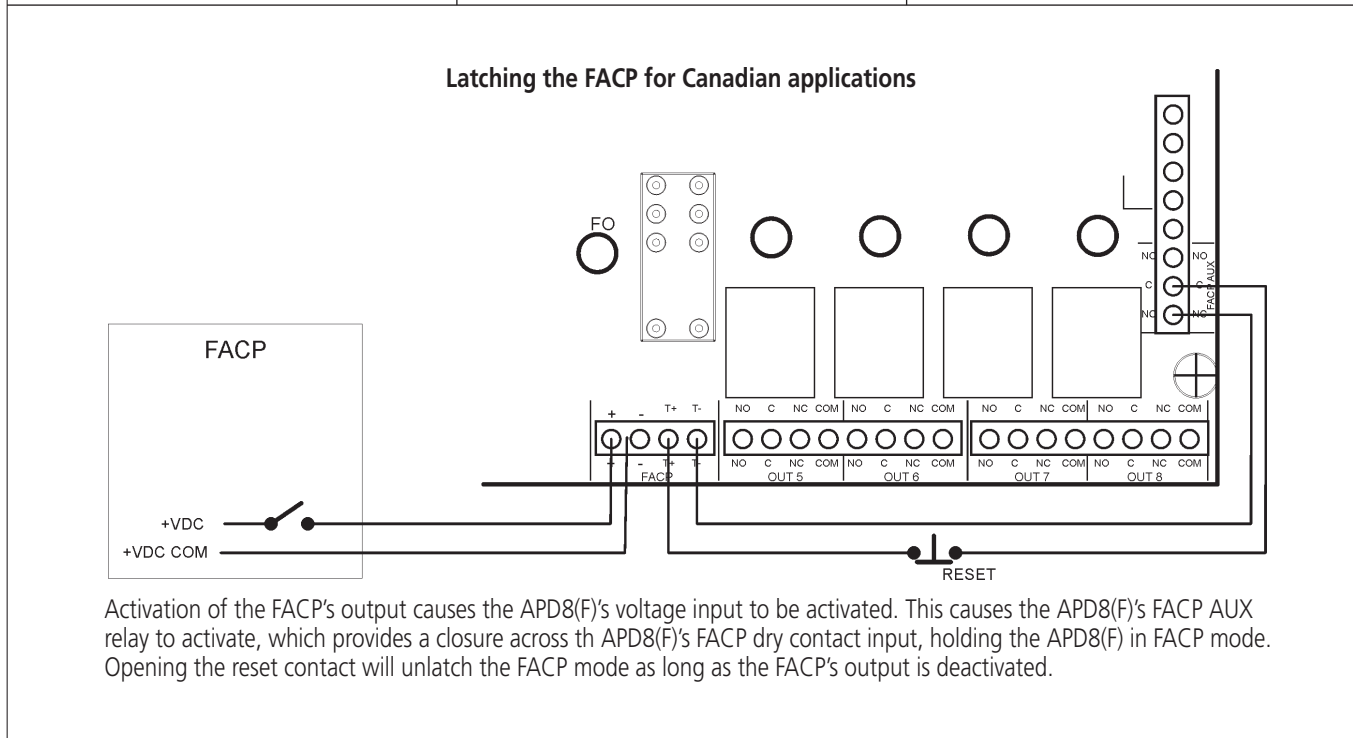
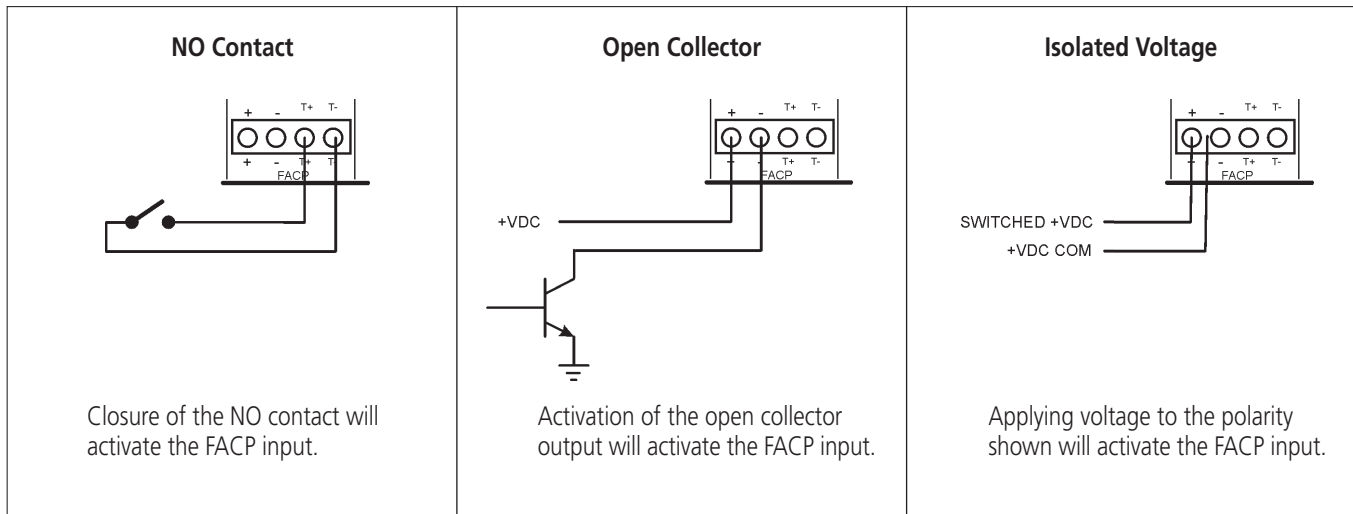
Note: The FACP input has no effect on an output whose zone output configuration jumper is set for 'C'.

■ **Voltage Output - Disconnect - 'D'** - When the zone output configuration jumper is set in the 'D' position, the zone output will function exactly the same as when it is set for 'C', with the exception that power will be removed from the NO, C, and NC terminals when a valid input is received at the FACP input.

APPENDIX C: USING THE FACP INPUT AND FACP AUX OUTPUT TERMINALS

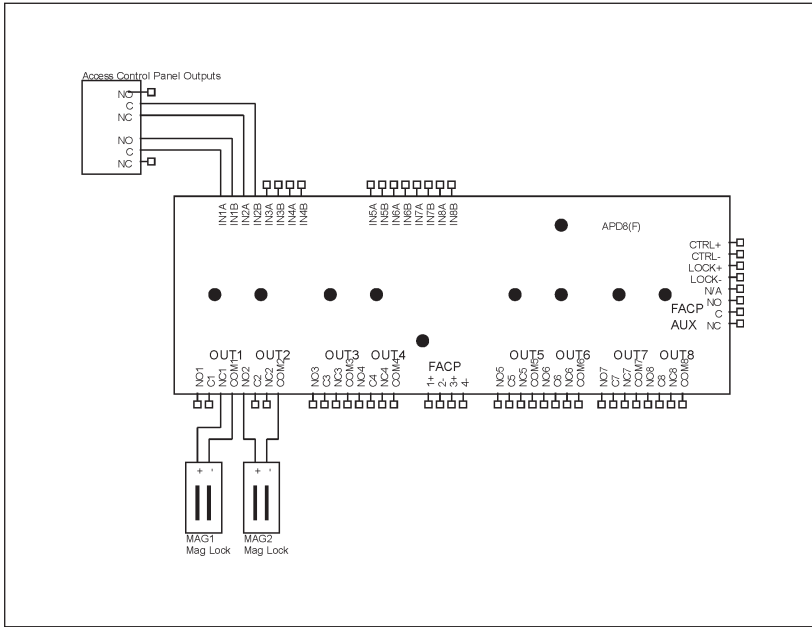
Each APD8(F) has two FACP inputs which can be used to drop power to selected outputs when activated. One of the FACP inputs is for connection to a voltage source trip, while the other is for connection to a NO contact trip or open collector trip. See Section 1.6 for more information. The FACP voltage input incorporates an on-board blocking diode for connection to a polarity-reversing source.

The FACP AUX relay output follows the FACP input and can be used to activate additional APD8(F) FACP inputs, to latch the FACP input on, or for other functions. See Section 1.7 and Appendix D for more information.



APPENDIX D: SAMPLE APPLICATIONS

Using a NO or NC contact to control a maglock

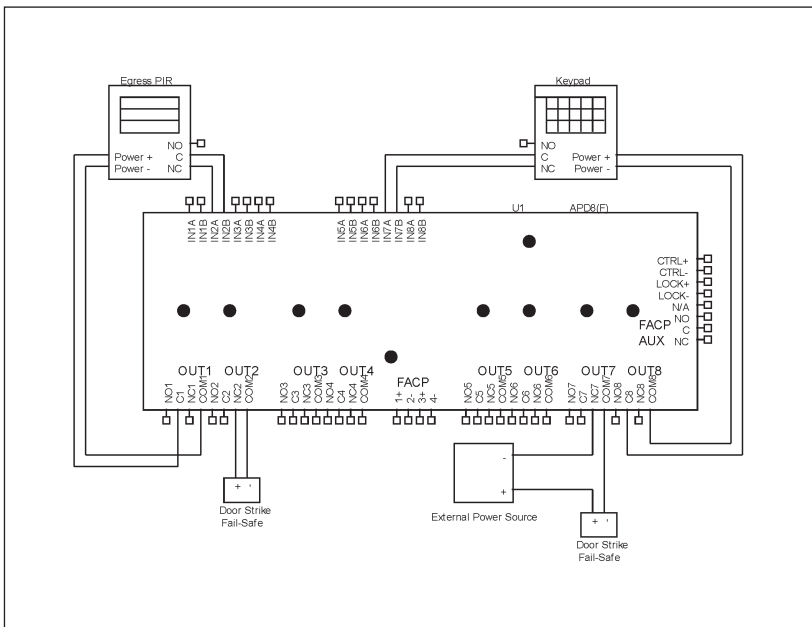


Zone 1 is configured to maintain power to a maglock. Release is by closure of the access control panel's NO relay contact, activating the Zone Output relay.

Zone 2 is also configured to maintain power to a maglock. Release is by the opening of the access control panel's NC relay contact, deactivating the Zone Output relay.

Setting the Zone Output Configuration jumper to the 'D' position will also allow the FACP input to release the outputs when used for egress.

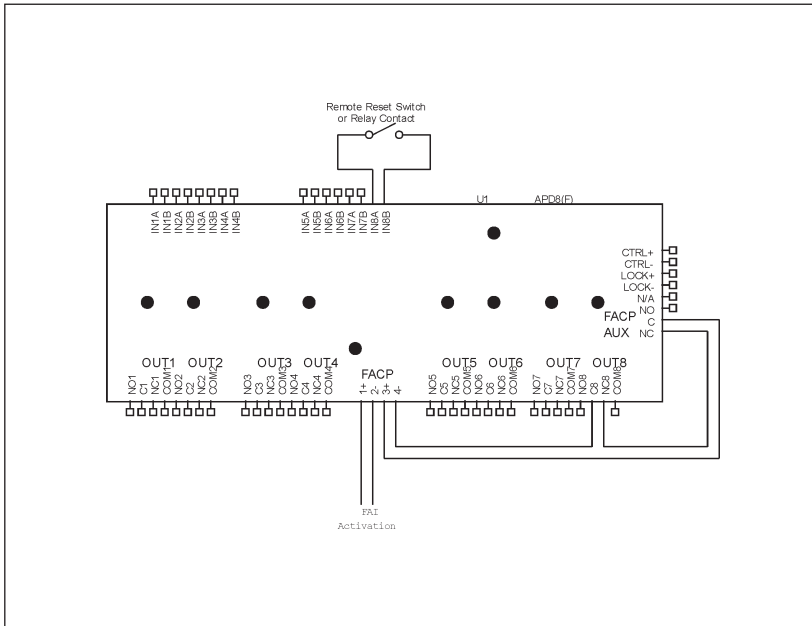
Using an output as a constant power source



Zone 2 is connected to release a doorstrike when an egress PIR sees a valid target. Zone 1 provides constant power to the egress PIR through the eCi terminal. The Zone Input is set for NC Dry Contact Negative (See Appendix A) and the Zone Output Configuration jumper is set for 'C', since fire override is not required for a failsafe doorstrike.

Output 7 is used to control a doorstrike powered from an external power source on command by the keypad connected to Zone Input 7 and powered by Zone Output 8. The Zone Output Configuration jumper is set for 'X', for a dry contact output.

Latching FAI input with remote / flexible reset

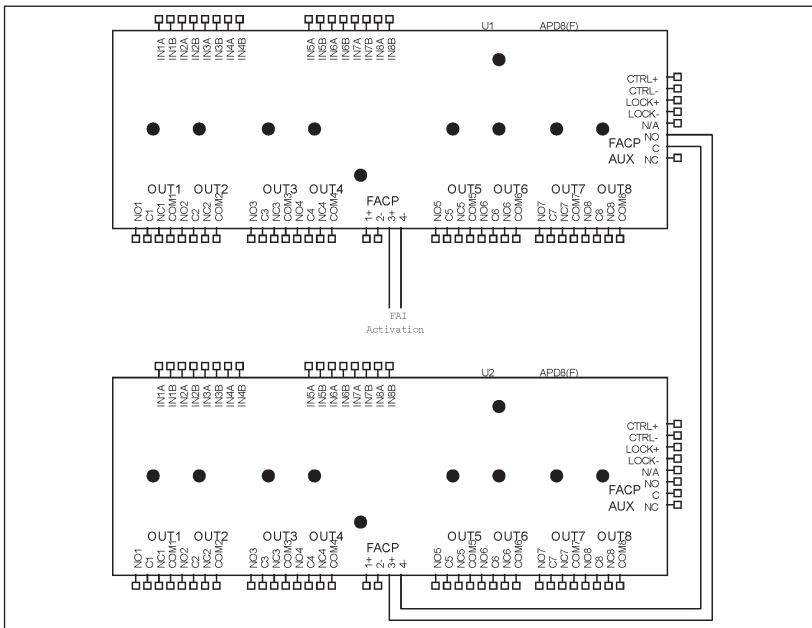


In this application, FAI latch release is provided via Zone Input 8. Configuring the Fire Override in this manner is preferred in installations where the reset switch is located far away from the RM-APD16(F).

This configuration also allows any type of input source to reset the FAI latch, including, NC contact, NO contact, open collector, and voltage source.

The zone input should be configured along with the zone output for the type of input being used (See Appendix A).

Daisy chaining FACP inputs between multiple APD8(F) boards

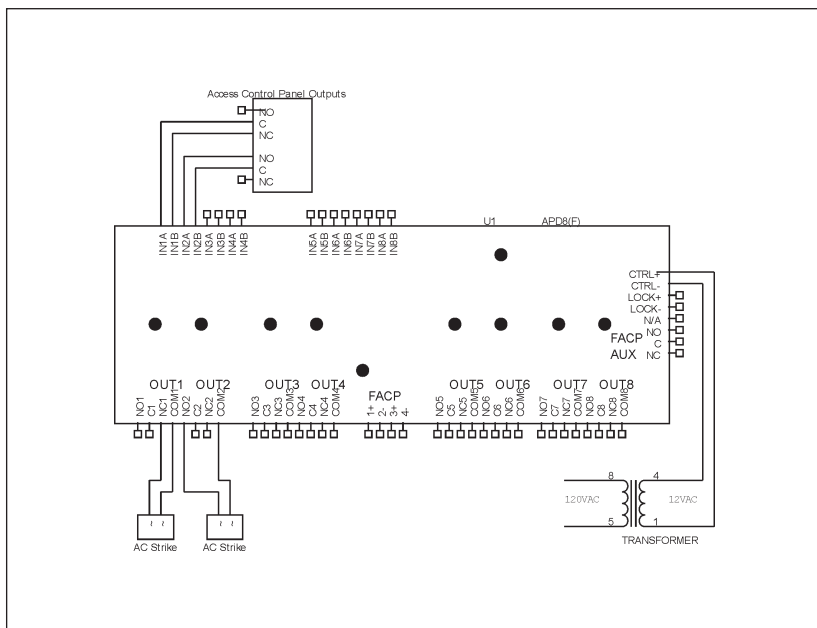


Activating the FACP input of the top APD8(F) transfers its FACP AUX output. These contacts then activate the FACP dry contact input of the bottom APD8(F).

Any valid FACP Input activation method can be used on the top APD8(F). See Appendix C for more information.

If there are more than two APD8(F) boards which need to activate on FAI, the FACP AUX output of the second APD8(F) board would be connected to the next APD8(F)'s FACP dry contact input. This can be repeated for as many APD8(F) boards as necessary.

Powering and controlling AC devices



A little known application for the APD8(F) is for powering and controlling AC devices. This application shows an APD8(F) controlling two AC strikes in an apartment complex. Zone 1's input is configured to accept a NC contact, while Zone 2's input is configured for a NO contact. Note the different output wiring for each application.

If the strikes are not failsafe, the FACP input may be used with a zone output configuration jumper setting of 'D'.

Also note that the APD8(F) has an internal rectifier and regulator for its own relay power, eliminating the need for a separate DC power source for powering the APD8(F).

TROUBLESHOOTING

CONDITION	POSSIBLE CAUSE	SOLUTION
No power on output(s)	J1 and J2 set incorrectly	See Section 3.1
	No power input	Verify power is present on the power input terminals. If J1 and J2 are removed, BOTH power inputs must be powered.
	Zone Input in the wrong state	Verify the input is configured properly
	Zone Output wired incorrectly	Verify the output is configured properly
	Output Configuration Jumper set incorrectly	See Section 3.3
	Blown Fuse / Tripped PTC	Verify output integrity and replace fuse, or remove output load to reset PTC.
	FACP Input active	Verify that the FACP input is not activated.
	Other Problem	Contact AlarmSaf
Output not dropping on a FACP input	Output Configuration Jumper set incorrectly	See Section 3.3
	FACP Input wired incorrectly	Verify the FACP Input configuration
	Zone Output wired incorrectly	Verify the Zone Output wiring

CAD DRAWING

