



Radionics®

D8024 Analog Fire Alarm Control Panel

Installation Guide

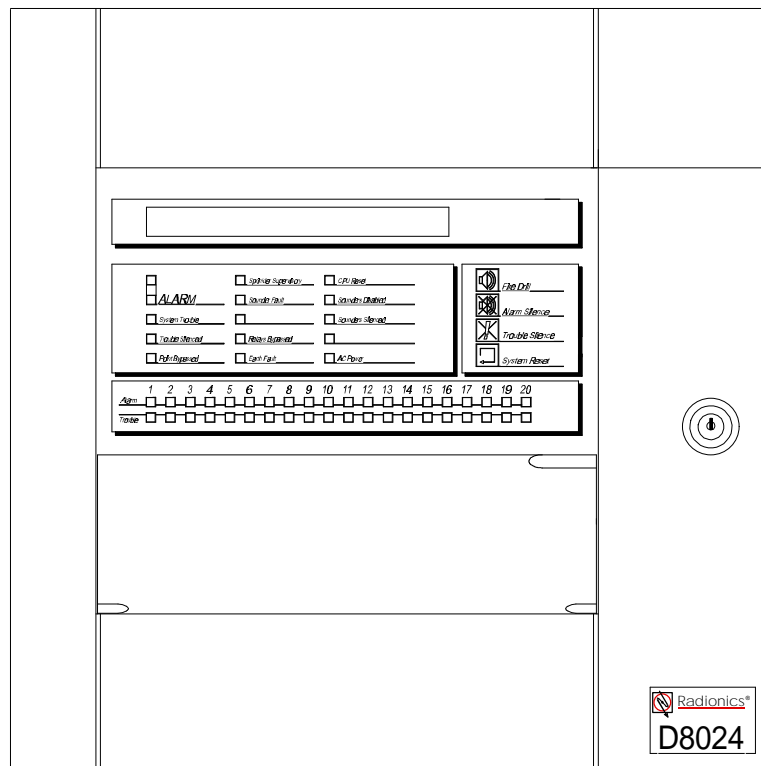


Table of Contents

1.0 Notice	3
2.0 Warnings and Cautions	3
3.0 FCC Notices	3
Part 15.....	3
4.0 UL/NFPA Notices	3
5.0 Enclosure Installation	4
6.0 Circuit Connections	4
6.1 Polling Circuit (D9067)	4
6.2 Peripheral Circuits.....	5
6.3 Notification Appliance (Indicating Device) and Output Circuit Connections.....	6
6.4 Panel Network Connections.....	6
Shared Zone Network	6
Report and Control Network.....	7
7.0 Control Panel Components	7
7.1 Control Module.....	7
Control Module/Power Supply Connection.....	8
7.2 D9067 Polling Circuit Module.....	8
D9067 Module Installation.....	8
D9067 Module Connection to the Control Module	8
D9067 Module Connection to Class “B” (Style 4) Circuit	9
D9067 Module Connection to Class “A” (Style 6) Circuit	9
Shielded Cable.....	10
7.3 D9051 RS 485 Bus Module.....	10
D9051 Module Installation.....	11
Connecting Circuit Wiring to the D9051.....	11
Peripheral Circuit Wiring (Port D).....	11
Network Circuit Wiring (Port C).....	11
7.4 D9052 RS-232 Serial Input/ Output Bus Module.....	12
D9052 Module Installation.....	13
D9052 Module Connections.....	13
7.5 D2071A Fire Control/Communicator (DACT).....	13
Mounting the D2071A	14
Wiring the D8024 to the D2071A	14
Wiring the D8024 for Sprinkler Supervision.....	14
Wiring the D2071A for Trouble Annunciation on the D8024	15
7.6 Remote Signaling with the D185 Reverse Polarity Module.....	16
8.0 Power	17
8.1 AC Power Connections	17
8.2 Standby Batteries Installation.....	18
Standby Battery Selection.....	18
Local Systems Ampere Hour Calculation Formula.....	19
Remote Station Service Ampere Hour Calculation Formula	19
Battery Wiring Connections	19
8.3 System Startup.....	20
9.0 Specifications	20

Table of Figures

Figure 1: D8024 Knockout Locations	4
Figure 2: Ground Location on Control Module	5
Figure 3: Terminal Connection Points on the D8024 Control Module	6
Figure 4: D8024 Control Module	7
Figure 5: Control Module/Power Supply Connection	8
Figure 6: D9067 Polling Circuit Module Installation	8
Figure 7: D9067 Module Installation	9
Figure 8: D9067 Class "B" (Style 4) Connection	9
Figure 9: D9067 Class "A" (Style 6) Connection	10
Figure 10: D8024 Control Module Configuration.....	10
Figure 11: D9051 Wiring Connections	11
Figure 12: D9051 Network Connections	12
Figure 13: D9052 Module Installed in Port "C"	13
Figure 14: D9052 Serial Input/Output Connections	13
Figure 15: D8024 - D2071A Wiring Connections.....	14
Figure 16: Wiring the D8024 for Sprinkler Supervision.....	15
Figure 17: Wiring the D2071A for Trouble Annunciation on the D8024.....	16
Figure 18: Remote Station Signaling	16
Figure 19: 120 V AC Input Connections.....	17
Figure 20: Standby Battery Installation	20

Table of Tables

Table 1: Polling Circuit Length/Wire Gauge.....	5
Table 2: RS-485 Peripheral Circuit Length/Wire Gauge	5
Table 3: Power Supply Connections	8
Table 4: RS 485 Peripheral Circuit Length/Wire Gauge	11
Table 5: Sprinkler Supervisory Reporting Conditions	15
Table 6: Current Rating Chart for Standby Battery Calculations.....	18
Table 7: D8024 Specifications	20

Installation Guide

1.0 Notice

- The material and instructions covered in this manual have been carefully checked for accuracy and are presumed to be reliable. However, the manufacturer assumes no responsibility for inaccuracies and reserves the right to modify and revise this document without notice.
- These instructions cover the installation of the D8024 Fire Alarm Control Panel. See the Fire Alarm Control Panel Operator's Guide for instructions on powering up and operating the system.

2.0 Warnings and Cautions



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



Any equipment installed is to be done so in accordance with the National Electrical Code, NFPA 70, the National Fire Alarm Code, NFPA 72 and in accordance with the local authority having jurisdiction.

3.0 FCC Notices

Part 15

- 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 in a commercial installation. This equipment generates, uses and can radiate radio frequency energy, and, if not installed in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:
 1. Reorient or relocate the receiving antenna.
 2. Increase the separation between the equipment and the receiver.
 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 4. Consult the dealer or an experienced radio/TV technician for help.

4.0 UL/NFPA Notices

- UL listed for NFPA 72, Local, Central Station and Remote Station.

All references to NFPA and related requirements are based upon compliance with the 1993 edition of NFPA 72, National Fire Alarm Code. Since installation specifications are nearly always based upon a specific edition of a standard which has been legally adopted by the Authority Having Jurisdiction (AHJ), earlier editions of NFPA standards will generally apply. Consult with the appropriate AHJ for confirmation.

5.0 Enclosure Installation

- Depending on the configuration and the battery selection, the Fire Alarm Control Panel (FACP) can weigh more than 40 pounds. When attaching the enclosure to a surface, use mounting hardware capable of supporting this weight, and reinforce the wall as necessary.



CAUTION

Route the 120V AC wiring into the enclosure at the upper right corner only. Keep AC wiring away from the circuit boards and all other wiring.



CAUTION

For power limited circuits, use types FPL, FPLR or FPLP cable as applicable per NEC, Article 760.

1. Remove the necessary knockouts and install conduit fittings.
2. Mount the enclosure in the desired location. Use all four mounting holes.
3. Run the necessary wiring throughout the premises and pull the wires into the enclosure. Knockouts are provided at the top of the enclosure. If you punch other holes, be sure not to let them interfere with the component mounting locations. See the Caution above.

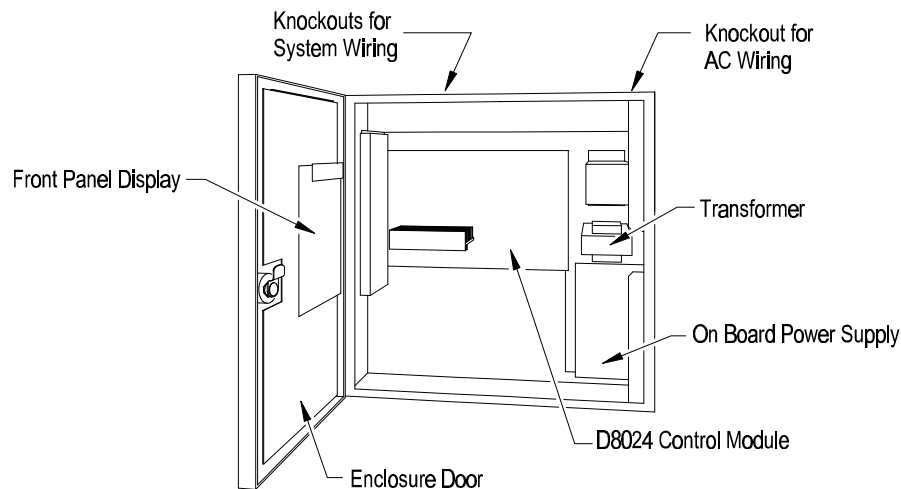


Figure 1: D8024 Knockout Locations

6.0 Circuit Connections

- The D8024 FACP is an analog system. It exchanges data and may provide power to devices over two-wire circuits.
- Data Circuit Length** is the distance over the circuit wire from the connection at the Control Module to the most distant device and back to the Control Module. Data Circuit Length must include the distance to any device connected to the circuit in a "T" tap.

6.1 Polling Circuit (D9067)

- Detection devices in the analog system receive power and communicate with the control panel over a two-wire circuit. This digital communications format resists interference from most types of EMI and RF generated noise, and there are no special wiring requirements other than attention to the wire gauge. Use shielded cable for all detection circuits. Terminate the shield to a good earth connection. Mineral insulated copper cable (MICC) provides superior screening.
- Under extremely noisy conditions, twisted pair wire is recommended to reduce interference. If EMI is a problem, use shielded cable, being careful to ground the drain wire to the earth ground terminal on the D8024 board. See Figure 2.

- Radionics recommends shielded single pair twisted cable wiring with a drain wire such as Atlas #218 or West Penn Wire/CDT #D293. West Penn Wire/CDT #D293 has a nominal capacitance of 28 pf/ft between conductors.
- Polling circuits may be wired as a Class “A” or Class “B” circuits. Radionics recommends Class “A” configuration with the wiring returning to the D9067 Polling Circuit Module. This allows the module to poll the circuit in both directions, insuring circuit operation in the event of a single break in the wiring and allowing the panel to identify the location of the break.

Table 1: Polling Circuit Length/Wire Gauge

Polling Circuit Length	Wire Gauge
Up to 4,000 ft. (1,219.2 m)	18
4,000 to 7,000 ft. (1,219.2 to 2,133.6 m)	16



IMPORTANT

The screw terminals will accept 14 AWG, but this will reduce the allowable length

- Any devices in the system that are not analog and are connected to the polling circuit must be powered from a separate pair of conductors.
- Each analog device is assigned a specific address by setting dip switches on that device. Each D9067 polling circuit can support up to 126 addresses. It is not necessary to wire devices in any particular order in a circuit.
- The system is expanded by adding D9067 Polling Circuit Modules to the Control Module. The D8024 has slots for two polling circuit modules.

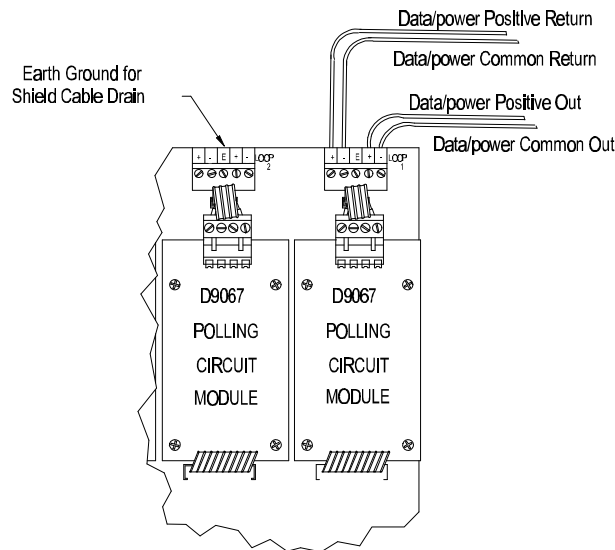


Figure 2: Ground Location on Control Module

- “T” tapping is acceptable in Class “B” circuits. For specific Class “B” circuit installation requirements, see NFPA 72.

6.2 Peripheral Circuits

- The RS-485 Bus Circuit provides an optically isolated data interface between the Control Module and Command Centers and Annunciators, networked panels, serial peripherals, and computer graphics systems. A shielded twisted pair wiring circuit connects to the D9051 RS 485 Bus Module. The two ports on the left side of the control module are mounting points, depending on the application, for the D9051 Modules.
- The D9052 RS 232 Module provides an isolated interface between the Control Module and dial-up or dedicated modems. Modems allow communication over telephone lines between networked panels, system controllers, computer graphics packages, and other serial peripherals when the circuit distance is greater than 3,250 ft. (991 m).

Table 2: RS-485 Peripheral Circuit Length/Wire Gauge

RS-485 Peripheral Circuit Length	Wire Gauge
Up to 4,920 ft. (1,499.6 m)	18

5.3 Notification Appliance (Indicating Device) and Output Circuit Connections

- The D8024 has two power-limited and supervised Class “B,” Style “W” Notification Appliance Circuits (NACs). The terminal blocks for these circuits are at the lower left edge of the Control Module. (See Figure 3.) Each notification appliance circuit must be terminated with a 2.21k ohm End Of Line (EOL) resistor (Part No. 25899C, available from Radionics). Two resistors for the indicating circuits are included in the Literature Pack. Each circuit has a maximum rating of one Amp. If the system requires more than two circuits use the D327 Indicating Circuit Module to add circuits as required.



See Compatible Device List: *Devices Compatible with the D8024, D9024, D10024 Analog Fire Alarm Control Panel, Part No. 73-07674-000-C, for devices acceptable for use in the indicating circuit.*

- The D8024 has terminals for a power-limited auxiliary 24V circuit at the lower left of the Control Module (see Figure 3). This circuit is rated at 1 Amp maximum.
- The total current of the three circuits (two “SOUNDERS” plus “AUX O/P”) must not exceed 2 Amps.
- The D8024 has two programmable relay contacts rated 24 V DC, 1 Amp each.



Do not connect any wiring that is not power-limited to the relay contacts.

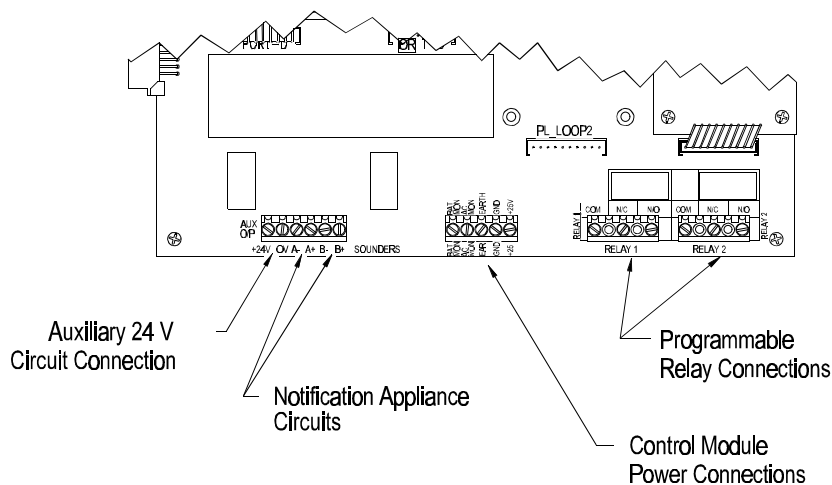


Figure 3: Terminal Connection Points on the D8024 Control Module

6.4 Panel Network Connections

- The D8024, D9024 and D10024 FACP’s can be connected in two types of configurations: the Shared Zone network in which the panels share common zones and function as one system, and the Report and Control Network in which individual panels or sub systems are networked for reporting and control purposes only. For detailed information see the Radionics Networking Guide (part # 34377).

Shared Zone Network

- A Shared Zone network is usually an installation in a single site or building. Up to four panels can be networked together with one panel designated to act as the master. The number of zones in this configuration is limited by the panel in the system with the least number of zones. Shared zone networks using the D8024 FACP are limited to 20 zones. This network acts as one large system.

Control Module/Power Supply Connection

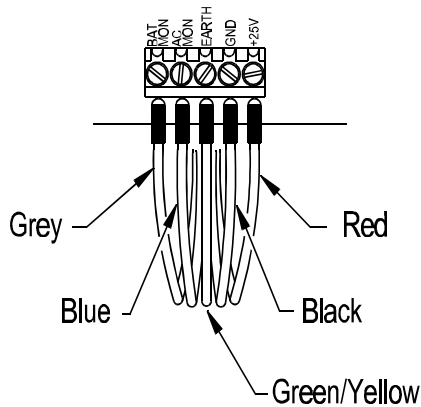


Figure 5: Control Module/Power Supply Connection

Table 3: Power Supply Connections

Power Supply Cable Color	Gray	Blue	Green/Yellow	Black	Red
Control Module Terminal	Bat Mon	AC Mon	Earth	Gnd	+25V

- Panel upgrades and modifications may require the removal of the D8024M Control Module from the panel enclosure. The correct wire connections to terminals at the lower right side of the control module are shown in Figure 5.



Disconnect all main circuit breakers and battery connections before making or breaking any connections with the control module..

7.2 D9067 Polling Circuit Module

- Analog measuring devices report to the FACP over a polling circuit that connects to a D9067 Polling Circuit Module. The D8024 has two expansion slots for the D9067 (See Figure 6).

D9067 Module Installation

- Mount the D9067 Polling Circuit Module on the Control Module using the hardware provided with the module. Begin on the right side of the board in the slot labeled PL_LOOP1. See Figure 6.

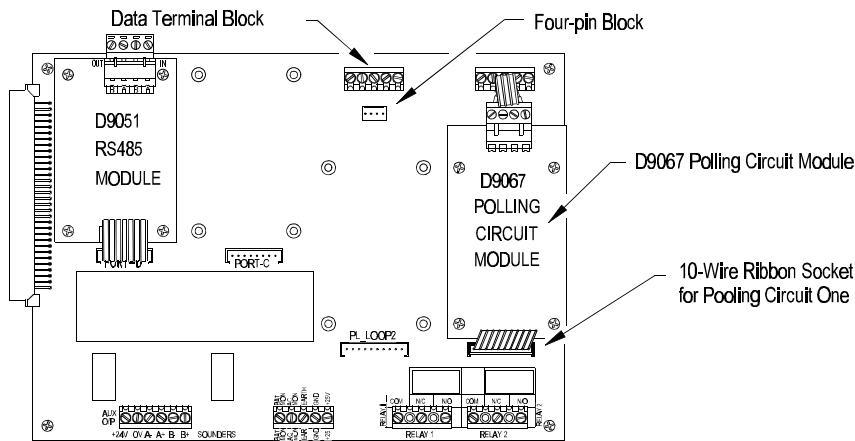


Figure 6: D9067 Polling Circuit Module Installation



Disconnect all main circuit breakers and battery connections before connecting any circuit cards.

D9067 Module Connection to the Control Module

- The D9067 10-wire ribbon connects to 10-pin plug immediately below it. The female four-wire plug at the top of the board plugs into the four-pin block below the dedicated screw terminal blocks. See Figures 6 and 7.

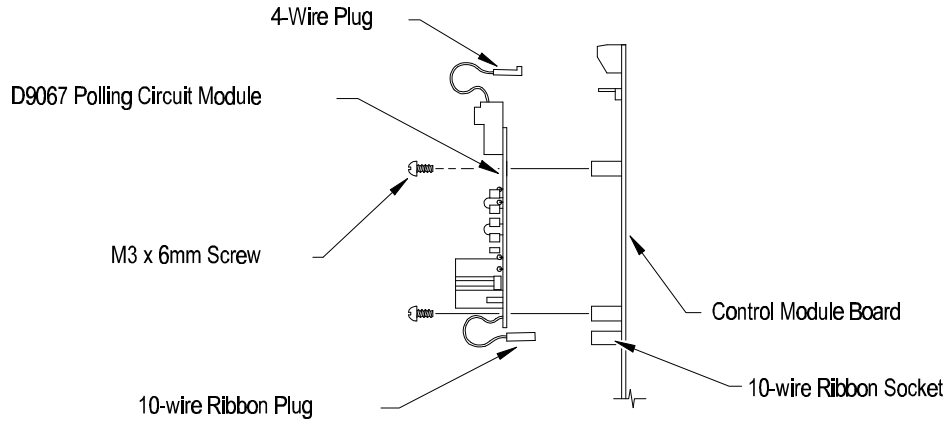


Figure 7: D9067 Module Installation

D9067 Module Connection to Class “B” (Style 4) Circuit

- Connect the Data/Power Positive (+) wire of the polling circuit to the + terminal of the Data Terminal Block at the top of the Control Module. Connect the Data/Power Common (-) wire of the polling circuit to the - terminal of the Data Terminal Block. Connect the positive and negative terminals of the Data Terminal Block with jumper wires as shown in Figure 8: D9067 Class “B” (Style 4) Connection.



The Polling circuit is power-limited.

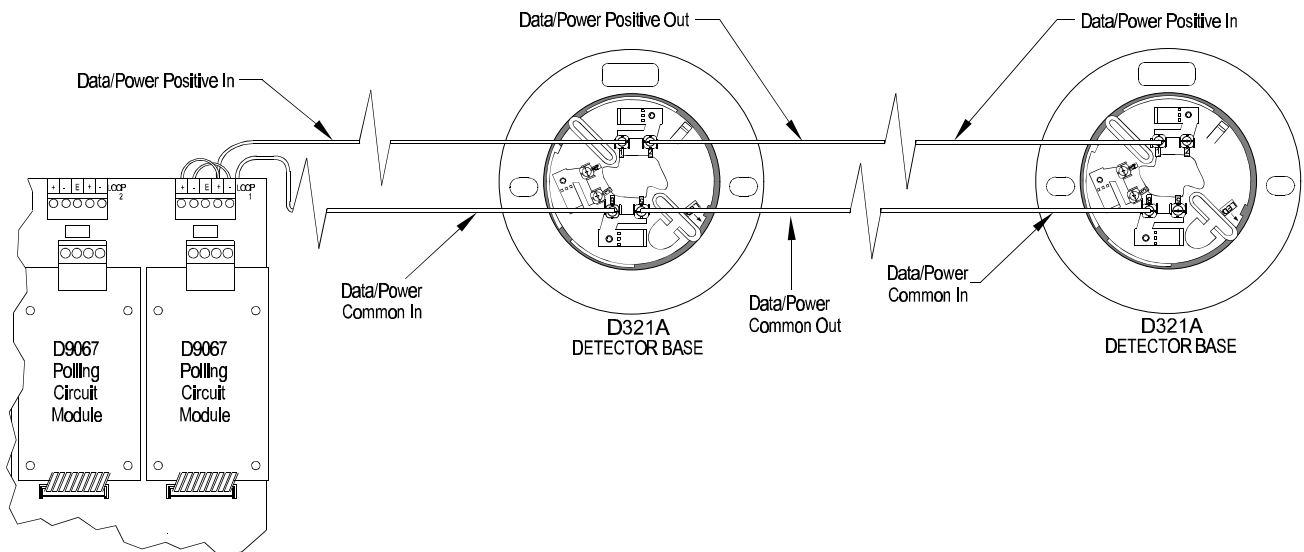


Figure 8: D9067 Class “B” (Style 4) Connection



The Polling circuit is power-limited.

D9067 Module Connection to Class “A” (Style 6) Circuit

- Connect the Data/Power Positive (+) wire of the polling circuit to the + terminal of the Data Terminal Block at the top of the D10024M Control Communicator. Connect the Data/Power Common (-) wire of the polling circuit to the - terminal of the Data Terminal Block. Connect the returning Data/Power wires to the respective terminals as shown in Figure 9.

Shielded Cable

- Connect the drain wire for shielded cable to the E terminal of the Data Terminal Block.

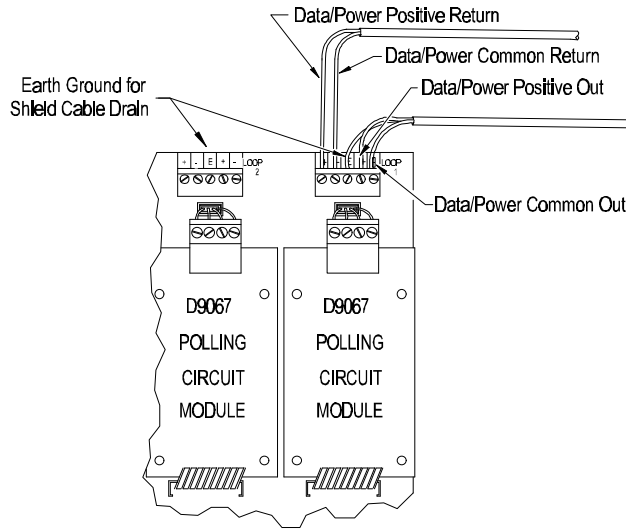


Figure 9: D9067 Class “A” (Style 6) Connection



An improperly grounded shielded cable may aggravate rather than eliminate noise problems. Reconnect the shielded cable drain each time the cable is cut to install a device.

7.3 D9051 RS 485 Bus Module

- The D9051 module is an RS-485 Network Expander. It provides an isolated Class B, Style 4 or Class A, Style 6 data interface between the control module and command centers, annunciators and networked panels.
- The D8024 FACP can supports up to 31 peripheral communications devices on the RS-485 bus. Each device must be assigned an individual binary address.
- Port D supports a peripheral circuit for D9069 remote annunciators, D9070 controllers, D9072 4-output notification modules and D9078 LED driver modules. Refer to the device's instructions for compatibility.
- Port C supports an RS-485 panel-to-master data link, or RS-232 panel-to-graphics data link.
- Remove AC power from the system at the dedicated 120V AC breaker, “lock out” the breaker and remove the standby battery power before making or breaking any connections to the FACP.

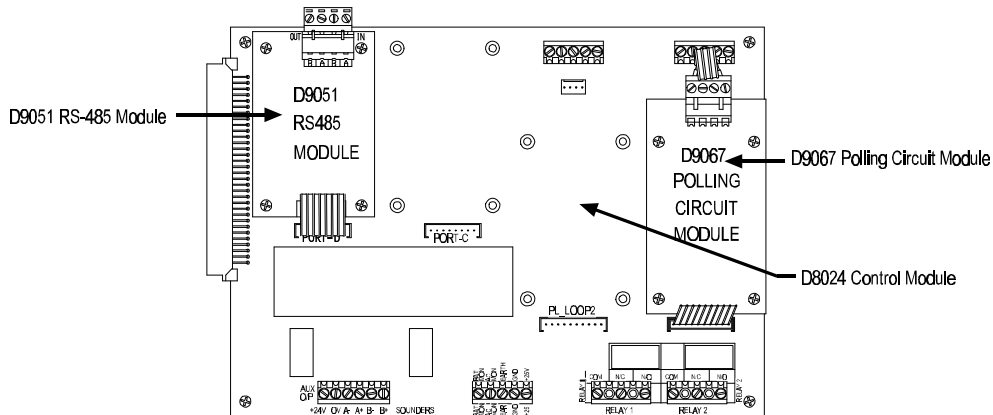


Figure 10: D8024 Control Module Configuration



Inform the operator and the local authority before installing this module in an existing system. Disconnect all power to the Fire Alarm Control Panel before installing this module.

D9051 Module Installation

- The D9051 plugs into Ports C or D on the D8024 Control Module. These are the two ports on the left side of the Control Module.

Connecting Circuit Wiring to the D9051

- Circuit Length is the distance over the circuit wire from the connection at the D9051 Module to the most distant device and back to the D9051 Module. The maximum RS 485 circuit length is 4,920 ft. Use shielded twisted pair cable, type 2, UL style 2092, such as the Data Grade Cable D293 or its equal.

Table 4: RS 485 Peripheral Circuit Length/Wire Gauge

RS 485 Bus Circuit Length	Wire Gauge
Up to 4,920 ft. (1,500 m)	18 (1.1 mm)

Peripheral Circuit Wiring (Port D)

- The two-wire RS-485 communication circuit may be connected to either or both sides (“IN” or “OUT”) of the D9051 terminal block.
- Connect the “B” wire to the “B” terminal (the terminal on the left) of the terminal block at the top of the D9051 Module. Connect the “A” wire to the “A” terminal next to it.
- If Shielded cable is used, connect the drain wire(s) to the “E” terminal of the terminal block at the top of the Control Module Board as shown in Figure 13.

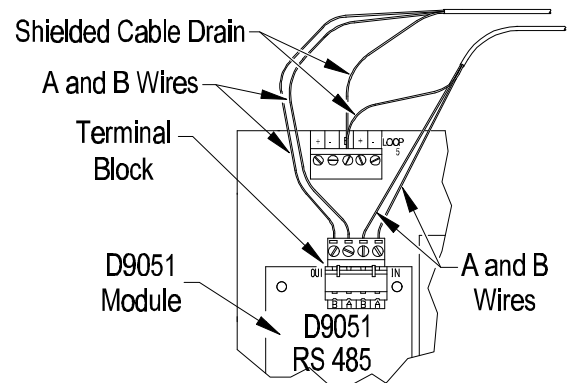


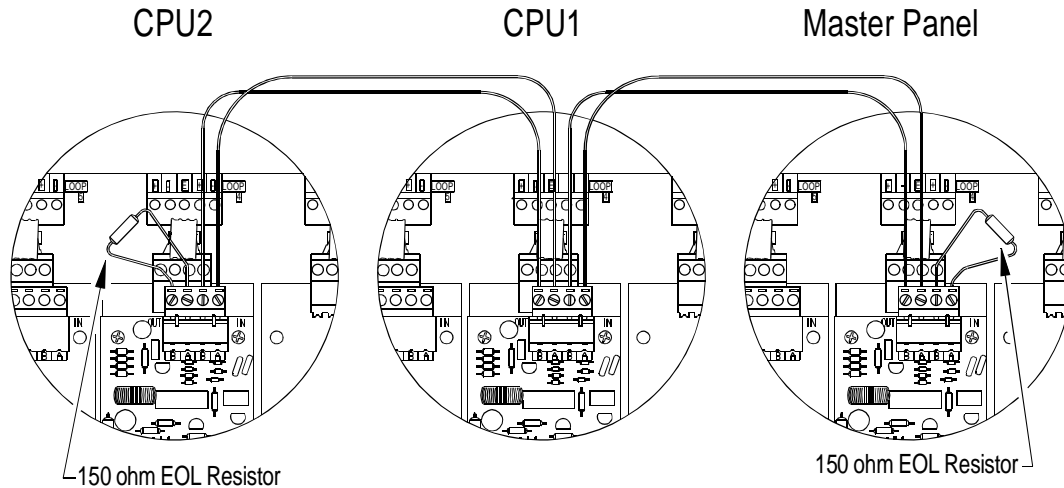
Figure 11: D9051 Wiring Connections



An improperly grounded shielded cable may aggravate rather than eliminate noise problems. Reconnect the shielded cable drain each time the cable is cut to install a device.

Network Circuit Wiring (Port C)

- Serial network data communications take place using D9051 RS 485 Bus Modules attached to Serial Port C on the Panel Control Module.
- The panels are wired in series to an NFPA Class B, Style 3.5 signaling line circuit on the appropriate RS-485 bus. The RS-485 terminals on the D9051 Module are polarity sensitive. The channels are marked A and B, and data cables should be connected A to A and B to B. Cross-wiring between channels will result in corrupted data but will not damage equipment.
- Use shielded twisted pair wiring such as the Data Grade Cable D293, Beldon 8670 two-core twisted pair, or non-shielded 18 gauge cable from Atlas, Guardian Sound & Security, or their equals. To avoid data corruption, route cables so that they do not run next to other cables.
- The total length of the data cables between the two end panels must not exceed 3,935 ft (1,199.4 m). per channel.



Network connections through D9051 RS485 Modules attached to Port C and shown mounted above D9067 Polling Circuit Modules

Figure 12: D9051 Network Connections

7.4 D9052 RS-232 Serial Input/ Output Bus Module

- The D9052 is an RS-232 Bus Module that plugs into Port C or Port D on the D8024 Control Module. It provides an electrically isolated serial interface. The D9052 RS-232 is for supplementary use only.
- The D9052 is used for communication with serial devices over 18 gauge twisted pair cable over a distance of up to 50 ft. (15.2 m). Used with a modem, it allows communication between networked panels, system controllers, computer graphics packages, and other peripherals.
- Port C supports serial connections for a panel-to-graphics data link or a modem.
- Remove AC power from the system at the dedicated 120V AC breaker, “lock out” the breaker, and remove the standby battery power before making or breaking any connections to the FACP.



The D8024 cannot simultaneously network and output to the RS-232 Serial Bus Module. Only one application can be supported at a time. If the D8024 is connected to a graphics PC, then it cannot be connected in a network. Refer to the device’s instructions for compatibility.



Inform the operator and the local authority before installing this module in an existing system. Disconnect all power to the Fire Alarm Control Panel before installing this module.

D9052 Module Installation

- The D9052 plugs into Ports C or D on the D8024 Control Module. These are the two left ports on the Control Module.

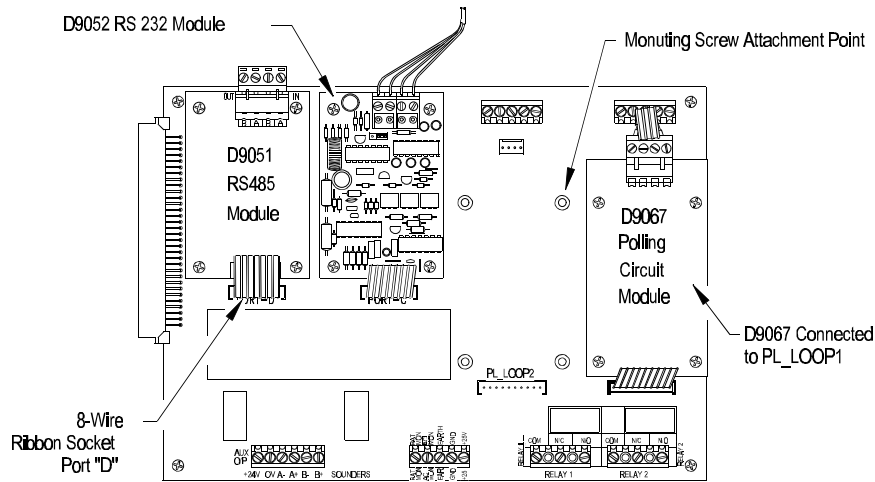


Figure 13: D9052 Module Installed in Port "C"

D9052 Module Connections

- The D9052 eight-wire ribbon connector plugs into the below the port. The serial input/output (modem) wiring connects to the D9052 module at the terminal block at the top of the module. See Figure 14.

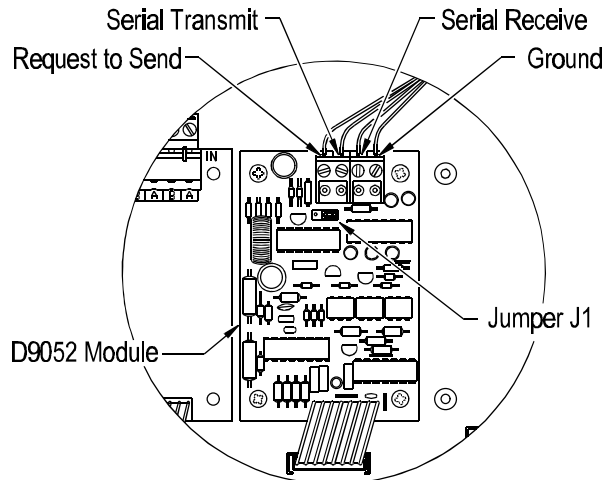


Figure 14: D9052 Serial Input/Output Connections

7.5 D2071A Fire Control/Communicator (DACT)

- The D2071A is a three-zone digital alarm communicator transmitter (DACT). It uses two phone lines to transmit to a receiver for central station and remote applications. A phone Fail LED and buzzer annunciate phone line failures. In this application, Zone 1 (initiating) monitors the alarm output of the FACP. Zone 2 (supervisory) monitors the trouble output of the FACP. Zone 3 is not used. Remove AC power from the system at the dedicated 120V AC breaker, "lock out" the breaker and remove the standby battery power before making or breaking any connections to the FACP.

Mounting the D2071A

- The D2071A may either be mounted directly in the FACP enclosure, or in an accessory enclosure. Refer to the D2071A manual for mounting details.



IMPORTANT

Inform the operator and the local authority before installing the D2071A in an existing system. Disconnect all power to the FACP before installing the D2071A.

- 12 Volt Mode NO
- Class B Mode 3
- Retard Time 0
- Reset Time 0



IMPORTANT

On the D8024, Relay 1 should be programmed for alarm purposes and Relay 2 for trouble conditions.

Wiring the D8024 to the D2071A

- Terminals 1 and 2 on the D2071A may be connected to the 24V Auxiliary Power on the D8024. See Figure 15 for wiring connections.

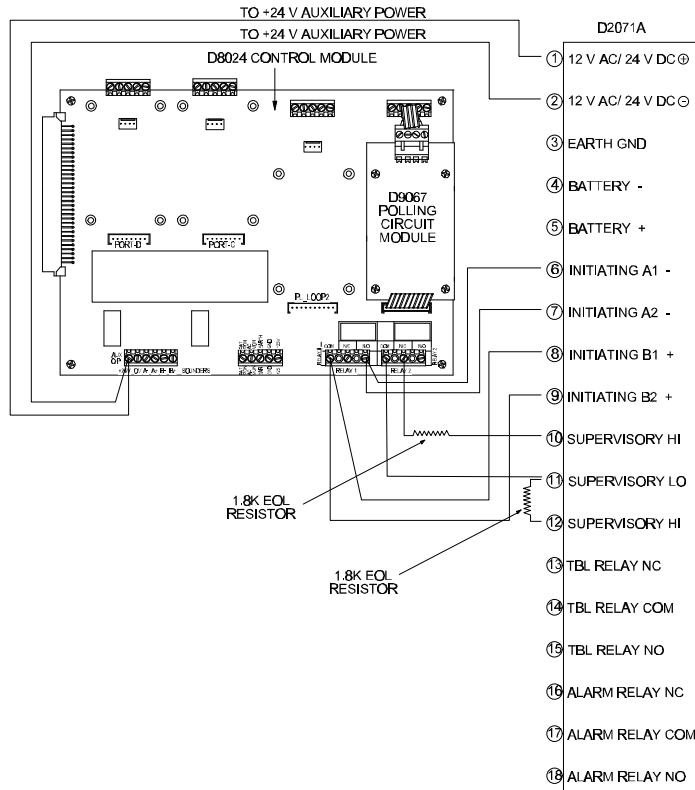


Figure 15: D8024 - D2071A Wiring Connections

Wiring the D8024 for Sprinkler Supervision

- The D8024 can also be wired to provide sprinkler supervision. To provide an outlet to the D2071A for sprinkler supervision, connect Relay A on the D8024 to Zone 2, which is programmed to activate on a fault, of the D2071A. Relay B on the D8024 must be connected to Zone 3, which is programmed to activate on Event 100 of the D2071A.



To provide a fire alarm output to the D2071A, a D130 Relay Module is required to obtain the additional necessary output to the D2071A. Refer to Figure 16 for wiring details.



The sounder circuit connected to the D130 Relay Module must be programmed to activate on all zone alarms.

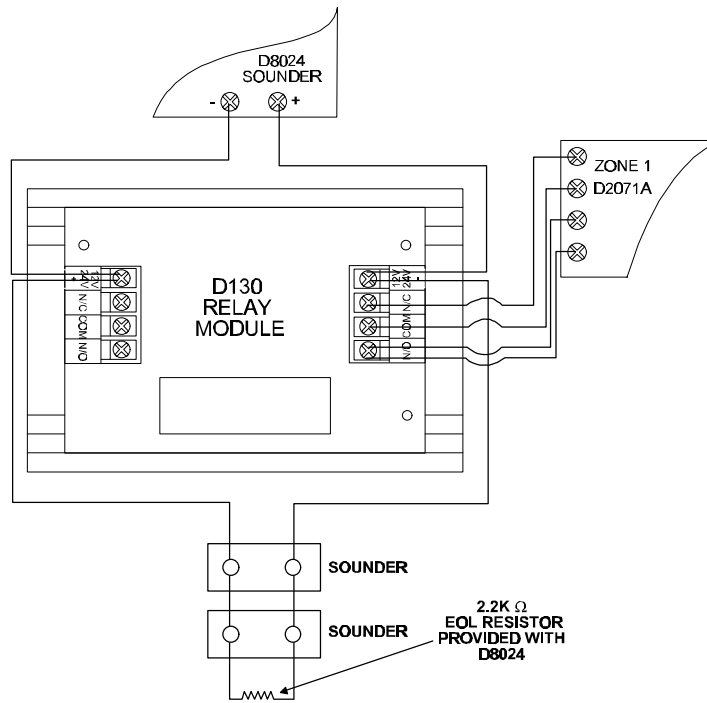


Figure 16: Wiring the D8024 for Sprinkler Supervision

- When sprinkler supervisory reporting is required, three conditions are required to be signaled from the panel to the D2071A: fire alarm, supervisory alarm and system trouble. Two conditions can be generated by the two relays on the panel: trouble and supervisory alarm as shown in Figure 15. The fire alarm can then be generated as shown in Figure 16.
- Care must be taken to program the panel and dialer to generate and report the correct conditions. See Table 5.

Table 5: Sprinkler Supervisory Reporting Conditions

Signal	Relay	Panel Programming	D2071A Input	D271A Report
Supervisory	1	Relay 1 Supervisory	1	01
Trouble	2	Relay 2 Trouble	2	02
Alarm	NAC	Program the selected NAC to activate on all fire alarm conditions	3	03

Wiring the D2071A for Trouble Annunciation on the D8024

- The D2071A can be wired so that a trouble condition on the D2071A will cause a trouble condition on a point implemented by a D334A or D326A module. See Figure 17 for wiring connections.

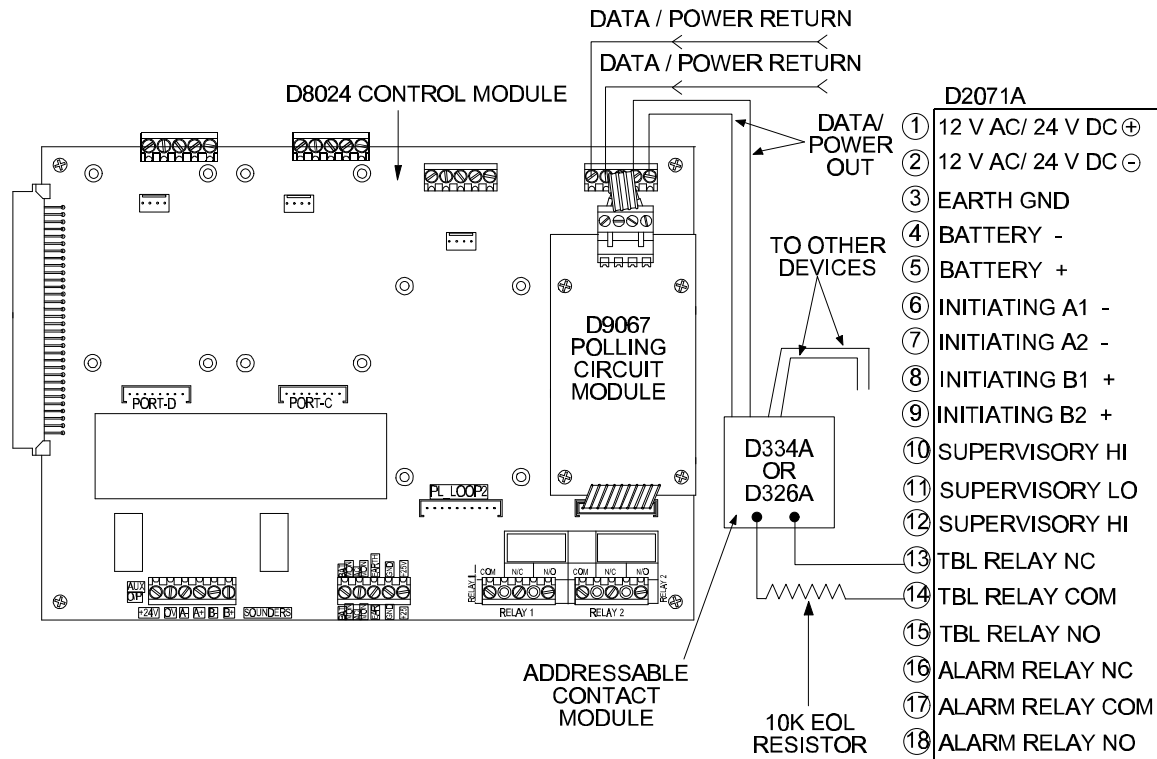


Figure 17: Wiring the D2071A for Trouble Annunciation on the D8024

7.6 Remote Signaling with the D185 Reverse Polarity Module

- Use the following instructions to install the D185 Reverse Polarity Module to the D8024 FACP for Remote Station Service, as defined by NFPA 72.
 - Install the D185 in accordance with the installation instructions provided with the module. To accommodate space constraints in the D8024 FACP, the D185 module should be installed in a suitable enclosure such as the Radionics D8103 Standard Enclosure. Any connections made from the enclosure to the D8024 should be made in conduit.
 - Connect the D185 to the control panel and point contact module as shown in Figure 18. **Be sure to connect the supervisory zone input on the D185 to Terminal A of the point contact module.**
 - Configure the sounder circuit that is connected to the D185 module to sound on alarms on all zones.
 - Configure the point contact module's action to "Fault". This will indicate system trouble on the FACP when the D185 is placed in the test mode.
 - Be sure to calculate the D185 current draw into the Normal Standby and Alarm Conditions for standby battery calculation. NFPA 72 requires 60 hours of standby power for Remote Station Service (see Section 8.2, "Remote Station Service Ampere Hour Calculation Formula", p.19).

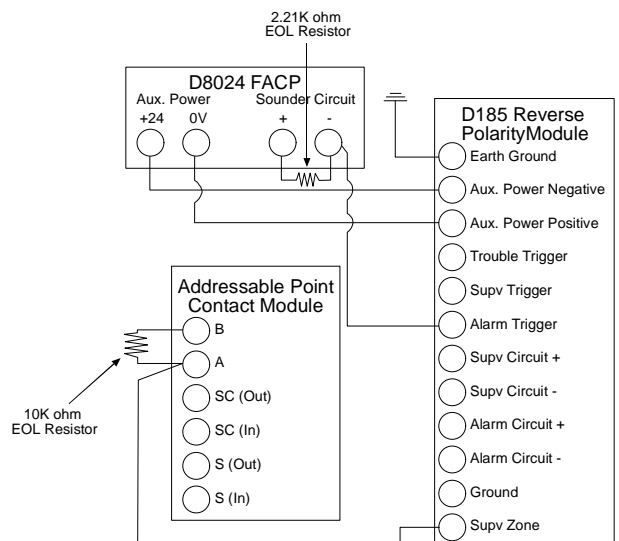


Figure 18: Remote Station Signaling

8.0 Power

8.1 AC Power Connections

- The D8024 receives power from a 120V, 60 Hz, AC power supply through a dedicated breaker. From the breaker, current flows through the input wiring terminals, through a 2 Amp fuse, through an EMI filter to the transformer, which converts 120V AC To 24V AC. All of these components are mounted to the skirt at the factory, and the only field connection is the 120V input connection.



WARNING

Open and “lock out” the circuit breaker before connecting wiring. Do not power the system until the entire installation procedure is complete.



CAUTION

Disconnect all main circuit breakers and battery connections before connecting any circuit cards or wiring.

- Radionics recommends that only a licensed electrician make 120V AC connections to the D8024 System. All connections are to conform to NFPA 70/NEC. Connect the D8024 system to a suitable ground.



CAUTION

Maintain separation between 120V AC and low voltage wiring. Do not route them in the same conduit, and keep them apart inside the enclosure.

- Connect the ground wire to the ground input (left) terminal on 2 Amp fuse holder. Connect the 120V neutral wire to the middle terminal. Connect the line wire to the right terminal. See Figure 15.

Transformer

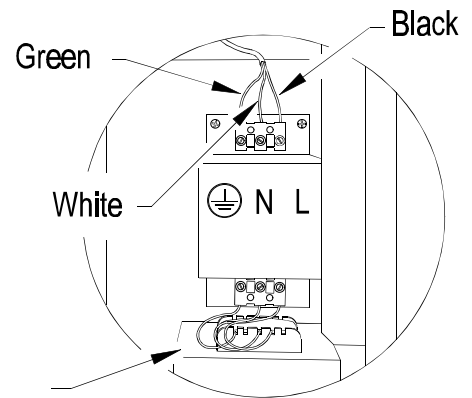


Figure 19: 120 V AC Input Connections



IMPORTANT

The input power to the Fire Alarm Control Panel must be controlled by a dedicated breaker switch (“Isolate Elsewhere”). The minimum cross sectional area of the main supply cables is 0.75 mm. The input cables are fused through a 3 A anti-surge fuse.

8.2 Standby Batteries Installation

- Battery lead connections are not power limited.

Standby Battery Selection

Table 6: Current Rating Chart for Standby Battery Calculations

		AC Power On		AC Power Off		Alarm	
		Normal Current	A	Min. Current	B	Max. Current	C
Model Number	Qty	Each Unit	Total mA (Units x Qty)		Total mA (Units x Qty)	Each Unit	Total mA (Units x Qty)
D8024	1	90 mA		90 mA		250 mA	
D9067		42 mA		42 mA		42 mA	
D9051		59 mA		59 mA		59 mA	
D9052		59 mA		59 mA		59 mA	
D9053		35 mA		35 mA		200 mA	
D9054		40 mA		40 mA		100 mA	
D9069		35 mA		35 mA		125 mA	
D9070		35 mA		35 mA		125 mA	
D9072		120 mA		120 mA		220 mA	
D9073		125 mA		125 mA		125 mA	
D321/322		(360 mA) .360mA		(360 mA) .360 mA		(360 mA) .360 mA	
D321/323		(290 mA) .290mA		(290 mA) .290 mA		(290 mA) .290 mA	
D321/324		(280 mA) .280mA		(280 mA) .280 mA		(280 mA) .280 mA	
D325		(300 mA) .300mA		(300 mA) .300 mA		(300 mA) .300 mA	
D326		(300 mA) .300mA		(300 mA) .300 mA		(300 mA) .300 mA	
D327		(320 mA) .320mA		(320 mA) .320 mA		(320 mA) .320 mA	
D329		(280 mA) .280mA		(280 mA) .280 mA		(280 mA) .280 mA	
D334		(300 mA) .300mA		(300 mA) .300 mA		(300 mA) .300 mA	

Other devices connected to the system not listed above

		Total A mA		Total B mA		Five in Alarm**	23.6 mA
						Total C mA	

milliamps = mA
microamps = ~~mA~~

* Add 1.5 mA per output when flashing

** The panel latches on to the first five devices in alarm and continues polling the balance of the devices. Five times 5 mA alarm current equals 25 mA. These five devices normally draw a minimum .280 mA each. 25 mA minus 1.40 mA (5 x .280) equals 23.6 mA added to the alarm total.

- The D8024 panel supervises and charges the two 12V sealed lead-acid batteries that are the standby power source. Several batteries are available from Radionics, and battery selection will depend on system design. Use the Current Rating Chart to select the correct batteries.
- Use battery ampere hour (Ah) calculations to verify compliance with standby requirements. Central Station or Local systems require 24 hours of standby plus five minutes of alarm operation at the end of that period. Local Systems require two batteries.
- The following formula converts mA to Amperes, and includes factors for the five minute alarm period and the depletion of battery capacity with age.

Local Systems Ampere Hour Calculation Formula

$$\frac{\text{Total B}}{1000} \times \frac{24}{\text{(hours)}} + \frac{\text{Total C}}{1000} \times \frac{.083}{\text{(hours)}} = \text{Total Ah}$$

Total Ah x 1.1 = Total Ah Requirements

Remote Station Service Ampere Hour Calculation Formula

$$\frac{\text{Total B}}{1000} \times \frac{60}{\text{(hours)}} + \frac{\text{Total C}}{1000} \times \frac{.083}{\text{(hours)}} = \text{Total Ah}$$

Total Ah x 1.1 = Total Ah Requirements



IMPORTANT

The maximum battery size permitted to be connected to the D8024 is 38Ah. For Remote Station Service, total standby current should not exceed 250mA.

- Place the batteries in the enclosure as shown in Figure 20.

Battery Wiring Connections

- The D10024 Literature Package contains a gray wire. Use this wire to connect the positive terminal of battery No. one to the negative terminal of battery No. two.
- Connect the red wire lead from terminal (7) on the Power Supply to the positive terminal of battery No. two.
- Connect the black wire lead from terminal (6) on the Power Supply to the negative terminal of battery No. one.

8.3 System Startup

- Close the 120V AC dedicated breaker that controls the power input to the D8024. The green AC Power LED lights to show that the 120V AC power supply is on and the standby battery is connected.

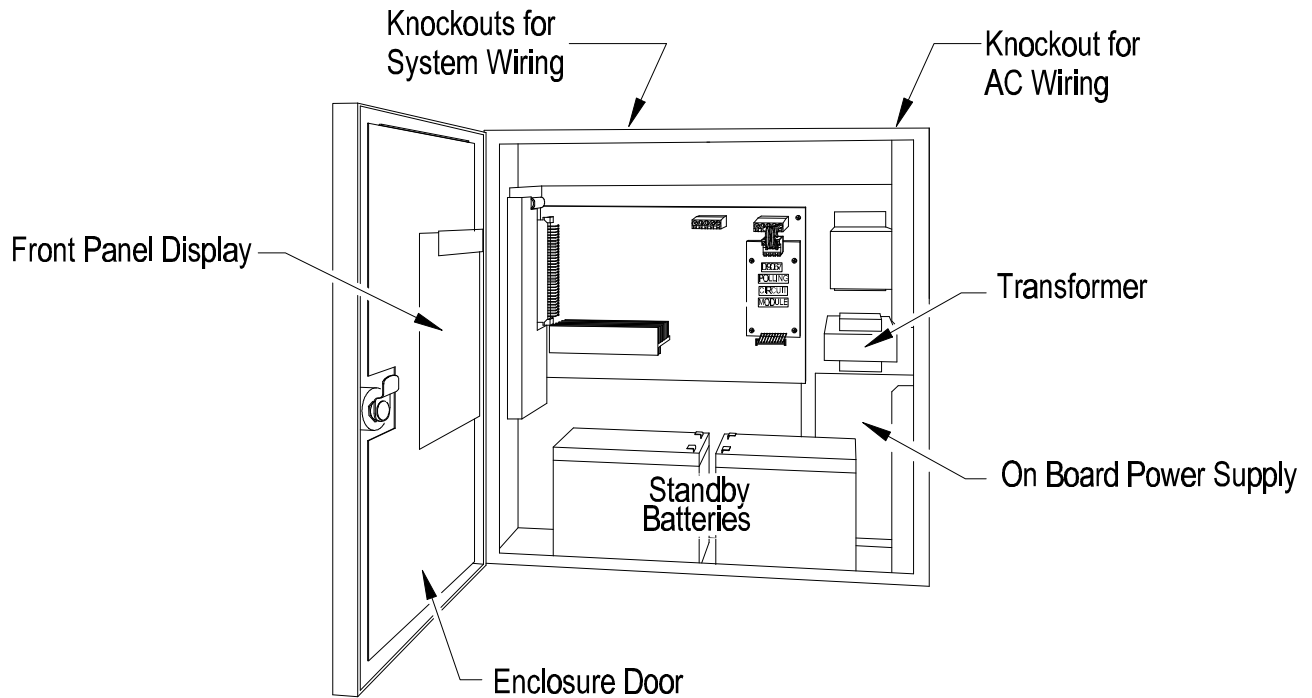


Figure 20: Standby Battery Installation

9.0 Specifications

Table 7: D8024 Specifications

D8024 Specifications	Values
AC Input	120V AC, 60 Hz
Brownout Voltage	103V AC
Operating Current	237mA Normal standby, 744mA in alarm
24V DC Outputs	Aux. power indicating circuits A and B max output 1 amp per circuit, total output of all three circuits not to exceed 2 amps
On-board Relays	Two Form C contacts rated at 40V AC/DC 1amp
Operating Temperature	32° to 120°F (0°C to 49°C), non-condensing



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