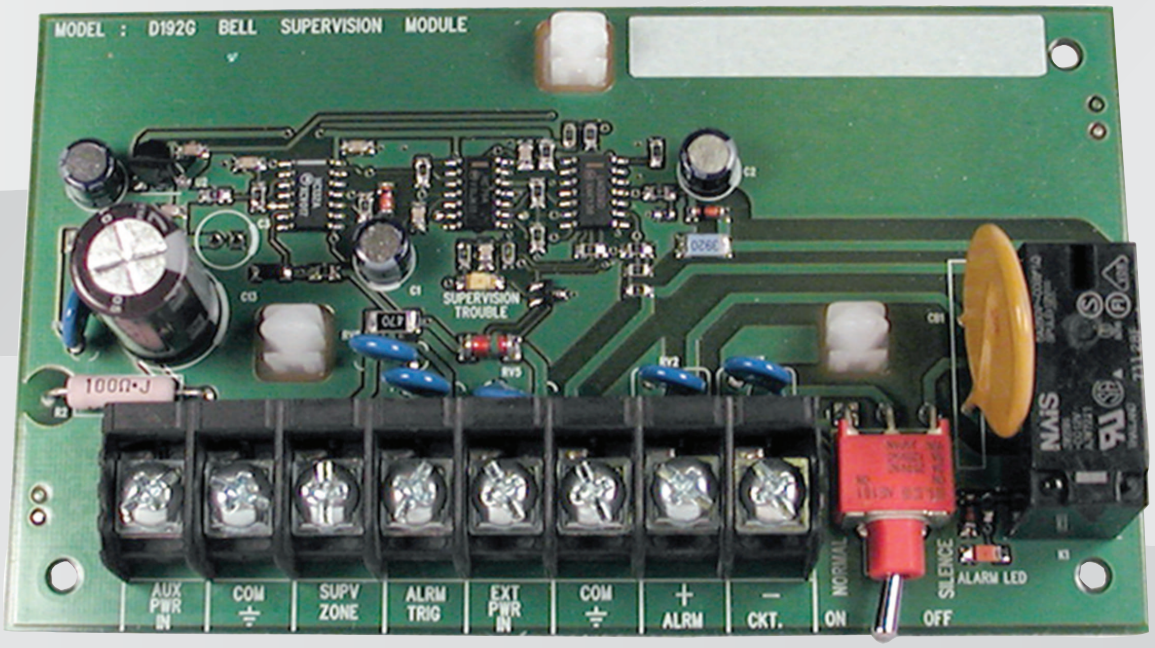
Notification Appliance Circuit Module

D192G



en Installation manual

1 Notices

These instructions cover the installation of the D192G Notification Appliance Circuit Module in a fire system supervised by a fire alarm control panel (FACP) or a combination Burglary/Fire control panel.
Install, test and maintain the module according to these instructions, NFPA codes, 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.
Before installing the module, become familiar with the Installation and Operation Guide for the control panel you are using.
The module uses only polarized (DC) signaling devices. Not all signaling devices are polarized.
The signaling devices used with the module must:

- be polarized (DC) signaling devices.
- match the voltage rating of the alarm power supply.
- not exceed the current rating of the alarm power supply.
- not exceed 3 A per module.
- total no more than 12 D192G modules per system.

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

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 is used for wiring connections to remote signaling devices. Wiring is supervised for open, short, or grounded circuit faults.
You can connect up to 12 D192G modules to the same system on the control panels listed in the table below. For the individual annunciation of an indicating bell circuit, connect the modules to separate points.
The module powers notification appliances from the control panel power supply or from an Underwriters Laboratories, Inc. (UL 864) Listed auxiliary 12 VDC or 24 VDC regulated/ power-limited power supply for fire protective signaling units and commercial/residential burglar units. This feature allows the system to support more signaling devices on longer wire runs. It also allows the use of 12 V or 24 V notification appliances requiring the appropriate power supply.

Control panels	Compatible modules	Compatible relays	See section:
Active Products:			
G-series (V3 and higher)[1] panels	D8128D	D130, D133, D134	*Wiring the module with G Series control panels, page 9*
B series panels[2]		D133, D134	*Wiring the module with B Series control panels, page 13*
Legacy Products*:			
GV2 and G[3] panels*	See control panel documentation on Bosch website (http://www.boschsecurity.com)		
D9124*			
[1] G-series (V3 and higher) = GV4 (D9412GV4, D7412GV4, and D7212GV4**), and GV3 (D9412GV3, D7412GV3, and D7212G3**)			
[2] B series = B5512**, B4512** and B3512**			
[3] GV2 = D9412GV2, D7412GV2, and D7212GV2** and G = D9412G, D7412G, D7212G**			
* Legacy products were investigated to comply only to UL864 8th edition			
** indicates products which are not UL Listed for commercial fire applications.			

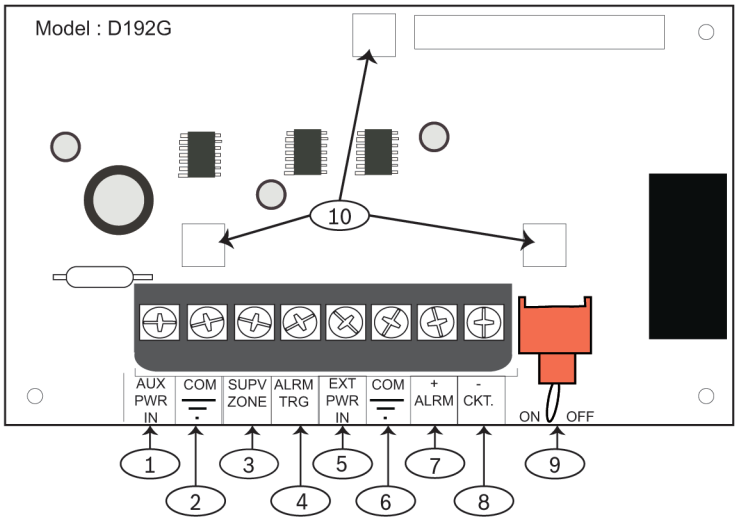


Figure 2.1: D192G_NAC_Module

1	Power from the control panel's AUX POWER	6	Negative (-) connection to UL 864 certified power supply
2	Connection to control panel's COMMON circuit ground (see Warning below)	7	Positive (+) connection to the signaling device loop
3	Connection to control panel zone output	8	Negative (-) connection to the signaling device loop
4	Connection to control panel's programmable alarm outputs	9	Toggle switch for silencing the indicating devices
5	Positive(+) connection to UL 864 certified power supply	10	Mounting holes

Warning!
The D192G common (COM) terminals are digital ground, not earth ground. A ground fault condition exists when the COM terminals are connected to earth ground.

3 Operation

During normal operation, the NAC loop is supervised for opens, shorts, and ground faults. If any of these conditions is detected, the control panel indicates a trouble condition at the command center. Program the control panel to report the condition to the central station. (See *Programming, page 18*.)

When the control panel detects an alarm, the alarm output circuit triggers the module to supply circuit power to the NAC devices.

When testing the alarm panel, the module uses a toggle switch to silence the fire alarm indicating devices. When the toggle switch is in Silence Mode (off), the module indicates a supervisory trouble condition to the control panel and the yellow SUPERVISION TROUBLE LED lights.

The following table indicates possible causes for the various LED indicator patterns:

Indicator	**Possible cause**
SUPERVISION TROUBLE LED (yellow) is on.	– Output loop or 560 Ω EOL resistor is open or missing. – Alarm switch is in SILENCE (OFF) position.
SUPERVISION TROUBLE LED and ALARM LED (red) are off.	– Normal operation with no alarm or trouble. – No power. Check for voltage across the External Power In and Common terminals. If the external voltage is not connected, the control panel reports a trouble condition locally and to the central station (if connected). – The wire to the Common terminal is open or missing. If Common is not connected, the control panel reports two trouble conditions locally and to the central station (if connected).
ALARM LED is on.	There is an alarm. The LED follows the operation of the output relay when the Alarm switch is in the ON (NORMAL) position.
SUPERVISION TROUBLE and ALARM LEDs are on.	If the Alarm switch is in the SILENCE (OFF) position and the module is in alarm, both the SUPERVISION TROUBLE and ALARM LEDs light.

Tab. 3.1: LED operation and troubleshooting

4 Installation

To connect without an external power supply:

- Mount the module(s) inside the control panel enclosure. You can use any mounting position.
- Use a UL Listed tamper switch on the enclosure in a commercial burglary application.
- If installing the module in a separate UL Listed enclosure, install the enclosure according to the manufacturer’s instructions.
- For UL fire applications, mount the module within 20 ft (6 m) of the control panel enclosure with the wiring in conduit between the two.
- For multiple modules, you can connect up to twelve modules to the same supervision point. The point must use a 1 kΩ end-of-line (EOL) resistor.
- Install the 560 Ω, 2 W EOL resistor beyond the last notification device on each NAC loop. This resistor is included with the module.
- For a supervised point, install a 1 kΩ EOL resistor across the COM and SUPV ZONE terminals on the last D192G module.

5 Wiring

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

Power supplied by the panel

The NAC loops are limited in that:

– Maximum draw for each signaling device circuit is limited by the control panel power supply.
– No more than 12 D192G modules per system.

Power supplied by a remote power supply

The auxiliary power supply must be a UL 864 Listed auxiliary 12 VDC or 24 VDC regulated, power-limited power supply for fire protective signaling units and commercial or residential burglary units. Install the auxiliary supply according to the manufacturer's instructions.
Install the control panel and an external power supply in the same room no more than 20 ft (6 m) apart. The interconnecting wiring between the control panel and power supply must be in conduit.
The power source for both the power supply and control panel must be from the same dedicated AC branch circuit.
The NAC loops are limited in that:

– Maximum alarm output equals the power supply rating.
– Maximum draw is 3 A for each annunciating device.
– No more than 12 D192G modules per system.

5.1 Wiring the module with G Series control panels

5.1.1 Wiring interconnected loops with 12 VDC power supplied by the panel

This wiring scheme allows up to 12 D192G modules (NAC loops) triggered by a single programmed alarm output.

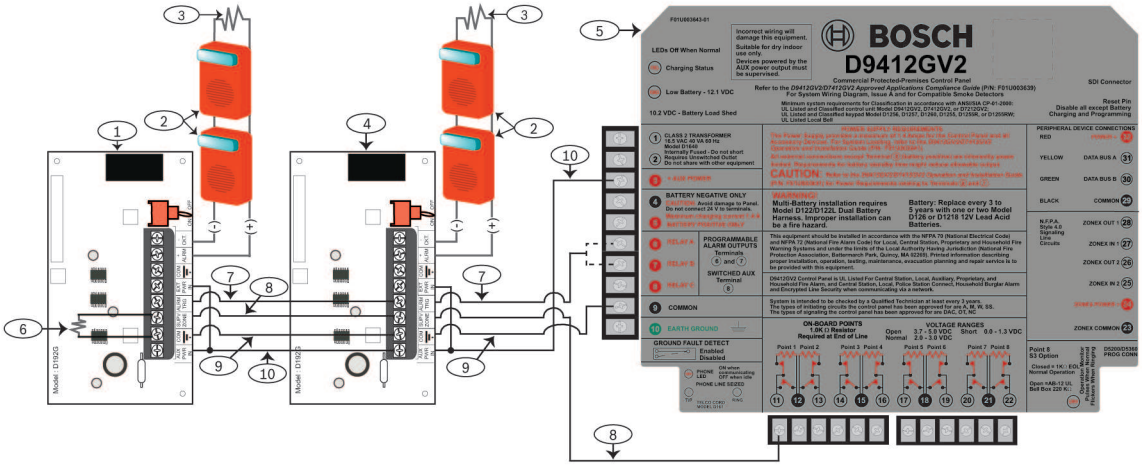


Figure 5.1: Wiring interconnected modules to a G Series panel supplying 12 VDC power

1	Last D192G module on the interconnected NAC loop	6	1 kΩ EOL resistor (P/N: F01U011298)
2	Polarized notification devices	7	Connection to either Relay A or Relay B programmed output
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	8	Connection between module SUPV ZONE and panel zone
4	First D192G module on the interconnected NAC loop	9	Connection between module COM and panel's COMMON (**not** to earth ground)
5	G Series control panel	10	Positive (+) connection from panel's AUX POWER and module's AUX PWR IN and EXT PWR IN terminals

5.1.2 Wiring separate loops with 12 VDC power supplied by the panel

This wiring scheme allows two separate strings of modules (NAC loops) triggered by separate programmed alarm outputs.

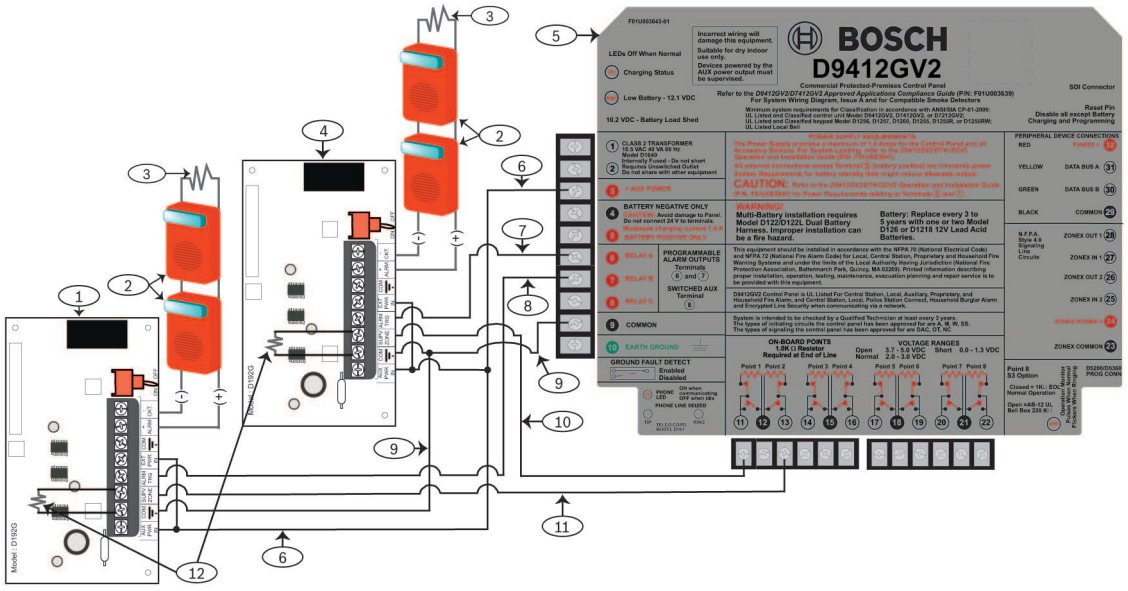


Figure 5.2: Wiring separate module loops to a G Series control panel supplying 12 VDC power

1	Last D192G module on the interconnected NAC loop	7	Connection to Relay A programmed output
2	Polarized notification devices	8	Connection to Relay B programmed output
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	9	Connection between module COM and panel's COMMON (**not** to earth ground)
4	First D192G module on the interconnected NAC loop	10	Connection between one module's SUPV ZONE terminal and panel zone
5	G Series control panel	11	Connection between the other module's SUPV ZONE terminal and panel zone
6	Positive (+) connection from panel's AUX POWER and the AUX PWR IN and EXT PWR IN terminals of the modules	12	1 kΩ EOL resistor (P/N: F01U011298)

5.1.3 Wiring interconnected loops with 12 VDC or 24 VDC power supplied by an external power supply

This wiring scheme allows up to 12 D192G modules (NAC loops) triggered by a single programmed alarm output.

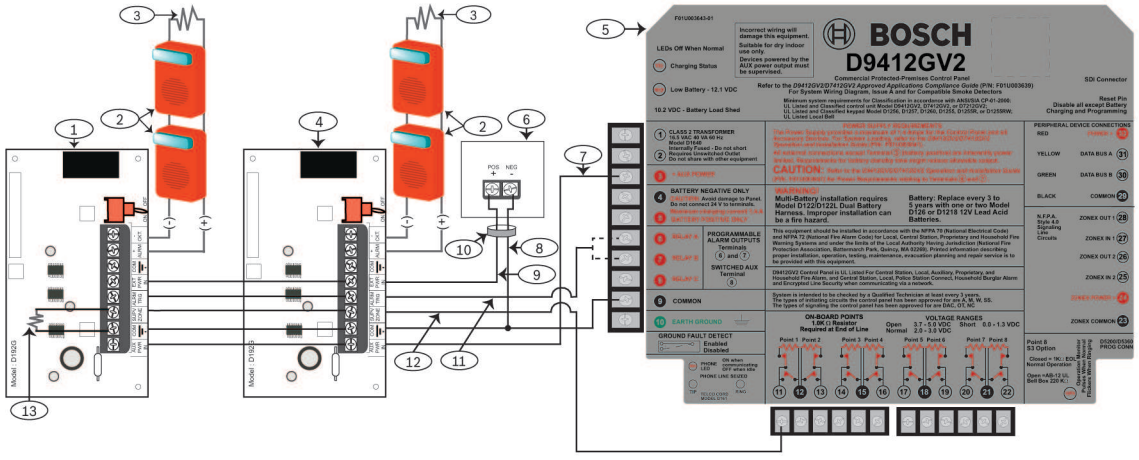


Figure 5.3: Wiring interconnected modules to a G Series panel with power supplied by an external power supply

1	Last D192G module on the interconnected NAC loop	8	Negative (-) connection from external power supply and module COM to panel's COMMON (**not** to earth ground)
2	Polarized notification devices	9	Positive (+) connection between module's ALRM terminal and the power supply
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	10	Conduit required for wiring between external power supply and control panel enclosure
4	First D192G module on the interconnected NAC loop	11	Connection to either Relay A or Relay B programmed output
5	G Series control panel	12	Connection between module SUPV ZONE and panel zone
6	UL Listed 12 VDC or 24 VDC regulated, power-limited auxiliary power supply	13	1 kΩ EOL resistor (P/N: F01U011298)
7	Positive (+) connection from panel's AUX POWER to the AUX PWR IN terminals of the modules (to power modules)		

5.1.4 Wiring separate loops with 12 VDC or 24 VDC power supplied by an external power supply

This wiring scheme allows two separate strings of modules (NAC loops) triggered by separate programmed alarm outputs.

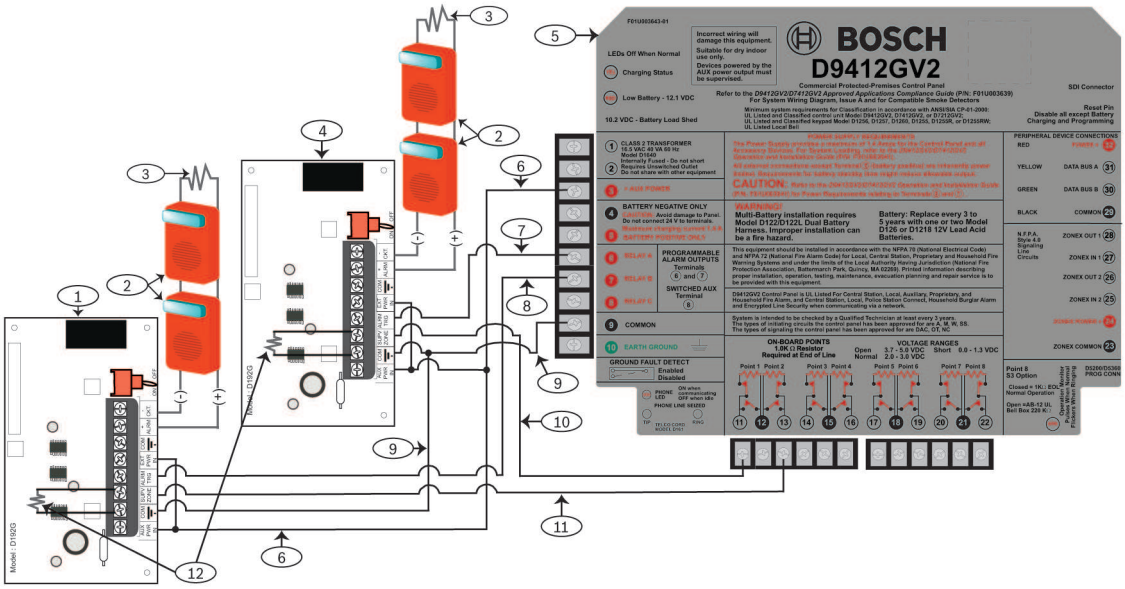


Figure 5.4: Wiring separate module loops to a G Series panel with power supplied by an external power supply

1	D192G modules on separate NAC loops	8	Negative (-) connection from external power supply and module COM to panel's COMMON (**not** to earth ground)
2	Polarized notification devices	9	Positive (+) connection between module's EXT PWR IN terminal and the power supply
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	10	Conduit required for wiring between external power supply and control panel enclosure
4	UL Listed 12 VDC or 24 VDC regulated, power-limited auxiliary power supply	11	Connection to Relay B programmed output to ALRM TRG of the other module
5	G Series control panel	12	Connection between one module's SUPV ZONE terminal and an on-board point on the control panel
6	Positive (+) connection from panel's AUX POWER to the AUX PWR IN terminals of the modules	13	Connection between the other module's SUPV ZONE terminal and an on-board point on the control panel
7	Connection to Relay A programmed output to ALRM TRG of one module	14	1 kΩ EOL resistor (P/N: F01U011298)

5.2 Wiring the module with B Series control panels

5.2.1 Wiring interconnected loops with 12 VDC power supplied by the panel

This wiring scheme allows up to 12 D192G modules (NAC loops) triggered by a single programmed alarm output.

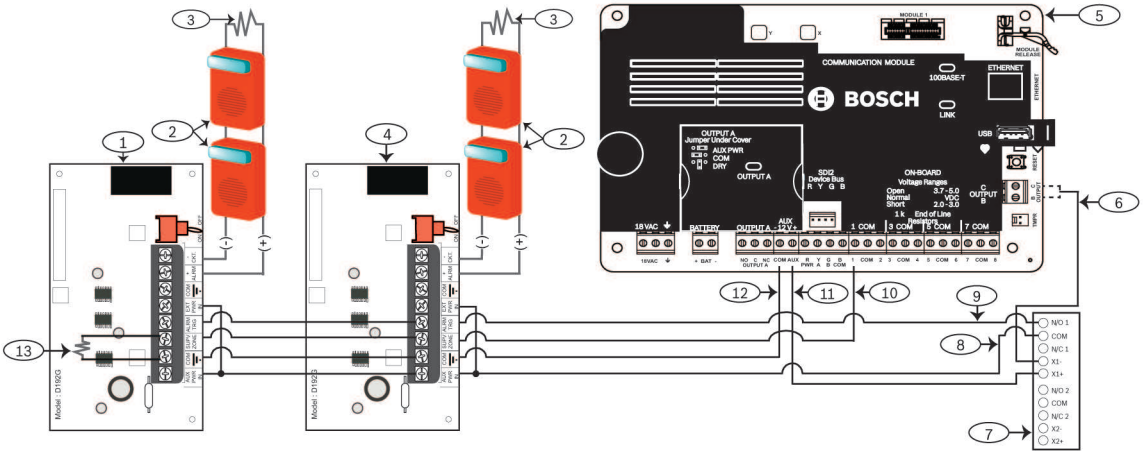


Figure 5.5: Wiring interconnected modules to a B Series panel supplying 12 VDC power

1	Last D192G module on the interconnected NAC loop	8	Positive (+) connection between panel's aux power and module's aux and ext power terminals
2	Polarized notification devices	9	Connection to module's ALRM TRG terminal
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	10	Connection between module's SUPV ZONE and panel zone
4	First D192G module on the interconnected NAC loop	11	Connection to panel's Aux power (+12 V)
5	B Series control panel	12	Connection between module COM and panel's digital COM (**not** to earth ground)
6	Connection to either B or C programmed output	13	1 kΩ EOL resistor (P/N: F01U011298)
7	D134 Dual Relay Module (as example)		

5.2.2 Wiring separate loops with 12 VDC power supplied by the panel

This wiring scheme allows two separate strings of modules (NAC loops) triggered by separate programmed alarm outputs.

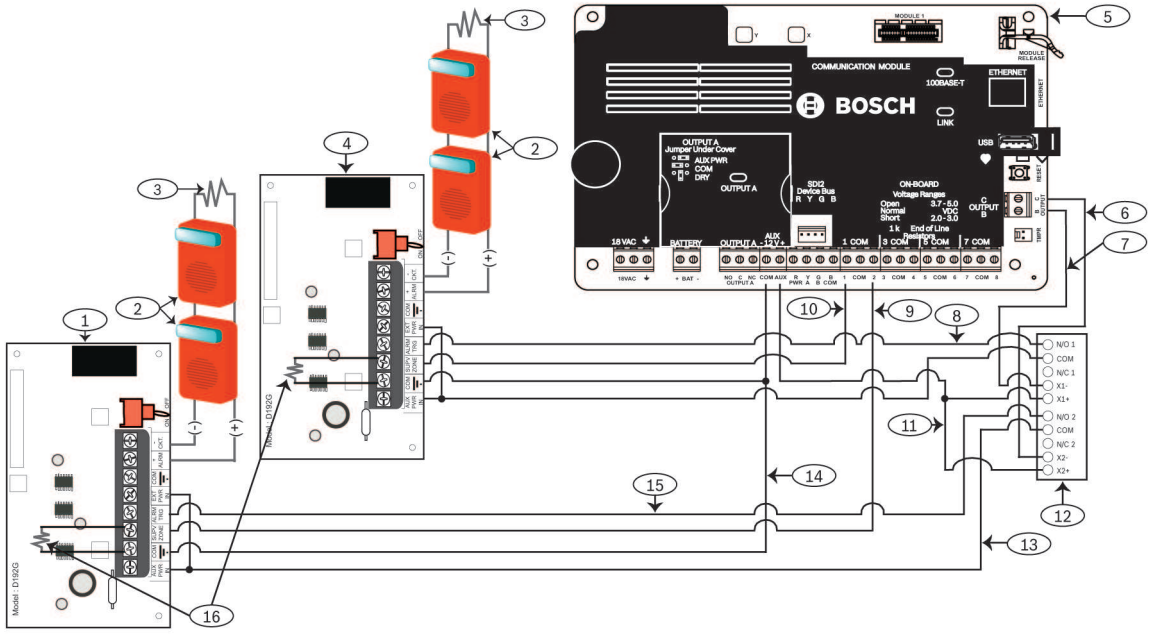


Figure 5.6: Wiring separate module loops to a B Series control panel supplying 12 VDC power

1	Last D192G module on the interconnected NAC loop	9	Connection between one module's SUPV ZONE and panel zone
2	Polarized notification devices	10	Connection between the other module's SUPV ZONE and panel zone
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	11	Connection to the panel's Aux power (+12 V)
4	First D192G module on the interconnected NAC loop	12	D134 Dual Relay Module
5	B Series control panel	13	Positive (+) connection between panel's aux power and the aux and ext power terminals of the modules
6	Connection to C programmed output	14	Connection between both module COM terminals and panel's digital COM (**not** to earth ground)
7	Connection to B programmed output	15	Connection to the other module's ALRM TRG terminal
8	Connection to one module's ALRM TRG terminal	16	1 kΩ EOL resistor (P/N: F01U011298)

5.2.3 Wiring interconnected loops with 12 VDC or 24 VDC power supplied by an external power supply

This wiring scheme allows up to 12 D192G modules (NAC loops) triggered by a single programmed alarm output.

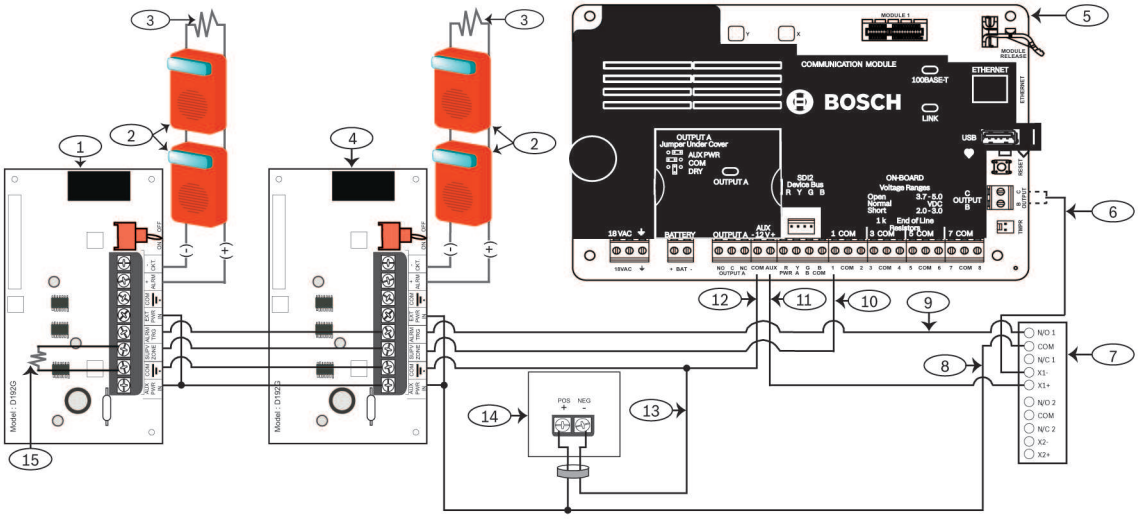


Figure 5.7: Wiring interconnected modules to a B Series panel with power supplied by an external power supply

1	Last D192G module on the interconnected NAC loop	9	Connection to module's ALRM TRG terminal
2	Polarized notification devices	10	Connection between module's SUPV ZONE and panel zone
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	11	Connection to panel's Aux power (+12 V)
4	First D192G module on the interconnected NAC loop	12	Connection between module COM and panel's digital COM (**not** to earth ground)
5	B Series control panel	13	Conduit required for wiring between external power supply and control panel enclosure
6	Connection to either B or C programmed output	14	UL Listed 12 VDC or 24 VDC regulated, power-limited auxiliary power supply
7	D134 Dual Relay Module (as example)	15	1 kΩ EOL resistor (P/N: F01U011298)
8	Positive (+) connection between panel's aux power and module's aux and ext power terminals		

5.2.4 Wiring separate loops with 12 VDC or 24 VDC power supplied by an external power supply

This wiring scheme allows two separate strings of modules (NAC loops) triggered by separate programmed alarm outputs.

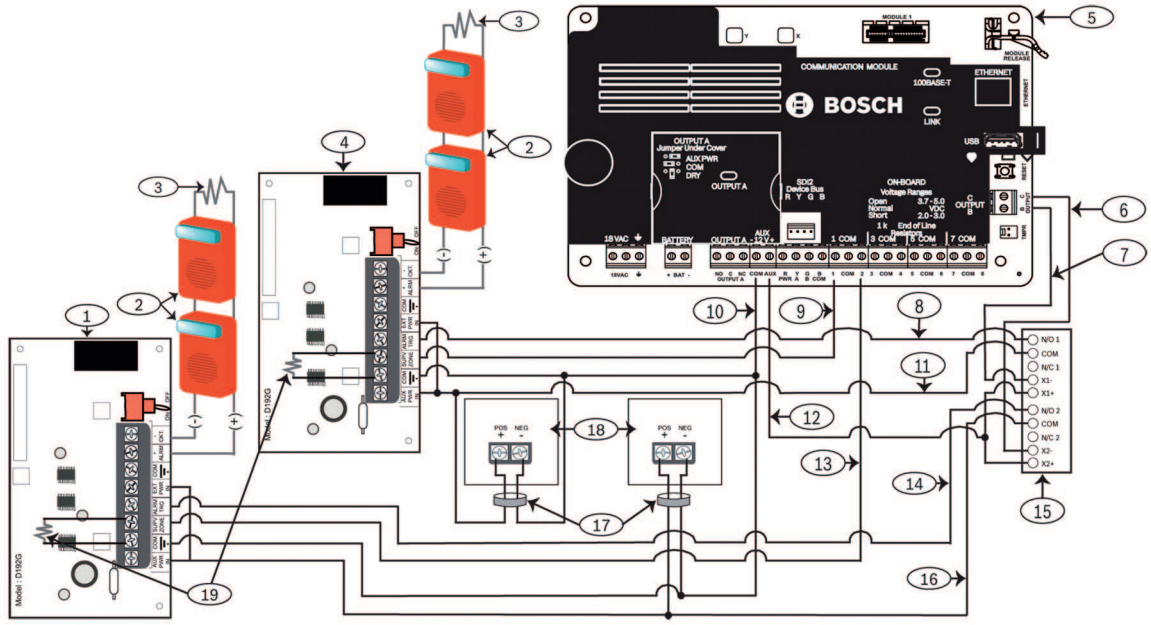


Figure 5.8: Wiring separate module loops to a B Series panel with power supplied by an external power supply

1	Last D192G module on the interconnected NAC loop	11	Positive (+) connection from one relay's COM terminal to the aux and ext power terminals of one module and the positive (+) terminal of the power supply
2	Polarized notification devices	12	Connection to panel's Aux power (+12 V)
3	560 Ω, 2 W EOL resistors (P/N: F01U008725)	13	Connection between the other module's SUPV ZONE and panel zone
4	First D192G module on the interconnected NAC loop	14	Connection to the other module's ALRM TRG terminal
5	B Series control panel	15	D134 Dual Relay Module
6	Connection to C programmed output	16	Positive (+) connection from the other relay's COM terminal to the aux and ext power terminals of the other module and the positive (+) terminal of the power supply
7	Connection to B programmed output	17	Conduit required for wiring between external power supply and control panel enclosure
8	Connection to one module's ALRM TRG terminal	18	UL Listed 12 VDC or 24 VDC regulated, power-limited auxiliary power supply

9	Connection between one module's SUPV ZONE and panel zone	19	1 kΩ EOL resistor (P/N: F01U011298)
10	Connection between both module's COM terminals, the power supply's negative (-) terminal, and the panel's digital COM (**not** to earth ground)		

6 Programming

6.1 Supervisory zone

Several options are available to program the module’s supervision point. Program the point using a point index configured as:
Point Type **0** (24 h)
Pt Response **9**
– Short = Fire Supervision;
– Open = Fire Trouble
Buzz on Fault = **2**
Fire = **Yes**
Program all other selections for the point index number **No**.

6.2 Alarm output

For instructions on programming the control panel, refer to the panel's Program Entry Guide. For compatibility information about synchronization modules and strobes, refer to the panel's Approved Applications Compliance Guide.

7 Specifications

Electrical

Current:	
– Maximum draw	100 mA
– Maximum rating of the module alarm circuit	3 A
Voltage	
– AUX PWR IN	12 VDC nominal
– EXT PWR IN	12 VDC or 24 VDC supplied by an external regulated, power-limited power supply, or 12 VDC supplied by the control panel's AUX PWR terminal for special applications.

Mechanical

Dimensions (LxWxD)	5 in. x 3 in. x 0.75 in. (12.7 cm x 7.6 cm x 1.9 cm)

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450
USA
www.boschsecurity.com

Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany