

Installation Guide

1.0 Notice

- These instructions are for the installation of the D328A Addressable Relay Module in an analog system controlled by a Fire Alarm Control Panel (FACP) using advanced digital communications protocol. The D328A provides two Form "C" dry relay contacts for general purpose control functions at one address point. They allow the panel to supervise its circuits for contact closure, contact opening, or fault. The D328A is compatible with the D8024, D9024, D10024 Radionics Analog Fire Alarm Control Panels (FACP).
- Installing the D328A in an analog system consists of:
 - Addressing the Device.
 - Wiring the Module to the FACP.
 - Wiring the Device to the Module.
 - Installing the Module in a Back Box.



These instructions detail procedures to follow in order to avoid personal injury and damage to equipment.

2.0 Installation Standards

- Install, test, and maintain this device according to these instructions, NFPA 72, Local Codes and the Authority Having Jurisdiction. Failure to follow these instructions may result in failure of the device to initiate a proper response. Radionics is not responsible for improperly installed, tested or maintained devices.

3.0 Addressable Relay Module

Table 1: D328A Specifications

Model #	Description	Voltage Range	Idle Current	Polling Current	Alarm Current	Relay Contact Ratings
D328A	Addressable Relay Module	17 - 41VDC, 24VDC Nominal	100 μ A	22mA \pm 20%	150 μ A	2A, 30VDC

4.0 LED Functions

- The D328A has an LED that flashes green when the module is active, indicating that the D328A has been correctly programmed and learned into the system. When the device is polled, the LED flashes once every 18 seconds. Both sets of contacts operate in tandem during activation.

5.0 Device Descriptions

- The D328A Addressable Relay Module provides a connection point for auxiliary system controls, such as elevator recall systems or HVAC shutdown. The D328A can be programmed to activate during a variety of system conditions: alarm, trouble and event. An LED confirms polling response and activation status. The LED flashes green to indicate a normal polling response, and flashes red to indicate activation.

6.0 Addressing the Device



The device must be set before the cover plate is attached. When using the back box enclosure, the address must be set before the module is placed in the enclosure.

- Each detector device or module in an analog system has a specific address that is set by programming an EEPROM microchip. Each polling circuit can support up to 126 address points. It is not necessary to wire the devices in any particular order in the circuit.

6.1 Using the D5070 Analog Device Programmer



The D5070 Analog Device Programmer must be used when programming addresses on the D328A. Make sure the battery is connected prior to programming.

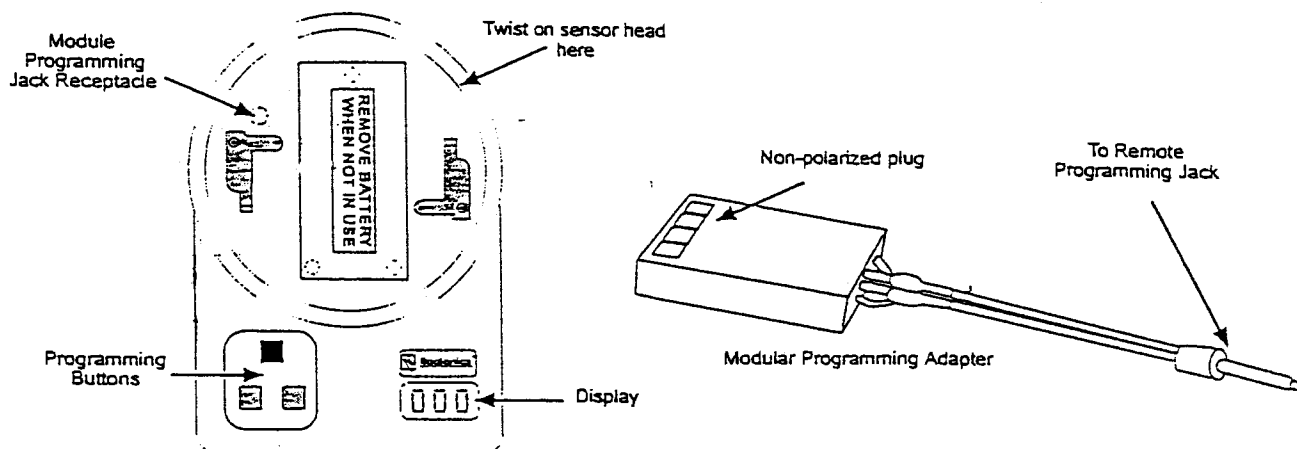


Figure 1: D5070 Analog Device Programmer

D5070 Programming Buttons

- See Table 2 for a description of the three programming buttons on the D5070 Analog Device Programmer.

Table 2: D5070 Programming Buttons

Programming Button	Description
Left Gray Button	Power On. Automatically reads the address of a sensor. Subsequent operations will advance by ten.
Right Gray Button	Power Off. Advances the device address by one.
Red Button	Stores the displayed address to the device, and is used to read analog levels.



Polarity must be observed for proper address setting.

Setting the Address

- The following steps explain how to set an address using the D5070 Analog Device Programmer. See Figures 1 and 2 for more details.
 - To program an address on the D328A, insert the non-polarized plug on the Programming Adapter onto the address setting pins on the D328A module. Plug the remote programming jack on the Programming Adapter into the remote programming jack receptacle on the D5070 Analog Device Programmer (see Figure 2).
 - Press the left gray button to turn the D5070 on. A battery check message will appear followed by the device's address.
 - Set the required address by pressing the left and right gray buttons until the desired address is reached (the display will show three red flashing dots if the address being programmed is different than the device's current address).
 - When the desired address is displayed, press the red button to program that address. The three red dots on the display will no longer be present.

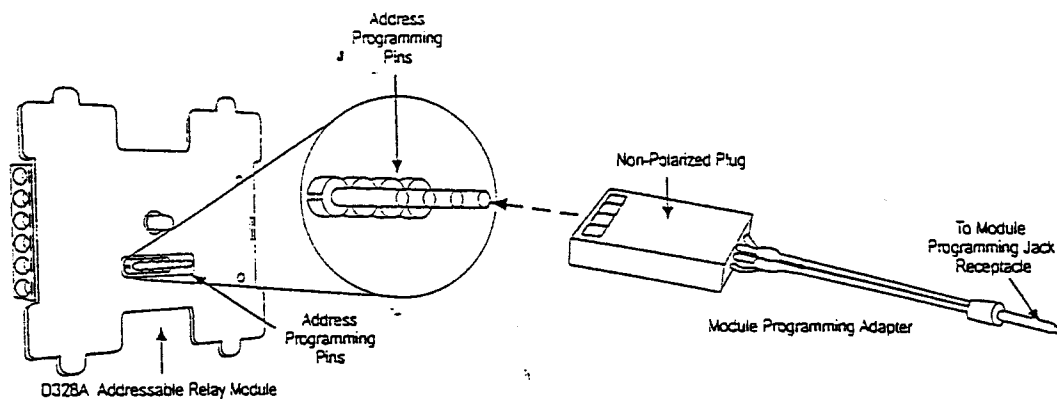


Figure 2: D328A Programming Connections

Reading Analog Value

- Install the D328A to the D5070 and power up as previously described. Press the red button. An "A" will appear on the display followed by the analog value. This value will be continuously updated for 3 minutes or until the unit is turned off.

Table 3: Address Information Data Table

Device	Standard Pre-Alarm Threshold	Standard Fire Threshold	Just Calibrated	Range	Normal Reading	Fault Input	Fire
D322A Heat Detector	113°F (45°C)	142°F (61°C)		136°F - 149°F (58°C - 65°C)			
D323A Photoelectric Detector	2.5 %	3%	.1%	.5% - 4%			
D324A Ion Detector	1%	1%	1%	N/A			
D325A Manual Station					16		64
D326A Point Contact Module					16	44	64
D327A NAC Output Module					16	44	
D328A Addressable Relay Module					16		
D334A Point Contact Module					16	44	64
D339A Point Contact Module					16	44	64

Display Messages

- See Table 4 for a description of the display messages that may appear on the D5070 Analog Device Programmer.

Table 4: Display Message Descriptions

Display Message	Description
bat	Battery Check. Displayed upon power up, and when the battery is low. A low battery is good for up to 3,000 address setting operations.
E0	Addresses past 127 will not be recognized by the panel.
E1	Attempting to program an address with no device connected.
E2	Cannot find the device after power up or replace device..
E3	Replace detector.
E4	Cannot find the device to program.
E5	Device read error.
E6	Replace detector.

7.0 Wiring the Module to the FACP

- Analog Polling Circuits connect to the FACP over two-wire cable. Advanced analog transmission protocol resists interference from most types of EMI and RF generated noise, and no special wiring requirements are required other than attention to wire gauge. Under extremely noisy conditions, use twisted pair wire to reduce interference.
- If EMI is a problem, use shielded cable, being careful to ground the drain wire to the "E" terminal on the FACP Control Module. See the Control Panel Installation Guide for details.

7.1 Circuit Configuration

- Polling circuits connect to the FACP in either a Class "A" or a Class "B" circuit. "T" tapping is acceptable in Class "B" circuits. For specific Class "A" and "B" circuit installation requirements, see NFPA 72.
- See the Installation Instruction for the FACP for instruction on connecting the polling circuit to the panel.



Remove AC and standby power from the FACP before connecting or disconnecting any devices.

7.2 Device to Circuit Wiring

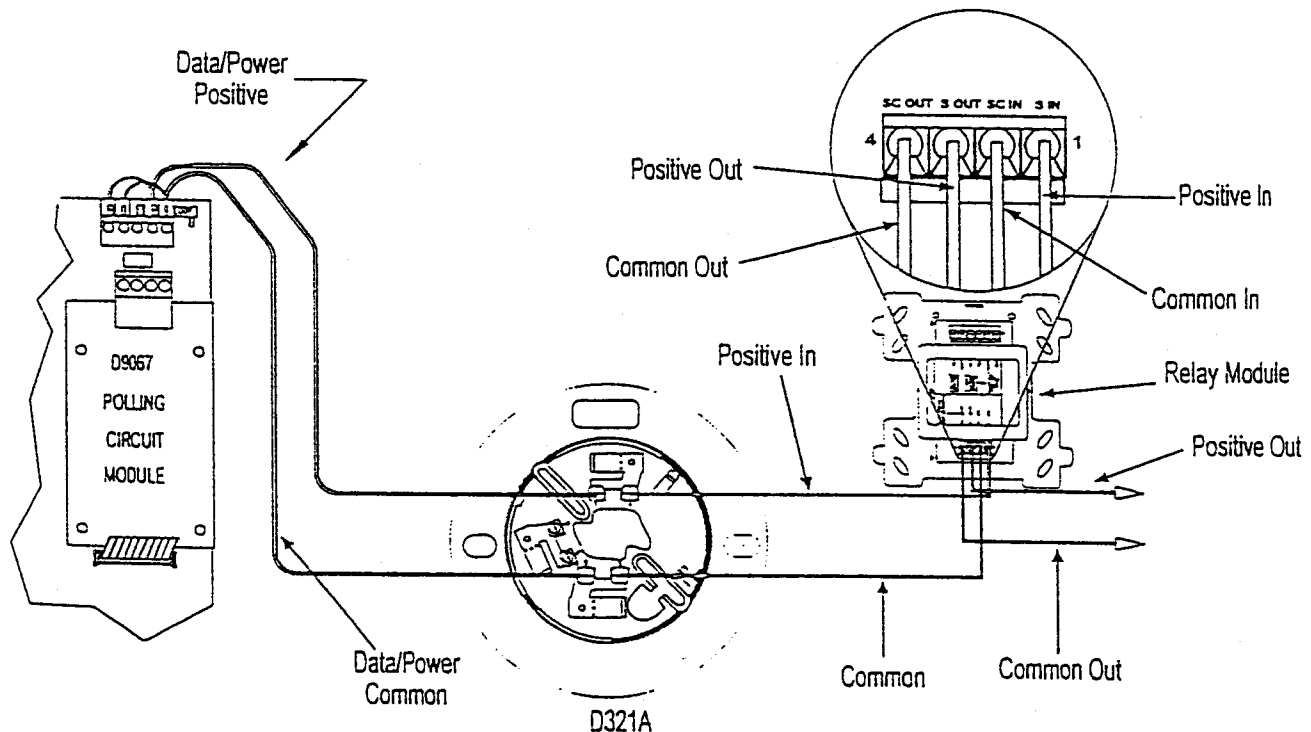


Figure 3: NAC Module-to-Circuit Wiring

- Wire the D328A in the polling circuit by connecting the Data/Power Positive (+) and Data/Power Common (-) terminals as shown in Figure 3.



Inform the operator and the local authority before installing this module in an existing system. Disconnect all power to the FACP before installing this module.

7.3 Circuit Length

- Data Circuit Length is the distance over the circuit wire from the connection at the FACP to the most distant device and back to the FACP. Data Circuit Length must include the distance to any device connected to the circuit in a "T" tap. The screw terminals will accept 14 AWG (1.5 mm), but this will reduce the allowable length of circuit.

Table 4: Circuit Length/Wire Gauge

Polling Circuit Length	Wire Gauge
Up to 4,500 ft (1,219 m)	18 (1.1 mm)
7,200 ft (2,195 m)	16 (1.3 mm)
Up to 6,800 ft (2,073 m)	14 (1.5 mm)

7.4 Shielded Cable

- If shielded cable is used, and the cable is of good quality, then it should not have a significant effect on the polling circuit length. Good quality shielded cable will allow 1µd of capacitance, 1mH of inductance and 50 ohms resistance.
- Connect the drain wire for shielded cable to the E terminal of the Data Terminal Block at the FACP. See Figure 4.



Unless shielded cable is properly grounded, it may aggravate rather than eliminate noise problems. The shield must be reconnected each time the cable is cut to install a device.

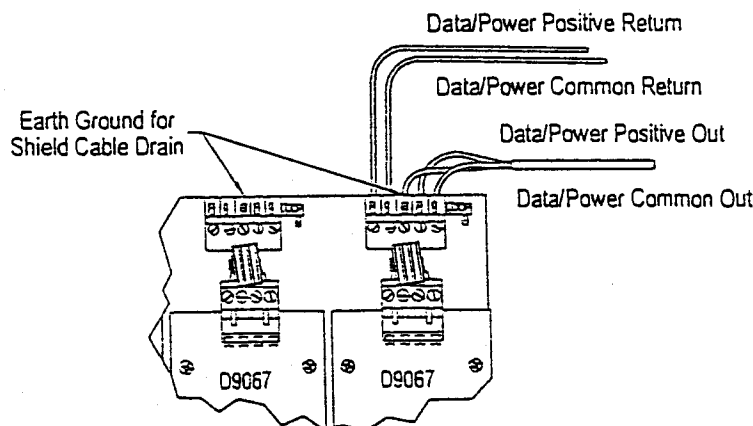


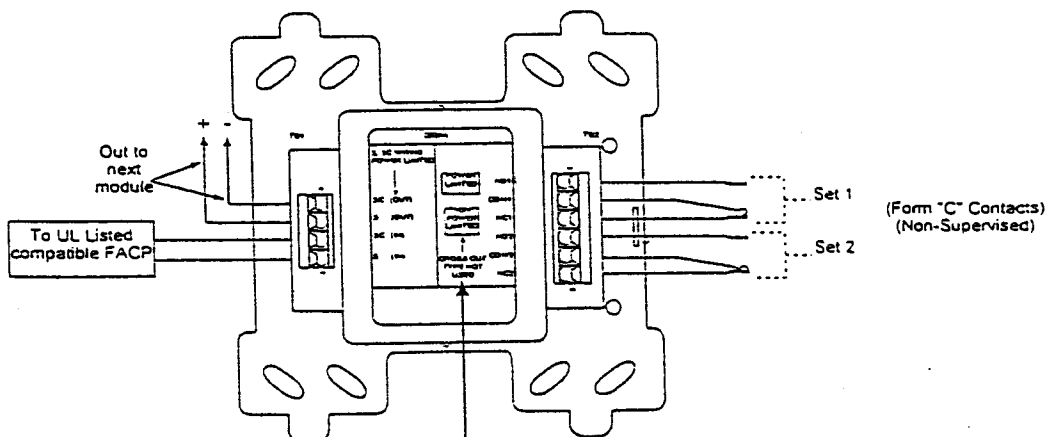
Figure 4: "E" Terminal Location

8.0 Wiring Devices to the Relay Module

- The D328A Addressable Relay Module has connection points on Terminal Block Two (TB2) for Form "C" relay contacts as shown in Figure 5.



Use only FPL, FPLR or FPLP wiring in accordance with Article 760 of the National Electric Code.



When using either power limited or non-power limited inputs, cross out the type not connected to the two sets of Form "C" contacts with a permanent mark.

Figure 5: Form "C" Relay Contact Connections

8.1 Form "C" Relay Connection

- Connection points NO1, COM1, NC1, NO2, COM2 and NC2 allow the connection of Form "C" relay contacts. This connection has a resistive load rating of 2 Amps at 30 V DC.



Inputs to both sets of Form "C" contacts must be either power limited or non-power limited. Do not mix power limited wiring with non-power limited wiring on Terminal Block 2.



All wiring on Terminal Block 1 is supervised and inherently power limited. All wiring shown on Terminal Block 2 is not supervised. Contacts are shown in standby mode - refer to the *Analog Fire Alarm Control Panels Programming Guide* (PIN: 38789) for proper relay operation and configuration.

9.0 Installing the D328A Addressable Relay Module in the Back Box

- The D328A module mounts on a plate that attaches to a 4-inch square electrical box at least 2-1/8" deep. A cover plate conceals the address programming pins and leaves the LED visible.
- After wiring the module to the FACP and connecting the initiating device circuitry as shown in Figure 5, attach the D328A plate to the back box as shown in Figure 6. Install the cover plate.

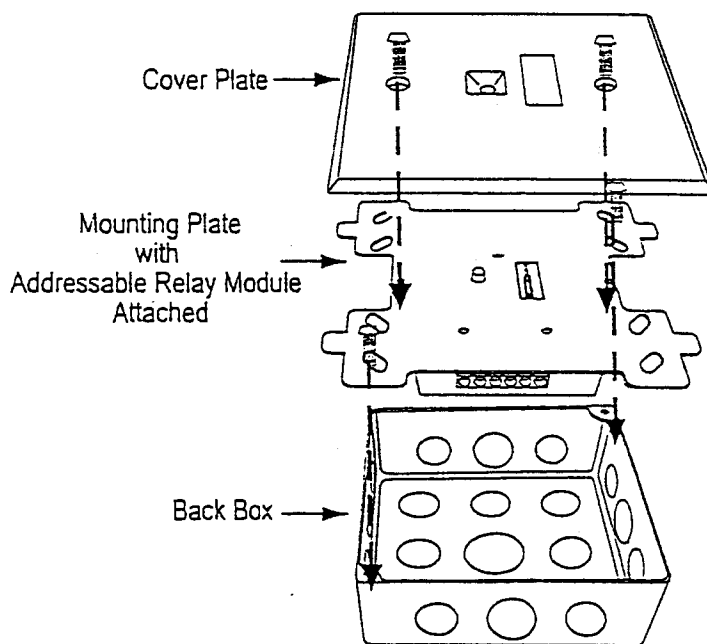


Figure 6: Typical D328A Installation



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