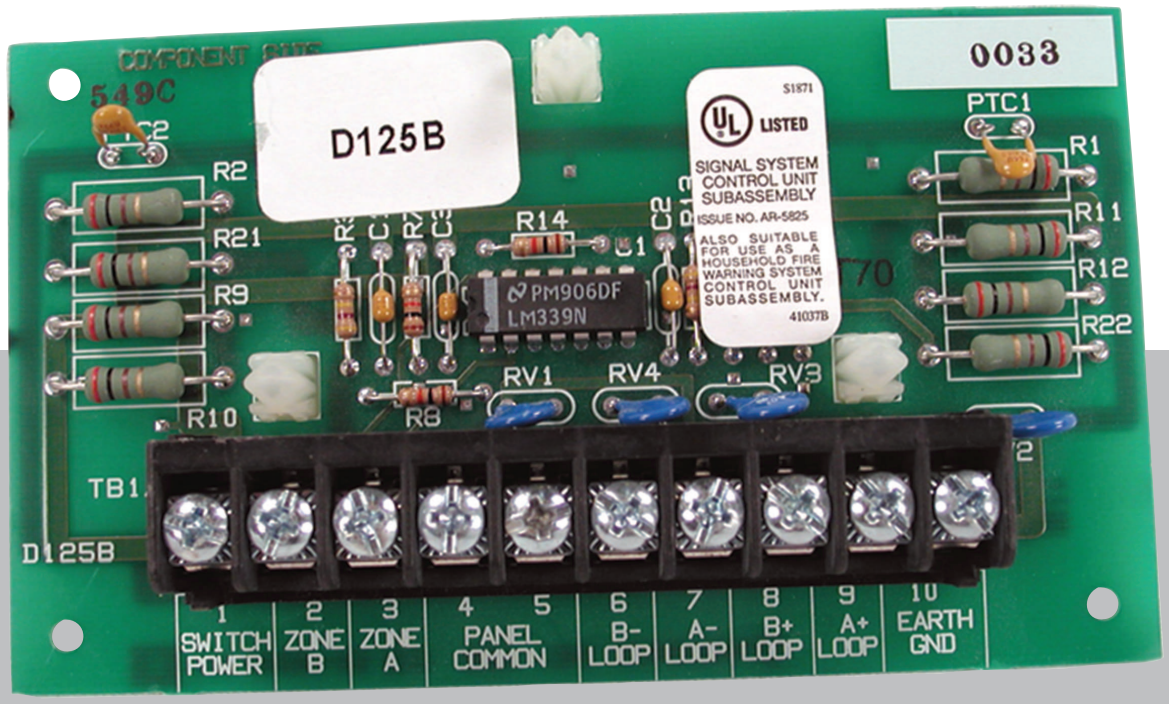
Powered loop interface

D125B



en Installation instructions

1 Notices

These instructions cover the installation of the D125B Dual Class B Initiating Module in a 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 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.

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

Use this module to connect up to 2 two-wire powered loops (Class B [Style B]) to separate on-board points on the compatible Bosch Security Systems, Inc. control panels listed in the table below. These loops are powered with nominal 12 VDC or 24 VDC for compatible smoke detectors or glassbreak devices. You can also use any dry contact device with this module.

Control Panels	**Compatible modules**	**Compatible relays**	**See figures:**
Active Products:			
New G panels[1]	B208, D308	D130, D133, D134	5.3 & 5.5
B-series panels[2]	B208, D308	D133 and D134	5.2 & 5.4
Legacy Products:*			
GV4 panels[3]	See control panel's documentation on the Bosch website (http://www.boschsecurity.com)		
GV3[4] and GV2[5] panels			
G panels[6]			
D9412, D7412, D7212* D9112B1, D7212B1			
D8112			
[1] New G panels = B9512G, B8512G, B9512G-E, and B8512G-E			
[2] B Series = B6512**, B5512**, B5512E**, B4512**, B4512E**, B3512**, and B3512E**			
[3] GV4 = D9412GV4, D7412GV4, and D7212GV4**			
[4] GV3 = D9412GV3, D7412GV3, and D7212GV3**			
[5] GV2 = D9412GV2, D7412GV2, and D7212GV2**			

[6] G = D9412G, D7412G, and D7212G**
* Legacy products have **not** been investigated to comply with the latest UL864 edition.
** indicates products which are **not** UL Listed for commercial fire applications.

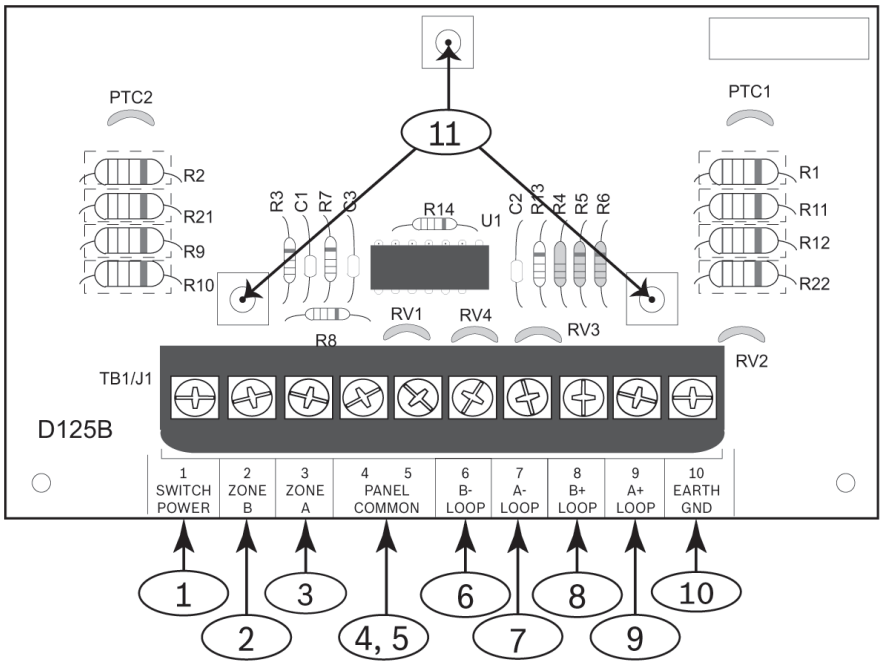


Figure 2.1: D125B Powered loop interface

1	Power-limited, supervised switched auxiliary power (detector reset)	2	Supervised connection to protective zone or point on the control panel
3	Supervised connection to protective zone or point on the control panel	4	Connect to only one common at the panel
5	Connect to only one common on the control panel	6	Power-limited, supervised negative to B loop detectors
7	Power-limited, supervised negative to A loop detectors	8	Power-limited, supervised positive to B loop detectors
9	Power-limited, supervised positive to A loop detectors	10	Earth ground
11	Mounting holes		

3 Operation

The module can be powered from the control panel's switched auxiliary power output or from an external auxiliary power supply. Currently, the control panels can only supply 12 VDC, but external power supplies can provide either 12 VDC or 24 VDC.
For wiring details, see *Wiring, page 6*.

3.1 Power from the control panel

In this mode, the control panel switched auxiliary power output supplies regulated, power-limited, supervised 12 VDC power to the module. The switched power output allows all detectors connected to the module to be reset by interrupting power using the Reset Sensor command. See *Wiring for 12 VDC power supplied by the control panel, page 7*.

3.2 Power from an external auxiliary power supply

Depending on compatibility with the control panel, a D130, D133, or D134 Relay can be required to reset the smoke detectors using the Reset Sensor command. See *Wiring for 12 VDC or 24 VDC power supplied by an external power supply, page 8*.
The external power supply must be 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 Installation

The module can be mounted in the D8103, D8108A, D8109, D8109G, D8109H, or D8109L Enclosures. Only the D8108A and D8109 models are suitable for commercial fire applications.
The D8108A and D8109L enclosures require use of a D137 Mounting Bracket to install the module. The other enclosures have several module mounting locations to which the module can be installed using the supplied screws. Refer to the D137's and the enclosure's Installation Instructions for mounting locations and instructions.

5 Wiring

5.1 Wiring initiating loops

The D125B has two loop inputs:

Loop A	Loop B
A+ (terminal 9)	B+ (terminal 8)
A- (terminal 7)	B- (terminal 6)

Notice!
Observe polarity when wiring initiating loops. Do not cross Loop A and Loop B connections.

To supervise the loops, install an end-of-line (EOL) resistor after the last detector of each protective loop. When installing a D125B in a new or existing system, use the 1.8 kΩ EOL resistor (P/N: F01U009011B) supplied with the module.

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

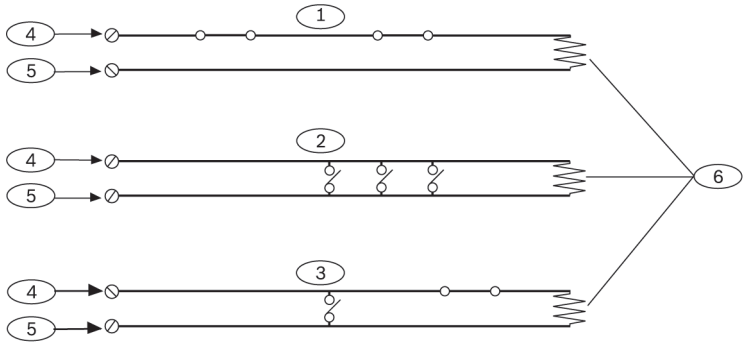


Figure 5.1: D125B loop wiring

1	Normally-closed contacts (NC)	4	Point input terminal
2	Normally-open contacts (NO)	5	Common
3	Combination: Normally-open and normally-closed contacts (NO/NC)	6	1.8 kΩ EOL resistor (P/N: F01U009011B) supplied with the module

The D125B shorts the protective loop on the control panel when the high (+) and low (-) side of either module loop is shorted together or when a smoke detector activates. The module opens the protective loop on the control panel during the following conditions:

– The module protective loop is opened.
– The D125B is not powered.

– Either the high (+) side of the loop or the low (-) side of the loop is shorted to ground.

For control panels with Ground Fault Detect, a short to ground causes a ground fault condition when Ground Fault Detect is enabled.

When programming for fire applications, refer to the corresponding control panel operation and installation guide.

5.2 Wiring for 12 VDC power supplied by the control panel

5.2.1 Wiring a B Series panel

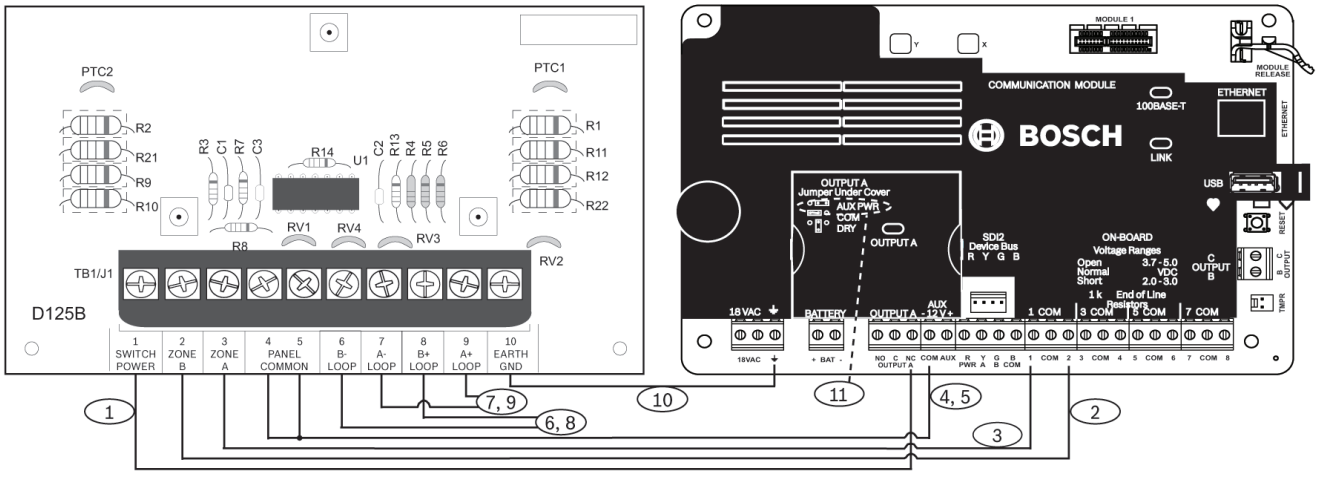


Figure 5.2: Wiring two-wire loops powered by a B Series panel

1	Power-limited, supervised switched auxiliary power from Output A (NC) of the control panel[1]	2	Supervised connection to Zone B power from an on-board point of the panel
3	Supervised connection to Zone A power from an on-board point of the panel	4	Connection with terminal 5 to only one common on the panel
5	Connection with terminal 4 to only one common on the panel	6	Power-limited, supervised negative to B loop detectors (see *Wiring initiating loops, page 6*)
7	Power-limited, supervised negative to A loop detectors (see *Wiring initiating loops, page 6*)	8	Power-limited, supervised positive to B loop detectors (see *Wiring initiating loops, page 6*)
9	Power-limited, supervised positive to A loop detectors (see *Wiring initiating loops, page 6*)	10	Earth ground
11	Output A jumper (under cover) set for auxiliary power applications (AUX PWR)		
[1] You can also use output B or C in conjunction with a D133 or D134 relay module.			

5.2.2 Wiring a G Series panel

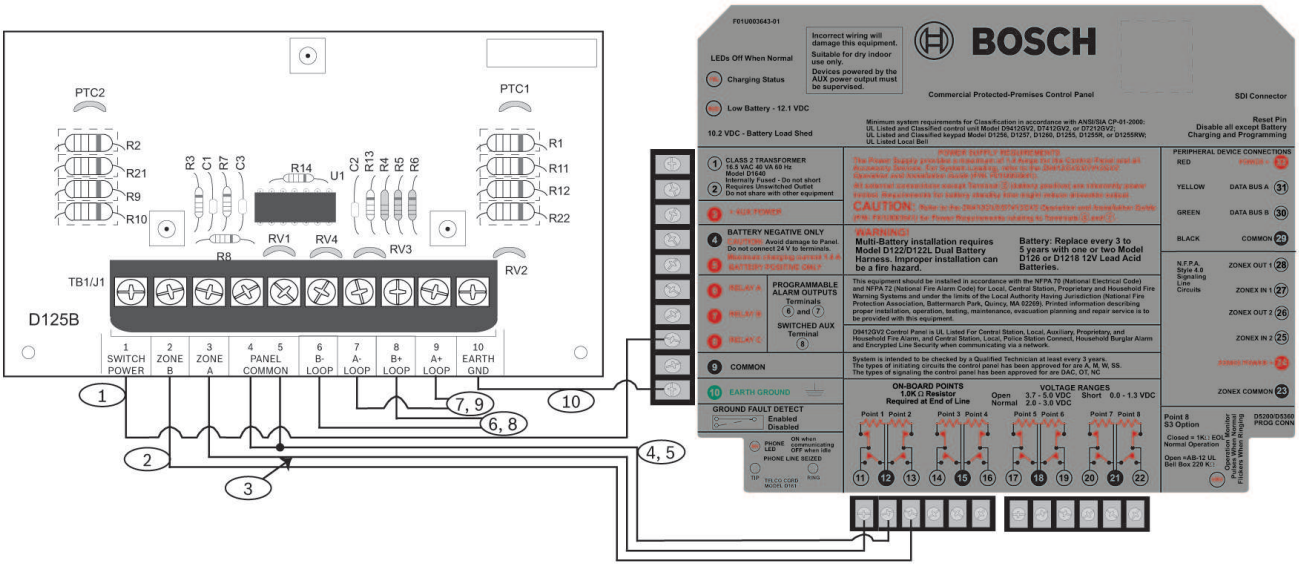


Figure 5.3: Wiring two-wire loops powered by a G Series panel

1	Power-limited, supervised switched auxiliary power from the control panel's relay C	2	Supervised connection to Zone B power from an on-board point of the panel
3	Supervised connection to Zone A power from an on-board point of the panel	4	Connection with terminal 4 to only one common on the panel
5	Connection with terminal 5 to only one common on the panel	6	Power-limited, supervised negative to B loop detectors (see *Wiring initiating loops, page 6*)
7	Power-limited, supervised negative to A loop detectors (see *Wiring initiating loops, page 6*)	8	Power-limited, supervised positive to B loop detectors (see *Wiring initiating loops, page 6*)
9	Power-limited, supervised positive to A loop detectors (see *Wiring initiating loops, page 6*)	10	Earth ground

5.3 Wiring for 12 VDC or 24 VDC power supplied by an external power supply

Use either a 12 VDC or 24 VDC regulated, power-limited auxiliary power supply listed under UL864 or UL1481.

Notice!
Do not mix 12 VDC and 24 VDC detectors on the same module.

5.3.1 Wiring a B Series panel

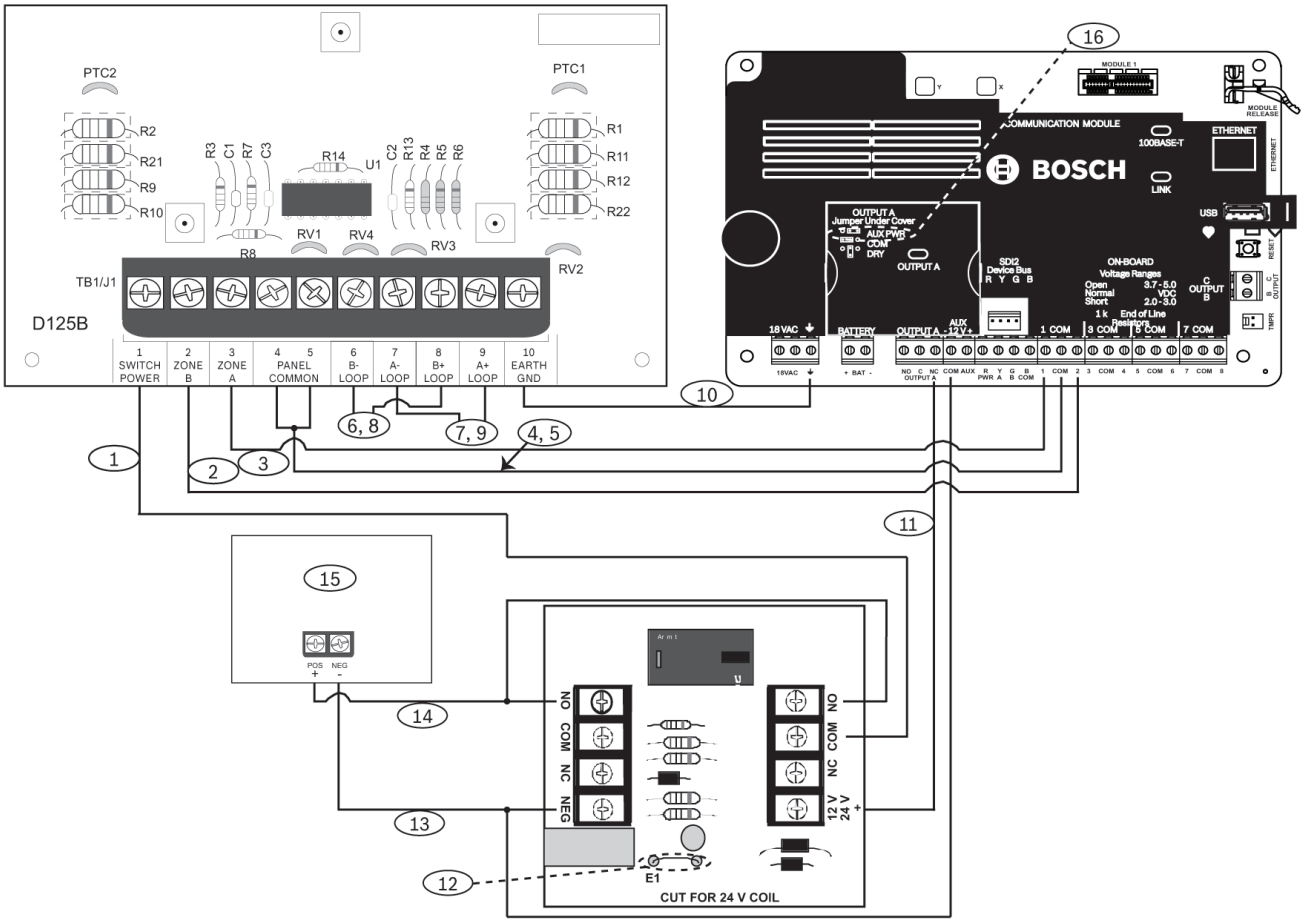


Figure 5.4: Wiring two-wire loops for power supplied by an external auxiliary power supply controlled by a relay and a B Series panel

1	Power-limited, supervised switched auxiliary power from Output A (NC) of the control panel[1]	2	Supervised connection to Zone B power from an on-board point of the panel
3	Supervised connection to Zone A power from an on-board point of the panel	4	Connection with terminal 5 to only one common on the panel
5	Connection with terminal 4 to only one common on the panel	6	Power-limited, supervised negative to B loop detectors (see *Wiring initiating loops, page 6*)
7	Power-limited, supervised negative to A loop detectors (see *Wiring initiating loops, page 6*)	8	Power-limited, supervised positive to B loop detectors (see *Wiring initiating loops, page 6*)
9	Power-limited, supervised positive to A loop detectors (see *Wiring initiating loops, page 6*)	10	Earth ground
11	Output A (NC) of the control panel controls the relay	12	For 24 V applications, cut this wire

13	Negative connection from the auxiliary power supply to the negative terminal of the relay and panel common	14	Positive connection from the auxiliary power supply to the positive terminals of the relay
15	UL Listed regulated, power limited auxiliary power supply (12 VDC or 24 VDC) for fire protection systems	16	Output A jumper (under cover) set for auxiliary power applications (AUX PWR)
[1] You can also use output B or C in conjunction with a D133 or D134 relay module			

5.3.2 Wiring a G Series panel

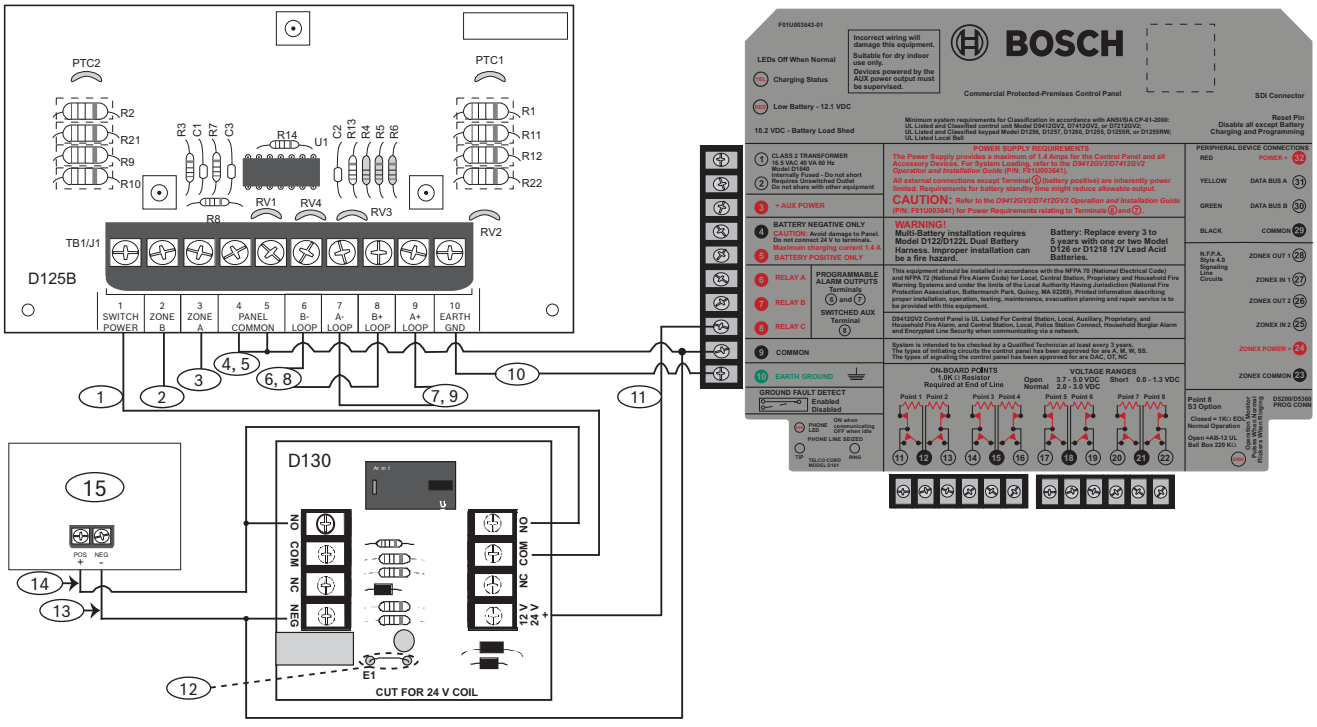


Figure 5.5: Wiring two-wire loops for power supplied by an external auxiliary power supply controlled by a relay and a G Series panel

1	Power-limited, supervised switched auxiliary power from the switching relay	2	Supervised connection to Zone B power from an on-board point of the panel
3	Supervised connection to Zone A power from an on-board point of the panel	4	Connection with terminal 5 to only one common on the panel
5	Connection with terminal 4 to only one common on the panel	6	Power-limited, supervised negative to B loop detectors (see *Wiring initiating loops, page 6*)
7	Power-limited, supervised negative to A loop detectors (see *Wiring initiating loops, page 6*)	8	Power-limited, supervised positive to B loop detectors (see *Wiring initiating loops, page 6*)

9	Power-limited, supervised positive to A loop detectors (see *Wiring initiating loops, page 6*)	10	Earth ground
11	Power-limited, supervised switched auxiliary power from the control panel's relay C to the switching relay	12	For 24 V applications, cut this wire
13	Negative connection from the auxiliary power supply to the negative terminal of the relay and panel common	14	Positive connection from the auxiliary power supply to the positive terminals of the relay
15	UL Listed regulated, power-limited auxiliary power supply (12 VDC or 24 VDC) for fire protection systems		

6 Specifications

Electrical

	12 VDC	24 VDC
Nominal operating voltage	Supplied by the control panel or by a regulated, power-limited 12 VDC power supply listed under UL864 or UL1481	Supplied by a regulated, power-limited 24 V power supply listed under UL864 or UL1481
Alarm Current (maximum)		
– One loop only	75 mA	168 mA
– Both loops	145 mA	300 mA
Standby Current (maximum)		
– One loop only	12 mA	25 mA
– Both loops	24 mA	50 mA

Electrical - two-wire powered loop Class B

Current	12 VDC	24 VDC
– Alarm	> 11.8 mA	> 24.1 mA
– Detector	3 mA	7 mA
– Trouble	< 3.5 mA	< 7.5 mA
Loop wire resistance	50 Ω	50 Ω

Environmental

Environment	Indoor, dry
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Relative Humidity	5% to 93% at +86°F (+30°C); non-condensing

Control panel to module distance

Maximum Wire Resistance	2 Ω
Maximum distance per wire size	
Maximum distance	Wire size
60 ft. (15 m)	22 AWG (0.34 mm^2)
160 ft. (40 m)	18 AWG (0.75 mm^2)

Mechanical

Dimensions (H x W x D)	5 in. x 3 in. x 0.8 in. (12.7 cm x 7.6 cm x 2.0 cm)

7 Compatible detectors and modules

7.1 Compatible 2-wire detectors

Underwriters Laboratories (UL) has found the following 2-wire detectors to be compatible with the D125B:

Manufacturer	CTN	Series	Base	Reversing*	Maximum number of detectors per loop	
					12 V	24 V
Bosch	D263	D263	N/A		8	8
	D263TH				8	8
	D263THC				8	8
	D263THS			●	8	8
	D285	D285	D287, D288, D340		10	10
	D285TH				10	10
	F220-P	F220	F220-B6		8	8
	F220-PTH				8	8
	F220-PTHC				8	8
	F220-135				8	8
	F220-135F				8	8
	F220-190F				8	8
	FCP-350-P	FCP-350	FCA-350-B6/ FCA-350-B4		25	25
	FCP-350-PTH	FCP-350	FCA-350-B6/ FCA-350-B4		25	25
	FCH-350-135[1]	FCP-350	FCA-350-B6/ FCA-350-B4			25
	FCH-350-190[1]	FCP-350	FCA-350-B6/			25

Manufacturer	CTN	Series	Base	Reversing*	Maximum number of detectors per loop	
					12 V	24 V
			FCA-350-B4			
System Sensor	2W-B	i3	N/A		8	8
	2WTA-B				8	8
	2WT-B				8	8
	5151	100	B110LP		10	10
* D132A does **not** operate at 24 V; use **only** on 12 V powered loops.						
[1]Used on 24V applications only.						

7.2 Compatible modules

Underwriters Laboratories (UL) has found the following modules to be compatible with the D125B:

CTN	Manufacturer	12 V	24 V	Reversing*
D130	Bosch	●	●	
D132A reversing relay*		●		●
D133		●	**	
D134		●	**	
* D132A does **not** operate at 24 V; use **only** on 12 V powered loops.				
** Relay can switch 24 V, but operates at 12 V.				

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

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

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