

# Smoke Detector Reversing Relay Module

D132A



**BOSCH**

en Installation Instructions



# 1 Notices

These instructions cover the installation of the D132A Smoke Detector Reversing Relay Module in a household fire system supervised by a fire alarm control panel (FACP) or a combination Burglary/Fire control panel.

Before installing the module, become familiar with the *Installation and Operation Guide* for the control panel you are using.

Install, test and maintain the module according to these instructions, NFPA 72, local codes, and the authority having jurisdiction (AHJ). Failure to follow these instructions can result in failure of a detector to initiate an alarm event. Bosch Security Systems, Inc. is not responsible for improperly installed, tested or maintained devices.



## **Warning!**

Follow these instructions to avoid personal injury and damage to equipment.

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NFPA 72 requires that you perform a complete system wide functional test following any modifications, repair, upgrades or adjustments made to the system's components, hardware, wiring, programming and software/firmware.

## 2 Description

This module allows compatible control panels (see the table below) to sound all smoke detectors connected to point 1 or zone 1 when a single smoke detector on the loop goes into alarm. To restore the smoke detectors to normal, reset the smoke detectors.

The following table lists control panels compatible with the D132A:

Control panels	Compatible relays	See section:
<b>Active:</b>		
B Series panels <sup>1 **</sup>	D275, PAM-4	<i>Wiring to a B Series panel, page 7</i>
D6412 and D4412 panels <sup>**</sup>		<i>Wiring to a D6412 or D4412 panel, page 12</i>
G Series (GV2 and higher) panels <sup>2</sup>	D275, PAM-4	<i>Wiring to a G Series panel, page 13</i>
<b>Legacy:</b>		
G Series (prior to GV2) panels <sup>3</sup>	See control panel's documentation on the Bosch website ( <a href="http://www.boschsecurity.com">http://www.boschsecurity.com</a> )	
D9412, D7412, D7212 <sup>**</sup> panels		
ICP-EZM2		
D2812 panel <sup>**</sup>		
D2412U and D2412UE panels <sup>**</sup>		
D2212, D2212B, and D2212BE panels <sup>**</sup>		
DS7240 and DS7220 panels <sup>**</sup>		
<sup>1</sup> B Series panels = B5512 <sup>**</sup> , B4512 <sup>**</sup> , and B3512 <sup>**</sup>		
<sup>2</sup> G Series (GV2 and higher) panels = GV4 (D9412GV4, D7412GV4, and D7212GV4 <sup>**</sup> ), GV3 (D9412GV3, D7412GV3, and D7212GV3 <sup>**</sup> ), and GV2 (D9412GV2, D7412GV2, and D7212GV2 <sup>**</sup> )		
<sup>3</sup> G Series (prior to GV2) panels = D9412G, D7412G, D7212G <sup>**</sup>		
* Legacy products were investigated to comply only to UL864 8 <sup>th</sup> edition		
<sup>**</sup> indicates products which are <b>not</b> UL listed for commercial fire applications		

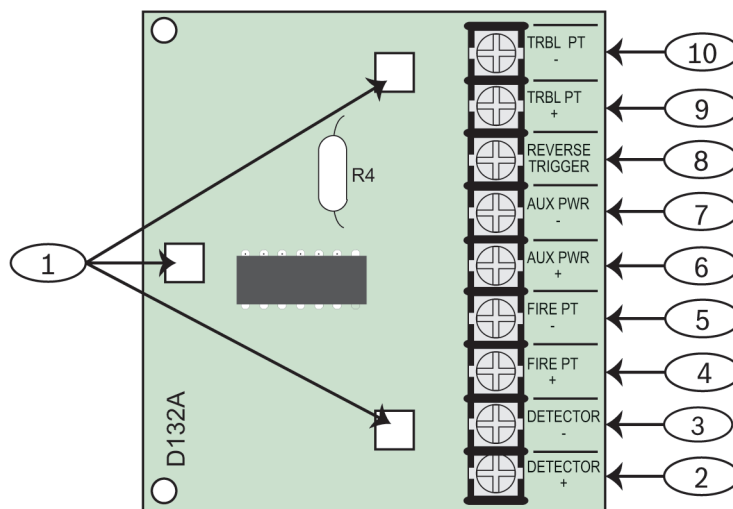


Figure 2.1: D132A smoke detector reversing relay module

1	Mounting holes	6	Positive (+) power for module
2	Positive (+) to detector	7	Negative (-) power for module
3	Negative (-) to detector	8	Trigger to reverse rdetector power
4	Powered loop from control panel or D125B	9	Positive (+) to trouble point
5	Powered loop from control panel or D125B	10	Negative (-) to trouble point

### 3

## Installation

1. Align the module with an available three-hole module mounting location in the enclosure.
  2. Fasten the module to the enclosure with the three supplied screws.
- For mounting locations inside the enclosure, see the control panel's *Installation Instructions*.

## 4 Wiring

Use the table below to ensure you are using the proper wire gauge for the number of detectors used and for the length of the detector circuit:

Number of detectors	Maximum detector circuit length			
	22 AWG (0.34 mm <sup>2</sup> )	20 AWG (0.5 mm <sup>2</sup> )	18 AWG (0.75 mm <sup>2</sup> )	16 AWG (1.5 mm <sup>2</sup> )
1	935 ft (285 m)	1490 ft (454 m)	2370 ft (722 m)	3770 ft (1149 m)
2	935 ft (285 m)	1490 ft (454 m)	2370 ft (722 m)	3770 ft (1149 m)
3	465 ft (142 m)	745 ft (227 m)	1185 ft (722 m)	1885 ft (575 m)
4	310 ft (95 m)	495 ft (150 m)	790 ft (241 m)	1255 ft (383 m)
5	230 ft (70 m)	370 ft (113 m)	590 ft (180 m)	940 ft (287 m)
6	185 ft (56 m)	295 ft (90 m)	470 ft (143 m)	750 ft (229 m)
7	155 ft (47 m)	245 ft (75 m)	395 ft (120 m)	625 ft (191 m)
8	130 ft (40 m)	210 ft (64 m)	335 ft (103 m)	535 ft (163 m)



### Notice!

To ensure system supervision, do not use looped wire under the terminals. Break the run to provide supervision of the connections.

An external 12 VDC or 24 VDC power supply listed for fire signaling units and commercial or residential burglary units can be used.

The external power supply must be UL1481 or UL864 Listed, regulated, and power-limited. Install the control panel and external power supply in the same room no more than 20 ft (6 m) apart. The interconnecting wires between the control panel and external power supply must be in conduit.

The power source for both the auxiliary power supply and the control panel must be from the same dedicated AC branch circuit.

## 4.1 Wiring to a B Series panel

### 4.1.1 Two-wire wiring for 12 VDC supplied by the control panel

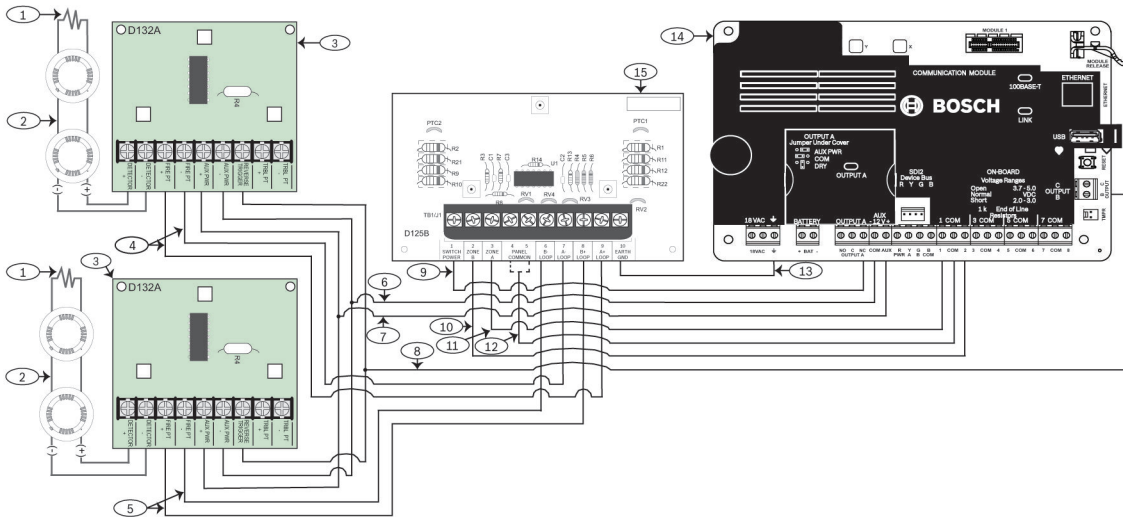


Figure 4.1: Two-wire wiring of D132A modules to a B Series control panel for power supplied by the panel

1	Detector loop (2-wire)	9	Connection from D125B switch power to control panel's A output relay (NC). Set the Output A jumper for AUX PWR.
2	EOL resistor	10	Connection for D125B Zone B to an on-board point on the control panel
3	D132A module	11	Connection for D125B Zone A to an on-board point on the control panel
4	Connections for one D132A fire point to D125B A loop	12	Connection from D125B Common (either 4 or 5) to the control panel's common for the on-board points connected
5	Connections for the other D132A fire point to D125B B loop	13	Earth Ground
6	Connection for AUX PWR - from D132A modules to B-series panel COM	14	B Series control panel
7	Connection for AUX PWR + from D132A modules to B-series panel AUX	15	D125B module
8	Connection from reverse trigger on D132A modules to control panel B or C output		

**Notice!**

The illustration shows the D132A modules wired for both detector loops triggered by the same output. For loops triggered by separate outputs, connect one D132A module reverse trigger to B output and the other D132A reverse trigger to C output.



### 4.1.2 Four-wire wiring for 12 VDC supplied by the control panel

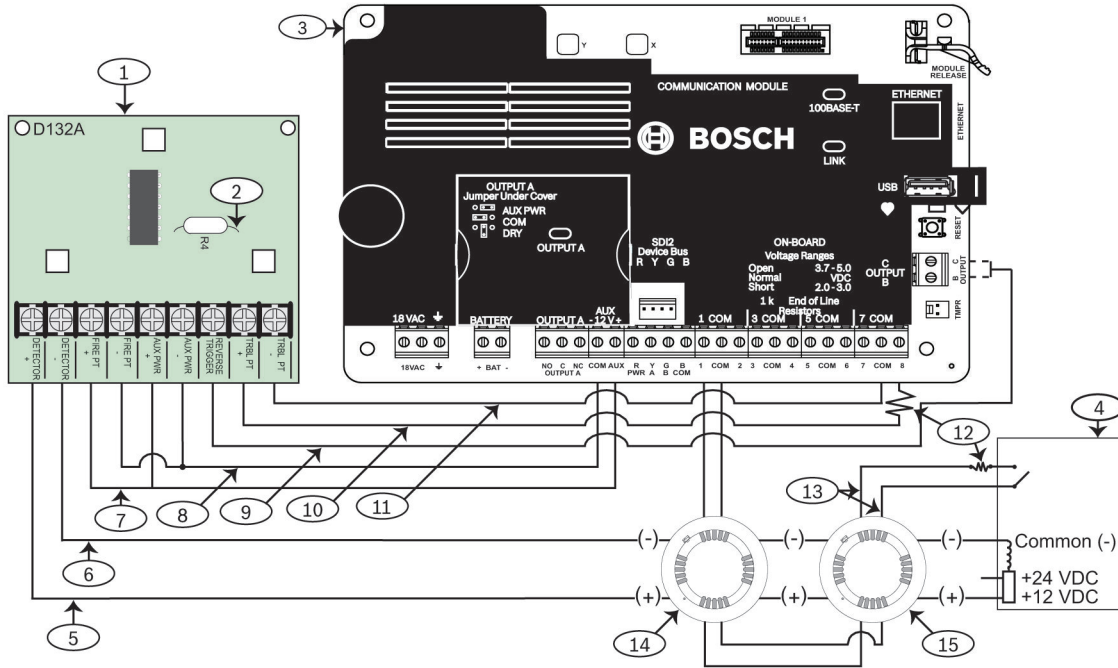


Figure 4.2: Four-wire wiring of D132A modules to a B Series control panel for 12 V power supplied by the panel

1	D132A module	9	D132A Trigger connection to panel's Output B or C
2	Resistor R4: for 4-wire use, cut the resistor leads to remove the resistor	10	Positive (+) trouble point connection to an on-board point on the control panel
3	B Series control panel	11	Negative (-) trouble point connection to an on-board point on the control panel
4	End-of-line (EOL) supervisory relay	12	EOL resistors
5	Positive (+) power connection to detectors	13	Connections between an on-board point on the control panel, the detectors (data lines), and the EOL Supervision Relay
6	Negative (-) power connection to detectors	14	First smoke detector on the detector loop
7	Positive (+) fire point and AUX PWR connection to panel's AUX terminal	15	Last smoke detector on the detector loop
8	Negative (-) fire point and AUX PWR connection to panel's COM terminal		

### 4.1.3 Two-wire wiring for 12 VDC supplied by an external power supply

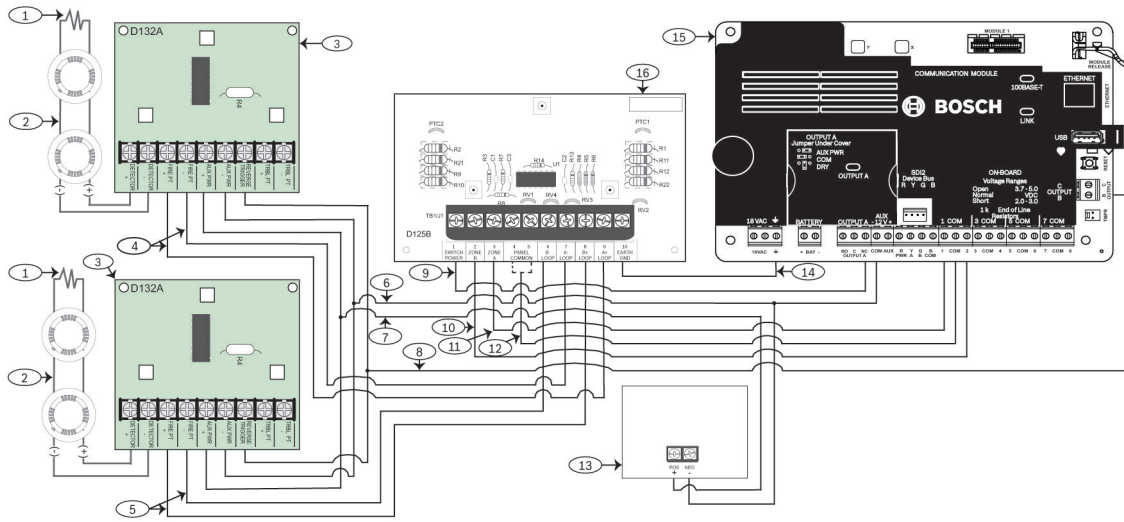


Figure 4.3: Two-wire wiring D132A modules to a B Series panel for 12 V power supplied by an external power supply

1	Detector loop (2-wire)	9	Connection from D125B switch power to control panel’s A output relay (NC). Set the Output A jumper for AUX PWR.
2	EOL resistor	10	Connection for D125B Zone B to an on-board point on the control panel
3	D132A module	11	Connection for D125B Zone A to an on-board point on the control panel
4	Connections for one D132A fire point to D125B A loop	12	Connection from D125B Common (either 4 or 5) to the control panel’s common for the on-board points connected
5	Connections for the other D132A fire point to D125B B loop	13	External power supply (12 VDC)
6	Connection for AUX PWR - from D132A modules to B-series panel COM	14	Earth Ground
7	Connection for AUX PWR + from D132A modules to B-series panel AUX	15	B Series control panel
8	Connection from reverse trigger on D132A modules to control panel B or C output	16	D125B module



**Notice!**

The illustration shows the D132A modules wired for both detector loops triggered by the same output. For loops triggered by separate outputs, connect one D132A module reverse trigger to B output and the other D132A reverse trigger to C output.

### 4.1.4 Four-wire wiring for 12 VDC supplied by an external power supply

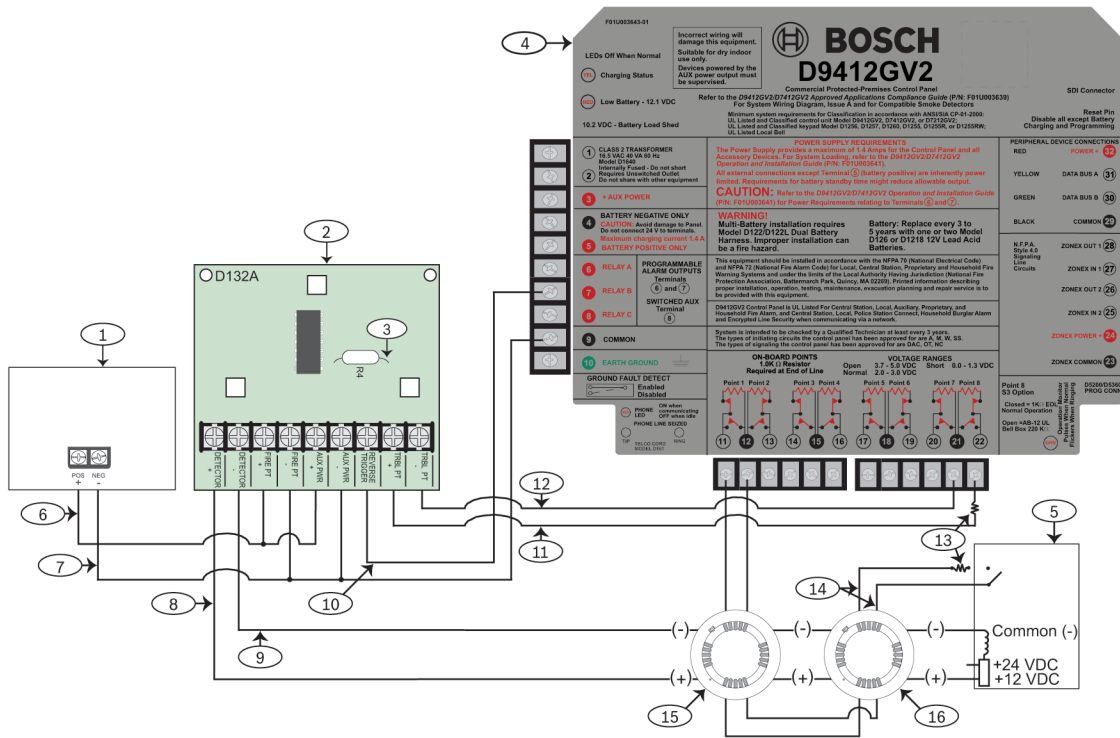


Figure 4.4: Four-wire wiring D132A modules to a B Series panel for 12 V power supplied by an external power supply

1	External power supply (12 VDC)	9	Negative (-) fire point and AUX PWR connection to panel's COM terminal
2	D132A module	10	D132A Trigger connection to panel's Output B or C
3	Resistor R4: for 4-wire use, cut the resistor leads to remove the resistor	11	Positive (+) trouble point connection to an on-board point on the control panel
4	B Series control panel	12	Negative (-) trouble point connection to an on-board point on the control panel
5	End-of-line (EOL) Supervision Relay	13	EOL resistors
6	Positive (+) power connection to detectors	14	Connections between an on-board point on the control panel, the detectors (data lines), and the EOL Supervision Relay
7	Negative (-) power connection to detectors	15	First smoke detector on the detector loop
8	Positive (+) fire point and AUX PWR connection to panel's AUX terminal	16	Last smoke detector on the detector loop

## 4.2 Wiring to a D6412 or D4412 panel

### 4.2.1 Two-wire wiring for 12 VDC supplied by the control panel

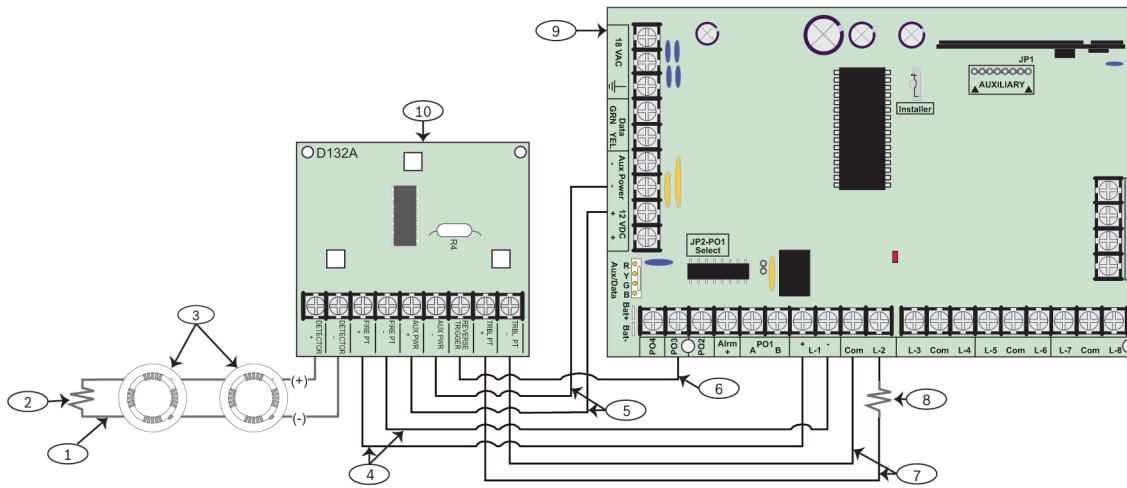


Figure 4.5: Two-wire wiring D132A modules to a D6412 or D4412 control panel for 12 VDC supplied by the panel

1	Detector loop (2-wire)	6	Trigger to reverse power
2	EOL resistor	7	Connections for trouble point
3	Smoke detectors (10 maximum)	8	End-of-line (EOL) resistor
4	Connections for fire point	9	D6412 or D4412 panel
5	Aux power connections (12 VDC)	10	D132A module

### 4.2.2 Two-wire wiring for 12 VDC supplied by an external power supply

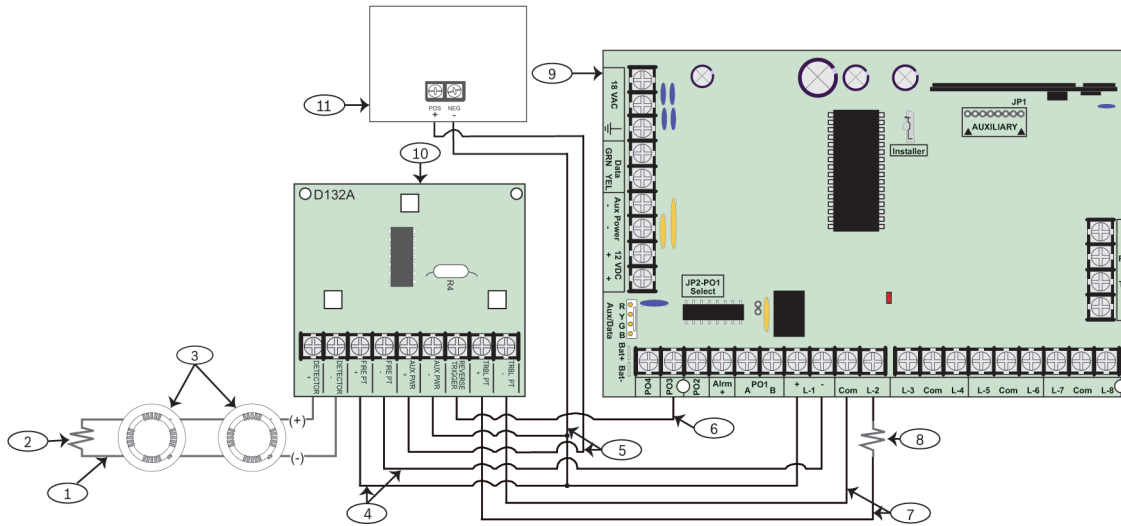


Figure 4.6: Two-wire wiring a D132A module to a D6412 or D4412 control panel for 12 VDC supplied by an external power supply

1	Detector loop (2-wire)	7	Connections for trouble point
2	EOL resistor	8	End-of-line (EOL) resistor
3	Smoke detectors (10 maximum)	9	D6412 or D4412 panel
4	Connections for fire point	10	D132A module
5	External power supply connections (12 VDC)	11	External power supply (12 VDC)
6	Trigger to reverse power		

### 4.3 Wiring to a G Series panel



**Notice!**

The D132A module has not been investigated by Underwriters Laboratories (UL) for use with G-series control panels in commercial fire applications.

### 4.3.1 Two-wire wiring for 12 VDC supplied by the control panel

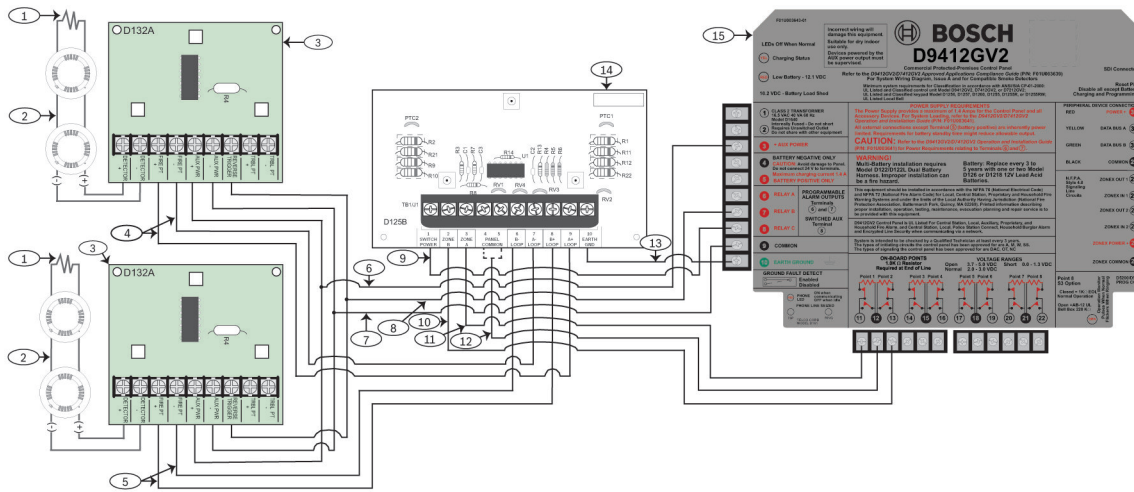


Figure 4.7: Two-wire wiring of D132A modules to a G Series control panel for power supplied by the panel

1	Detector loop (2-wire)	9	Connection from D125B switch power to control panel's C relay (switched Aux).
2	EOL resistor	10	Connection for D125B Zone B to an on-board point on the control panel
3	D132A module	11	Connection for D125B Zone A to an on-board point on the control panel
4	Connections for one D132A fire point to D125B A loop	12	Connection from D125B Common (either 4 or 5) to the control panel's common for the on-board points connected
5	Connections for the other D132A fire point to D125B B loop	13	Earth Ground
6	Connection for AUX PWR + from D132A modules to B-series panel AUX	14	D125B module
7	Connection for AUX PWR - from D132A modules to B-series panel COM	15	G Series control panel
8	Connection from reverse trigger on D132A modules to control panel A or B relay		



**Notice!**

The illustration shows the D132A modules wired for both detector loops triggered by the same output. For loops triggered by separate outputs, connect one D132A module reverse trigger to the A relay and the other D132A reverse trigger to the B relay.

### 4.3.2 Four-wire wiring for 12 VDC supplied by the control panel

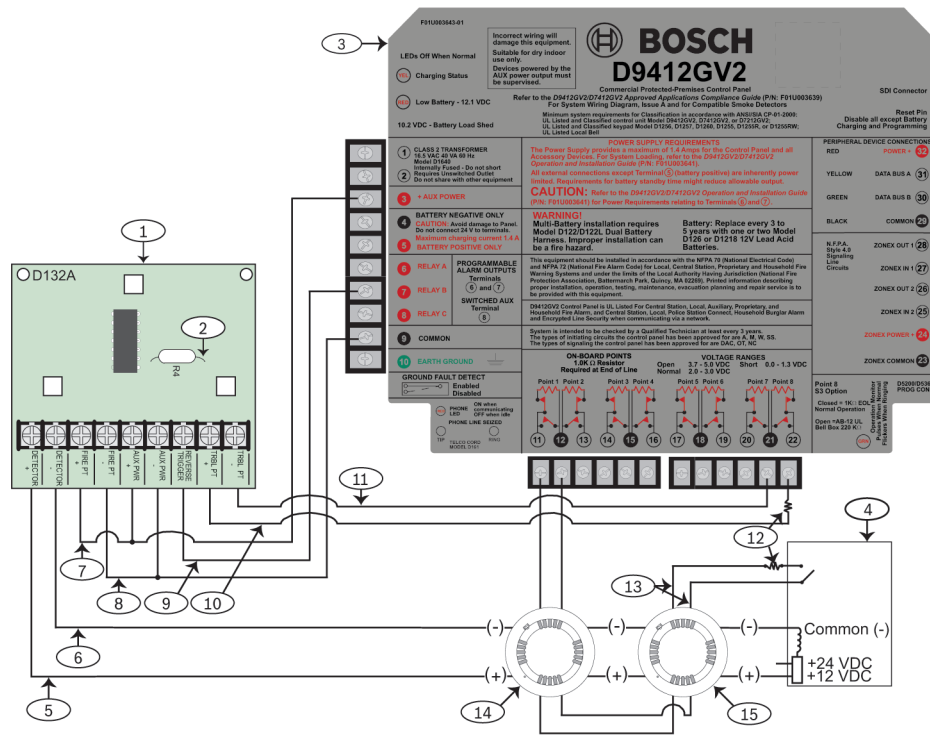


Figure 4.8: Four-wire wiring of D132A modules to a G Series control panel for 12 V power supplied by the panel

1	D132A module	9	D132A Trigger connection to panel's A or B relay
2	Resistor R4: for 4-wire use, cut the resistor leads to remove the resistor	10	Positive (+) trouble point connection to an on-board point on the control panel
3	G Series control panel	11	Negative (-) trouble point connection to an on-board point on the control panel
4	End-of-line (EOL) supervisory relay	12	EOL resistors
5	Positive (+) power connection to detectors	13	Connections between an on-board point on the control panel , the detectors (data lines), and the EOL Supervision Relay
6	Negative (-) power connection to detectors	14	First smoke detector on the detector loop
7	Positive (+) fire point and AUX PWR connection to panel's AUX power terminal	15	Last smoke detector on the detector loop
8	Negative (-) fire point and AUX PWR connection to panel's COMMON terminal		

### 4.3.3 Two-wire wiring for 12 VDC supplied by an external power supply

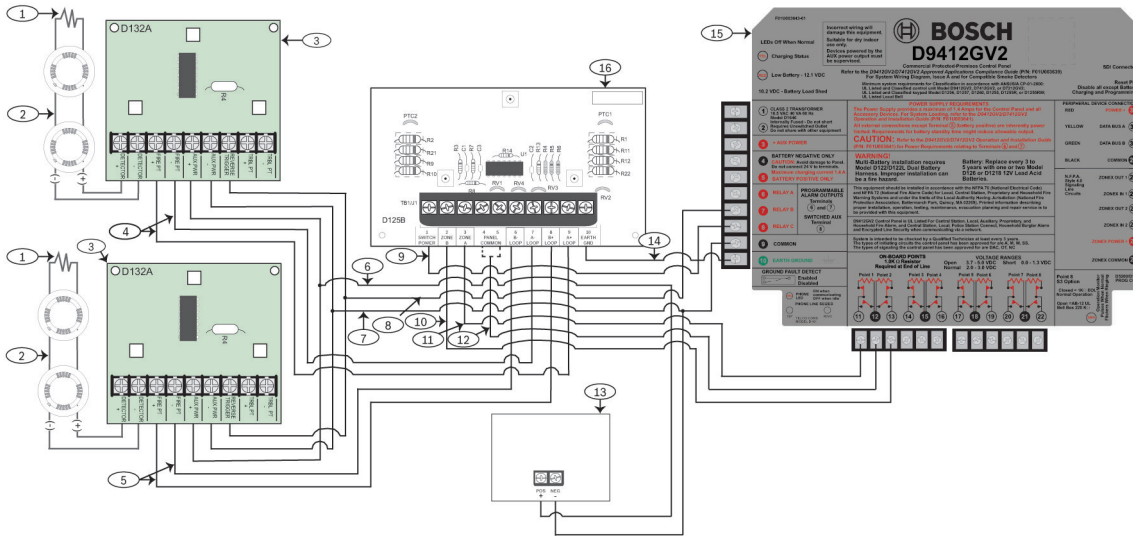


Figure 4.9: Two-wire wiring D132A modules to a G Series panel for 12 V power supplied by an external power supply

1	Detector loop (2-wire)	9	Connection from D125B switch power to control panel’s C relay (switched Aux)
2	EOL resistor	10	Connection for D125B Zone B to an on-board point on the control panel
3	D132A module	11	Connection for D125B Zone A to an on-board point on the control panel
4	Connections for one D132A fire point to D125B A loop	12	Connection from D125B Common (either 4 or 5) to the control panel’s common for the on board points connected
5	Connections for the other D132A fire point to D125B B loop	13	External power supply (12 VDC)
6	Positive (+) connection from external power supply to AUX PWR + terminals on D132A modules	14	Earth Ground
7	Negative (-) connection from external power supply to AUX PWR – terminals on D132A modules	15	G Series control panel
8	Connection from reverse trigger on D132A modules to control panel A or B relay	16	D125B module





**Notice!**

The illustration shows the D132A modules wired for both detector loops triggered by the same output. For loops triggered by separate outputs, connect one D132A module reverse trigger to the A relay and the other D132A reverse trigger to the B relay.

### 4.3.4 Four-wire wiring for 12 VDC supplied by an external power supply

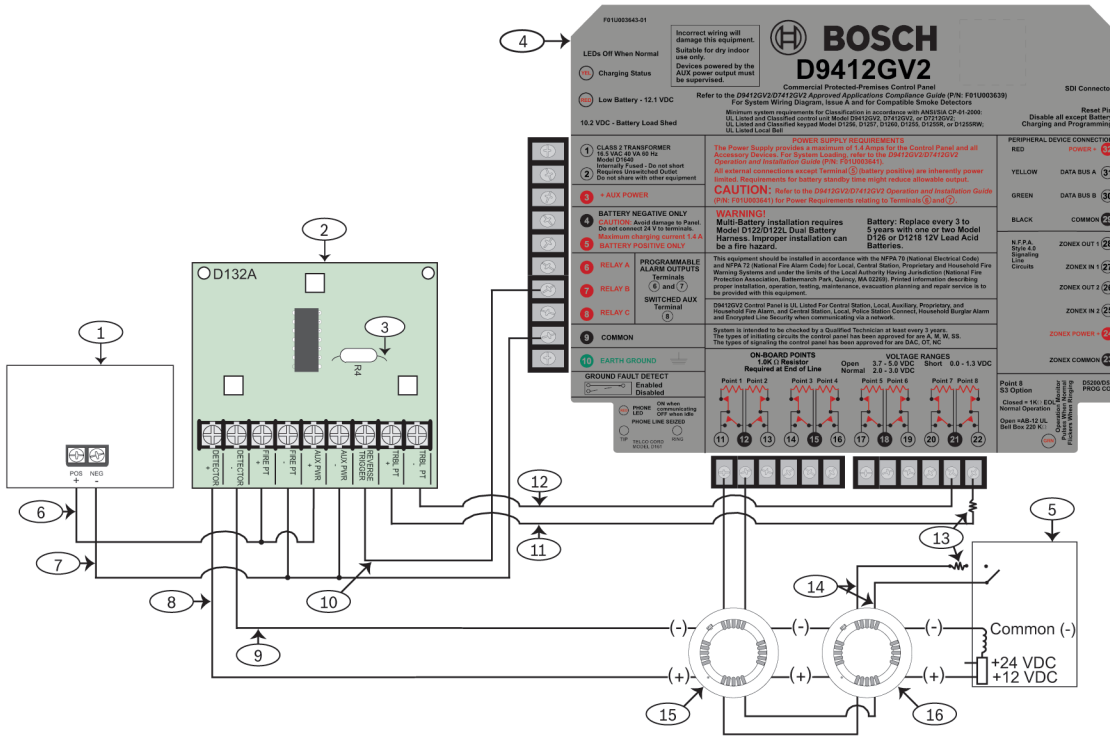


Figure 4.10: Four-wire wiring of D132A modules to a G Series control panel for 12 V power supplied by an external power supply

1	External power supply (12 VDC)	9	Negative (-) connection from external power supply to D132A's Fire Point - and AUX PWR – terminals and to control panel's COM terminal
2	D132A module	10	D132A Trigger connection to panel's A or B relay
3	Resistor R4: for 4-wire use, cut the resistor leads to remove the resistor	11	Positive (+) trouble point connection to an on-board point on the control panel
4	G Series control panel	12	Negative (-) trouble point connection to an on-board point on the control panel
5	End-of-line (EOL) Supervision Relay	13	EOL resistors
6	Positive (+) power connection to detectors	14	Connections between an on-board point on the control panel, the detectors (data lines), and the EOL Supervision Relay
7	Negative (-) power connection to detectors	15	First smoke detector on the detector loop

8	Positive (+) connection from external power source to D132A's Fire Point + and AUX PWR + terminals	16	Last smoke detector on the detector loop
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## 5 Programming

Program the control panel output to provide 12 VDC to the module's reverse trigger during Fire Alarm (Steady output will produce a steady tone; pulsed output will produce a pulsed tone from the devices). Fire points should be programmed as described in the control panel's *Program Entry Guide*.

## 6 Specifications

### Electrical

Current draw	
- Alarm	70 mA maximum
- Idle	10 mA maximum
Voltage	10.2 VDC to 13.9 VDC

### Environmental

Relative Humidity	5% to 93% at +86°F (+30°C)
Temperature (operating)	+32°F to +120°F (0°C to +49°C)

### Mechanical

Dimensions (HxW)	3 in. x 3 in. (7.6 cm x 7.6 cm)
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## 7 Compatible detectors

### 7.1 Compatible 2-wire detectors

Underwriters Laboratories (UL) has found the following 2-wire detectors to be compatible with the D132A:

Manufacturer	CTN	Series	Base	Reversing*	Maximum number of detectors per loop
Bosch	D263THS	D263	N/A	•	8

\* D132A does **not** operate at 24 V; use **only** on 12 V powered loops.

### 7.2 Compatible 4 wire detectors

Underwriters Laboratories (UL) has found the following 4-wire detectors to be compatible with the D132A:

Manufacturer	CTN	Series	Base	Reversing*
Bosch	D273THCS	D273	N/A	•
	D273THS			•
	D273THES			•

\* D132A does **not** operate at 24 V; use **only** on 12 V powered loops.





**Bosch Security Systems, Inc.**

130 Perinton Parkway

Fairport, NY 14450

USA

**[www.boschsecurity.com](http://www.boschsecurity.com)**

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