

D9412GV2/D7412GV2



EN | Operation and Installation Guide
Control Panels



BOSCH

Trademarks

CoBox is a registered trademark of Lantronix.

Windows is a registered trademark of Microsoft Corporation in the United States or in other countries.

Molex is a registered trademark of Molex Incorporated.

Certifications and Approvals

The D9412GV2/D7412GV2 Literature Pack includes the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639). Refer to this guide for additional guidelines on installing the control panels in Underwriters Laboratories Inc. (UL) and fire-specific applications.

Listings and Approvals

UL

The D9412GV2 and D7412GV2 Control Panels are UL Listed for Central Station, Local, Auxiliary, Proprietary, and Household Fire Alarm, and Central Station, Local, Police Station Connect, Household Burglar Alarm and Encrypted line Security when communicating via a network.

Department of Defense (DOD)

The D9412GV2/D7412GV2 was granted approval for Department of Defense (DoD) installations in Sensitive Compartmented Information Facilities (SCIF).

Federal Communications Commission (FCC) Rules

Part 15

This equipment was 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 when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy; and if not installed and used according to the instructions, can cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user is required to correct the interference at his or her own expense.

Part 68

This equipment complies with Part 68 of FCC rules. A label contains, among other information, the FCC registration number and ringer equivalence number (REN). If requested, this information must be provided to the telephone company.

The D9412GV2 and D7412GV2 Control Panels are registered for connection to the public telephone network using an RJ38X or RJ31X jack.

The REN is used to determine the number of devices that can be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five. To be certain of the number of devices that may be connected to the line, as determined by the RENs, contact the telephone company to determine the maximum REN for the calling area.

If you experience trouble with the D9412GV2 or D7412GV2 Control Panel, please contact Bosch Security Systems Customer Service for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company might request that the equipment be removed from the network until the problem is resolved. User repairs must not be made, and doing so will void the user's warranty.

If the D9412GV2 or D7412GV2 Control Panel causes harm to the telephone network, the telephone company attempts to notify you in advance. If advance notice is not practical, the telephone company notifies you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company might make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company provides advance notice in order for the necessary modifications to be made in order to maintain uninterrupted service.

This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line service is subject to state tariffs. (Contact your state public utilities commission for information.)

FCC Registration Number: AJ9MUL-46532-AL-E

Service Center in USA:

Bosch ST Service Center
8601 East Cornhusker Hwy
Dock B
Lincoln, NE 68507 - 9702 USA

Ringer Equivalence: 0.4B

Contents

1.0	Introduction.....	7	4.8	Installing the Point Chart Label.....	19
2.0	Lightning Strikes	8	4.9	Testing the System	19
2.1	Effects.....	8	4.10	Service Walk Test.....	20
2.2	Precautions during Installation	8	5.0	Power Supply	23
3.0	Overview.....	9	5.1	Primary Power Terminals 1 and 2	23
3.1	Configuration and Parts.....	9	5.1.1	Primary (AC) Power Circuit.....	23
3.1.1	Parts List.....	10	5.1.2	Installing the Transformer	23
3.1.2	Parts Available by Separate Order.....	10	5.2	Secondary Power Terminals.....	23
3.2	Accessories	10	5.2.1	Secondary (DC) Power	23
3.3	Features in the D9412GV2 and D7412GV2	11	5.2.2	Installing the Battery	24
3.3.1	SDI Molex Connector	11	5.2.3	Replacing the Battery.....	26
3.3.2	Tip and Ring Posts	11	5.2.4	Battery Supervision.....	26
3.3.3	Super Capacitor.....	11	5.2.5	Battery Charging Circuit.....	26
3.3.4	Telephone Line Sniff.....	12	5.2.6	Battery Discharge and Recharge Schedule	27
3.3.5	Points.....	12	6.0	Power Outputs.....	28
3.3.6	Areas and Accounts	12	6.1	Circuit Protection.....	28
3.3.7	Digital Communicator	12	6.2	Total Available Power	28
3.3.8	Keypads.....	13	6.3	Continuous Power Output Terminals 3, 8, 24, and 32	28
3.3.9	Keyswitch	13	6.4	Programmable Power Output Terminals 6, 7, and 8	28
3.3.10	Access Control	13	6.4.1	Programming.....	28
3.3.11	Event Memory	13	6.4.2	Terminals 6 and 7	29
3.3.12	Event Log	14	6.4.3	Fire System Power Formula	29
3.3.13	Ground Fault Detection	14	6.4.4	Terminal 8	29
3.3.14	Ground Fault Detection Added Feature	14	7.0	Telephone Connections	30
3.3.15	Conettix Functions.....	14	7.1	Registration	30
3.3.16	Programming.....	14	7.2	Notification	30
3.3.17	Other Features	14	7.3	Location.....	30
4.0	Installation.....	15	7.4	Telephone Cord Connection.....	30
4.1	Installation Preparation.....	15	7.5	Phone LED (Red).....	31
4.2	Enclosure Options	15	7.6	Operation Monitor LED (Green).....	31
4.3	Mounting Enclosure.....	15	7.7	Dialing Format.....	31
4.4	Installing the Control Panel.....	16	7.8	Telephone Line Monitor	31
4.5	Connecting Earth Ground.....	16	7.9	Called Party Disconnect.....	31
4.5.1	Terminal 10.....	16	7.10	Communication Failure	31
4.5.2	Ground Fault Detect Enable	16	7.11	D928 Dual Phone Line Switcher	32
4.5.3	Enabling Ground Fault Detection	17	7.11.1	Description	32
4.5.4	D7212GV2 Ground Fault Specifications	17	7.11.2	Operation	32
4.5.5	Locking the Reset Pin.....	18	7.11.3	Installing the D928	33
4.6	Completing the Installation	18	7.11.4	D928 Status LEDs	33
4.6.1	Charging the Battery.....	18	8.0	On-Board Points	35
4.6.2	Installing and Wiring Detection Devices	18	8.1	Terminals 11 to 22 Description	35
4.6.3	Installing Modules and Relays.....	19	8.2	Point Sensor Loops.....	35
4.6.4	Connecting the On-board Points and Keypads.....	19	8.3	Point Parameters	35
4.6.5	Powering Up.....	19	8.4	Point Response Time.....	36
4.7	Programming the Control Panel	19			

8.5	Wiring Information for Installations Using the Rothenbuhler 5110/4001-42 High Security Bell.....	36	11.3	D279A Independent Zone Control	60
9.0	Off-Board Points	39	11.4	Keyswitch	60
9.1	Point (Zonex) Bus: D9412GV2 Terminals and D7412GV2 Terminals	39	11.4.1	Description	60
9.1.1	POPIT Modules	39	11.4.2	Programming.....	60
9.1.2	POPEX Modules.....	39	11.4.3	Installation	60
9.1.3	Missing Conditions	39	11.4.4	Operation	60
9.1.4	Extra Point Events	39	12.0	SDI Devices.....	62
9.1.5	D9412GV2/D7412GV2 Responses to Missing Point Conditions	40	12.1	Description	62
9.2	D8125, D8127 and D9127 POPIT Modules	40	12.2	Installation	62
9.3	Installing the D8125 POPEX Module	43	12.3	D9131A Parallel Printer Interface Module ..	62
9.3.1	Mounting.....	43	12.3.1	Switch Settings.....	62
9.3.2	Wiring the D8125 to the Control Panel.....	43	12.3.2	Supervision	62
9.3.3	Wiring POPITs to the Data Expansion Loop.....	43	12.4	D9210B Wiegand Control Interface Module	63
9.3.4	Wiring Data Expansion Loops to POPEX Modules	44	12.4.1	Access.....	63
9.3.5	POPIT Sensor Loops.....	44	12.4.2	Switch Settings.....	63
9.3.6	POPIT Module Point Assignments	44	12.5	SDI Address 80.....	63
9.3.7	Program Record Sheet.....	44	12.5.1	Serial Interface Modules (SIMs).....	63
9.3.8	POPIT Labels	45	12.5.2	Address Settings.....	63
9.4	D8128D OctoPOPIT Module	45	12.5.3	Supervision	64
9.4.1	Description.....	45	12.6	SDI Address 88.....	64
9.4.2	Listings.....	46	12.6.1	D9133DC Direct Connect Programming Module	64
9.4.3	Installation	47	12.6.2	Network Interface Modules	64
9.4.4	Setting the OctoPOPIT Switches	47	12.6.3	Address Settings	65
9.4.5	Mounting OctoPOPITs.....	48	12.6.4	Supervision	65
9.4.6	Wiring OctoPOPITs	48	13.0	Programmer and Accessory Connections	66
9.4.7	OctoPOPIT Sensor Loops.....	51	13.1	Programmer Connector	66
9.5	Testing Off-Board Points	52	13.2	Programmer Access Reports.....	66
10.0	Off-Board Relays	53	13.3	Accessory Connector.....	66
10.1	D8129 OctoRelay	53	14.0	Faceplates.....	67
10.1.1	Configuring the D8129 OctoRelay.....	54	14.1	D9412GV2 Faceplate	67
10.1.2	Relay Outputs.....	54	14.2	D7412GV2 Faceplate	68
10.1.3	Installation	54	Appendix A: System Wiring Diagrams, Issue A .	69	
10.1.4	Wiring Connections	55	A.1	D9412GV2 Control Panel	69
10.2	D811 Arm Status Relay Module	55	A.2	D7412GV2 Control Panel	72
10.2.1	Relay Output.....	55	Appendix B: Point Address Charts	75	
10.2.2	Installation	56	B.1	Zonex 1, Points 9 to 127 (D9412GV2); Zonex 1, Points 9 to 75 (D7412GV2).....	75
10.2.3	Wiring Connections	56	B.2	Zonex 2, Points 129 to 247 (D9412GV2 Only).....	76
11.0	Arming Devices	58	Specifications.....	77	
11.1	Description.....	58			
11.2	Keypad Terminals 29 to 32	58			
11.2.1	Assigning an Address for the Keypad	58			
11.2.2	Installation	59			

Figures

Figure 1: System Configuration.....9
 Figure 2: Enclosure Mounting15
 Figure 3: Ground Fault Detection16
 Figure 4: Ground Fault Detect (S4).....17
 Figure 5: Area 5 Silent Alarm Relay in RPS.....17
 Figure 6: Reset Pin.....18
 Figure 7: D9412GV2 Service Walk Test Flow Chart21
 Figure 8: D7412GV2 Service Walk Test Flow Chart22
 Figure 9: Non-Power-Limited Wiring25
 Figure 10: Charging and Battery LEDs26
 Figure 11: RJ31X Wiring30
 Figure 12: Phone Connector, Phone LED, and Operation Monitor LED Locations.....30
 Figure 13: D928 Dual Phone Line Switcher.....33
 Figure 14: On-board Point Sensor Loop Wiring.....35
 Figure 15: Rothenbuhler 5110/4001-42 High Security Bell Wiring Configuration37
 Figure 16: Wiring the Rothenbuhler 5110/4001-42 High Security Bell to the D9412GV2 or D7412GV2 Control Panel38
 Figure 17: Connecting the D8125 POPEX to the D9412GV2 Control Panel41
 Figure 18: Connecting the D8125 POPEX to the D7412GV2 Control Panel42
 Figure 19: Program Record Sheet45
 Figure 20: D8128D OctoPOPIT Layout.....46
 Figure 21: Connecting D8128D OctoPOPITs to the D9412GV249
 Figure 22: Connecting D8128D OctoPOPITs to the D7412GV250
 Figure 23: Wiring Multiple D8128Ds Using Molex® Connectors51
 Figure 24: D8128D OctoPOPIT Sensor Loops52
 Figure 25: D8129 Connections to the D9412GV2 .53
 Figure 26: D8129 Connections to the D7412GV2 .54
 Figure 27: D811 Module Wiring to the D9412GV256
 Figure 28: D811 Module Wiring to the D7412GV257
 Figure 29: Power at Keypads.....60
 Figure 30: Keyswitch Wiring.....61
 Figure 31: D9133 Jumper Setting for Address 80..64
 Figure 32: DX4010i DIP Switch Settings.....64
 Figure 33: DX4020 DIP Switch Settings65
 Figure 34: Reset Pin.....66

Figure 35: Programmer and Accessory Connections..... 66
 Figure 36: D9412GV2 Faceplate 67
 Figure 37: D7412GV2 Faceplate 68
 Figure 38: D9412GV2, Power Supply Side 69
 Figure 39: D9412GV2, Input Points and Peripheral Devices 70
 Figure 40: D9412GV2, SDI Devices 71
 Figure 41: D7412GV2, Power Supply Side 72
 Figure 42: D7412GV2, Input Points and Peripheral Devices 73
 Figure 43: D7412GV2, SDI Devices 74

Tables

Table 1: Related Documentation..... 7
 Table 2: GV2 Series Control Panel Differences... 9
 Table 3: Compatible Accessories..... 10
 Table 4: Software Version Compatibility of D6500 MPU and Line Cards 13
 Table 5: Compatible Keypads and Command Centers 13
 Table 6: Ground Fault Impedance Specifications 17
 Table 7: Battery Discharge and Recharge Schedule..... 27
 Table 8: Charging Status and Low Battery LEDs 27
 Table 9: Phone Cord Lengths..... 33
 Table 10: Point Parameters..... 35
 Table 11: POPEX Modules..... 39
 Table 12: Extra Point Events 39
 Table 13: Off-Board Point Errors 40
 Table 14: Data Expansion Loop Wire Specifications 43
 Table 15: D8128D OctoPOPIT Switch Settings for D9412GV2 and D7412GV2..... 47
 Table 16: Switch 5 Settings for Line Termination. 47
 Table 17: Terminal Strip Connections 48
 Table 18: D8129 OctoRelay Switch Settings 54
 Table 19: Number of D8128Ds Used with D8129s 55
 Table 20: Keypad Address Settings 58
 Table 21: Keypad Connections 59
 Table 22: SDI Device Connections 62
 Table 23: Printer Address Switch Settings 62
 Table 24: Address Switch Settings for Access Control Module 63
 Table 25: Zonex 1 Point Address Chart 75
 Table 26: Zonex 2 Point Address Chart 76
 Table 27: Specifications 77

1.0 Introduction

This manual addresses the operation and installation of the D9412GV2 and D7412GV2 Control Panels. Throughout this guide, the words “control panel” refer to both control panels (D9412GV2 and D7412GV2). *Table 2* on page 9 provides an overview of the differences in the control panels.



To obtain any of the documents in *Table 1*, contact Bosch Security Systems, inc. Technical Support and request the documentation by its corresponding part number.

Table 1: Related Documentation

Product Type	Name of Documentation*	Part Number
Control Panels	<i>D9412GV2/D7412GV2 Release Notes*</i>	F01U003637
	<i>D9412GV2/D7412GV2 Approved Applications Compliance Guide*</i>	F01U003639
	<i>D9412GV2/D7412GV2 Troubleshooting Guide*</i>	F01U011024
	<i>D9412GV2/D7412GV2 Operation and Installation Guide (this document) *</i>	F01U003641
	<i>D9412GV2/D7412GV2 Program Entry Guide*</i>	F01U003636
	<i>D9412GV2/D7412GV2 Program Record Sheet*</i>	F01U003635
	<i>UL Certificated Bank Safe and Vault Applications Technogram</i>	73-07302-000
	<i>9000/G/GV2 Series Technical Service Note: UL Smoke Detector Compatibility*</i>	33284
Keypads	<i>D1255RB/D1256RB/D1257RB Installation Instructions*</i>	F01U011791
	<i>D1255/D1255B Installation Instructions</i>	74-06819-000
	<i>D1256/D1257 Installation Instructions</i>	74-06925-000
	<i>D1260/D1260B Installation Guide</i>	48101
	<i>D1260/D1260B Owner's Manual</i>	50410
	<i>D720 Series Installation Instructions</i>	74-06918-000
	<i>D279A Operation and Installation Instructions</i>	46458
	<i>Security System Owner's Manual</i>	71-06633-000
<i>GV2 Series Owner's Manual Supplement</i>	F01U063791	
Programming Tools	<i>RPS Installation and Operation Guide</i>	4998141259
	<i>D5200 Operation Manual</i>	74-06176-000
Expansion Devices	<i>D8128D Installation Guide*</i>	41323
	<i>D8125MUX Operation & Installation Guide*</i>	36796
	<i>D9210B Operation and Installation Guide*</i>	32206

* These products meet the requirements for UL 864 Commercial Fire applications..

2.0 Lightning Strikes

The control panels are designed to significantly reduce electromagnetic interference and malfunction generally caused by lightning.

2.1 Effects

Any electronic system can be struck directly by lightning or be adversely affected by a lightning strike near the system. When lightning strikes, several things happen:

- An electromagnetic wave spreads from the point of the strike inducing high voltages in nearby conductors.
- The voltage changes substantially on electrical grounds near the lightning strike.
- High voltages are induced upon anything directly struck by lightning.

Symptoms of installations that lightning might strike or affect are Missing Trouble, Missing Alarm, or Point Bus Trouble events. Occasionally, Reboot and Watchdog events might be sent because the control panel tried to reset itself.

Electronic systems, including control panels, cannot be completely immune to direct or indirect lightning strikes; however, some proven installation practices might greatly reduce the risk of undesirable affects.

2.2 Precautions during Installation

To minimize the risk of undesirable effects from lightning strikes on high risk installations that use a point-bus technology:

- Do not run wiring outside the building.
- If you must install the unit in a metal building, keep the wiring at least 0.61 m (2 ft) away from external metal surfaces.
- Earth ground the unit correctly. Do not use an electrical ground or telephone ground.
- Avoid running wires near telephone, data, or power lines inside a building. Historical evidence shows that locating control panel wiring at least 0.61 m (2 ft) away from telephone, data, or power lines is successful at minimizing lightning damage. When your data lines must cross the path of AC or other wiring, cross the lines perpendicularly.

3.0 Overview

3.1 Configuration and Parts

Figure 1: System Configuration

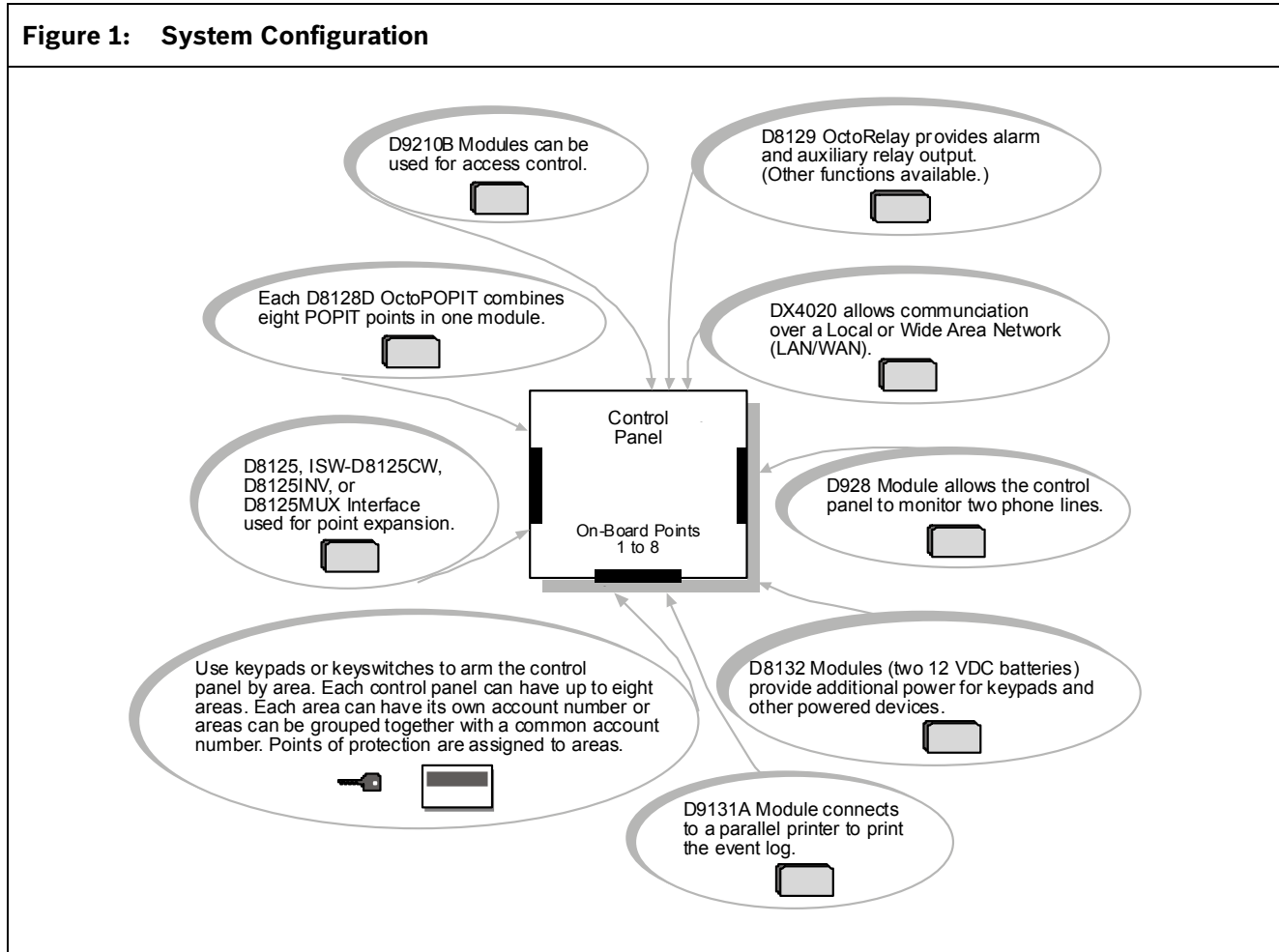


Table 2: GV2 Series Control Panel Differences

Features	D9412GV2	D7412GV2	D7212GV2
Access Control	Yes - 8 doors	Yes - 2 doors	No
Arm/Disarm Passcodes	249	99	99
Cards/Tokens	996	396	N/A
Passcode-Protected Custom Functions	16	4	4
Number of Printers	3	1	1
Number of Points	246	75	40
Number of Relays	128	64	24
Number of Areas	8	8	4

3.1.1 Parts List

The D9412GV2 and D7412GV2 Control Panels are shipped assembled from the factory with the following parts:

Literature Pack

- D9412GV2/D7412GV2 Program Record Sheet (P/N: F01U003635)
- 9000/G/GV2 Series Technical Service Note: UL Smoke Detector Compatibility (P/N: 33284)
- 7000/9000 Series Point Chart Label (P/N: 79-06660-000)

Assembly

- PC board
- Faceplate shield
- Mounting skirt
- One #6 x 1/4-in. screw

3.1.2 Parts Available by Separate Order

Order the following components separately to complete a basic eight-point installation.



The D1260 and D1260B Keypads must have firmware version 1.03 or higher for use with the D9412GV2 and D7412GV2.

- D1255B, D1255, D1256, D1260, D1260B Keypad, or D720 Keypad
- D1255RB Fire Keypad, D1256RB Fire Keypad, or D1257RB Fire Alarm Annunciator
- D1640 Transformer
- D126 or D1218 Battery
- D161 or D162 Phone Cord (order two cords if using the D928 Dual Phone Switcher)
- D8103, D8108A, or D8109 Enclosure

Configured packages are also available. Please consult the Bosch Security Systems, Inc. Product Catalog.

The following literature is available in a separate literature package for dealers.

- *D9412GV2/D7412GV2 Operation and Installation Guide* (P/N: F01U003641)
- *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639)
- *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636)
- *D9412GV2/D7412GV2 Program Record Sheet* (P/N: F01U003635)

The *D9412GV2/D7412GV2 Troubleshooting Guide* is available in hard copy only (P/N: F01U011024), CD-ROM only (P/N: F01U012325), or hard copy with enclosed CD-ROM (P/N: F01U012326).

3.2 Accessories

Refer to the Bosch Security Systems, Inc. product catalog for additional information.

Table 3: Compatible Accessories³

Model	Title	UL 864	Fire	Intrusion
D122/D122L	Dual Battery Harness	X	X	X
D125B	Powered Loop Interface Module	X	X	X
D127	Reversing Relay	X	X	X
D129	Dual Class A Initiation Circuit Module	X	X	X
D130	Relay Module	X	X	X
D185	Reverse Polarity Module		X	X
D192G	Bell Circuit Supervision Module	X	X	X
D279A	Independent Zone Control (On-Board and OctoPOPIT Points)			X
D720	Keypad (Area LED)		X	X
D720R	LED Keypad (red)		X	X
D720W	LED Keypad (white)		X	X
D928	Dual Phone Line Switcher	X	X	X
D1255RB	Fire Keypad	X	X	X
D1256RB	Fire Keypad	X	X	X
D1257RB	Fire Alarm Annunciator	X	X	X
D1218	12 V, 17.2 Ah Rechargeable Battery	X	X	X
D1255/D1255B	Keypads (General Purpose)		X	X
D1255R	Text Keypad (red)		X	X

Table 3: Compatible Accessories (continued)³

Model	Title	UL 864	Fire	Intrusion
D1255W	Text Keypad (white)		X	X
D1256	Fire Keypad (Command Center)		X	
D1257	Fire Alarm Annunciator		X	
D1260/D1260B ¹	Keypads		X	X
D1640	16.5 VAC 40 VA Transformer	X	X	X
D8004	Transformer Enclosure	X	X	X
D8125	POPEX Module	X	X	X
D8125MUX	Multiplex Bus Interface	X	X	X
ISW-D8125CW ²	Commercial Wireless Interface Module			X ²
D8125INV ²	Inovonics Wireless Interface Module			X ²
D8128D	OctoPOPIT Module	X	X	X
D8129	OctoRelay Module	X	X	X
D8130	Release Module	X	X	X
D8132	Battery Charger Module		X	X
D9127U/T	POPIT Module	X	X	X
D9131A	Parallel Printer Interface Module		X	X
D9210B	Access Control Interface Module	X	X	X
ZX776Z	PIR Motion Sensor [15 m (50 ft)] with POPIT			X
ZX794Z	PIR Motion Sensor [24 m (80 ft)] with POPIT			X
ZX865	PIR/Microwave Motion Sensor [+1.7°C (+35°F)] with POPIT			X
ZX938Z	PIR Motion Sensor [18 m (60 ft)] with POPIT			X
ZX970	PIR/Microwave Motion Sensor [+1.7°C (+35°F)] with POPIT			

¹ Version 1.03 or above

² The ISW-D8125CW and the D8125INV were not investigated by UL. Do not use the ISW-D8125CW or D8125INV in UL Listed installations.

³ Where the fire alarm transmitter is sharing on-premise communications equipment, the shared equipment must be UL Listed (ITE or fire protective signaling).

3.3 Features in the D9412GV2 and D7412GV2

3.3.1 SDI Molex Connector

Use the SDI Molex Connector to connect easily an SDI device with the SDI bus, without needing to disconnect wires connected to the SDI terminals. Possible applications include:

- Connecting a DX4010i to program the control panel with Remote Programming Software (RPS) at the premises
- Connecting a keypad to test the control panel.



Do not connect the D5200 Programmer to the SDI Molex connector.

3.3.2 Tip and Ring Posts

The tip and ring posts allow connecting a phone or buttset for the purpose of troubleshooting communications between the control panel and the central station. This connection allows monitoring of the dial tone, handshaking tones from the receiver, and communications signals.

3.3.3 Super Capacitor

The D9412GV2 and D7412GV2 have a capacitor called Super Cap. This component preserves the parameters stored in the control panel's RAM chip when the lithium battery is replaced. The Super Cap can retain voltage for up to 30 minutes after the lithium battery is removed.

Plan to replace the lithium battery after 3 to 5 years of continual service.



When replacing the lithium battery, ensure that you disconnect the primary AC power and secondary battery power from the control panel **before** you remove the old battery. Then install the new battery and connect the primary AC and secondary battery power to the control panel.

3.3.4 Telephone Line Sniff

The D9412GV2 and D7412GV2 control panels monitor the phone line for the programmed supervision interval before indicating a phone line trouble. If trouble occurs, refer to the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024).

3.3.5 Points

The Bosch Security Systems, Inc. D9412GV2 Control Panel provides up to 246 points of protection. The D7412GV2 Control Panel provides up to 75 points of protection. Point programming parameters determine the control panel's response to open and shorted conditions on the sensor loop for the point. Several options allow individual point programming to custom-fit the protection to the installation.

Points 1 to 8 are located on the circuit board (on-board points). They are standard sensor loops. The remaining off-board points are POPIT points using D8128D OctoPOPITs, D8125 POPEX Modules and D9127 or D8127 POPITs. MUX devices can also be used with D8125MUX or wireless transmitters with the ISW-D8125CW and D8125INV.

3.3.6 Areas and Accounts

The system supports up to eight separate areas. You can assign all points to a single area or distribute them over as many as eight areas.

The control panel is armed and disarmed by area, and several areas can be armed and disarmed with one menu function. A passcode can also be assigned an authority level that allows a user to arm an area from a remote keypad in another area. Assigning each area its own account number creates eight separate accounts in one control panel. Assigning the same account number to different areas groups them together in a single account.

Area options include exit tone and delay, separate fire and burglary outputs, and multiple opening and closing windows. Area type can be used to create area interdependencies for arming purposes.

3.3.7 Digital Communicator

The control panel uses a built-in digital communicator to send reports to the receiver. The control panel sends reports in either the Modem IIIa² or binary frequency shift keying (BFSK) format. The microprocessor unit (MPU) and line cards for the D6500 receiver must have the correct software revision installed to accept Modem IIIa² reports from the control panel. Refer to *Table 4*. All software versions for the D6600 can be used with the control panel.

Table 4: Software Version Compatibility of D6500 MPU and Line Cards

MPU	Line Card	Software Version
D6510		8.00 and higher
D6511		1.04 and higher
	D6540	7.44 and higher
	D6541	1.03 and higher

The control panel connects to an RJ31X or RJ38X jack for telephone line seizure. Connecting to the RJ31X complies with FCC regulations for using the public telephone network. The control panel can be programmed to direct reports to four separate telephone numbers. Adding the D928 Dual Phone Line Switcher Module allows connecting and supervising a second telephone line.

The system can route groups of Event Reports to four different destinations. Each report group can be programmed to send reports to one or more destinations. Primary and backup reporting paths can be programmed for each destination and each report group. A custom option allows specification of individual Event Reports to be sent.

3.3.8 Keypads

Up to 32 unsupervised keypads can be connected to the system. The available power, number of supervised keypads, and number of areas covered affect the total number of keypads that can be connected.

The system can supervise up to eight keypads. The control panel sends a Serial Device Trouble Report, SDI FAILURE in the Modem IIIa² format or TROUBLE ZN D in the BFSK format, if it loses communication with a supervised keypad.

More than eight keypads can be added, but supervision of only eight for is possible. *Table 5* on page 13 shows the keypads that are compatible with the D9412GV2 and D7412GV2 Control Panels. Refer to *Keypad* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003639) for complete details on programming keypad options.



UL requires all Fire System keypads to be supervised.

Table 5: Compatible Keypads and Command Centers

Model	Display	Application
D1255/ D1255B/D 1255RB	16-character alphanumeric	Fire/Burglary/Access
D1256/ D1256RB	16-character alphanumeric	Fire
D1257/ D1257RB	16-character alphanumeric	Fire
D1260/ D1260B	4-line by 20-character	Fire/Burglary
D720/ D720B	8 LED	Fire/Burglary

3.3.9 Keyswitch

Maintained or momentary closure devices such as keyswitches allow any of the available areas to be armed or disarmed. Point programming determines the loop responses and which area a keyswitch controls.

3.3.10 Access Control

The D9412GV2 can control eight access doors (each requiring the optional D9210B Wiegand Control Interface Module) with up to 996 uniquely identified cards or tokens. The D7412GV2 can control two access doors with up to 396 uniquely identified cards or tokens. Any of the following can grant access:

- Wiegand-style access control device (card reader) connected to the D9210B Access Control Interface Module
- Request to enter (RTE) or request to exit (REX) input
- Unlock command on a keypad

The access control features of the D9412GV2 and D7412GV2 can deny access during armed periods. The control panel can also grant access only to certain authorized users depending on whether the area is master armed, perimeter armed, or disarmed. Programming for automatic disarming when designated authorized users are granted access is also possible.

3.3.11 Event Memory

The system uses event memory to store events for each area. A D1255, D1255B, D1255RB, D1260, or D1260B Keypad assigned to an area allows viewing of the events for the area. The control panel clears the events for an area from event memory and starts storing new events when the area is master armed.

3.3.12 Event Log

The system stores from 500 to 1000 events and event modifiers from all areas in its event log. Event modifiers add information about an event to the log. Some events are always followed by a modifier. For example, the system adds at least two items to the log each time an area is armed or disarmed, the Open (or Close) event and an event modifier showing the previous arming state.

All events and their modifiers can be stored even if the control panel does not send a report for them. The log can be viewed at a keypad, printed locally using the D9131A Parallel Printer Interface Module and a parallel printer, or uploaded using Remote Programming Software (RPS).

For a list of the log events and event modifiers, refer to the appendix in the user's guide for the keypad.

3.3.13 Ground Fault Detection

The Earth Ground Terminal on the control panels is electrically isolated from all other terminals to allow the D9412GV2 and the D7412GV2 to detect ground fault conditions. A Ground Fault Detect Enable switch (S4) is located just under Terminal 10, Earth Ground, on the control panel. Refer to *Section 4.5.2 Ground Fault Detect Enable* on page 16 for information on operating this function.

3.3.14 Ground Fault Detection Added Feature

When Ground Fault Detect is enabled (S4 closed), Points 1 to 8 can be used for non-powered fire-initiating devices such as heat detectors, four-wire smoke detectors, and pull stations. A D125B Powered Loop Interface or a D129 Dual Class A Interface Module is not required when connecting the non-powered fire-initiating devices to Points 1 to 8.

3.3.15 Conettix Functions

The D6600 Conettix System supports data network communications. Conettix allows the D6600 receiver to connect to network topologies, specifically Ethernet. Conettix also allows this receiver to process messages to and from most networks using TCP/IP protocols. Connecting to a data network is possible using the COM4 or COM1 connection from the D6600 receiver to the D6680 Network Adapter. Alarm control panels can send reports through telephone lines or Ethernet and token-ring data networks to the D6600 receiver and then to the central station automation software or the network printer through a local area network (LAN) or wide area network (WAN). The network can monitor the status of alarm control panels.

3.3.16 Programming

Use the Bosch Security Systems D5200 Programmer or the Remote Programming Software (RPS) to program the D9412GV2 and D7412GV2 Control Panels. Refer to the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for programming options.

3.3.17 Other Features

D9412GV2 and D7412GV2 Control Panels have many programmable features. Some of the features are listed below. Complete details on all features are in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

- Supervision of AC (primary power), battery (secondary power), Zonex and SDI buses, central processing unit (CPU), up to three printers, and two telephone lines
- Automatic System Test Reports
- Remote access for programming, diagnostics, and log uploads using the remote programming software (RPS)
- Fire alarm verification
- Programmable alarm output
- Programmable relay output using the D8129 OctoRelay Module
- Opening and closing windows
- Skeds (scheduled events)

4.0 Installation

4.1 Installation Preparation

This section contains a general installation procedure and refers to other sections of the document for detailed instructions.

Review this document and the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) before beginning the installation to determine the hardware and wiring requirements for the features used.

Have the following documentation available when reading through this guide:

- *D9412GV2/D7412GV2 Program Record Sheet* (P/N: F01U003635)
- *Security System Owner's Manual* (P/N: 71-06633-000) and *GV2 Series Owner's Manual Supplement* (P/N: F01U0063791)
- Installation manual for keypad, command center, or annunciator (D1255, D1255B, D1255RB, D1256, D1256RB, D1257, D1257RB, D1260, D1260B, D720, or D720B)

Before installation, become familiar with the operation of the D5200 Programmer or the RPS.

4.2 Enclosure Options

Mount the control panel assembly in any of the Bosch Security Systems, Inc. enclosures listed:

- D8103 Universal Enclosure (tan)
- D8109 Fire Enclosure (red)
- D8108A Attack Resistant Enclosure (tan)

Refer to the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) to determine if the application requires a specific enclosure.

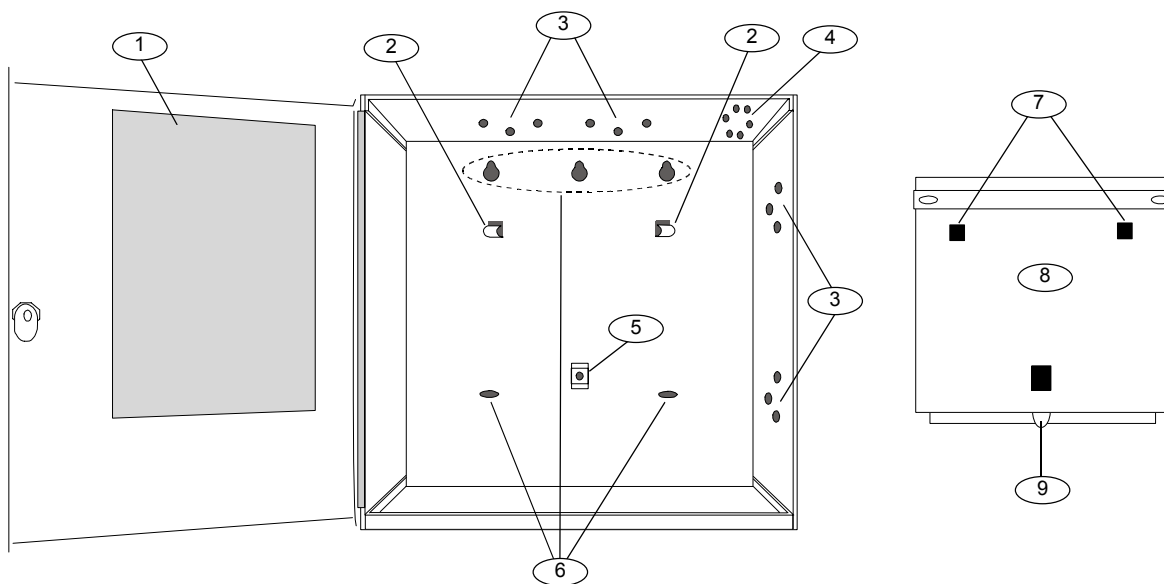
4.3 Mounting Enclosure

1. Run the necessary wiring throughout the premises.
2. Mount the enclosure in the desired location. Use all five enclosure mounting holes. Refer to *Figure 2*.
3. Pull the wires into the enclosure.



Electromagnetic interference (EMI) can cause problems on long wire runs. For more information, refer to "Noise on Wire" in the *General Wiring Troubleshooting* section of the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024).

Figure 2: Enclosure Mounting



1 - Point chart label

2 - Mounting skirt hooks (2)

3 - Module mounting holes (12)

4 - Tamper switch mounting holes (5)

5 - Skirt mounting hole (1)

6 - Enclosure mounting holes (5)

7 - Mounting skirt hook holes (2)

8 - Back of D9412GV2/D7412GV2 Control Panel

9 - Lock down tab

4.4 Installing the Control Panel

1. Place the control panel over the inside back of the enclosure, aligning the large rectangular openings of the mounting skirt with the mounting hooks of the enclosure. Slide the control panel down so that it hangs on the hooks. Refer to *Figure 2, Item 2* on page 15.
2. Remove the tape from the #6 x 1/4-in. screw in the mounting tab on the control panel. The screw passes through the mounting tab and into the skirt mounting hole in the enclosure. Tighten the screw to secure the control panel in the enclosure.
3. Connect earth ground to the control panel before making any other connections. Refer to *Section 4.5 Connecting Earth Ground*.

4.5 Connecting Earth Ground

4.5.1 Terminal 10

To help prevent damage from electrostatic charges or other transient electrical surges, connect the system to earth ground at Terminal 10 before making other connections. Recommended earth ground references are a grounding rod or a cold water pipe.



Caution:

Do not use telephone or electrical ground for the earth ground connection. Use 1.8 mm (14 AWG) to 1.5 mm (16 AWG) wire when making the connection.

Do not connect other control panel terminals to earth ground.

4.5.2 Ground Fault Detect Enable



To meet UL 864 requirements, enable Ground Fault Detect.

A ground fault is a circuit impedance to earth ground. The control panel has a ground fault detection circuit that, when enabled, detects ground faults on Terminals 1 to 9 and 11 to 32. The control panel also detects and annunciates ground faults on any device connected to it.

Control Panels with Firmware before Version 7.03

- To enable ground fault detection, the Ground Fault Detect Enable jumper (S4) (*Figure 3*) must be locked (closed) and a non-zero value must be entered in the Area 5 Silent Alarm Relay. When jumper S4 is in the unlocked (open) position, the control panel does not detect ground fault conditions.

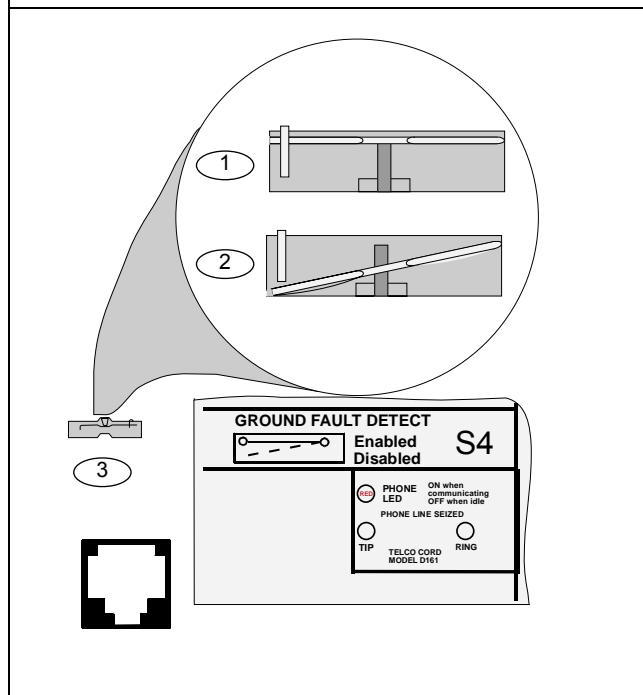
- If a ground fault condition occurs, the keypads display SERVC GND FAULT and the control panel transmits a GROUND FAULT TROUBLE, AREA 1 (Modem IIIa² format only).

When the control panel recognizes that the ground fault condition is corrected, and remains corrected for between 5 to 45 consecutive seconds, a Restoral Report is sent.



The D9412GV2 and D7412GV2 Control Panels log and print a Ground Fault event as a Trouble Point 256 if communicating in Modem IIIa² format. If communicating in BFSK format, the control panels generate an Alarm Zone 5 event.

Figure 3: Ground Fault Detection



- 1 - With S4 closed, control panel detects ground faults.
- 2 - With S4 open, control panel does not detect ground faults.
- 3 - S4, Ground fault detect enable

4.5.3 Enabling Ground Fault Detection

To enable the Ground Fault Detect Enable feature:

1. Lock (close) the S4 Ground Fault Detect Pin on the control panel (Figure 4).



If your control panel has Version 7.02 firmware or earlier, you must do Step 2.

2. Program the Area 5 Silent Alarm Relay to a non-zero value (1 to 128).

In remote programming software (RPS), the Area 5 Silent Alarm Relay is located in RELAY PARAMETERS, Area Wide Relays, and Silent Alarm Area 5 (Figure 5).

Figure 4: Ground Fault Detect (S4)

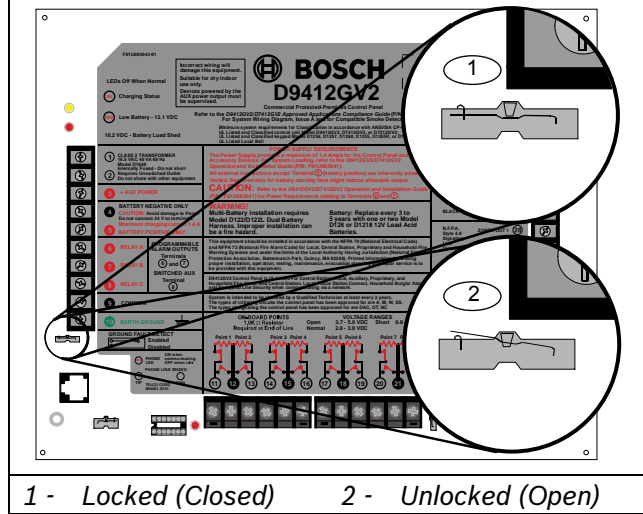


Figure 5: Area 5 Silent Alarm Relay in RPS

AREA WIDE RELAYS	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8
Alarm Bell	A	A	A	A	A	A	A	A
Fire Bell	A	A	A	A	A	A	A	A
Reset Sensors	C	C	C	C	C	C	C	C
Fail To Close	0	0	0	0	0	0	0	0
Force Armed	0	0	0	0	0	0	0	0
Watch Mode	0	0	0	0	0	0	0	0
Area Armed	0	0	0	0	0	0	0	0
Area Fault	0	0	0	0	0	0	0	0
Duress Relay	0	0	0	0	0	0	0	0
Perimeter Fault	0	0	0	0	0	0	0	0
Silent Alarm	0	0	0	0	1	0	0	0

4.5.4 D7212GV2 Ground Fault Specifications

Table 6 provides the impedance specifications for detecting ground faults when any terminal or field wiring is shorted to ground.

Table 6: Ground Fault Impedance Specifications

Impedance	Control Panel Detects Ground Fault
<300 Ω	Yes
300 Ω to 200>kΩ	Detection depends upon the terminal
> 200 kΩ	No

4.5.5 Locking the Reset Pin

Locking the reset pin disables the control panel (Figure 6). When the control panel is disabled, the system ignores the keypads and points. CALL FOR SERVICE appears in keypad displays when the pin is locked down.

On-board relays (Terminals 6 and 7) and off-board relays deactivate when the control panel is reset. Terminal 8 has power when the relay is deactivated. Activation interrupts power at that terminal. The on-board relay (Terminal 8) remains deactivated when the reset pin is locked in the disable position.

Releasing the reset pin from the closed position resets the control panel. The control panel resets all its timers, counters, indexes, and buffers. Any points that restore after a reset do not generate Restoral Reports.

If the reset pin is placed in the disable position when all areas are armed, there must be an entry in the Answer Armed program item. Refer to *RPS Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

Locking the pin in the disable position applies power to the control panel and charges the battery while the detection devices and keypads are installed.

4.6 Completing the Installation

If not already complete, make the earth ground connection to Terminal 10 and lock the reset pin in the closed position.

4.6.1 Charging the Battery

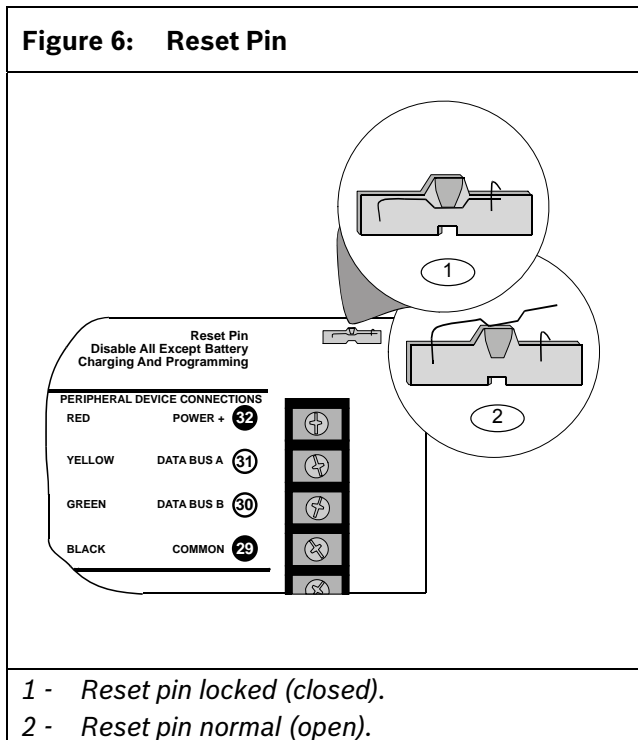
Connect the battery, then the transformer to allow the control panel to charge the battery while you complete the installation. Refer to *Section 5.0 Power Supply* on page 23 for instructions.

On-board Buzzer Sounds at Power Up and Reset:

The system performs a series of self-diagnostic tests of hardware, software, and programming at power up and at reset. The buzzer on the control panel sounds during the tests. The self-diagnostics tests complete in approximately 1 to 3 seconds.

If the control panel fails any test, the buzzer continues sounding and a System Trouble message appears at the keypads. Refer to *Problems Found during Self Diagnostics* in the *D9412GV2/D7412GV2/D7212GV2 Installation and Troubleshooting Quick Reference Guide* (P/N: F01U003638) for a description of each system trouble message.

Touch Terminal 10 First: If the on-board buzzer sounds briefly when the control panel is touched, any static charge you carry discharges to the control panel.



Avoid electrostatic discharge. Always touch Terminal 10, the earth ground connection, before beginning work on the control panel.

If the control panel receives an electrostatic discharge, it might generate Watchdog Reset and Param Fail events.

4.6.2 Installing and Wiring Detection Devices

Install and wire detection devices and keypads at their locations throughout the premises. **Do not** connect the control panel yet.

Section 8.0 On-Board Points on page 35 contains instructions for wiring the on-board points to detection devices. *Section 11.0 Arming Devices* on page 58 contains instructions for wiring the keypads.

Instructions for wiring the off-board point POPIT sensor loops are found in the instructions packaged with the POPIT modules.

4.6.3 Installing Modules and Relays

1. Power down the unit by unplugging the transformer and disconnecting the battery.



Always power down the unit when installing modules or relays, or when making wiring connections to the control panel.

2. Install and wire any modules required for the installation as described in the module's installation instructions.

Instructions for the D8125 POPEX Module, D8128D OctoPOPIT Module, D8129 OctoRelay Module, D811 Arm Status Relay Module, and D928 Dual Phone Line Switcher appear in this guide.

Refer to *Section 9.0 Off-Board Points* on page 39 for D8125 and D8128D instructions. Refer to *Section 10.0 Off-Board Relays* on page 53 for D8129 and D811 instructions. Refer to *Section 7.11 D928 Dual Phone Line Switcher* on page 32 for D928 instructions.

3. If using the power outputs at Terminals 7 or 8, refer to *Section 6.4 Programmable Power Output Terminals 6, 7, and 8* on page 28 for instructions.

4.6.4 Connecting the On-board Points and Keypads

Connect the on-board points and keypad wiring to the system. Refer to *Section 8.0 On-Board Points* on page 35 and *Section 11.0 Arming Devices* on page 58 for instructions.

4.6.5 Powering Up

Reconnect the battery, then plug in the transformer. The buzzer sounds for two seconds when the control panel is powered up. Leave the reset pin in the locked position.

Yellow Charging Status LED Remains Lit: If the yellow charging status LED remains lit after five minutes of powering up the control panel, either the battery is deeply discharged or too many powered devices were connected to the control panel. Combined continuous current draw for Terminals 3, 8, 24, and 32, and the accessory connector cannot exceed 1.4 A. Refer to *Section 6.0 Power Outputs* on page 28 for help.

4.7 Programming the Control Panel

If the control panel is not already programmed, review the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636). Ensure that all accessory modules for desired features are available for installation. Place the reset pin in the locked position to copy or send information to and from the control panel.

Use the D5200 Programmer or the RPS to load a custom program into the control panel.

Move the reset pin to the normal position refer to (*Figure 6* on page 18). The control panel sends Reboot and Battery Reports to the receiver if programmed for reporting.

4.8 Installing the Point Chart Label



The point chart label is required for fire systems with verifications points.

A point chart label is included in the literature pack. Install the point chart label for fire or combined fire-and-burglary systems that use verification points.

Use the *D9412GV2/D7412GV2 Program Record Sheet* (P/N: F01U003635) to gather the necessary information for completing the point chart. Fill out the label and install it on the inside of the enclosure door (refer to *Figure 2* on page 15).



Avoid smearing the entries on the chart. Use the peel-off backing to press the label in place.

4.9 Testing the System

After installing and programming the control panel, test the system completely. Test the control panel and all devices for proper operation.



Test after initially programming the control panel.

To meet UL 864 requirements, perform a full system test after any subsequent programming session.

Refer to *Section 4.10 Service Walk Test* on page 20 for complete Service Walk Test instructions.


Clear after Test: To clear the event memory and report buffer, momentarily close the reset pin. Events stored in the control panel's event log are not cleared.


4.10 Service Walk Test


The Service Walk Test differs from the standard Walk Test. In the standard Walk Test, POPITs whose switches are set for a point number not programmed in the control panel **do not** appear in the test. In the Service Walk Test, POPITs whose switches are set for a point number that is not programmed in the control panel **do** appear in the test.

The Service Walk Test allows a user to walk test all 246 points from a control-panel-wide keypad, regardless of the point index type.

A Service Walk Test can also be initiated by account-wide or area-wide keypads but test only those points that are within the scope of the keypad that initiated the function. The Service Walk Test does not test points in armed areas.

 Only Walk Test Start and Walk Test End are reported to the central station.

 The D9131A can be configured for local printing. Refer to the *D9412GV2/D9412GV2 Program Entry Guide* (P/N: F01U003636).

 During a Service Walk Test, the summary alarm and summary fire remain off, because there are no Fire or Burg alarm conditions to summarize. The P# Relay Response Type feature operates as programmed.

Service Walk Test Procedure.

Refer to *Figure 7* on page 21 and *Figure 8* on page 22 for Service Walk Test options. Refer to the Walk Test procedures in the *GV2 Series Owner's Manual Supplement* (P/N: F01U063791) when using a D1260 or D1260B Keypad.

1. Choose a keypad to conduct the test. Ensure that the display shows the idle disarmed text.
2. Press the [MENU] key to enter the Function List. Press [NEXT] repeatedly until the SERVICE WALK ? prompt appears.
3. Press [ENT], or press [9][9] followed by [ENT] to reach the Service Menu to access the Service Walk Test.



The D7412GV2 **does not** include the Service Walk Test in the Service Menu. Enabling the Service Walk Test function in the Function List provides access to the Service Walk Test in the D7412GV2.

4. The display shows ### PTS TO TEST .Test the first detection device.
5. When a detection device is faulted, the keypad emits a brief tone and displays the point text of the point tested for 60 seconds. After 60 seconds, the display returns to the ### PTS TO TEST message.

Extra Points display default text: If the switches on a POPIT are set incorrectly to a point number that is not in the program for the control panel, the default text for that point number (PT ###) appears when the point is faulted. Refer to the control panel's program record sheet for the default text for all points.

Faulting the point a second time produces the tone and shows the point text, but does not decrease the count in the ## PTS TO TEST message.

5. To see the points that remain untested during the Service Walk Test:
 - a. Press [ESC] when point text appears. The display shows ## PTS TO TEST.
 - b. Press the [ESC] key. VIEW UNTESTED ? appears.
 - c. Press [ENT]. ## PTS UNTESTED appears.
 - d. Press [NEXT] to see a list of the points that have not yet been tested. Move through this list by pressing the [NEXT] key.
 - e. To resume the Service Walk Test, press [ESC]. ## PTS UNTESTED appears.
 - f. Press [ESC]. ## PTS TO TEST appears.
 - g. Resume testing points. To end the Service Walk Test, press [ESC] twice.
6. After the last point is tested, 0 PTS TO TEST appears. Press [ESC]. The display shows ALL PTS TESTED briefly before returning to idle text.



The Service Walk Test, when performed on a D7412GV2, cannot display "0 PTS TO TEST" because the D7412GV2 is physically unable to connect to the second POPEX Module (used for Points 129-247).

Automatic time-out returns the system to idle text: If there is no point or keypad activity for 20 min., the Service Walk Test ends automatically. The keypad returns to idle text.

Figure 7: D9412GV2 Service Walk Test Flow Chart

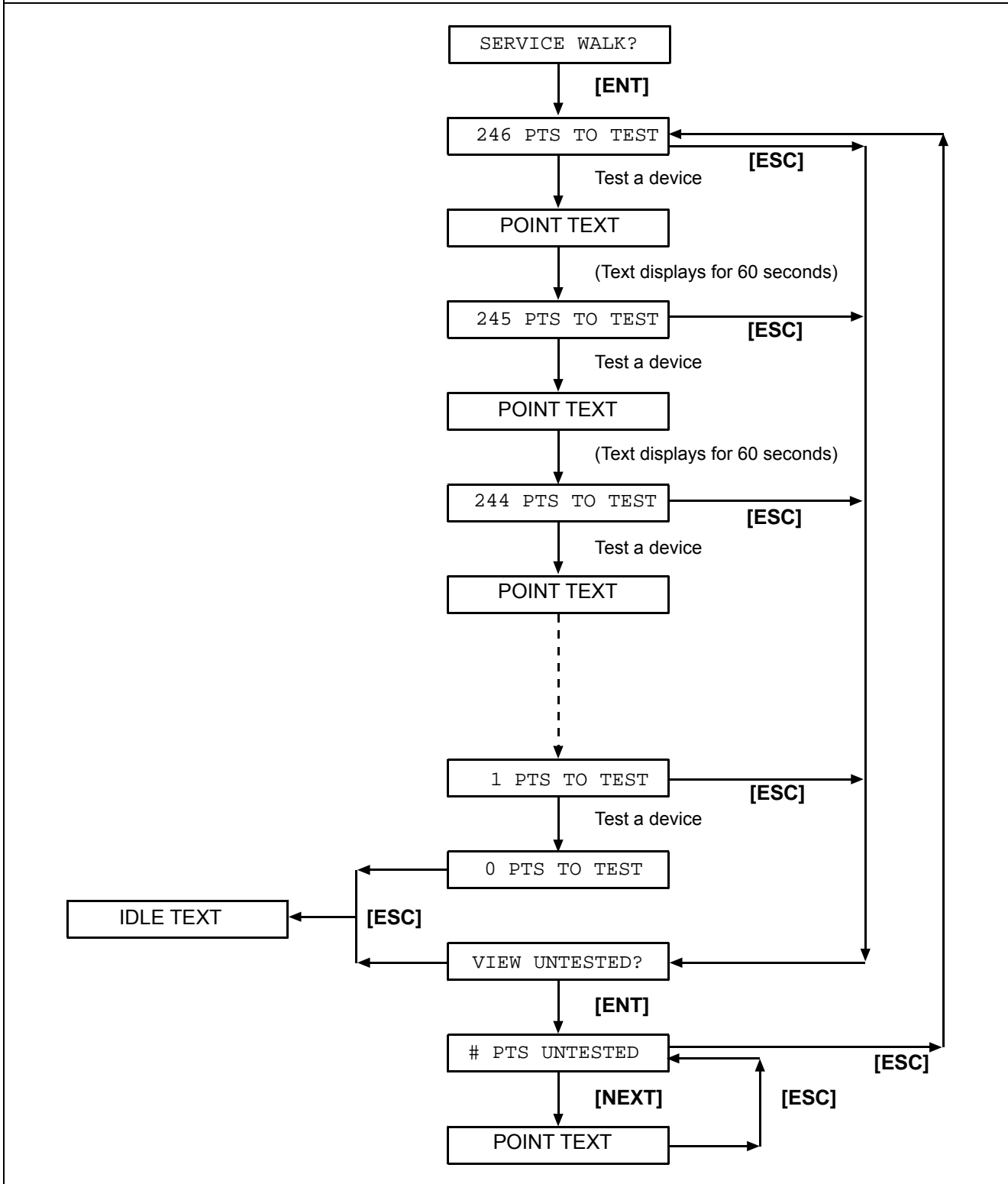
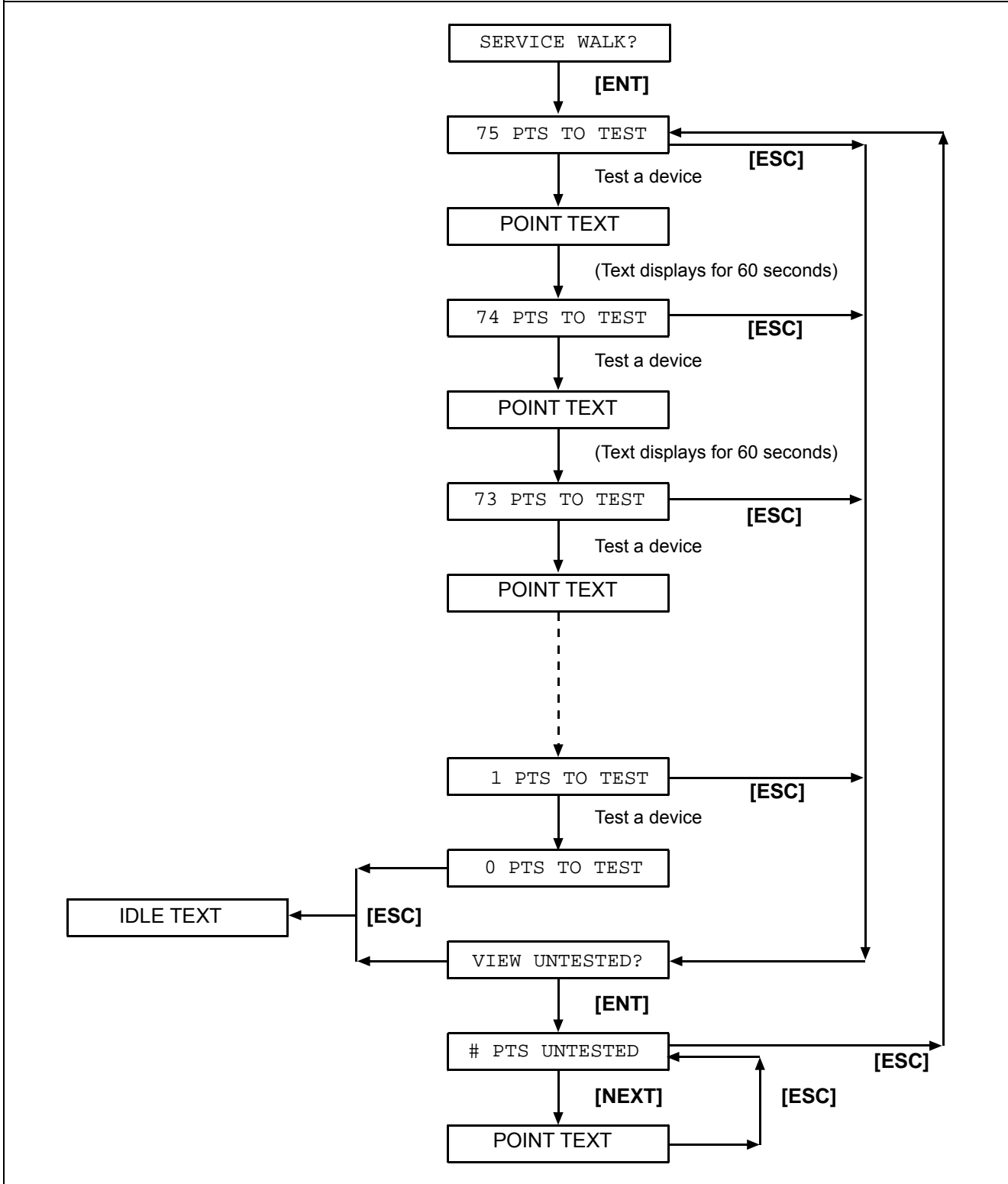


Figure 8: D7412GV2 Service Walk Test Flow Chart



5.0 Power Supply

5.1 Primary Power Terminals 1 and 2

5.1.1 Primary (AC) Power Circuit

The primary source is a 16.5 VAC, 40 VA, internally-fused transformer (Bosch Security Systems, Inc. Model D1640). The control panel draws 200 mA when idle and 300 mA when in an alarm state. The total available auxiliary current is 1.4 A.

Transient suppressors and spark gaps protect the circuit from power surges. This protection relies on the ground connection at Terminal 10. Ensure that you connect Terminal 10 to a proper ground. Refer to *Section 4.5 Connecting Earth Ground* on page 16.

AC Power Failure

The system indicates an AC power failure when Terminals 1 and 2 do not have power. The AC Fail Time program item sets the number of minutes or seconds without AC power before the control panel acknowledges the failure and the number of minutes or seconds after the power returns before the control panel acknowledges restored power. Refer to the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for additional information about AC Fail Time and UL 864 requirements.

5.1.2 Installing the Transformer



Do not short-circuit the terminals of the transformer: Shorting the terminals opens the internal fuse, causing permanent failure. Connect the transformer to Terminals 1 and 2 of the control panel before plugging it into the power source.

- Use 1.22 mm (18 AWG) wire (minimum) to connect the transformer to the control panel. The wire length should be as short as possible. The maximum length is 15 m (50 ft.). Connect the battery and plug in the transformer.
- Route telephone and sensor loop wiring away from any AC conductors, including the transformer wire. AC wiring can induce noise and low level voltage into adjacent wiring. Route data wiring away from AC and telephone wiring.



Always connect the battery first and then plug in the transformer.

- Connect the battery. Refer to *Section 5.2.2 Installing the Battery* on page 24.

- Plug the transformer into an unswitched, 120 VAC, 60 Hz power outlet only.
- Secure the transformer to the outlet with the screw provided.

D8004 Transformer Enclosure Required for Fire Systems: Use the D8004 Transformer Enclosure for the D1640 Transformer in fire and combined fire and burglary applications.



Check with the Authority Having Jurisdiction (AHJ) about mounting transformers on specific circuits.

5.2 Secondary Power Terminals

5.2.1 Secondary (DC) Power

A 12 V sealed lead-acid rechargeable battery (D126) supplies secondary power for auxiliary and alarm outputs, and powers the system during interruptions in primary (AC) power.



Use Lead Acid Batteries Only: The charging circuit is calibrated for lead-acid batteries. Do not use gel-cell or nicad batteries.

Extra Batteries Increase Back-up Time: To increase battery back-up time, connect a second 12 V battery in parallel to the first battery. Use a D122 Dual Battery Harness to ensure proper and safe connection. Refer to the *Standby Battery and Current Rating Chart* in the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for battery standby time calculations.



Caution: When connecting two D1218 Batteries to the control panel, both must have the same capacity (use two 17.2 Ah batteries or two 18 Ah batteries).

D1218 Battery

The D1218 is a 12 V, 18 Ah battery for use in applications requiring extended battery standby time. Up to two D1218 batteries can be connected when used with a D122 Dual Battery Harness.



When using two D1218 batteries, use a separate enclosure, a D122L Dual Battery Harness, and long leads.

UL 864 Battery Requirements

If two batteries are needed to meet the standby time requirements in a UL 864 Commercial Fire application, install a D113 Dual Battery Supervision Module to supervise each battery independently. Refer to the *D113 Battery Lead Supervision Module Installation Instructions* (P/N: 74-07468-000) for wiring requirements.

5.2.2 Installing the Battery

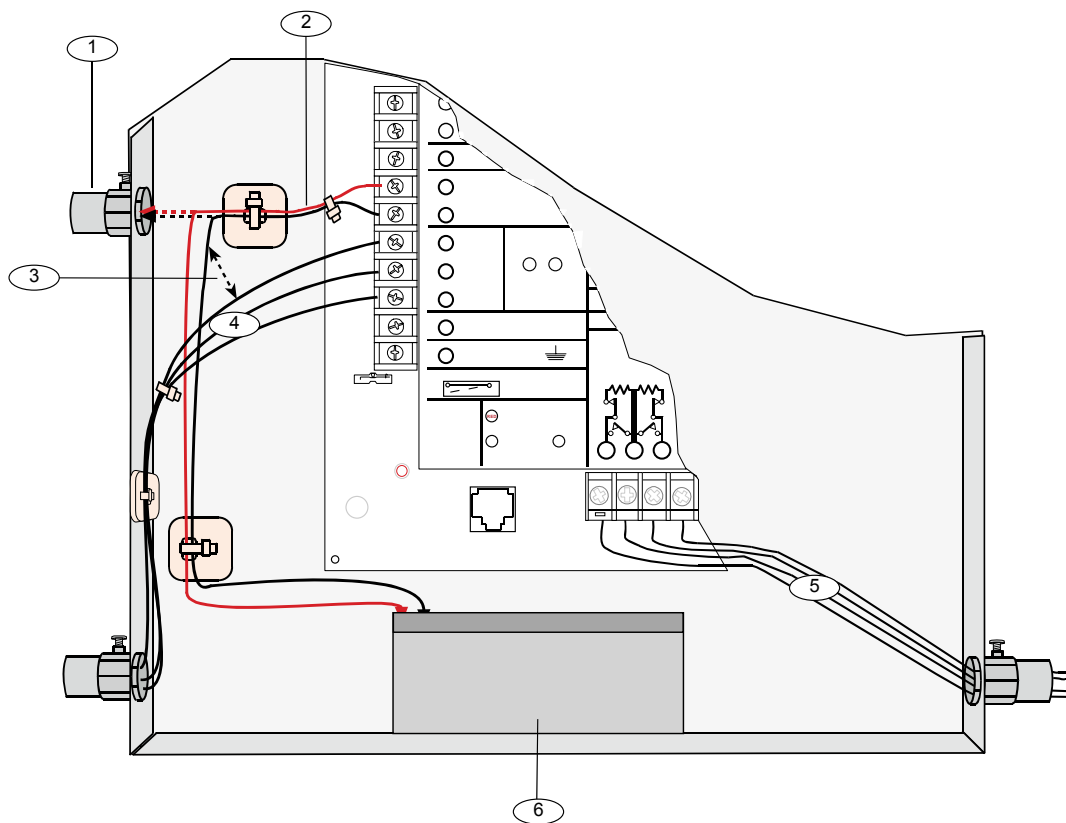
1. Place the battery upright in the base of the enclosure.
2. Locate the red and black leads supplied in the literature pack.
3. Connect the black battery lead to Terminal 4, and then to the negative (-) side of the battery.
4. Connect the red battery lead to Terminal 5, and then to the positive (+) side of the battery.



Warning: High current arcs are possible. The positive (red) battery lead and Terminal 5 can create high current arcs if shorted to other terminals or the enclosure. Use caution when working with the positive lead and Terminal 5. Always disconnect the positive (red) lead from the battery before removing it from Terminal 5.



Caution: The battery terminals and wire are **not** power limited. A 6.4 mm (0.250 in.) space must be maintained between the battery terminals, battery wiring, and all other wiring. Battery wiring cannot share the same conduit, conduit fittings, or conduit knock-outs with other wiring. Refer to *Figure 9*.

Figure 9: Non-Power-Limited Wiring

1 - Conduit, required only if external batteries are used.

2 - Battery wires

3 - 6.4 mm (0.25 in.) minimum. To ensure proper spacing, use tie-wraps or similar devices to secure wires.

4 - Option wires

5 - Output or zone wires

6 - Standby battery

5.2.3 Replacing the Battery

Replace batteries every 3 to 5 years under normal use. Record the date of installation directly on the battery.



Caution: Exceeding the maximum output ratings or installing the transformer in an outlet that is routinely switched off causes heavy discharges. Routine heavy discharges can lead to premature battery failure.

D8132 Boost Battery Backup: Adding a D8132 Battery Charger Module supports additional batteries of up to 27 Ah capacity, if required.

The control panel, plus any connected D8132 Modules and auxiliary power supplies, must be on the same AC circuit to discharge evenly if AC power fails. The number of D8132 Modules is determined by the number of available outlets on the same circuit. Refer to the *Standby Battery and Current Rating Chart* in the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for battery standby time calculations.

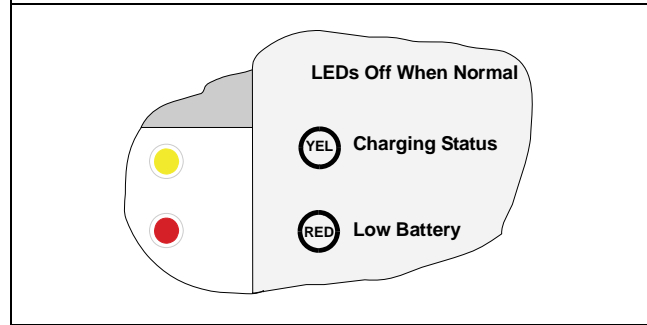
5.2.4 Battery Supervision

When battery voltage drops to 13.8 VDC, the yellow Charging Status LED illuminates. When the battery voltage drops to 12 VDC to 11.8 VDC, the red Low Battery LED lights, and the keypad or keypads display SERVC LOW BATT. The control panel (if programmed for power supervision) sends a BATTERY LOW report in the Modem IIIa² communication format. It sends a TROUBLE ZN 9 report in the BFSK format.

If the battery is missing or shorted, the red Low Battery LED flashes at the same rate as the green Operation Monitor LED. If the control panel is programmed for power supervision, it sends a BATTERY MISSING report in the Modem IIIa² communication format, or TROUBLE ZN 9 report in the BFSK format.

When battery voltage returns to 13.7 VDC, the Low Battery LED turns off and the keypad or keypads clear the SERVC LOW BATT message. If the control panel is programmed for power supervision, it sends a BATTERY RESTORAL report in the Modem IIIa² communication format or a RESTORAL ZN 9 report in the BFSK format. At 13.9 VDC, the yellow Charging Status LED stops lighting.

Figure 10: Charging and Battery LEDs



Investigate Low Battery reports immediately: If primary (AC) power is off and the discharge continues, the control panel becomes inoperative when the battery voltage drops below 10.2 VDC.

5.2.5 Battery Charging Circuit

Float Charge

The float voltage for the battery charging circuit is 13.9 VDC at a maximum current of 1.4 A, less any devices connected to the control panel. If the float voltage drops below 13.8 VDC due to overload or battery discharge, the yellow Charging Status LED lights.

Loss of AC Load Shed Relay protects battery:

During an AC power loss, the battery supplies all power to the security system. If the battery voltage falls below 10.0 V during an AC power loss, a load shed relay isolates the battery from the control panel and disables the control panel. Load shed protects the battery from being damaged by deep discharge. When AC power restores, the load shed relay reconnects the charging circuit on the control panel to the battery and the battery begins to recharge.

Overcharge Load Shed With AC Present: If more than 1.4 A of auxiliary current draw from the control panel occurs, the battery supplies the current and begins to discharge. If this situation is not corrected, the battery continues to discharge and at 11.8 VDC to 12.0 VDC, the keypads display Serv Low Batt.

When the battery voltage drops below 10.0 VDC, the control panel shuts down. Remove all loads to the control panel and disconnect AC power. Add a new battery and reconnect AC power.

A shorted battery condition is created either by a shorted cell inside the battery or by a short on Terminals 4 and 5. A shorted battery might cause the control panel to operate in an unsafe way. This condition generates WATCHDOG RESET reports.

Reset the control panel by momentarily placing the reset pin in the disable position. Refer to *Figure 6* on page 18. The red Low Battery LED continues flashing until the control panel resets.

5.2.6 Battery Discharge and Recharge Schedule

Table 7: Battery Discharge and Recharge Schedule

Discharge Cycle	
AC Off:	AC Fail Report when AC fails, if control panel is programmed to report AC failure at occurrence.
13.9 VDC:	Charging float level.
13.8 VDC:	Charging status LED on.
12.0 VDC:	Low Battery and AC Fail Reports if programmed. Low battery LED on.
< 10.0 VDC:	Battery load shed (processing functions continue if AC is present).
Recharge Cycle	
AC On:	Load shed relay reset; battery charging begins; Battery Trouble and AC Restoral Reports sent.
13.7 VDC:	Battery Restoral Reports sent. Low battery LED off.
13.9 VDC:	Changing status LED off; battery float charged.

Table 8: Charging Status and Low Battery LEDs

Type	LED		Action
	Color	State	
Charging Status LED	Yellow		Shows the charging status of the battery. Refer to <i>Figure 10</i> on page 26 for location.
	Yellow	Off	Battery is fully charged. If the battery is missing, shorted, or reversed, the Charging Status LED is off, but the red Low Battery LED is flashing.
	Yellow	On	Battery float charge is below 13.8 VDC. If AC is present, the battery is charging. Indicates the combined current draw from all outputs exceeds 1.4 A. This is normal under alarm conditions for non-fire systems with sirens or bells drawing more than 1.4 A. If the LED lights regularly for extended periods or does not go out, check the current draw for devices connected to the power outputs. Refer to <i>Section 6.0 Power Outputs</i> on page 28 for instructions.
	Yellow	Flash once per minute	System is checking the battery.
Low Battery LED	Red		Shows the condition of the battery. Refer to <i>Figure 10</i> on page 26 for location.
	Red	Off	Battery is fully charged.
	Red	On	Battery voltage dropped to between 12.0 VDC and 11.8 VDC. LED turns off when voltage reaches 13.7 VDC.
	Red	Flash (same as green LED)	Green LED is Operation Monitor LED. Battery is missing or shorted.

6.0 Power Outputs

6.1 Circuit Protection

Three self-resetting circuit breakers protect the control panel from short circuits on the continuous and programmable power outputs. If the control panel is programmed for power supervision and a short circuit occurs on one of the power outputs, the control panel sends a BATTERY LOW or BATTERY MISSING for Bosch Security Systems Modem IIIa² Communication Format, or TROUBLE ZN 9 for BFSK.

One self-resetting circuit breaker protects :

- Terminal 3: Auxiliary Power
- Terminal 24: Zonex Power.



A short circuit on one terminal disrupts power to the other terminal.

Another self-resetting circuit breaker protects:

- Terminal 6: Alarm Power Output
- Terminal 7: Alternate Alarm Power Output
- Terminal 8: Switched Auxiliary Power.



A short circuit on one of the terminals disrupts power to the other two terminals.

The third self-resetting circuit breaker protects Terminal 32: Power +.

6.2 Total Available Power

The system produces up to 1.4 A of combined power at 12 VDC nominal for special application use. The outputs listed below share the available power. These outputs are shown as red circles on the faceplate.

Terminal 3 - Auxiliary Power: Use this terminal to power devices requiring continuous power.

Terminal 6 (Relay A) - Alarm Power Output: Programmable relay normally open, power on alarm.

Terminal 7 (Relay B) - Alternate Alarm Power Output: Programmable relay normally open, power on alarm.

Terminal 8 (Relay C) - Switched Auxiliary Power: Programmable relay normally closed, switches power off when the Sensor Reset command is executed.

Terminal 24 - Zonex Power: Use this terminal to power Zonex modules such as the D8125, D8128D, and D8129 Modules.

Terminal 32 – SDI Power +: Use this terminal to power serial device interface (SDI) devices such as keypads, the D9131A Parallel Printer Interface Module, and the D9210B Wiegand Control Interface Module.

Accessory Connector: The D928 Dual Phone Line Switcher connects to the accessory connector.

6.3 Continuous Power Output Terminals 3, 8, 24, and 32

The continuous current draw for powered devices connected to Terminals 3, 8, 24, and 32, and the accessory connector must not exceed 1.4 A. Devices powered from these outputs operate over a range of 10.0 VDC to 13.9 VDC.

Power Restricted for Fire and Combined Fire and Burglary Systems: Use the Fire System Power Formula to calculate the current available for fire and combined fire and burglary systems (refer to *Section 6.4 Programmable Power Output Terminals 6, 7, and 8*).

6.4 Programmable Power Output Terminals 6, 7, and 8

6.4.1 Programming

The power outputs at Terminals 6, 7, and 8 are programmed as Relays A, B, and C. All relays are programmed in the Relays section.

Relays are assigned a relay type, (Fire Bell, for example) when they are assigned to an area. Relays can be assigned to one or more areas.

The Bosch Security Systems, Inc. defaults set Relay A (Terminal 6) as a Steady Alarm Bell output, Relay B (Terminal 7) as a Pulsed Fire Bell output, and Relay C (Terminal 8) as a Verification or Reset output for smoke detectors. The *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) contains complete instructions for programming relays. Refer to *Sections 6.4.2 Terminals 6 and 7, 6.4.3 Fire System Power Formula, and 6.4.4 Terminal 8* on page 29 for descriptions of the functions of each terminal.

Refer to the Bell Parameters section of the program to set the Fire Bell, Alarm Bell output responses for relays. Four annunciation patterns are available: Steady, Pulsed, California Standard, and Temporal Code 3.

Voltage Output at Terminals 6, 7, and 8

If Terminals 6, 7, and 8 do not provide the expected output, check:

- Programming for Relays A, B, and C in the relays section of the program.
- Bell Parameters section of the program to confirm that the Alarm and Fire Bell responses are programmed for the expected duration and pattern.
- Point Assignments section to confirm that each point is programmed for the expected local response.

6.4.2 Terminals 6 and 7

When activated, Terminals 6 (Relay A) and 7 (Relay B), provide positive (+) 10.0 VDC to 13.9 VDC power output. Use the power at Terminals 6 and 7 to power bells, siren drivers, piezoelectric fire sounders, electronic horns, or other devices.

Programming determines the format of the output and the conditions that activate it. One self-resetting circuit breaker protects Terminals 6, 7, and 8 against shorts. When using Relay A or Relay B to activate notification appliance circuits in UL Listed fire alarm applications, install a D192C Initiating Circuit Module or D192G Indicating Circuit Module.

Power Restricted for Fire and Combined Fire and Burglary Systems: Fire systems are prohibited from using the battery for determining alarm power. Use the fire system power formula that follows to calculate the current available for fire and combined fire and burglary systems.

6.4.3 Fire System Power Formula

To calculate the current available at Terminals 6 and 7 for fire and combined fire and burglary systems:

1. Add together the current draws for all devices connected to Terminals 3, 8, 24, and 32, and the accessory connector. This is the total current required for the normal standby condition (NSC).
2. The current available for NSC is 1.4 A. Subtract the NSC current required calculated in *Step 1* from the NSC current available, 1.4 A. The difference is the alarm current available for Terminals 6 and 7.

In formula format:

$$1.4 \text{ A} - \text{NSC current required (Step 1)} = \text{Alarm current available}$$

Refer to the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for module or accessory current requirements.

6.4.4 Terminal 8

Terminal 8 provides continuous positive (+) 10.0 VDC to 13.9 VDC power. Relay C interrupts the power at Terminal 8 when activated. Use Terminal 8 to power smoke detectors or other devices that are reset by interrupting power. One self-resetting circuit breaker protects Terminals 6, 7, and 8 against shorts.

Verification and Reset Relay

The default program sets Relay C (Terminal 8) as a verification and reset relay. Refer to *Relay Parameters* and *Point Assignments* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for instructions on programming verification and reset relays and points.

Performing a sensor reset at a keypad produces a five-second relay activation of verification and reset relays. The control panel ignores verification and reset points during the five seconds.

7.0 Telephone Connections

7.1 Registration

The Bosch Security Systems, Inc. D9412GV2 and D7412GV2 Control Panels are registered with the Federal Communication Commission (FCC) under Part 68, for connection to the public telephone system using an RJ31X or RJ38X jack installed by the local telephone company.



An RJ31X jack can be modified by placing a jumper wire between Terminals 2 and 7 to become an RJ38X jack.

7.2 Notification

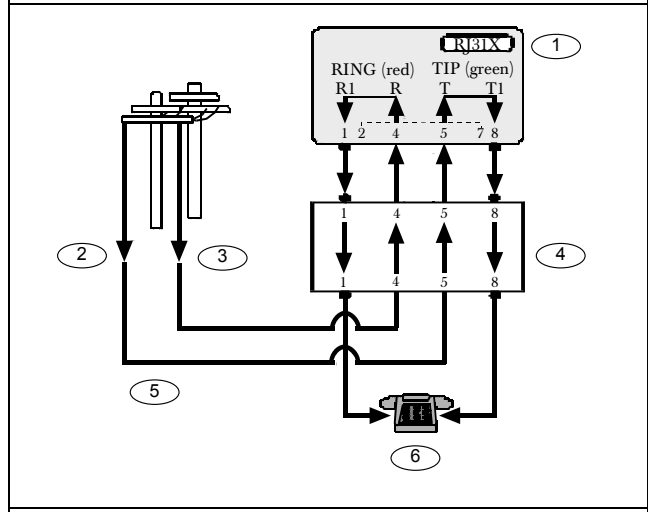
Do not connect registered equipment to party lines or coin-operated telephones. Notify the local telephone company and provide the following information before connecting the control panel to the telephone network:

- The particular line to which the control panel will be connected
- Make (Bosch Security Systems, Inc.), model (D9412GV2 or D7412GV2), and serial number of the control panel
- FCC registration number: AJ9MUL-46532-AL-E
- Ringer equivalence for the control panel: 0.4B

7.3 Location

To prevent jamming of signals, wire the RJ31X or RJ38X jack before the in-house telephone system to support line seizure (*Figure 11*). Install the jack on the street side of the telephone switch, wired ahead of any PBX equipment. Line seizure temporarily interrupts normal telephone usage while the control panel sends data. After installation, confirm that the control panel seizes the line, acquires dial tone, reports correctly to the receiver, and releases the telephone line to the in-house telephone system.

Figure 11: RJ31X Wiring



- 1 - RJ31X Jack
- 2 - (TIP)
- 3 - (RING)
- 4 - Telco connector block
- 5 - Outside telco
- 6 - Premises telephone

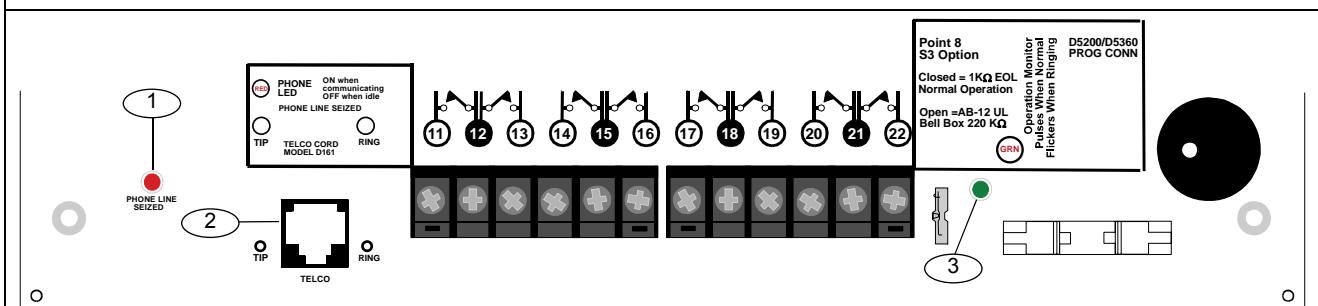
7.4 Telephone Cord Connection

Connect one end of a D161 (2.1 m [7 ft.]) or a D162 [61 cm (2 ft.)] Telephone Cord to the telco cord connector located on the bottom left corner of the control panel. Refer to *Figure 12*. Connect the other end to the RJ31X or RJ38X jack.



To supervise the phone cord, use an RJ38X jack.

Figure 12: Phone Connector, Phone LED, and Operation Monitor LED Locations



1 - Phone LED (red)

2 - Telephone cord connector

3 - Operation Monitor LED (green)

7.5 Phone LED (Red)

The red Phone LED illuminates when the control panel seizes the telephone line and remains illuminated until the control panel returns the telephone line. Refer to *Figure 12* on page 30 for the location of the red LED.

7.6 Operation Monitor LED (Green)

The green Operation Monitor LED indicates the operation of the central processing unit (CPU). When the CPU is operating normally, the LED flashes 0.5 sec on, 0.5 sec off.

This green LED also serves as a ring indicator. The LED is located on the lower right side (*Figure 12* on page 30). When there is ring voltage on the telephone line (the telephone is ringing), the green LED flashes at a faster rate for the duration of each ring. Ring voltage must reach a minimum of 45 VAC before the system detects it.

7.7 Dialing Format

The system can be programmed to use dual tone multi-frequency (DTMF) or pulse dialing. Refer to *Phone Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

7.8 Telephone Line Monitor

The control panel has a built-in telephone line monitor that tests the telephone line for voltage and current. If the D928 Dual Phone Line Switcher is used to connect two telephone lines to the control panel, both lines are monitored. The normal voltage on a telephone line is approximately 48 VDC (24 VDC for some telephone systems).

If the control panel senses trouble, it starts a programmable telephone line trouble timer, which continues to run as long as the monitor detects trouble. It resets to zero when the control panel senses a normal line. If the timer reaches the delay time in the Phone Supervision program item, it begins a telephone line trouble response. Programming determines what the response is. For programming information, refer to *Phone Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636). If trouble occurs on the telephone line, refer to *SERVIC PH LINE Appears on the Keypad* in the *Central Station Communication Symptoms* section of the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024).

Any time the control panel uses the telephone line to make a call or is on-line with the remote programming software (RPS), it stops monitoring the telephone line during this process. When the telephone line on the control panel is no longer in use, it begins to monitor the telephone line again.

Bad Line Might Test OK: The telephone line monitor uses voltage levels to test the status of the telephone line. In some instances, a given telephone line might be out of service without affecting the voltage on the line. The telephone line monitor cannot recognize this trouble condition. Refer to the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024).

7.9 Called Party Disconnect

Telephone companies provide “called party disconnect” to allow the called party to terminate a call. The called party must go on hook (hang up) for a fixed interval before a dial tone is available for a new call. This interval varies with telephone company equipment. Control panel firmware allows for “called party disconnect” by adding a 35-second, “on hook” interval to the dial tone detect function. If the control panel does not detect a dial tone in seven seconds, it puts the telephone line on hook for 35 seconds to activate “called party disconnect,” goes off hook, and begins a seven-second dial tone detect. If no dial tone is detected, the control panel dials the number anyway. Each time the number is dialed, the control panel records this as an attempt.

7.10 Communication Failure

After two attempts to reach the receiver, the control panel generates and sends a COMM FAIL PH # event. The event that triggered the telephone call to the central station follows the COMM FAIL PH # event.

After ten attempts to reach the receiver, the control panel enters communication failure. The control panel clears any reports in its telephone buffer and COMM FAIL RTE # event is generated, which appears in the display at keypads. A trouble sounder can be programmed to announce at the keypads.

One hour after the COMM FAIL RTE # is generated, the control panel attempts to send this event. If a communication failure still occurs, the keypad trouble will resound.

If the D928 Dual Phone Line Switcher is used, the control panel makes a total of ten attempts before entering communication failure.

Enhanced Communication

The D9412GV2 and D7412GV2 Control Panels can send events over the SDI Bus to a DX4020 or D9133TTL-E Network Interface Module (NIM). For more information on the enhanced communications capabilities, refer to *GV2AUX* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

7.11 D928 Dual Phone Line Switcher

7.11.1 Description

The optional D928 Dual Phone Line Switcher allows the control panel to send reports over two separate telephone lines. If a telephone line is not within the operating range, the control panel attempts to use the other telephone line to send the message. If trouble is detected, the control panel keeps the faulty telephone line in memory. For troubleshooting information, refer to the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024).

Set the Ring Count above 2 on Answering

Machines: The control panel's RPS line monitor feature might not operate correctly if an answering machine with a ring count of less than two rings is connected to a telephone line used by the D928 Module.

7.11.2 Operation

Refer to *Phone* and *Phone Parameters* in the *GV2MAIN* section of the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for telephone supervision and reporting options. To use the D928, set the **Two Phone Lines** prompt to **Yes**.

When the D928 is installed, the control panel alternates between Phone Line 1 and Phone Line 2 to send its first report. For example, on day one, the control panel first attempts to communicate on Phone Line 1. On day two, the control panel switches and attempts to communicate on Phone Line 2.



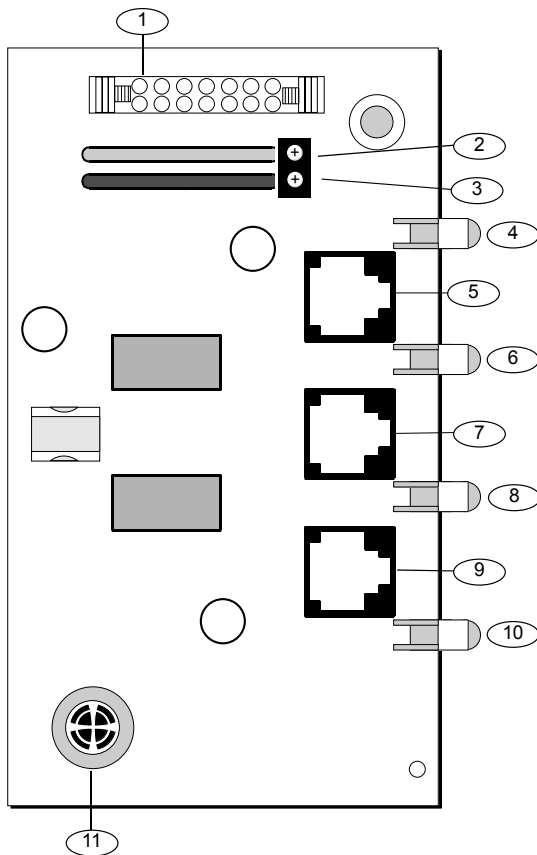
Any time the control panel resets or is powered down or up, the next reported event always attempts to call out on Phone Line 1 first.



If Phone Line 2 is not in service on "Day 2", the control panel switches to the primary phone line to send the report.

With the D928 Dual Phone Line Switcher installed, the control panel uses two telephone lines (primary and secondary) to dial up to four telephone numbers.

When using a primary and a backup device within a **Route Group #**, the control panel makes two attempts on the primary telephone line using the **Primary Device #** as programmed. If these two attempts fail, the control panel switches to the secondary telephone line using the **Backup Device #** as programmed. This pattern continues for a total of ten attempts. After ten unsuccessful attempts, the control panel generates a Comm Fail event for the given **Route Group #**.

Figure 13: D928 Dual Phone Line Switcher

- 1 - Connect to ACCESSORY CONNECTOR with ribbon cable.
- 2 - Green to Terminal 1
- 3 - Black to Terminal 9
- 4 - AC Power LED (green)
- 5 - Phone jack to primary phone line
- 6 - Primary Fail LED (yellow)
- 7 - Phone jack to secondary phone line
- 8 - Secondary Fail LED (yellow)
- 9 - Phone jack to telco connector
- 10 - Communications Fail LED (yellow)
- 11 - Buzzer

7.11.3 Installing the D928

Mounting

Mount the D928 on the lower right side of the enclosure using the screws provided with the switcher.

Wiring

The D928 has two flying leads. The green lead monitors AC power. The black lead is the ground reference for the AC Power LED.

1. Connect the green lead from the D928 to Terminal 1.
2. Connect the black lead from the D928 to Terminal 9.

Telephone Connections

1. Plug one end of the ribbon cable provided into J4 on the D928. Plug the other end of the ribbon cable into the ACCESSORY connector on the control panel.
2. Plug one end of the D162 phone cord provided into the telco jack. Plug the other end of the phone cord into the TELCO jack on the control panel. Refer to *Table 9* for phone cord lengths.

Table 9: Phone Cord Lengths

Phone Cord	Length
D161	2.4 m (8 ft)
D162	61 cm (2 ft)

3. Plug one end of a D161 or D162 phone cord into J1 on the control panel. Plug the other end of the phone cord into the RJ31X or RJ138X for the primary telephone line.
4. Plug one end of a D161 or D162 phone cord into J2 on the control panel. Plug the other end of the phone cord into the RJ31X or RJ138X for the secondary telephone line. Refer *Table 9* for phone cord lengths.

7.11.4 D928 Status LEDs

Four LEDs mounted on the front edge of the D928 Module show the status of AC power for the control panel, the status of the two telephone lines, and communication failure (*Figure 11* on page 37). When programmed and operating normally, only the green AC power status LED is lit.

AC Power LED

The green AC Power Status LED lights when AC power is applied to Terminals 1 and 2 on the control panel.

Phone Line Fail LEDs

Two yellow Phone Line Status LEDs (one for the primary telephone line, one for the secondary telephone line) light if the telephone line is not within the operating range. For troubleshooting information, refer to the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024). The control panel monitors the faulty telephone line for the programmed interval before indicating a trouble condition. Refer to *Section 7.8 Telephone Line Monitor* on page 31 for a description of phone line monitor operation.

Communication Failure LED

The yellow Communication Failure LED lights when the system is in communication failure. The LED turns off when communication restores. Refer to *Section 7.10 Communication Failure* on page 31.



Dedicated telephone lines might be required for UL 864 Commercial Fire applications. Check with your Authority Having Jurisdiction (AHJ).

8.0 On-Board Points

8.1 Terminals 11 to 22 Description

The control panel provides eight on-board points. Each point functions independently and does not interfere with the operation of the others. The control panel monitors the sensor loops for normal, shorted, or open conditions between an input terminal (11, 13, 14, 16, 17, 19, 20, or 22) and any of the point common terminals (12, 15, 18, and 21). The programming for the point determines how the control panel responds to those conditions. Refer to the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for point programming options. The control panel also monitors the sensor loops for ground fault conditions if S4 is latched (ground fault detect enabled).

8.2 Point Sensor Loops



Not for use in Fire Applications

When wiring the on-board points (*Figure 14*), install a 1 kΩ resistor at the far end of the sensor loop to provide a reference for supervision. Dry-contact sensing devices can be connected in series (normally-closed) or in parallel (normally-open) to any of these loops.

The number of normally-open and normally-closed detection devices each sensor loop can supervise is limited only by the resistance on the loop. The total resistance for the wire length and contacts, minus the end-of-line (EOL) resistor, must not exceed 100 Ω.

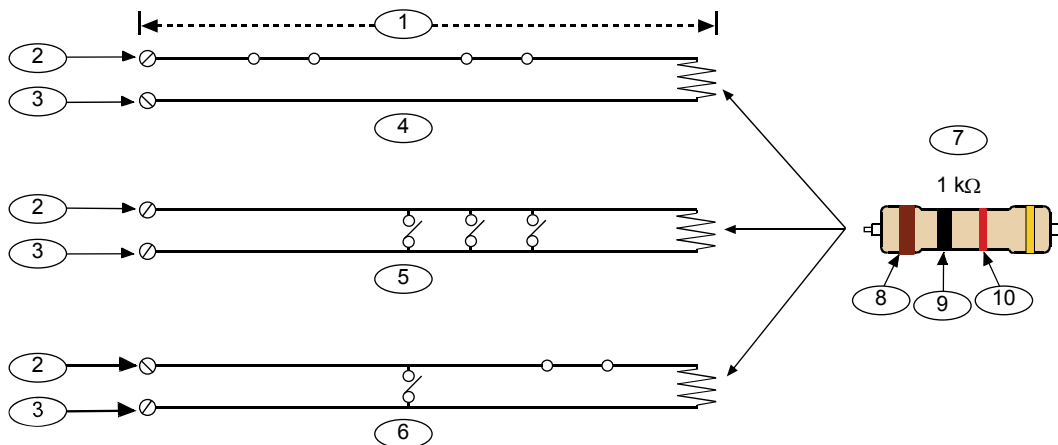
8.3 Point Parameters

The condition of on-board Points 1 to 8 is determined by measuring the voltage across the point input terminal and one of the common terminals. The sensor loops must be connected and the 1 kΩ EOL resistor in place.

Table 10: Point Parameters

Loop	Voltage Range
Open	Greater than 3.7 VDC, but less than 5.0 VDC.
Normal	Greater than 2.0 VDC, but less than 3.0 VDC.
Shorted	Greater than 0.0 VDC, but less than 1.3 VDC.

Figure 14: On-board Point Sensor Loop Wiring



1 - 100 Ω maximum

2 - Point input terminal

3 - Common

4 - Normally-closed contacts (NC)

5 - Normally-open contacts (NO)

6 - Combination: Normally-open contacts and normally-closed contacts (NO/NC)

7 - P105F (Package of 8 EOL resistors) or P105BL (Package of 8 UL Listed EOL resistors) (P/N: 15093130-004)

8 - Brown

9 - Black

10 - Red

8.4 Point Response Time

The control panel scans on-board and off-board point sensor loops every 300 ms. The Debounce program item in the Point Assignment section of the software determines point response time by setting the number of times the control panel scans a point before generating an alarm.

The debounce count can range from 2 to 15; therefore, point response time ranges from 600 ms to 4.5 sec. The Bosch Security Systems, Inc. default for debounce count is 2.



Increasing debounce might cause missed alarms. If you increase the debounce count, detection devices can enter alarm and reset without exceeding the point response time.

Use a debounce count of 2 for all points **except**:

- Use 3 for Interior Follower points.
- Use 4 for door points connected to a D9210B Access Control Interface Module.

8.5 Wiring Information for Installations Using the Rothenbuhler 5110/4001-42 High Security Bell



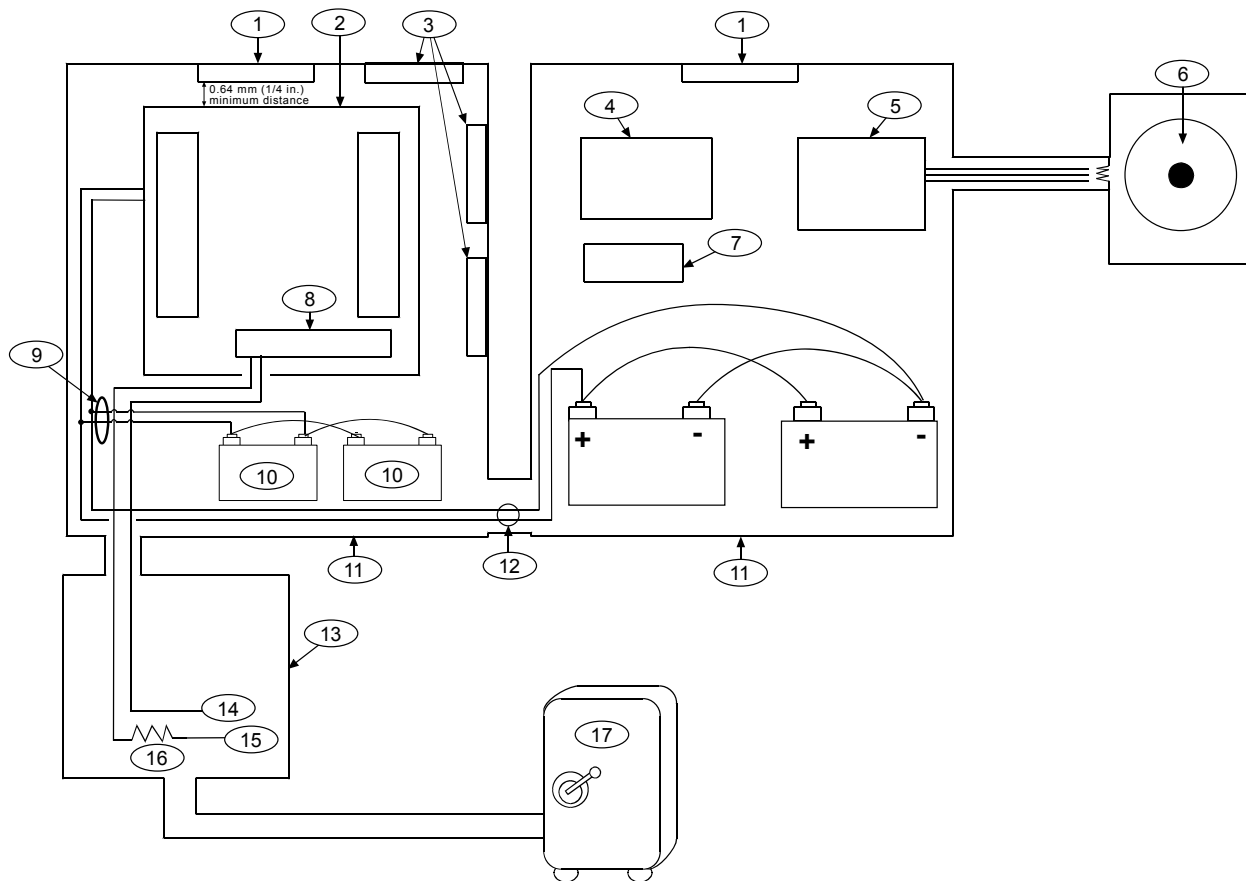
Warning: Wear ear protection when installing and testing the Rothenbuhler High Security Bell.

Sound levels greater than 95 dBA at 3 m (10 ft) can occur.

1. Remove all power from the control panel.
2. Use six-conductor 1.2 mm (18 AWG) shielded stranded wire between the control panel and the 5110 Logic Board (located in the bell enclosure).
3. If you do not have a Silence switch, temporarily install a 1 Ω resistor across TB1-1 and TB1-6 on the 5110 Logic Board. The resistor keeps the 5110's bell silent during the installation and alignment procedures. Also place a temporary wire jumper across the TB1-6 Bell Relay and TB1-7. Refer to *Figure 16* on page 38 for wiring a Silence switch.
4. Mount the D8108A's 4001-42 External Balanced Line Module and wire it to the 5110 Logic Board using two-conductor 0.8 mm (22 AWG) cable.
5. Wire the 4001-42 to the control panel. Refer to *Figure 16* on page 38 and the Rothenbuhler installation manual.
6. Before supplying AC and DC power to the control panel and bell, ensure you are wearing ear protection. The bell sounds for 2 sec and then silences during power up.

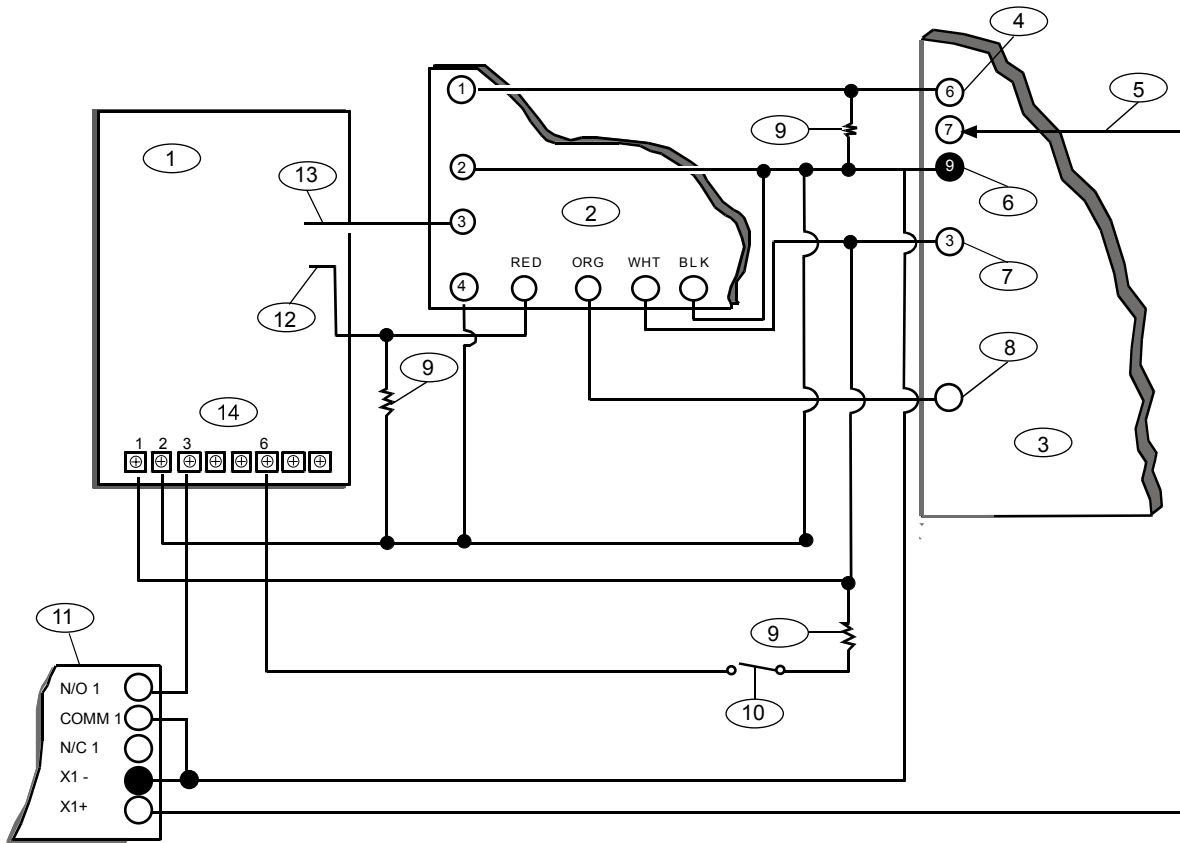
For additional information about bell requirements, refer to *Bank Safe and Vault Applications* in the *D9412GV2/D7412GV2 Approved Applications and Compliance Guide* (P/N: F01U003639).

Figure 15: Rothenbuhler 5110/4001-42 High Security Bell Wiring Configuration



- | | |
|-------------------------------------|---------------------------------|
| 1 - Self-contained vibration sensor | 10 - D126 Battery |
| 2 - Control panel | 11 - D8108A Enclosure |
| 3 - Accessory modules | 12 - D122L Battery Harness* |
| 4 - High line security module | 13 - Proximity/control unit |
| 5 - 4001-42 Balanced Line Module | 14 - Normally open (NO) |
| 6 - 5110 Bell | 15 - Normally closed (NC) |
| 7 - D133 Relay | 16 - End-of-line (EOL) resistor |
| 8 - Zone input | 17 - Safe |
| 9 - D122 Battery Harness* | |

Figure 16: Wiring the Rothenbuhler 5110/4001-42 High Security Bell to the D9412GV2 or D7412GV2 Control Panel



1 - 5110 Logic Board

2 - 4001-42 External Line Balancing Module

3 - D9412GV2 or D7412GV2 Control Panel

4 - Alarm output

5 - Alternate alarm

6 - Common

7 - +12 VDC

8 - Alarm zone input*

9 - 10 kΩ resistor

10 - Optional Silence switch

11 - D133 Relay Module

12 - BBL In 4

13 - BBL Out 5

14 - Terminal TB1

* Use Terminal 11, 13, 14, 17, 19, 20, or 22. (Select only one.)

9.0 Off-Board Points

9.1 Point (Zonex) Bus: D9412GV2 Terminals and D7412GV2 Terminals

9.1.1 POPIT Modules

The D9412GV2 can use point of protection input transponder (POPIT) modules to provide a maximum of 238 off-board points, bringing the total number of points the D9412GV2 can monitor to 246. The D7412GV2 provides up to 67 off-board points, bringing the total number of points the D7412GV2 monitors to 75. Each off-board point requires a POPIT Module.

9.1.2 POPEX Modules

POPITs connect to supervised two-wire data expansion loops run from POPIT to POPIT throughout the premises. Data expansion loops connect to a D8125 Point of Protection Expander (POPEX) Module. POPEX Modules have power and data connections to the point bus on the control panel (*Table 11*).

Table 11: POPEX Modules

Model	Power	Data
D9412G	Terminals 23 and 24	Terminals 25 and 26 or Terminals 27 and 28
D7412G	Terminals 23 and 24	Terminals 27 and 28

9.1.3 Missing Conditions

If a programmed POPIT is disconnected from the expansion loop, a missing condition appears immediately and the event is logged. The missing condition might also be sent to a central station or printed to an on-site printer, if programmed to do so. Refer to the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for programming options.

9.1.4 Extra Point Events

Extra Point events are generated when a POPIT connected to the data expansion bus does not have an assigned Point Index. *Table 12* shows when an Extra Point event is or is not generated. *Table 13* on page 40 shows additional error conditions that can occur for the off-board points.

Table 12: Extra Point Events

A POPIT connected to the data expansion bus does not have an assigned Point Index and:	Extra Point event?	Additional Information
Data expansion bus is disconnected	No	Keypad does not annunciate or display a trouble condition.
Data expansion bus restores to normal condition after an open condition	Yes	<ul style="list-style-type: none"> Keypad annunciates and displays a trouble condition Extra Point is logged and might be programmed to send reports to the central station or to an on-site printer.
Point input changes status from normal to open or shorted	No	Keypad does not annunciate or display a trouble condition.
During a Service Walk Test, the point input changes status from normal to open or shorted	Yes*	<ul style="list-style-type: none"> Keypad annunciates and displays a trouble condition Extra Point is logged and might be programmed to send reports to the central station or to an on-site printer.

* The Service Walk Test never shows the electrical state of a point as "Extra."

Table 13: Off-Board Point Errors		
Error Condition	Result	Additional Information
+/- leg of the data expansion bus has a short circuit to earth ground, with Ground Fault Detect enabled	Ground Fault event	
+/- leg of the data expansion bus is disconnected	All POPITs beyond the disconnection send Missing report	
Data expansion bus has a short circuit	<ul style="list-style-type: none"> All POPITs send Missing report Pt Bus Trouble event 	When the data expansion bus restores, Pt Bus Restore event occurs. If any POPIT is connected to the data expansion bus without an assigned Point Index, an Extra Point event occurs.
+/- leg of the data expansion bus has a short circuit to the Common terminal on the control panel	<ul style="list-style-type: none"> All POPITs send Missing report Pt Bus Trouble event 	
Terminal 26, 28, or 94 has a short circuit to a Common terminal	No Pt Bus Trouble event occurs	
Terminal 25, 27, or 94 has a short circuit to a Common terminal	<ul style="list-style-type: none"> Pt Bus Trouble event Keypad displays: SERVC ZONEX 1 	
Terminals 27 and 28 have a short circuit together	<ul style="list-style-type: none"> Pt Bus Trouble event Keypad displays: SERVC ZONEX 1 	

9.1.5 D9412GV2/D7412GV2 Responses to Missing Point Conditions

The D9412GV2 and D7412GV2 respond to missing point conditions based on the point's programming and the armed state of the point's area. For example, if an interior motion detector point is missing during a disarmed state, a Missing Trouble event is generated; however, if the point is missing while the area is Master Armed, a Missing Alarm event is generated. Non-fire, 24-hour points always generate a Missing Alarm event, whereas Fire points always generate a Missing Fire Trouble event.

9.2 D8125, D8127 and D9127 POPIT Modules

D8127 and D9127 POPITs use the D8125 POPEX Module to report to the control panel. Each D8125 supports up to 119 POPIT points. Connect two D8125 Modules to the D9412GV2 to bring the combined total number of POPIT and on-board points to 246.

- Points 9 to 127 connect to the first POPEX Module.
- Points 129 to 247 connect to the second POPEX Module.
- The D9412GV2 reserves Points 128 and 248 for internal use.

The control panel annunciates activity only for each POPIT, not for each detection device connected to the sensor loop.

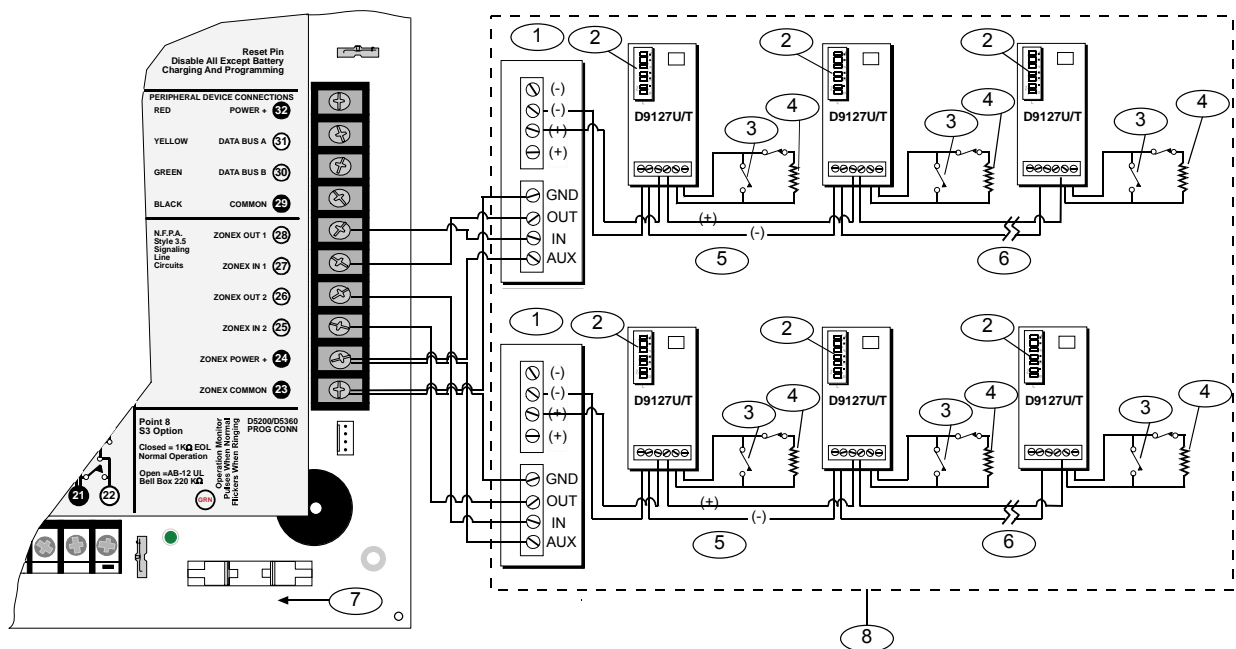
There are two versions of the D8127 and D9127 Modules. Both module enclosures are made of UL Listed fire resistant material. D8127T and D9127T Modules contain tamper switches. D8127U and D9127U Modules include untampered covers. Unless the module is mounted in a tampered enclosure, UL requires D8127T and D9127T Modules for certificated accounts.

Listings

The D8125 POPEX and the D8127 and D9127 POPIT Modules are UL Listed for Local or Police Connected Burglar Alarm, Central Station Burglar Alarm, Household Burglar Alarm, Central Station Fire, Local Fire, Remote Station Fire, Household Fire, and Electrically Actuated Transmitter Applications.

Refer to the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) to determine the required equipment and enclosures for the application.

Figure 17: Connecting the D8125 POPEX to the D9412GV2 Control Panel

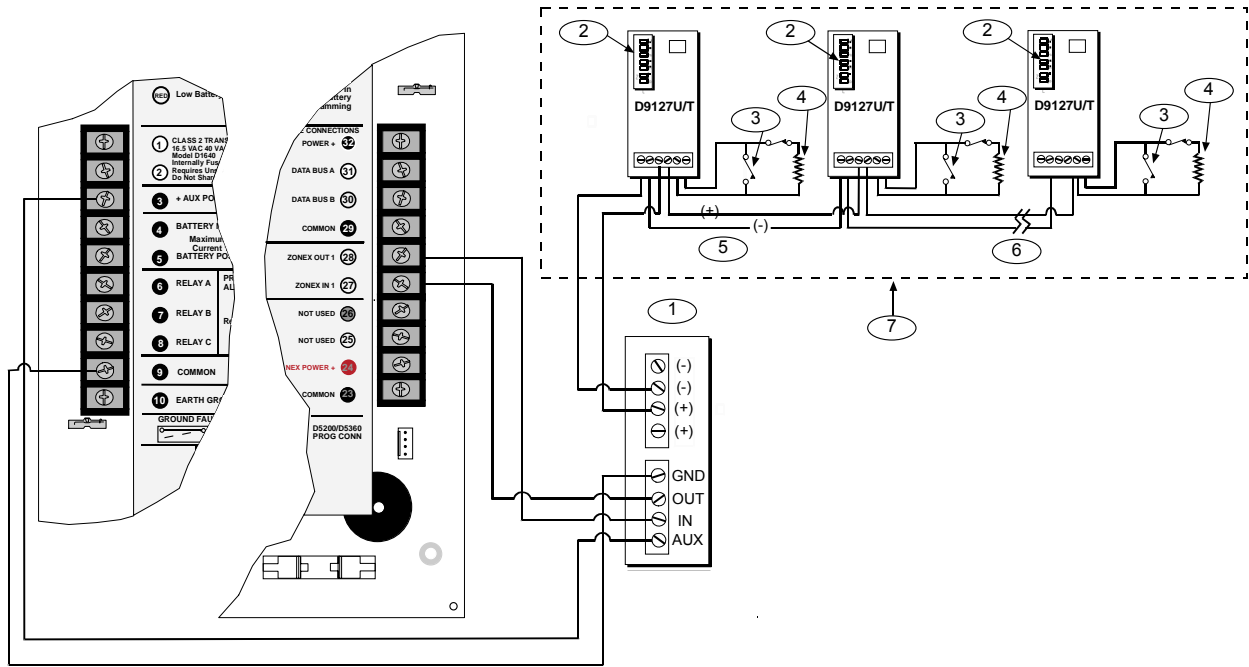


- | | |
|--|-------------------------|
| 1 - D8125 POPEX Module | 5 - Zone expansion loop |
| 2 - Switch block | 6 - Up to 119 POPITs |
| 3 - D9127 Sensor Loop | 7 - On-board points |
| 4 - 33 kΩ EOL resistor (P/N: P106F (15-03130-002), package of eight) | 8 - Expansion zones |



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

Figure 18: Connecting the D8125 POPEX to the D7412GV2 Control Panel



- | | |
|---|-------------------------|
| 1 - D8125 POPEX Module | 5 - Zone expansion loop |
| 2 - Switch block | 6 - Up to 67 POPITs |
| 3 - D9127 Sensor Loop | 7 - Expansion zones |
| 4 - 33 kΩ EOL resistor (P/N: P106F, package of eight) | |



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

9.3 Installing the D8125 POPEX Module



For information on the Multiplex Bus Interface, refer to the *D8125 Multiplex Bus Interface Operation and Installation Guide* (P/N: 36796).

Save the POPIT Label Sheets: The D8125 is packaged with two sets of POPIT label sheets. One set is marked “Bank 1” for use with the D7412GV2 and D7212GV2. The other set is marked “Bank 2” for use with the D9412GV2 and D9112. Use the sheets later to label the POPITs. Refer to *Section 9.3.6 POPIT Module Point Assignments* on page 45.

9.3.1 Mounting

To install the D8125 in the enclosure with the control panel:

1. Align the D8125 POPEX Module with any of the four mounting locations in the enclosure (*Figure 2* on page 15).
2. Using the screws provided with the module, secure it in the enclosure.

9.3.2 Wiring the D8125 to the Control Panel

To wire one or two D8125 Modules to the control panel (*Figure 17* on page 41 and *Figure 18* on page 42):

Power Down the Control Panel: Disconnect the positive (red) battery lead at the battery and unplug the transformer.

For Points 9 to 127 (9 to 75 on D7412GV2):

1. Connect the GND terminal of the D8125 to Terminal 23 on the D9412GV2 or to Terminal 9 on the D7412GV2.
2. Connect the OUT terminal of the D8125 POPEX Module to ZONEX IN 1, Terminal 27.
3. Connect the IN terminal of the D8125 POPEX Module to ZONEX OUT 1, Terminal 28.
4. Connect the AUX terminal of the D8125 to Terminal 24 on the D9412GV2 or to Terminal 3 on the D7412GV2.

For Points 129 to 247 (D9412GV2 only):

1. Connect the GND terminal of the D8125 to Terminal 23.
2. Connect the OUT terminal of the D8125 POPEX Module to ZONEX IN 2, Terminal 25.
3. Connect the IN terminal of the D8125 POPEX Module to ZONEX OUT 2, Terminal 26.
4. Connect the AUX terminal of the D8125 to Terminal 24.

Refer to *Section 9.3.4 Wiring Data Expansion Loops to POPEX Modules* on page 44 for instructions on connecting POPITs to the D8125 POPEX Module.

9.3.3 Wiring POPITs to the Data Expansion Loop

Use one two-wire data expansion loop or distribute the POPITs on up to three loops. Setting DIP switches on the POPIT Modules assigns them to point numbers. Refer to *Section 9.3.6 POPIT Module Point Assignments* on page 44.

Review *Section 4.6.2 Installing and Wiring Detection Devices* on page 18 to determine if shielded wire is required. Refer to *Table 14* to determine the wire gauge for the length of each data expansion loop.

Table 14: Data Expansion Loop Wire Specifications

Maximum Length of All Data Expansion Loops Combined	
AWG	Length in Meters (Feet)
22	548 (1800)
20	881 (2890)
18	1402 (4600)
16	2231 (7320)
14	3551 (11,650)

Combine Data Expansion Loops

The maximum lengths shown in *Table 14* are for all data expansion loops connected to the same POPEX Module combined.

Wiring POPITs Together



Do not connect POPITs to each other in series or with a T-tap. Doing so might cause random missing POPIT conditions.



Before installing the POPITs, ensure that the resistance on the data expansion loop is no more than 40 Ω .

To connect POPITs to one another in parallel:

1. Connect the positive (+) data terminal from one POPIT to the positive (+) data terminal on the next POPIT.
2. Connect the negative (-) data terminal from one POPIT to the negative (-) data terminal on the next POPIT.
3. Repeat Steps 1 and 2 to connect all POPITs to the expansion loop. It is not necessary to wire the POPITs in any particular order on the loop. The switch setting on each POPIT assigns it a point number, regardless of its physical location.

Three-inch Clearance for Tampered POPITs

Mount tampered POPIT modules at least 7.6 cm (3 in.) apart to prevent the tamper magnets from interfering with each other.

9.3.4 Wiring Data Expansion Loops to POPEX Modules

Each POPEX Module has two positive (+) and two negative (-) data expansion loop terminals. Up to 119 POPITs can be connected to one D8125 on the D9412GV2; up to 67 POPITs for the D7412GV2 (*Figure 17* on page 41 and *Figure 18* on page 42).

To connect the data expansion loops to the D8125 POPEX Module:

1. Connect the positive (+) data terminal from the first POPIT on the data expansion loop to one of the D8125's positive (+) terminals.
2. Connect the negative (-) data terminal from the first POPIT on the data expansion loop to one of the D8125's negative (-) terminals.

9.3.5 POPIT Sensor Loops

The number of normally-open and normally-closed detection devices each sensor loop can supervise is limited only by the resistance on the loop. Resistance on each sensor loop must be less than 100 • not including the EOL resistor.



Certain UL and NFPA applications can limit the number of detection devices. Consult the appropriate UL or NFPA standards.

POPITs detect open, shorted, normal, and grounded circuit conditions on their sensor loops. They send the condition of their loops to the control panel. A ground on the sensor loop sends a general system ground-fault condition report. Each POPIT is programmed and sends signals to the control panel separately.

Terminate each POPIT sensor loop with the 33 k• end-of-line (EOL) resistor (D106F) included with each POPIT.

Use a twisted-pair wire (six twists per foot) in all POPEX and POPIT installations for the data expansion loop wiring and the POPIT sensor loops. Run wires away from AC sources to prevent AC induction. If you suspect a noisy environment, use shielded cable. Refer to *Section 9.3 Installing the D8125 POPEX Module* on page 42. Also refer to *Noise on Wire* in the *General Wiring Troubleshooting* section of the *D9412GV2/D7412GV2 Troubleshooting Guide* (P/N: F01U011024).

9.3.6 POPIT Module Point Assignments

Six switches on each POPIT assign the module to a point number. For POPIT switch settings, refer to *Point Assignment* in the *D9412GV2/D7412GV2 Program Record Sheet* (P/N: F01U003635). The program record sheet provides information about the Point Assignments tables. *Figure 19* on page 45 is an example of the tables.



For the D9412GV2, Points 73 to 127 and 193 to 247 must use the D9127 POPITs. Points 9 to 72 and 129 to 192 can use either D8127 or D9127 POPITs.

For the D7412GV2, Points 9 to 72 can use either D8127 or D9127 POPITs; however, D9127 POPITs must be used for Points 73 to 75.

9.3.7 Program Record Sheet

The first column of the table in *Figure 19* on page 45 contains the **POPIT Switch Settings** for the D8127 POPITs. On the D8127 POPITs, the switches are numbered 1 to 6, from left to right. On the D9127T/U POPIT, switches are numbered 0 to 6, from left to right. Set the indicated switches to the ON position. If a dash (-) appears in the switch position, set the switch to the OFF position.

The second column contains the **Translation** of the point number into the Zonex format. Refer to *Point User Flag* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for an explanation of this feature.

The third column contains the **Point Number** as shown at keypads.

The fourth column contains the **Point Index**. Refer to *Point Index Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for an explanation of the point index.

The fifth column, **Area Assign**, shows the area to which the point is assigned.

The sixth column shows the **Debounce Count** for the point. Refer to *Debounce Count* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

The seventh column shows the **BFSK/Relay** report code, which is the point number reported for this point when the control panel is using the BFSK format.

The eighth column contains the **Custom Point Text** displayed at keypads for the point. The text is sent to the receiver when the control panel uses the Modem IIIa² format.

Figure 19: Program Record Sheet

D9412GV2/D7412GV2 | Program Record Sheet | RADXPNTS Handler							EN | 25	
Default values are shown in () or in bold								
Point Assignments (001 through 040)								
POPIT Switch Setting	Translation	Point #	Point Index	Area Assign	Debounce	BFSK/Relay	Custom Point Text	
	100	001	(3) __	(1) __	(2) ____	(1) ____	P1 FIRE _____	
	200	002	(1) __	(1) __	(2) ____	(2) ____	P2 PANIC _____	
	300	003	(25) __	(1) __	(2) ____	(3) ____	P3 DELAY _____	
	400	004	(13) __	(1) __	(2) ____	(4) ____	P4 FOLLOW _____	
	500	005	(7) __	(1) __	(2) ____	(5) ____	P5 INSTANT _____	
	600	006	(7) __	(1) __	(2) ____	(6) ____	P6 INSTANT _____	
	700	007	(7) __	(1) __	(2) ____	(7) ____	P7 INSTANT _____	
	800	008	(7) __	(1) __	(2) ____	(8) ____	P8 INSTANT _____	
0 1 2 3 4 5 6	101	009	__	(1) __	(2) ____	(1) ____	P9 _____	

9.3.8 POPIT Labels

D9412GV2 off-board points are numbered 9 to 127 and 129 to 247. The D7412GV2 uses Points 9 to 75 only. The D9412GV2 reserves Points 128 and 248 for internal use. POPITs must be connected for Points 129 to 247 to expansion loops connected to POPEX #2.

Two sheets of peel-off POPIT labels are supplied with the D8125 POPEX Module. Use the sheet marked “Bank1” for Points 9 to 127. Use the sheet marked “Bank2” for Points 129 to 247.

Each label has two parts. Place the smaller part (with only the point number) on the chip. Place the larger part with the switch settings on the base of the POPIT. Set the switches and cover the POPIT.

Do **not** program two POPITs for the same point number. After programming all the points, perform a Service Walk Test. Refer to *Section 4.10 Service Walk Test* on page 47. If a point does not test, check the programming for a duplicated address.

Walk Test and Service Walk Test Do Not Show Extra Points: If the point assignment switches on a POPIT or OctoPOPIT are set incorrectly, missing and extra points can occur. If the same point number is assigned to two or more POPITs or OctoPOPITs, none of the points with that number test correctly. Refer to *Section 9.1 Point (Zonex) Bus: D9412GV2 Terminals and D7412GV2 Terminals* on page 39.



For UL 864 Commercial Fire applications, refer to *Installing Combination Fire and Intrusion Alarm Systems* in the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for important information about combination fire and intrusion systems.

9.4 D8128D OctoPOPIT Module



Modules D8128, D8128A, or D8128B are incompatible with the D9412GV2 or D7412GV2. Use only the D8128D OctoPOPIT Module. Using Modules D8128, D8128A, or D8128B can cause intermittent Missing and Restoral Reports.

9.4.1 Description

The D8128D OctoPOPIT Module combines the functions of the D8125 POPEX Module and the D8127/D9127 POPIT Modules to provide eight off-board points in a single module. You can wire both D8128D OctoPOPIT and D8125 POPEX Modules in parallel to the Zonex Bus terminals on the same control panel.

Review *Section 6.0 Power Outputs* on page 28 to ensure that there is enough power for the OctoPOPITs and other powered devices that will be connected to the system.

Up to thirty D8128D Modules can be connected to the D9412GV2 Control Panel. Up to nine D8128Ds can be connected to the D7412GV2 Control Panel (three points can be used on the last OctoPOPIT).

9.4.2 Listings

The D8128D OctoPOPIT Module is UL Listed for Local or Police Connected Burglary Alarm, Central Station Burglary Alarm, Household Burglary Alarm applications, and commercial fire applications (UL 864 and NFPA 72).

The D8128D is also suitable for fire supervisory applications, such as indicating circuit supervision (using the D192G Bell Circuit Supervision Module), sprinkler supervision, and valve tamper protection.

Requirements for Fire Initiation Applications

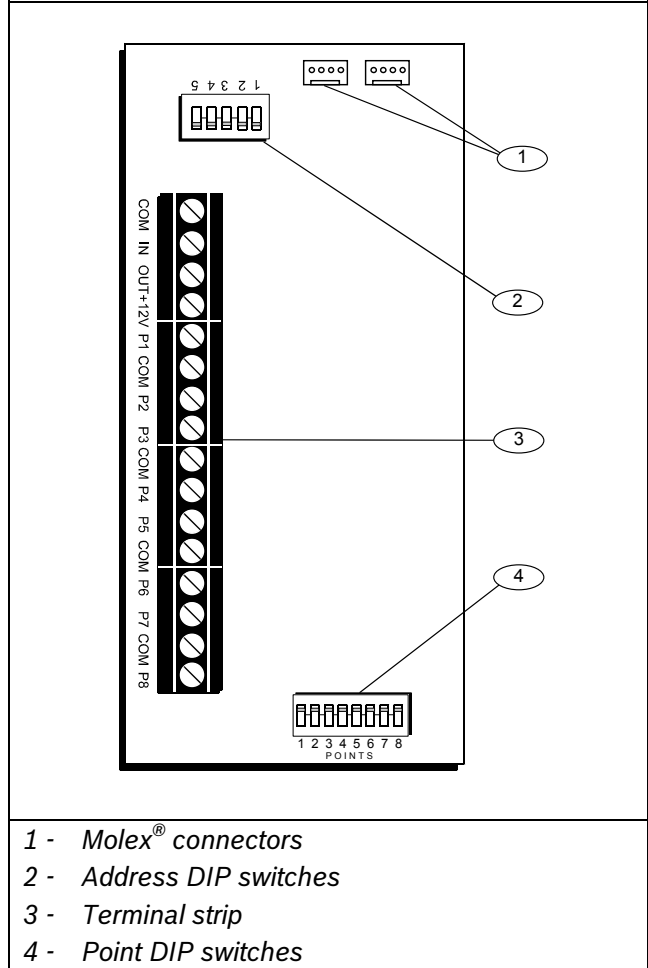
Non-powered, fire initiating devices such as pull-stations, heat detectors, and UL Listed four-wire smoke detectors can be connected directly to the point inputs on the D8128D.

For UL 864 Commercial Fire applications, refer to *Installing Combination Fire and Intrusion Alarm Systems* in the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for important information about combination fire and intrusion systems.

The D125B Dual Powered Loop Interface Module or the D129 Dual Class “A” Module zone outputs can be connected directly to the point inputs on the D8128D. Use the D125B to connect two-wire smoke detectors. Typically, the D129 is used for connecting waterflow switches.

The D125B or D129 and the OctoPOPIT can be mounted in the same enclosure with the control panel or in a separate enclosure connected to the control panel’s enclosure by a conduit not more than 6 m (20 ft.) in length.

Figure 20: D8128D OctoPOPIT Layout



9.4.3 Installation

For the most effective installation, use the following four-step process:

1. Set the OctoPOPIT switches. Refer to *Section 9.4.4 Setting the OctoPOPIT Switches*.
2. Physically mount the OctoPOPIT in the enclosure. Refer to *Section 9.4.5 Mounting OctoPOPITs*, page 48.
3. Wire the OctoPOPIT. Refer to *Section 9.4.6 Wiring OctoPOPITs* on page 48.
4. Wire the OctoPOPIT sensor loops. Refer to *Section 9.4.7 OctoPOPIT Sensor Loops* on page 51.

9.4.4 Setting the OctoPOPIT Switches

The D8128D OctoPOPIT has two sets of DIP switches (*Figure 20* on page 46). Use the DIP switches on the top of the unit (with the terminal strip along the left edge) to set the address for the OctoPOPIT. Use the DIP switches at the bottom of the unit to enable or disable individual points connected to the OctoPOPIT.

Address Switches

The switches on the D8128D OctoPOPIT set point assignments and line termination. These switches are easier to set before mounting the D8128D in the enclosure.

Switches 1, 2, 3, and 4 assign the OctoPOPIT sensor loops to point numbers on the control panel. *Table 15* shows the OctoPOPIT switch settings for point assignments.

Switch 5 sets line termination. Refer to *Table 16*.

Table 15: D8128D OctoPOPIT Switch Settings for D9412GV2 and D7412GV2

ZONEX 1	D8128D Address Switches					ZONEX 2
Points 9 to 127	1	2	3	4	5	Points 129 to 247
9 to 16	ON	ON	ON	ON	*	129 to 136
17 to 24	ON	ON	ON	OFF	*	137 to 144
25 to 32	ON	ON	OFF	ON	*	145 to 152
33 to 40	ON	ON	OFF	OFF	*	153 to 160
41 to 48	ON	OFF	ON	ON	*	161 to 168
49 to 56	ON	OFF	ON	OFF	*	169 to 176
57 to 64	ON	OFF	OFF	ON	*	177 to 184
65 to 72	ON	OFF	OFF	OFF	*	185 to 192
73 to 80	OFF	ON	ON	ON	*	193 to 200
81 to 88	OFF	ON	ON	OFF	*	201 to 208
89 to 96	OFF	ON	OFF	ON	*	209 to 216
97 to 104	OFF	ON	OFF	OFF	*	217 to 224
105 to 112	OFF	OFF	ON	ON	*	225 to 232
113 to 120	OFF	OFF	ON	OFF	*	233 to 240
121 to 127	OFF	OFF	OFF	ON	*	241 to 247

* Line Termination Switch



For the D8128D OctoPOPITs assigned to Points 121 to 127, 241, and 247, set Point Input Switch 8 to the OPEN position. D9412GV2 uses Points 9 to 127 on Zonex 1 and Points 129 to 247 on Zonex 2. D7412GV2 uses Points 9 to 75 on Zonex 1 only.

Table 16: Switch 5 Settings for Line Termination

Is a D8125 POPEX Module connected?	Switch 5 Setting(s) on D8128D OctoPOPIT(s)
No	Set Switch 5 of only one D8128D to ON
Yes	Set Switch 5 of all D8128Ds to OFF

Point DIP Switches

Each point connected to the D8128D is enabled by closing the respective DIP switch, or disabled by opening the DIP switch. For example, to disable a device connected to the P3 Terminal (Point 3), move DIP switch number 3 to the OPEN position.

Use the point DIP switches to disable conflicting points, such as when a D9210B Access Control Module must be assigned to a point that falls within the range of the D8128D OctoPOPIT. In this example, a D9210B is assigned to Point 20. On the same system, a D8128D OctoPOPIT is assigned to Points 17 through 24. Moving the DIP switch for Point 4 to the OFF position would effectively disable Point 20, allowing normal operation of the D9210B and the OctoPOPIT.

Terminate each OctoPOPIT sensor loop with a 1 kΩ EOL resistor. Attach a resistor even if you do not enable the loop.

9.4.5 Mounting OctoPOPITs

The D8128D OctoPOPIT Module can be installed in the enclosure with the control panel using standard four-conductor 0.8 mm (22 AWG) wire, or in a separate enclosure (Model D8103, D8103A, or D8109) up to 61 m (200 ft.) from the control panel using shielded (recommended) standard four-conductor 0.8 mm (22 AWG) wire. If using the D125B or D129, refer to the *Specifications* section of the *D8128D Installation Guide* (P/N: 41323) for cabling requirements.

For UL Listed systems, mount the D8128D in a tamper-proof enclosure. To install OctoPOPITs in the control panel's enclosure, complete the following procedure. Use the D137 Mounting Bracket to install OctoPOPITs in enclosures with no module-mounting locations available.

1. Align the OctoPOPIT module using any of the four mounting locations in the enclosure. Refer to *Figure 2* on page 15.
2. Use the screws provided with the module to secure it in the enclosure.

9.4.6 Wiring OctoPOPITs



Warning: Disconnect all power to the control panel before beginning any work with the internal components. Serious injury could result from electrical shock.

1. Power down the control panel:
 - a. Disconnect the positive (red) battery lead at the battery.
 - b. Unplug the transformer.



A D8128D OctoPOPIT can be installed up to 61 m (200 ft.) from the control panel.

2. Connect the D8128D to the control panel using either of the following methods:
 - Wire the D8128D to the terminal strip on the side of the POPEX Module, **or**
 - Connect the D8128D using the Molex[®] connectors (P1 and P2). Refer to *Using Molex[®] Connectors* on page 51.



Caution - AC induction: Avoid installing Zonex data wires and Zonex input (sensor loop) wires around any AC conduit, wiring, or electrical devices that emit fields of electromagnetic interference (EMI).

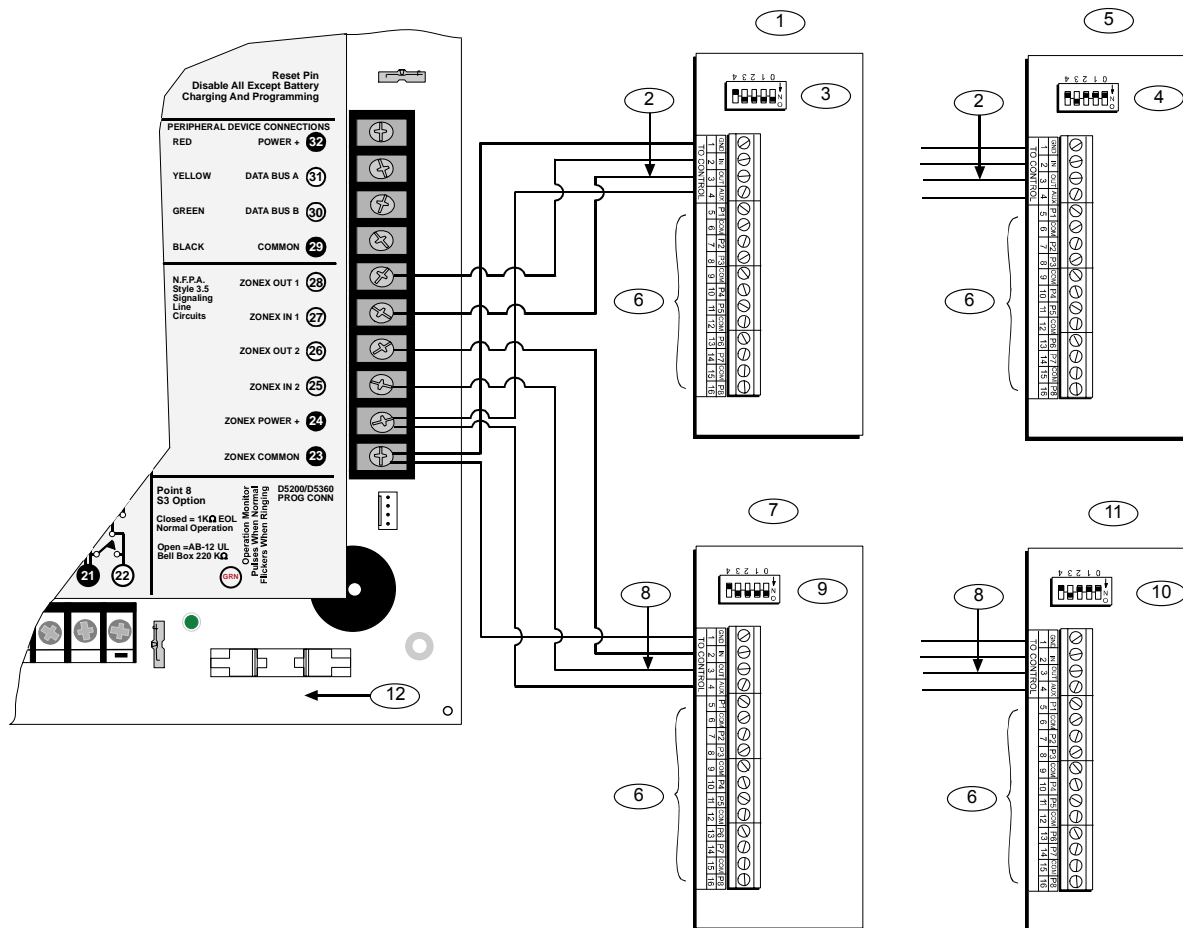
Using the Terminal Strip

Refer to *Table 17*, *Figure 21* on page 49, and *Figure 22* on page 50 when using the terminal strip to connect the D8128D OctoPOPIT to the control panel.

Table 17: Terminal Strip Connections

D8128D	D9412GV2	D7412GV2
Common	Terminal 23	Terminal 23
Out	Zonex 1 = Terminal 27 Zonex 2 = Terminal 25	Terminal 27
In	Zonex 1 = Terminal 28 Zonex 2 = Terminal 26	Terminal 28
+12 V	Terminal 24	Terminal 24

Figure 21: Connecting D8128D OctoPOPITs to the D9412GV2



- | | |
|--|--|
| 1 - Zonex Bus 1, Switch 1 ON (Points 9 to 72) | 8 - Bus 2 |
| 2 - Bus 1 | 9 - First address on Zonex Bus 2 |
| 3 - First address on Zonex Bus 1 | 10 - Last address on Zonex Bus 2 |
| 4 - Last address on Zonex Bus 1 | 11 - Zonex Bus 2, Switch 1 OFF (Points 193 to 240) |
| 5 - Zonex Bus 1, Switch 1 OFF (Points 73 to 127) | 12 - On-board points |
| 6 - Sensor loops | |
| 7 - Zonex Bus 2, Switch 1 ON (Points 129 to 192) | |

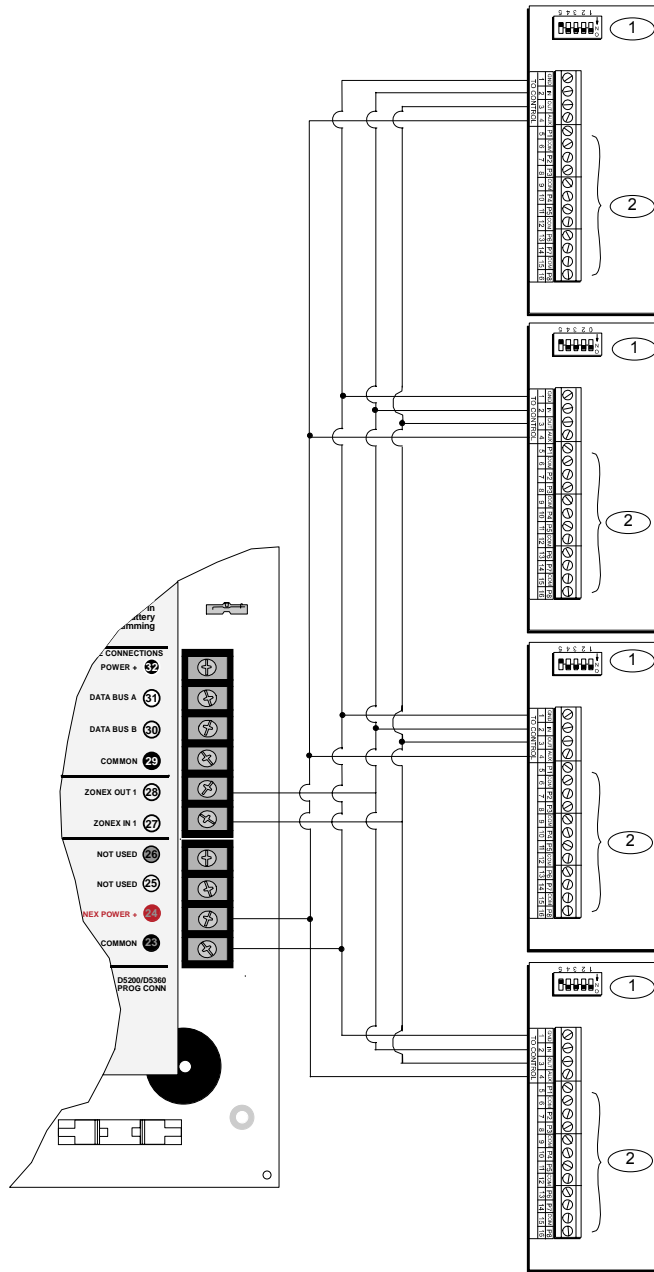


Refer to *Address Switches* in Section 9.4.4 *Setting the OctoPOPIT Switches* on page 47 for information about making these switch settings. Refer to *Table 16* on page 47 for information about setting Switch 5.



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

Figure 22: Connecting D8128D OctoPOPITs to the D7412GV2



1 - First address on Zonex Bus 1

2 - Sensor loops



Refer to *Address Switches* in Section 9.4.4 *Setting the OctoPOPIT Switches* on page 47 for information about making these switch settings. Refer to *Table 16* on page 47 for information about setting Switch 5.



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

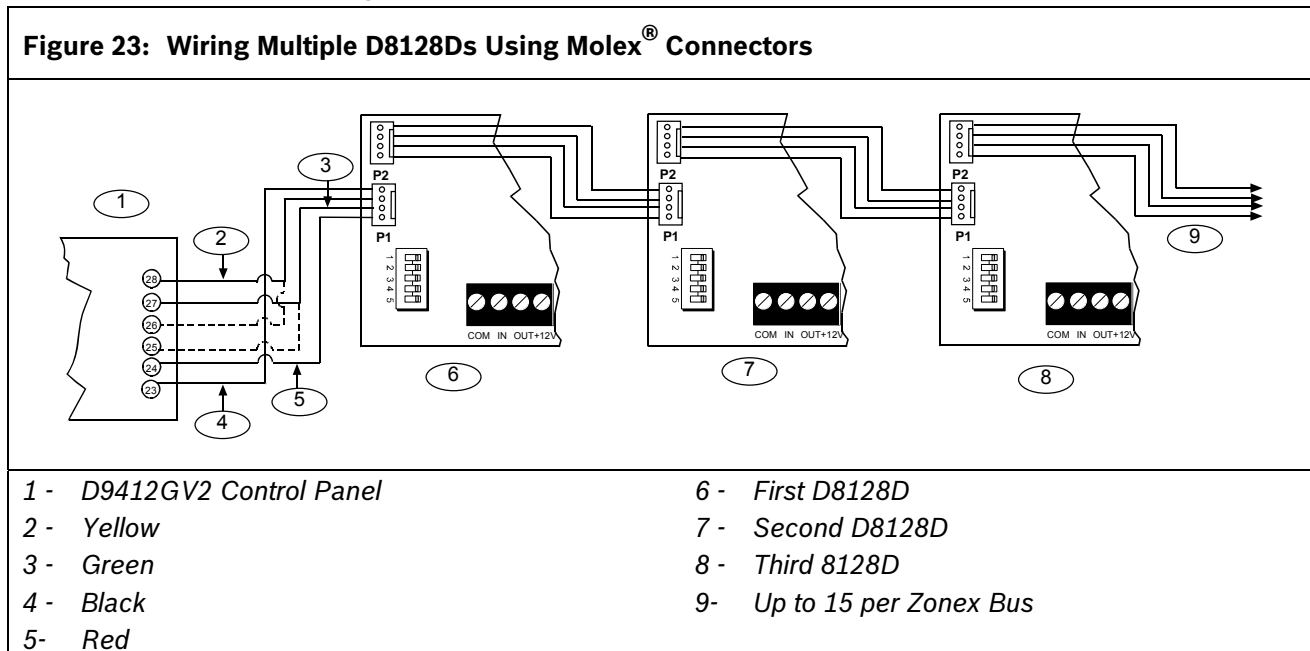
Using Molex® Connectors

Each D8128D Module is supplied with a 30 cm (12 in.) female-to-female Molex cable assembly.

P1 and P2 are Molex connectors that parallel the COM, IN, OUT, and +12 VDC terminals on the terminal strip. In installations with multiple D8128Ds, use these connectors (as opposed to terminals) with the supplied cable; however, when connecting D8128D Modules directly to the control panel, the terminal strip is easier to use.

The Molex connectors provided are "keyed" (Molex plug can fit in only one direction). Ensure that the connector is attached correctly: the red wire is on the bottom of P1 (or P2) and the black wire is on the top.

When connecting multiple D8128Ds to a control panel, you can connect the control panel terminals to P1 or the COM, IN, OUT, and +12V terminals on the first D8128D. Then connect P2 of the first D8128D to P1 of the second D8128D and so on (*Figure 23*).



9.4.7 OctoPOPIT Sensor Loops

Only the resistance on the loop limits the number of normally-open or normally-closed detection devices each sensor loop can supervise. Resistance on each sensor loop must be less than 100 • with the detection devices connected.

Certain UL and NFPA applications can limit the number of detection devices. Consult the appropriate UL or NFPA standards.

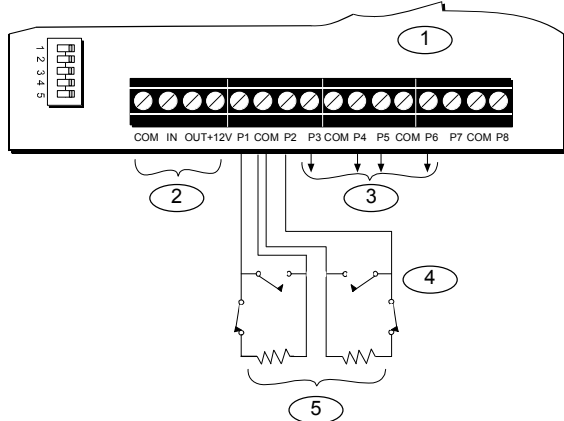
The OctoPOPIT detects open, short, closed, normal, and grounded circuit conditions on its sensor loops and sends the conditions to the control panel. Each sensor loop has an assigned point number and sends signals to the control panel separately.

Use twisted-pair wire for the OctoPOPIT sensor loops to avoid EMI problems. Run wires away from the premises telephone and AC wiring. If you suspect a noisy environment, use shielded cable.

The OctoPOPIT has two rows of terminal numbers. In the row nearest to the terminal blocks, the positive outputs for the sensor loops are labeled P1 to P8. Sensor loop outputs P1 and P2, P3 and P4, P5 and P6, and P7 and P8 share common terminals. The common terminals for each pair are labeled COM.

Terminate each OctoPOPIT sensor loop with a 1 k• EOL resistor. Attach a resistor even if you do not enable the loop. The OctoPOPIT includes a D105BL resistor for each sensor loop. Refer to *Figure 24* on page 52.

Do not duplicate point assignments. Points do not function properly if assigned to an OctoPOPIT sensor loop and a POPIT, to two OctoPOPIT sensor loops, or to two POPITs.

Figure 24: D8128D OctoPOPIT Sensor Loops

- 1 - D8128D OctoPOPIT
- 2 - To control panel
- 3 - To additional OctoPOPIT sensor loops
- 4 - OctoPOPIT sensor loops
- 5 - 1 k Ω EOL resistor (P/N: P105BL, package of eight)

9.5 Testing Off-Board Points

Use the Service Walk Test to test off-board points. Refer to the *D9412GV2/D7412GV2/D7212GV2 Installation and Troubleshooting Quick Reference Guide* (P/N: F01U003638) for instructions. Test to ensure that all off-board points operate properly.

Walk Test and Service Walk Test Do Not Show Extra Points: If the point assignment switches on a POPIT or OctoPOPIT are set incorrectly, missing and extra points can occur. If the same point number is assigned to two or more POPITs or OctoPOPITs, none of the points with that number test correctly. Refer to *Section 9.1 Point (Zonex) Bus: D9412GV2 Terminals and D7412GV2 Terminals* on page 39.

10.0 Off-Board Relays

10.1 D8129 OctoRelay

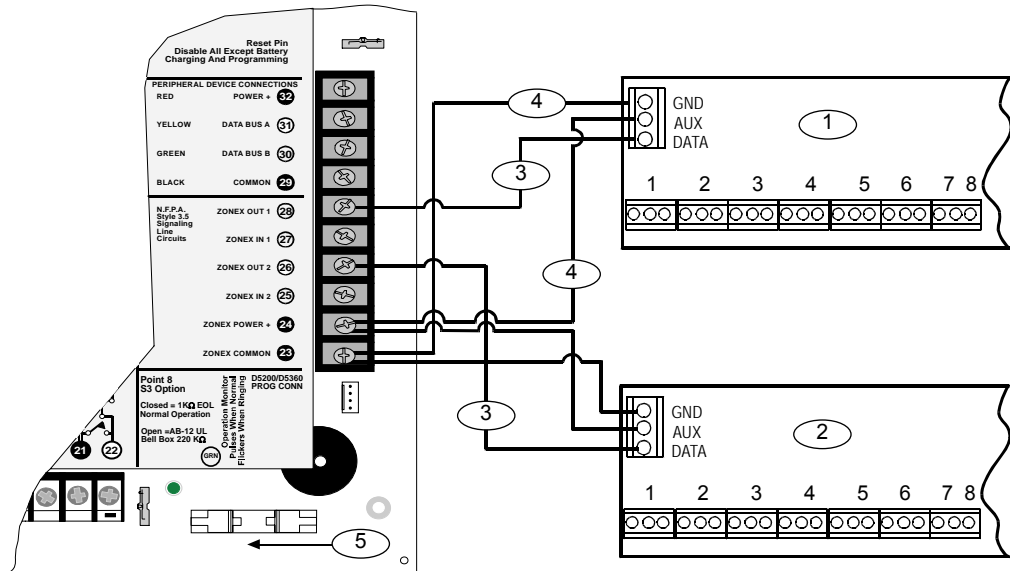
Use the D8129 OctoRelay to add relay outputs to the system in groups of eight. On the D9412GV2, up to 128 OctoRelay outputs (relay numbers 1 to 128) can be added to the system using 16 OctoRelays. D7412GV2 allows up to 64 relay outputs. Review *Section 6.0 Power Outputs* on page 28 to ensure that enough power is provided for the OctoRelays and other powered devices that are connected to the system.

OctoRelays for relay numbers 1 to 64 connect to Zonex 1, Terminal 28. OctoRelays for relay numbers 65 to 128 connect to Zonex 2 (D9412GV2 only), Terminal 26 on the D9412GV2. Refer to *Figure 25* on this page and *Figure 26* on page 54.

Alarm output, auxiliary relay, sensor reset, arming status, point status, alarm memory, or remote functions can be assigned to the OctoRelay outputs individually. Refer to *Relay Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003635) for programming details.

D8129 Restricted for Fire Systems: D8129 relay outputs are not supervised and cannot be used in fire or combined fire and burglary installations for primary indicating devices.

Figure 25: D8129 Connections to the D9412GV2



1 - D8129 OctoRelays for relay numbers 1 to 64.
Connect OctoRelays in parallel.

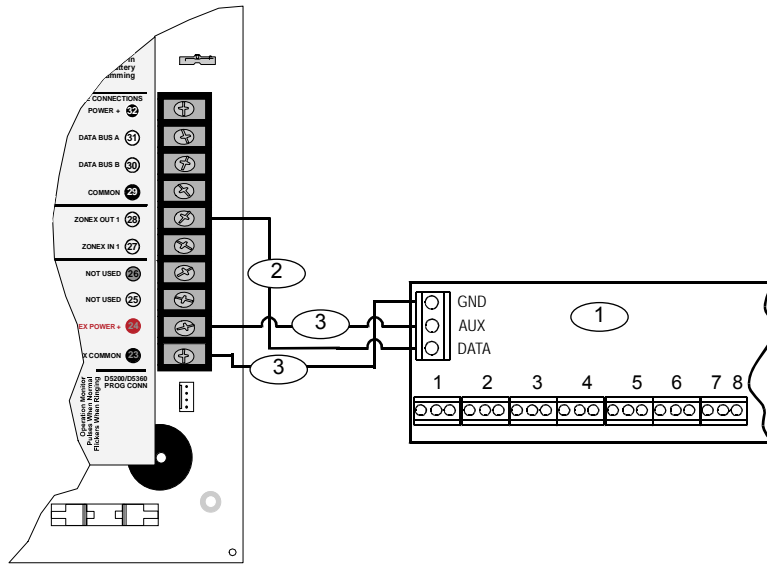
2 - D8129 OctoRelays for relay numbers 65 to 128.
Connect OctoRelays in parallel.

3 - Power limited

4 - Supervised, power limited

5 - On-board points

Figure 26: D8129 Connections to the D7412GV2



1 - D8129 OctoRelays for relay numbers 1 to 64. Connect OctoRelays in parallel.

2 - Power limited

3 - Supervised, power limited

10.1.1 Configuring the D8129 OctoRelay

Five switches on the OctoRelay determine the relay numbers for the eight relay outputs (Table 18).

Table 18: D8129 OctoRelay Switch Settings

Panel Relay Number	D8129 OctoRelay Switch Setting	On Panel, Connect D8129 to:
1 to 8	Off-On-On-On-On	Zonex 1 Terminal 28
9 to 16	On-Off-On-On-On	Zonex 1 Terminal 28
17 to 24	Off-Off-On-On-On	Zonex 1 Terminal 28
25 to 32	On-On-Off-On-On	Zonex 1 Terminal 28
33 to 40	Off-On-Off-On-On	Zonex 1 Terminal 28
41 to 48	On-Off-Off-On-On	Zonex 1 Terminal 28
49 to 56	Off-Off-Off-On-On	Zonex 1 Terminal 28
57 to 64	On-On-On-Off-On	Zonex 1 Terminal 28
D7412G Maximum		
65 to 72	Off-On-On-On-On	Zonex 2 Terminal 26
73 to 80	On-Off-On-On-On	Zonex 2 Terminal 26
81 to 88	Off-Off-On-On-On	Zonex 2 Terminal 26
89 to 96	On-On-Off-On-On	Zonex 2 Terminal 26
97 to 104	Off-On-Off-On-On	Zonex 2 Terminal 26
105 to 112	On-Off-Off-On-On	Zonex 2 Terminal 26
113 to 120	Off-Off-Off-On-On	Zonex 2 Terminal 26
121 to 128	On-On-On-Off-On	Zonex 2 Terminal 26

10.1.2 Relay Outputs



Relay outputs can activate when you are setting the OctoRelay switches or programming the control panel.

Disconnect equipment connected to relay outputs when you perform these functions.

Each OctoRelay output provides a Form C dry contact rated for 1.0 A at 12 VDC. Normally-open, common, and normally-closed terminals are available for each relay output. When an individual output is activated, continuity exists between the normally-open and common terminals. When the output is not activated, continuity exists between the normally-closed and common terminals.

10.1.3 Installation

Set the switches on the OctoRelay before installing it in the enclosure. Refer to Section 10.1.1 Configuring the D8129 OctoRelay.



Install the OctoRelay in the enclosure with the control panel (Figure 2 on page 9) or in an adjacent enclosure that is no more than 1.5 m (5 ft.) from the control panel. Use 1.5 mm (16 AWG) to 0.8 mm (22 AWG) wire.

To install OctoRelays in the enclosure with the control panel:

1. Align the module with one of the mounting locations in the enclosure (refer to *Figure 2* on page 9).
2. Using the screws provided with the module, secure the module in the enclosure.
Use the D137 Mounting Bracket or D9002 Mounting Skirt to install OctoRelays in enclosures with no available module mounting locations.

10.1.4 Wiring Connections

Power down the control panel to connect OctoRelays. Refer to *Figure 25* on page 53 and *Figure 26* on page 54.

	OctoRelays for Relays 1 to 64 connect to Zonex 1, Terminal 28.
	OctoRelays for Relays 65 to 128 connect to Zonex 2, Terminal 26 on the D9412GV2 only.

Only one OctoRelay is shown wired to each Zonex bus in *Figure 25* on page 53 and *Figure 26* on page 54. Wire additional OctoRelays in parallel. Review *Section 6.0 Power Outputs* on page 28 for information about providing enough power for the relays.

The number of D8129 OctoRelays that can be connected to each Zonex terminal on the D9412GV2 control panels is limited by the number of D8128D OctoPOPITs connected.


	Using D8129 OctoRelays and D8128D OctoPOPITs together on the same Zonex terminals is limited and depends on the number of D8128 OctoPOPITs and D8129 OctoRelays connected to a single Zonex Bus. Refer to <i>Table 19</i> for information about the maximum number of D8128Ds and D8129s you can connect to a single Zonex bus.
---	--

Table 19: Number of D8128Ds Used with D8129s

If the number of D8128Ds connected to a single Zonex bus is:	Do not connect more than this number of D8129s:
9	6
10	5
11	4
12	3
13	1
14	1

10.2 D811 Arm Status Relay Module



The D811 Arm Status Relay Module allows the addition of a single off-board relay output to the system. Alarm output, auxiliary relay, sensor reset, arming status, point status, alarm memory, or remote functions can be assigned to the D811 relay output. It is not restricted to the Arming Status Mode only.

Relay Numbers for D811 Not Programmable: If the D811 is connected to Zonex 1, Terminal 28, use relay number 53 for the relay output. If the D811 is connected to Zonex 2, Terminal 26 on the D9412GV2, use relay number 117 for the relay output.

D811 Modules connect as shown in *Figure 27* on page 56 and *Figure 28* on page 57. Review *Section 6.0 Power Outputs* on page 28 to ensure that enough power is provided for the powered devices that connect to the system. Refer to *Relay Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for programming details.

D811 Restricted for Fire Systems: The D811 relay output is not supervised and cannot be used in fire or combined fire and burglary installations for primary indication devices.

10.2.1 Relay Output

	Relay outputs can activate when you are programming the control panel.
	Disconnect equipment connected to relay outputs when you perform this function.

Each D811 relay output provides a Form C dry contact rated for 1.0 A at 12 VDC. Normally-open, common, and normally-closed terminals are available. When an individual output is activated, continuity exists between the normally-open and common terminals. When the output is not activated, continuity exists between the normally-closed and common terminals.

10.2.2 Installation

Install the D811 in the enclosure with the control panel (Figure 27) or in an adjacent enclosure no more than

1.5 m (5 ft.) from the control panel. Use 1.5 mm (16 AWG) to 0.8 mm (22 AWG) wire.

To install D811 Modules in the enclosure with the control panel:

1. Align the D811 Module with any of the four mounting locations in the enclosure (Figure 2 on page 15).
2. Using the screws provided with the module, secure it in the enclosure.

Use the D137 Mounting Bracket or D9002 Mounting Skirt to install D811 Modules in enclosures with no available module mounting locations.

10.2.3 Wiring Connections

Power down the control panel to connect D811 Modules as shown in Figure 27 on this page and Figure 28 on page 57.


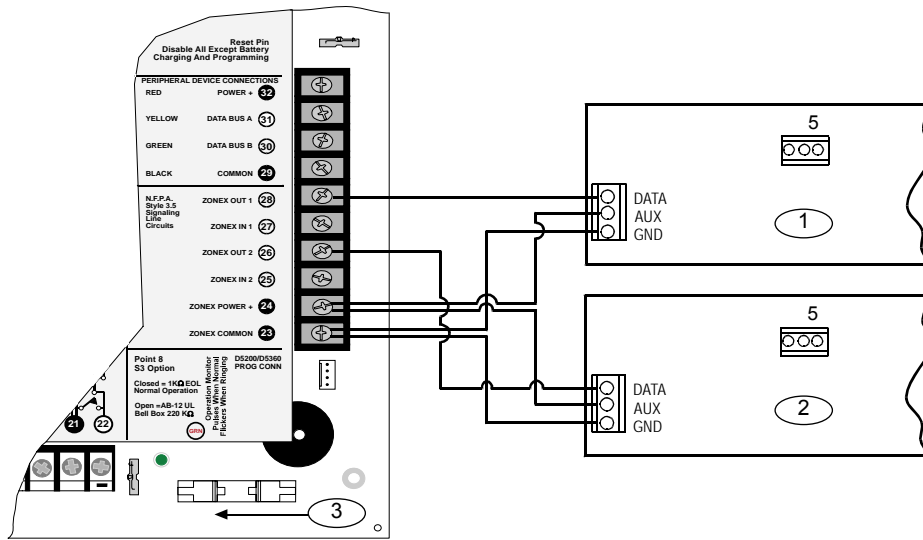
	The D811 for Relay 53 connects to Zonex 1.
	The D811 for Relay 117 connects to Zonex 2 on the D9412GV2.

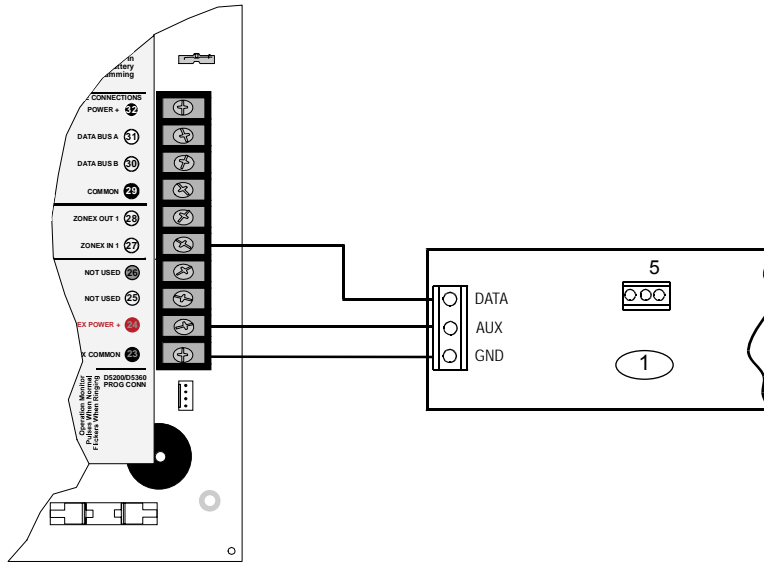
Figure 27: D811 Module Wiring to the D9412GV2



- 1 - D811 for Relay 53
- 2 - D811 for Relay 117

3- On-board points

Figure 28: D811 Module Wiring to the D7412GV2



1 - D811 for Relay 53

11.0 Arming Devices

11.1 Description

Keypads, maintained or momentary contact keyswitches, or a combination of the two are used to arm and disarm areas. The control panel can contain up to eight areas. Refer to 3.3.6 *Areas and Accounts* on page 12 for a description of areas.



For UL 864 Commercial Fire applications, refer to *Installing Combination Fire and Intrusion Alarm Systems* in the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for important information about combination fire and intrusion systems.

11.2 Keypad Terminals 29 to 32

The Bosch Security Systems, Inc. keypad is a four-wire powered device used to arm and disarm areas, annunciate complete system status, initiate system tests, and control many functions of the security system.

The system can supervise up to eight keypads. The control panel sends a Serial Device Trouble Report, SDI FAILURE, in the Modem IIIa² format or TROUBLE ZN D in the BFSK format, if it loses communication with a supervised keypad. CALL FOR SERVICE appears in any keypad that loses communication with the control panel, if the keypad has text display capability. SERVC KEYPAD appears at all other keypads connected to the system.

A total of 32 unsupervised keypads can be connected to the system. The number of supervised keypads, number of areas, and the available power affect the total number of keypads that can be connected to the system. Refer to *Keypad* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for complete programming details on keypad options.

Five types of keypads are available for use with the system.

- D1255/D1255B/D1255RB - 16-character alphanumeric display for general use.
- D1256/D1256RB - text display keypad with keys designated for local fire alarm control.
- D1257/D1257RB - text display keypad for fire annunciation.
- D1260/D1260B - easy-to-read, 4-line by 20-character LCD display with eight “soft” keys to display simple selections.

- D720/D720B - LED display keypad appropriate for use as a single area keypad with up to eight points.



D1255 and D720 are available in white (D1255W and D720W) or red (D1255R and D720R).



To meet UL 864 requirements for Commercial Fire applications, use a D1255RB, D1256RB, or D1257RB for a fire keypad or fire annunciator.

For operational information, refer to the user’s guide for the specific keypad.

11.2.1 Assigning an Address for the Keypad

Switches on the keypad assign an address (1 to 8). The address determines if the keypad is supervised, the scope of the keypad, and to what area the keypad is assigned. Refer to *Keypad Assignment* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for a complete description of addresses.

Table 20 shows the correct switch setting for each address.

Address	Switch					
	1	2	3	4	5	6
Address #1	ON	ON	ON	ON	Encoding Tone ON/OFF	ON
Address #2	OFF	ON	ON	ON		ON
Address #3	ON	OFF	ON	ON		ON
Address #4	OFF	OFF	ON	ON		ON
Address #5	ON	ON	OFF	ON		ON
Address #6	OFF	ON	OFF	ON		ON
Address #7	ON	OFF	OFF	ON		ON
Address #8	OFF	OFF	OFF	ON		ON

11.2.2 Installation

Refer to the keypad installation manuals for installation and mounting instructions. Keypads connect to the control panel in parallel (*Table 21*).

Table 21: Keypad Connections			
D9412GV2/ D7412GV2 Terminal	Function	Keypad Wire Color	Function
32*	POWER +	Red	12 VDC
31	DATA BUS A	Yellow	Data – In
30	DATA BUS B	Green	Data – Out
29	COMMON	Black	Common

* Connect with at least 1.5 m (5 ft.) of 0.8 mm (22 AWG) wire (4.3 m [14 ft.] of 1.2 mm [18 AWG] wire).

Switching the Green and Yellow Wires Affects

Other Keypads: Connecting the green wire incorrectly from the keypad to Terminal 31 and the yellow wire to Terminal 30 causes other keypads connected to the control panel to go blank or to sound random beep tones.

You can connect devices to the data bus (Terminals 30 and 31) by parallel wire run from the control panel to each device, wire from device to device, or a combination of the two using a maximum of 4572 m (15000 ft) of 0.8 mm (22 AWG) wire for all devices connected to the SDI Bus combined.

Wire Limits for Individual Devices

Refer to the installation instructions for each device for wire length specifications.

Extra Power for More Keypads

The D1255 and D1255B Keypads draw 104 mA when idle. They draw 206 mA with the keys lit and the sounder activated. Review *Section 6.0 Power Outputs* on page 28 to determine the total power output requirements for the system.

One or more D8132 Battery Charger/Power Supply Modules can be added for the number of keypads used. *Figure 29* on page 60 shows the D8132 powering keypads in a stand-alone configuration.

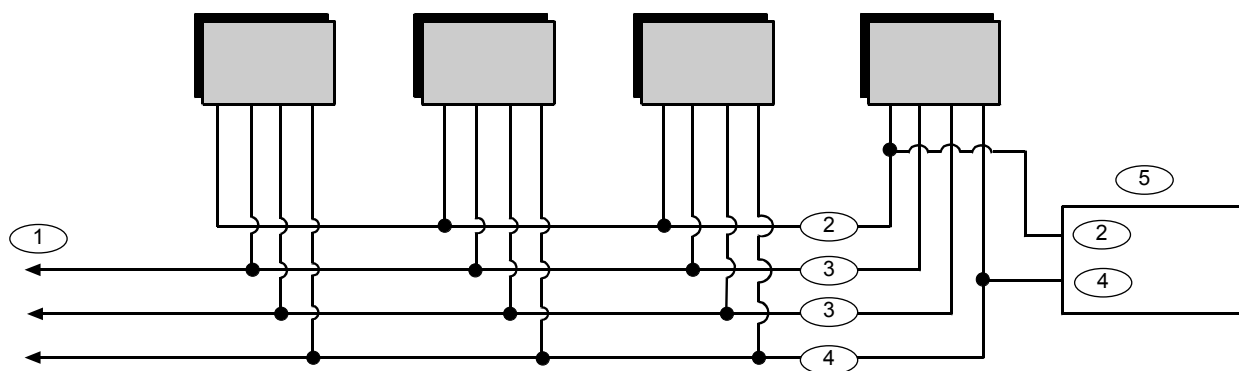
For UL Certificated accounts, use a UL Listed auxiliary 12 VDC or 24 VDC regulated, power-limited power supply for Fire Protective Signaling Units and Commercial or Residential Burglar Units. The D8132 is not UL Listed as a stand-alone power supply.



The control panel and the D8132 (or other power supply) must share COMMON.

Figure 29 on page 60 shows the common form of the D8132 Module connected to the common on the keypad and the common on the control panel. Any stand-alone power supply, powering any device connected to the control panel, must also be connected to a common terminal on the control panel.

If using the ground fault detection capability on the D9412GV2 and D7412GV2 Control Panels with an external power supply, ensure that the external selected power supply isolates its earth ground connection from the negative side of the auxiliary power output. External power supplies that do not isolate earth ground can cause ground fault conditions on the control panel.

Figure 29: Power at Keypads

1 - To control panel
 2 - +12 VDC
 3 - Data

4 - Common
 5 - D8132 or external power supply

11.3 D279A Independent Zone Control

Any on-board or OctoPOPIT point can be programmed so that the D279A Independent Zone Control operates as independent point control (arming and disarming the point).

Refer to *Point Assignments* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for programming information. Refer to the *D279A Operation and Installation Instructions* (P/N: 46458) for wiring and operation instructions.

11.4 Keyswitch

11.4.1 Description

A maintained or momentary contact arming station (keyswitch) can be connected to master arm or disarm any of the areas in the system. The keyswitch is connected to an on-board or off-board point's sensor loop. Relays can be programmed to activate arming status LEDs for keyswitch arming stations. Refer to *Relays* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

11.4.2 Programming

Refer to *Point Assignments* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for the correct programming for points used for keyswitches.

11.4.3 Installation

For maintained switches, connect the EOL resistor for the point at the keyswitch so that the switch opens the circuit when it operates. A short on the circuit produces an alarm if the area is armed and a trouble if it is disarmed. Refer to *Figure 30* on page 61.

For momentary keyswitches, connect the EOL resistor at the keyswitch point so that when the keyswitch operates, it shorts the resistor. An open on the circuit causes an alarm if the area is armed and a trouble if it is disarmed. Refer to *Figure 30* on page 61.

11.4.4 Operation

Maintained Contact

If the point to which the keyswitch is connected is programmed for a maintained contact, an open on the arming circuit arms the area. All faulted points are force armed, regardless of the entry in the FA Bypass Max program item. Returning the circuit to normal disarms the area. Refer to *Area Parameters* and *Point Assignments* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

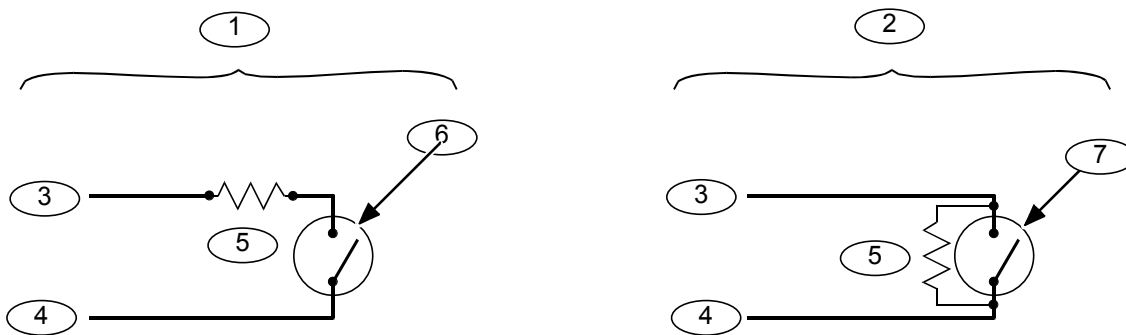
Momentary Contact

If the point to which the keyswitch is connected is programmed for a momentary contact, shorting the arming circuit toggles the area's arming state between armed and disarmed. All faulted points are force armed, regardless of the entry in the FA Bypass Max program item. Refer to *Point Assignments* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

Silencing the Bell

To silence the bell (stop Alarm Bell output) if the system is armed, position the keyswitch to disarm the area. If the area is disarmed, turn the keyswitch once to start the arming process. Turning the keyswitch a second time stops the arming process and silences the bell.

Figure 30: Keyswitch Wiring



1 - Maintained keyswitch

2 - Momentary keyswitch

3 - Common

4 - Point input

5 - 1 kΩ or 33 kΩ resistor *

6- Open on a circuit arms the area

7 - Short on a circuit toggles the arming state

* Use 1 kΩ EOL resistors if using one of the zones on the control panel or an OctoPOPIT. Use a 33 kΩ resistor if using a POPIT.

12.0 SDI Devices

12.1 Description

D9412GV2 and D7412GV2 Control Panels can support a number of accessory devices from the SDI Bus using Terminals 29 through 32. Some devices include the D1255 and D1255B Keypads (refer to *Section 11.0 Arming Devices* on page 58), D9131A Parallel Printer Interface Module, D9210B Wiegand Control Interface Module, DX4010i RS-232 Serial Interface Module, D9133 Serial Interface Module, and DX4020 Network Interface Module.



For UL 864 Commercial Fire applications, refer to *Installing Combination Fire and Intrusion Alarm Systems* in the *D9412GV2/D7412GV2 Approved Applications Compliance Guide* (P/N: F01U003639) for important information about combination fire and intrusion systems.

12.2 Installation

For complete installation instructions, consult the operation and installation guide for the specific SDI device. SDI devices connect to the control panel in parallel (*Table 22*).

These devices can share power with the control panel or be powered by a stand-alone power source.

Table 22: SDI Device Connections

D9412GV2/D7412GV2			
SDI Devices		SDI Devices	
Terminal	Function	Wire Color	Function
32	POWER +	Red	+12 VDC
31	DATA BUS 1	Yellow	Data – In
30	DATA BUS B	Green	Data – Out
29	COMMON	Black	Common



A stand-alone power supply powering the SDI device must also be connected to a common terminal on the control panel.

Do not connect the earth ground for the stand-alone power supply to Terminal 10 on the control panel.

12.3 D9131A Parallel Printer Interface Module

The Bosch Security Systems, Inc. D9131A Parallel Printer Interface Module is a four-wire powered device used to connect a standard parallel printer to a control panel. D9412GV2 can supervise three printers and the D7412GV2 can supervise one printer. A separate D9131A Parallel Printer Interface Module is necessary for each printer. The D9131A connects to the printer using a standard parallel printer cable.



Do not connect the D9131A to systems that require commercial fire listings. The electrical ground on the D9131A does not isolate earth ground.

12.3.1 Switch Settings

Switches on the D9131A assign a unique address (17 to 19) for each printer. The address determines if the printer is supervised, the area scope of the printers, and the area to which the printer is assigned. Refer to *Printer Parameters* in the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for a complete description of addresses.

Table 23 shows the correct switch setting for each address.

Table 23: Printer Address Switch Settings

Printer	Switch					
	1	2	3	4 ²	5	6
17	ON	ON	ON	ON	ON	ON
18 ¹	OFF	ON	ON	ON	ON	ON
19 ¹	ON	OFF	ON	ON	ON	ON

¹ D9412GV2 only.
² Switch 4: ON = Header and form feed
 OFF = No header and form feed

12.3.2 Supervision

Supervision includes:

- Proper operation of the SDI bus
- Proper connection of the printer cable between the printer and the D9131A
- Printer paper supply
- Printer selected (on-line)
- Printer power.

The control panel sends an SDI Failure Report to the receiver if communication with the printer interface fails. If an SDI failure occurs, SERVC PRINTER appears at the keypad. The report to the receiver includes the address of the troubled D9131A to indicate which printer needs service.

If an SDI device is supervised and Terminal SDI A becomes disconnected, the device can continue to operate normally, depending upon environmental conditions.

12.4 D9210B Wiegand Control Interface Module

The Bosch Security Systems, Inc. D9210B Wiegand Control Interface Module is a four-wire powered device providing connections for an access door point and door strike. The D9412GV2 can supervise eight Wiegand Control Modules, the D7412GV2 can supervise two. Each D9210B supports one door to control access. Programming allows each access door to be configured independently.

12.4.1 Access

Using Wiegand style cards or tokens, the D9210B can allow access for up to 996 cards or tokens on the D9412GV2, and up to 396 on the D7412GV2. User access authority can be configured to restrict access to certain doors or to certain periods of time. The reading of access cards, in addition to granting access, can control whether the system disarms. Used with the D9412GV2, the D9210B recognizes 249 master users by user name, passcode, and access authority. The D9210B recognizes 99 master users when used with the D7412GV2. Each master user supports three sub-users with unique cards or tokens having the same access level as the master user.

12.4.2 Switch Settings

Switches on the D9210B assign a unique address (1 to 8) to each module. *Table 24* shows the correct switch setting for each D9210B address.

Table 24: Address Switch Settings for Access Control Module

Door Module Addresses	DIP Switch Settings					
	1	2	3	4 ¹	5 ²	6 ²
1	ON	ON	ON		ON	ON
2	OFF	ON	ON		ON	ON
-----D7412GV2 Maximum-----						
3	ON	OFF	ON		ON	ON
4	OFF	OFF	ON		ON	ON
5	ON	ON	OFF		ON	ON
6	OFF	ON	OFF		ON	ON
7	ON	OFF	OFF		ON	ON
8	OFF	OFF	OFF		ON	ON

¹ Switch 4, Fail Safe Mode:

ON = If SDI bus fails, relay energizes.

OFF = If SDI bus fails, relay de-energizes.

² Switches 5 and 6 must remain in the ON position.

12.5 SDI Address 80

SDI Address 80, available on the D9412GV2 and D7412GV2 Control Panels, allows for two-way SDI to RS-232 information. This address is used with home or building automation software.

12.5.1 Serial Interface Modules (SIMs)

The DX4010i RS-232 Serial Interface Module and the D9133 Serial Interface Module are four-wire powered SDI devices that provide connection for RS-232 devices to the D9412GV2 and D7412GV2 Control Panels. They use a specific communication protocol that is provided upon request. Contact Bosch Security Systems, Inc. Technical Support Monday through Friday from 5 AM to 5 PM EST at 888-886-6189.

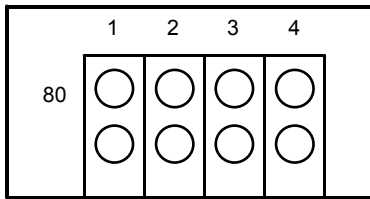
The DX4010i can be installed up to 305 m (1000 ft) from the control panel, using 0.8 mm (22 AWG) wire. The DX4010i was not investigated by UL. Do not use DX4010i in UL Listed installations.

The D9133 can be installed up to 305 m (1000 ft) from the control panel using 1.2 mm (18 AWG) wire. The D9133 was not investigated by UL. Do not use the D9133 in UL Listed installations.

12.5.2 Address Settings

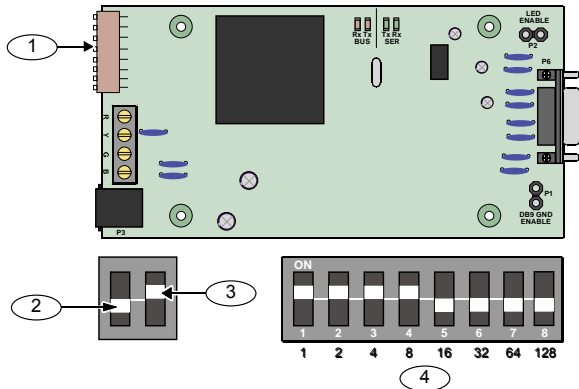
No jumper settings are required for the D9133 (SDI Address 80) for home or building automation purposes (*Figure 31*). Remove the jumper shunts for this purpose.

Figure 31: D9133 Jumper Setting for Address 80



The DX4010i has specific DIP switch settings for SDI Address 80 when home or building automation is desired. *Figure 32* on page 64 shows the correct settings for Address 80.

Figure 32: DX4010i DIP Switch Settings



- 1 - Address DIP switches
- 2 - OFF position
- 3 - ON position
- 4 - SDI Address 80 switch settings

12.5.3 Supervision

Supervision of the serial interface module is available through programming. Supervision is not required to use a DX4010i or a D9133.

If supervised, and the serial interface module does not respond to control panel supervision polls, the control panel sends an SDI Failure Report to the receiver. If it fails to communicate with the DX4010i or the D9133, SERVC SDI 80 displays at the keypad. The SDI Failure Report includes the address of the troubled module indicating which module needs service.

12.6 SDI Address 88

SDI Address 88 is available with the D9412GV2 and D7412GV2 Control Panels and is used for several different applications. When using SDI Address 88, connect only one listed device at a time.

12.6.1 D9133DC Direct Connect Programming Module

Use the D9133DC Direct Connect Programming Module to handle local programming of the D9412GV2 and D7412GV2 Control Panels. In addition, the D9133DC allows diagnostic and history retrieval.

D9133DC is not UL Listed, and cannot remain connected to the system for UL applications.

Connecting the D9133DC

1. Configure D9133DC for SDI Address 88. To program the control panel when the reset pin is in the unlocked position, program Enable SDI RPS to **Yes** in the GV2AUX handler.
2. Connect D9133DC to Com Port 1 or Com Port 2 on the PC. The D9133DC has a DB-9 female serial connector. A null-modem cable must be purchased separately to connect the D9133DC to a PC.
3. Using 0.8 mm (22 AWG) or 1.2 mm (18 AWG) wire, connect the D9133DC SDI terminals (SDI PWR, SDI A, SDI B, and SDI COM) to the control panel's SDI terminals (Terminals 29 to 32).

To send or receive the control panel's program, place the Reset Pin in the **Locked** or **Unlocked** position.

Locking the Reset Pin when programming the control panel improves the uploading and downloading times.

Used as an External Modem

The D9133DC can operate as an external modem when using Remote Programming Software (RPS) with the control panel. Refer to the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636) for programming details.

12.6.2 Network Interface Modules

The Bosch Security Systems, Inc. DX4020 Network Interface Module and D9133TTL-E Network Interface Module are four-wire powered SDI devices that provide connection for two-way communication over Ethernet networks to D9412GV2 and D7412GV2.

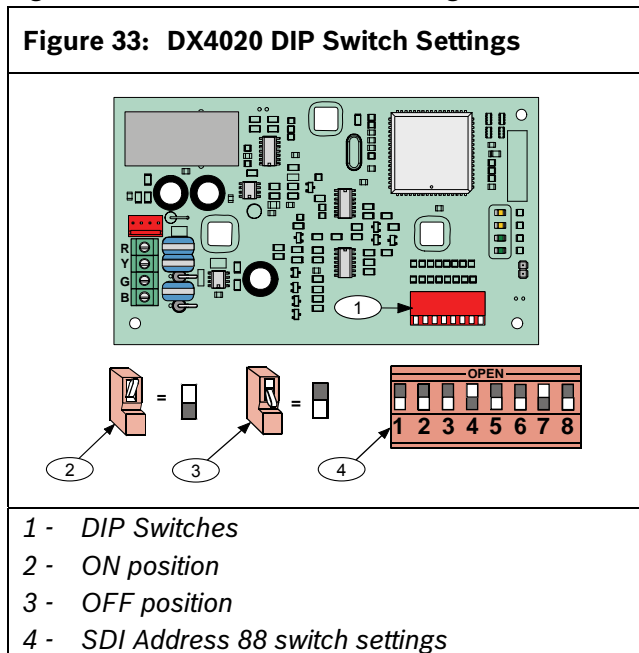
For programming information on enhanced communications, refer to the *D9412GV2/D7412GV2 Program Entry Guide* (P/N: F01U003636).

The DX4020 can be installed up to 305 m (1000 ft) from the control panel using 0.8 mm (22 AWG) wire.

The D9133TTL-E can be installed up to 305 m (1000 ft) from the control panel using 1.2 mm (18 AWG) wire.

12.6.3 Address Settings

The DX4020 has specific DIP switch settings for SDI Address 88 when using the DX4020 for Remote Programming Software (RPS) or enhanced communications in a local-area network (LAN) or wide-area network (WAN) environment. Refer to *Figure 33* for the correct switch settings.



12.6.4 Supervision

Supervision of the DX4020, D9133DC, and D9133TTL-E at SDI Address 88 is available through programming that ensures operation between the module and the control panel.

If supervised and the module does not respond to control panel supervision polls, SERVC SDI 88 appears at the keypad. The report to the receiver includes the address of the troubled module indicating which module needs service.

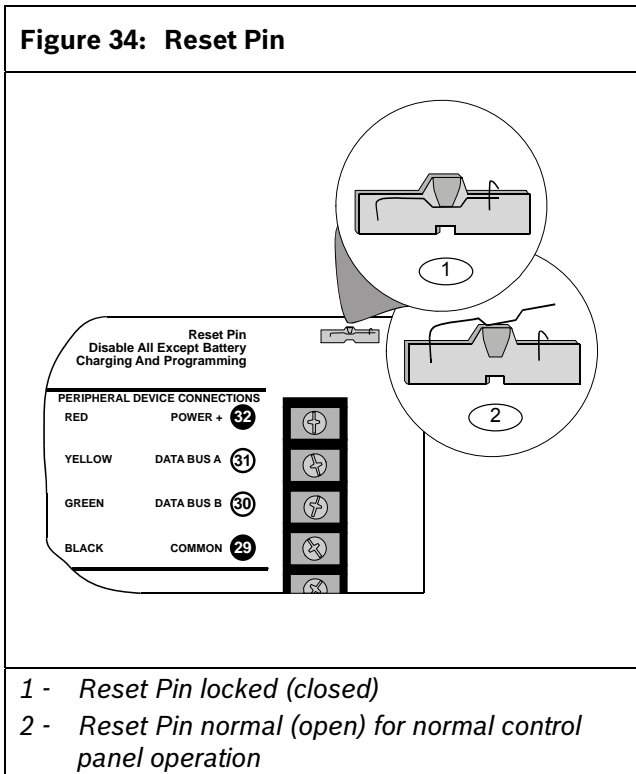
13.0 Programmer and Accessory Connections

13.1 Programmer Connector

Refer to the *D5200 Operation Manual* (P/N: 74-06176-000) for complete information on using the D5200 programmer.

To connect and disconnect the programmer:

1. Lock the Reset Pin (*Figure 34*).
2. Connect the D5200 Data/Power cord to the programming connector on the control panel (*Figure 35*).
3. Perform the desired programming function (send or receive program).
4. Disconnect the programmer.



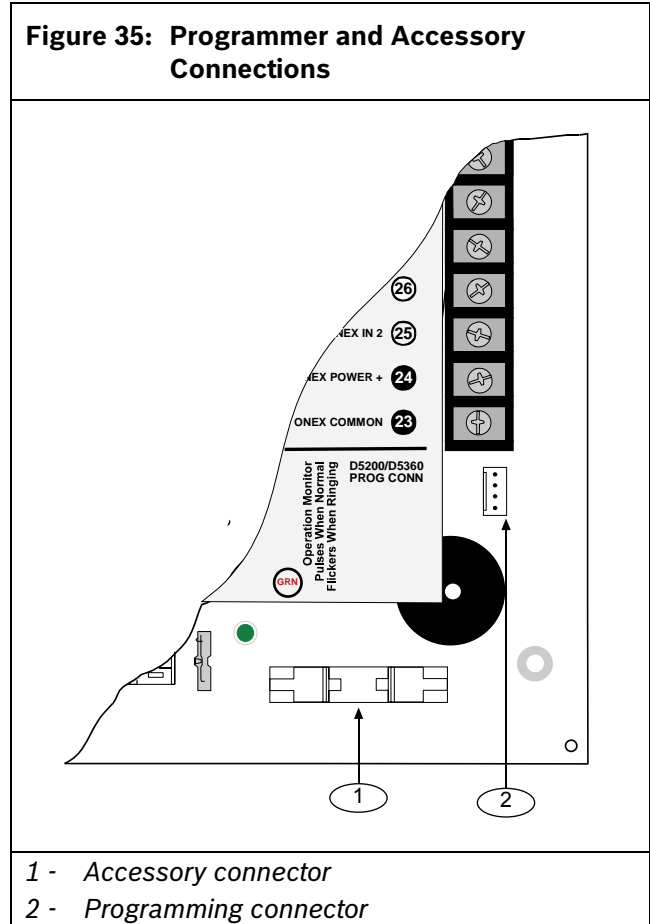
13.2 Programmer Access Reports

When a program is sent to the control panel, the control panel sends a Prog Access OK report 10 seconds after the handler exits or when the programmer disconnects. The prompt in routing must be programmed **Yes** to send this report.

13.3 Accessory Connector

Use the accessory connector to connect the control panel to the D928 Dual Phone Line Switcher. The accessory connector is on the bottom right corner of the I/O board (*Figure 35*). The D928 lets the control panel use two telephone lines to send reports.

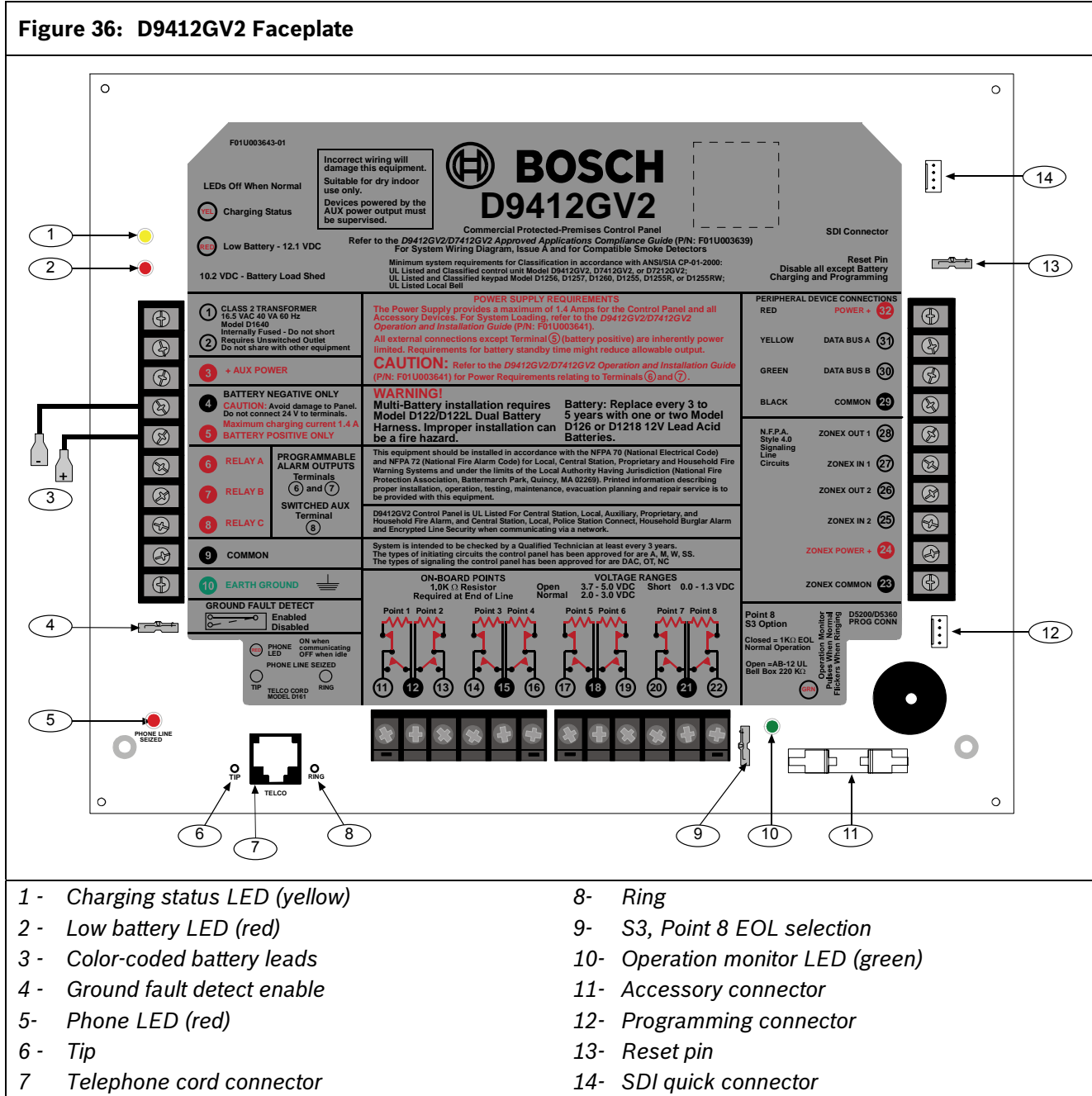
Refer to *Section 7.11 D928 Dual Phone Line Switcher* on page 32 for installation and operating instructions.



14.0 Faceplates

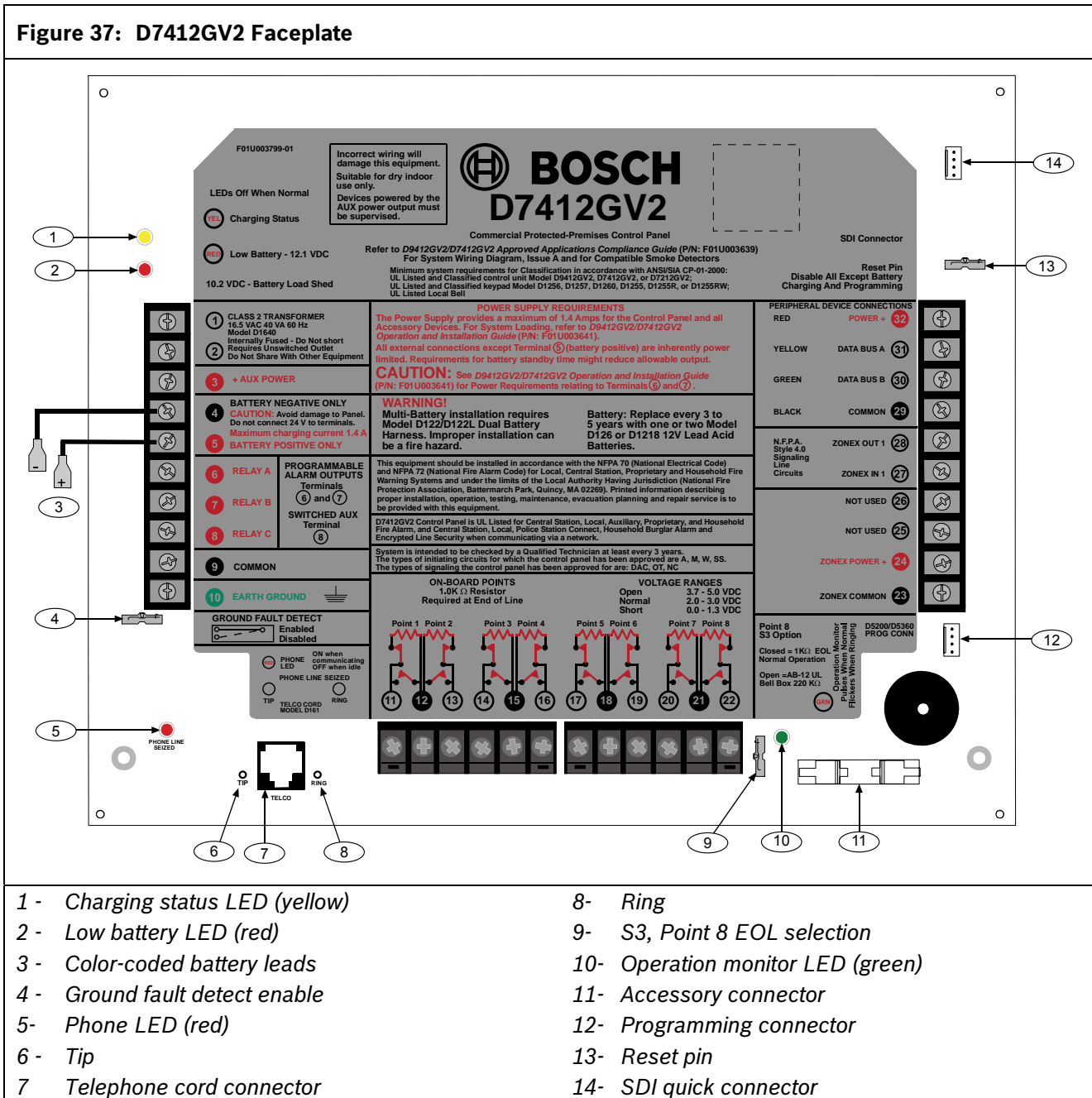
14.1 D9412GV2 Faceplate

Figure 36: D9412GV2 Faceplate



14.2 D7412GV2 Faceplate

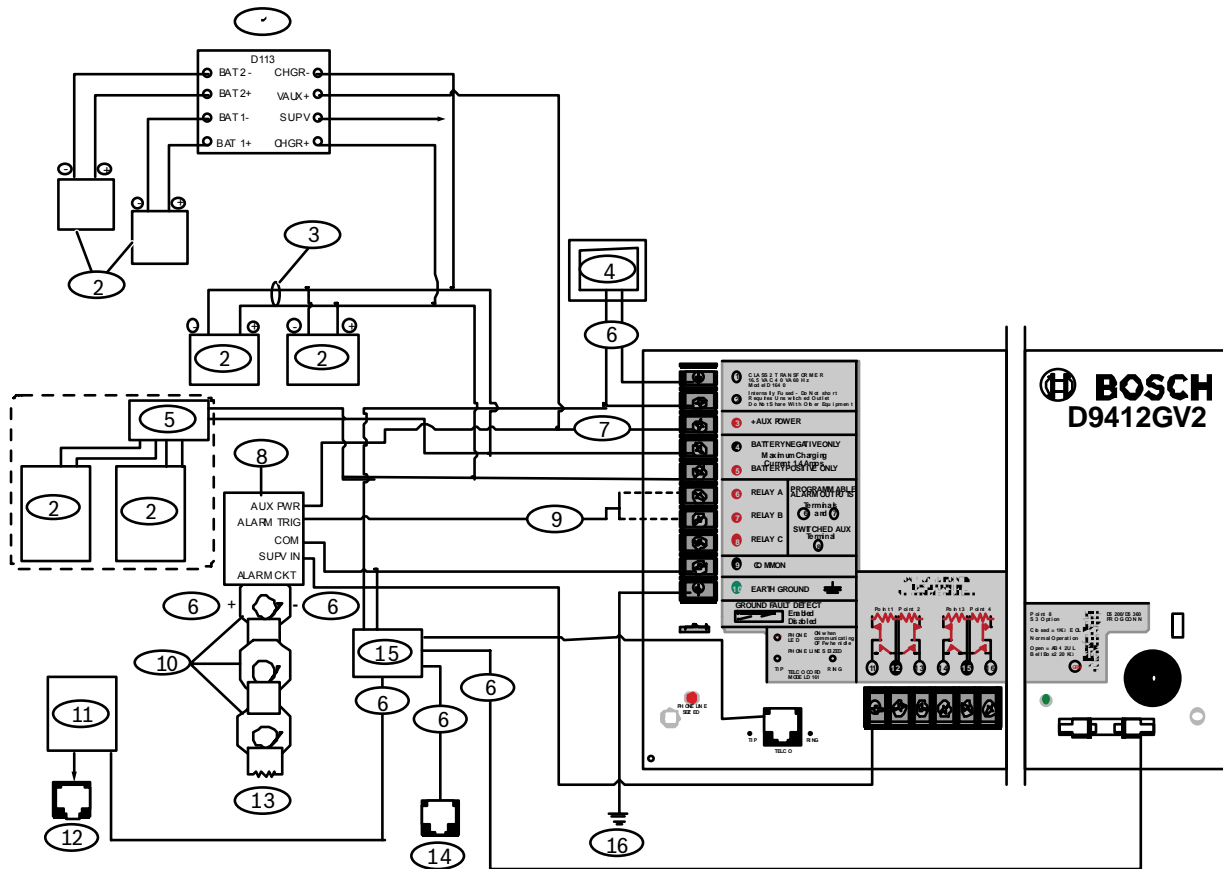
Figure 37: D7412GV2 Faceplate



Appendix A: System Wiring Diagrams, Issue A

A.1 D9412GV2 Control Panel

Figure 38: D9412GV2, Power Supply Side



1 - If required by local AHJ, connect D113 Battery Lead Supervision Module.

2 - Batteries

3 - D122 Dual Battery Harness, as required

4 - D1640 Transformer and D8004 Transformer Enclosure required for NFPA Applications

5 - D8132 Dual Battery Charger with two batteries (Batteries are not supervised.)

6 - Power limited, supervised

7 - Power limited

8 - D192G Bell Supervision Module

9 - To Relay A or Relay B

10 - Listed Audible Signaling Devices rated at 12.0 VDC nominal (Do not use vibrating type horns.)

11 - C900V2 or C900TTL-E (optional)

12 - RJ31X, secondary phone line

13 - 560 Ω , 2 W EOL Resistor

14 - RJ31X, primary phone line

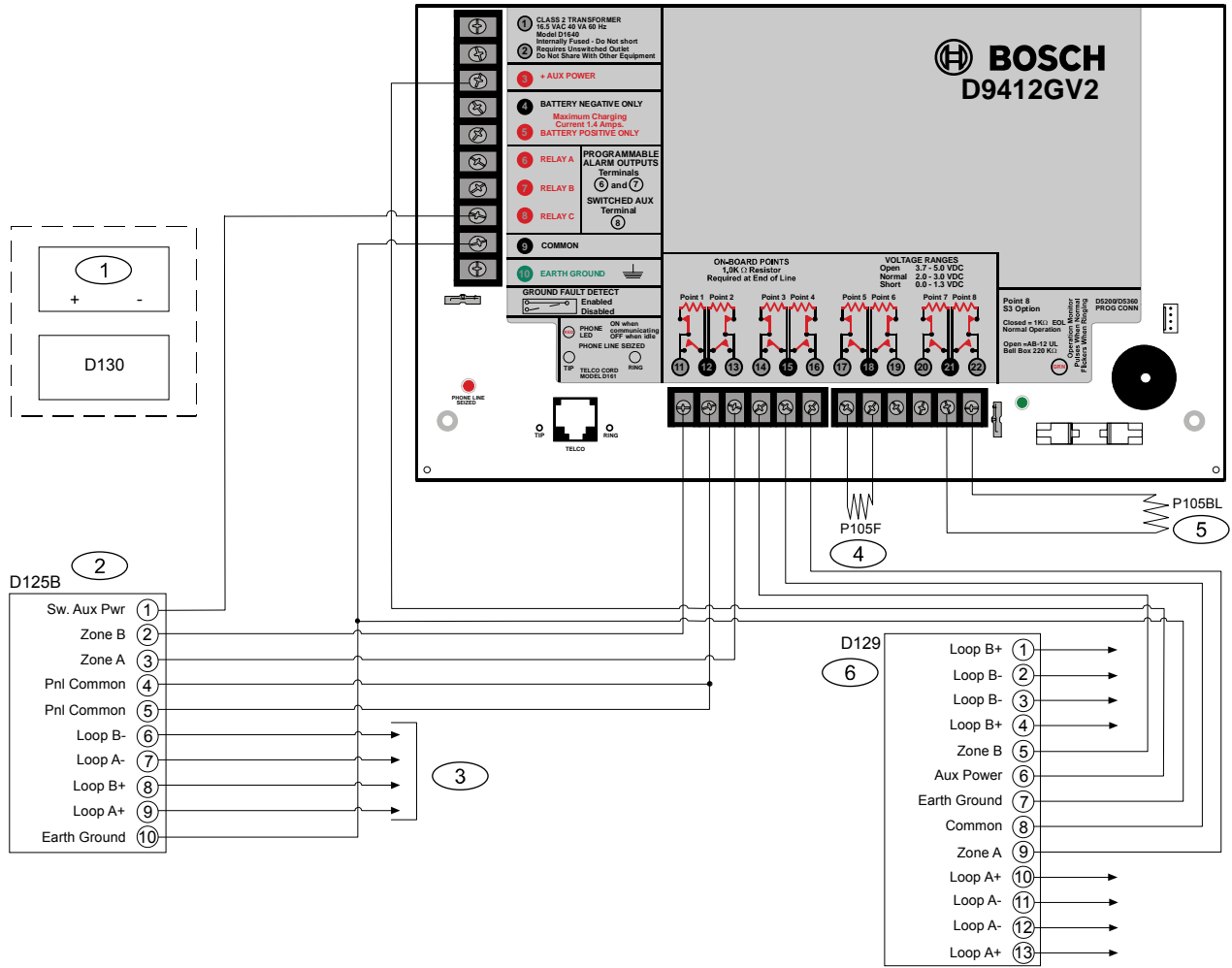
15 - D928

16 - To earth ground



All external connections except Terminal 5 (battery positive) are power limited.

Figure 39: D9412GV2, Input Points and Peripheral Devices



- 1 - (Optional): For 24 V applications use a UL Listed 24 VDC power supply with a D130 Relay Module. Refer to the D130 Installation Instructions (P/N: 74-06262-000) for correct wiring requirements.
- 2 - D130 Relay Module
- 3 - D125B Powered Loop Interface Module
- 4 - To UL Listed two-wire smoke detectors. Refer to Two-Wire Smoke Detectors in the D9412GV2/D7412GV2 Approved Applications Compliance Guide (P/N: F01U003639) for a listing of compatible two-wire smoke detectors.

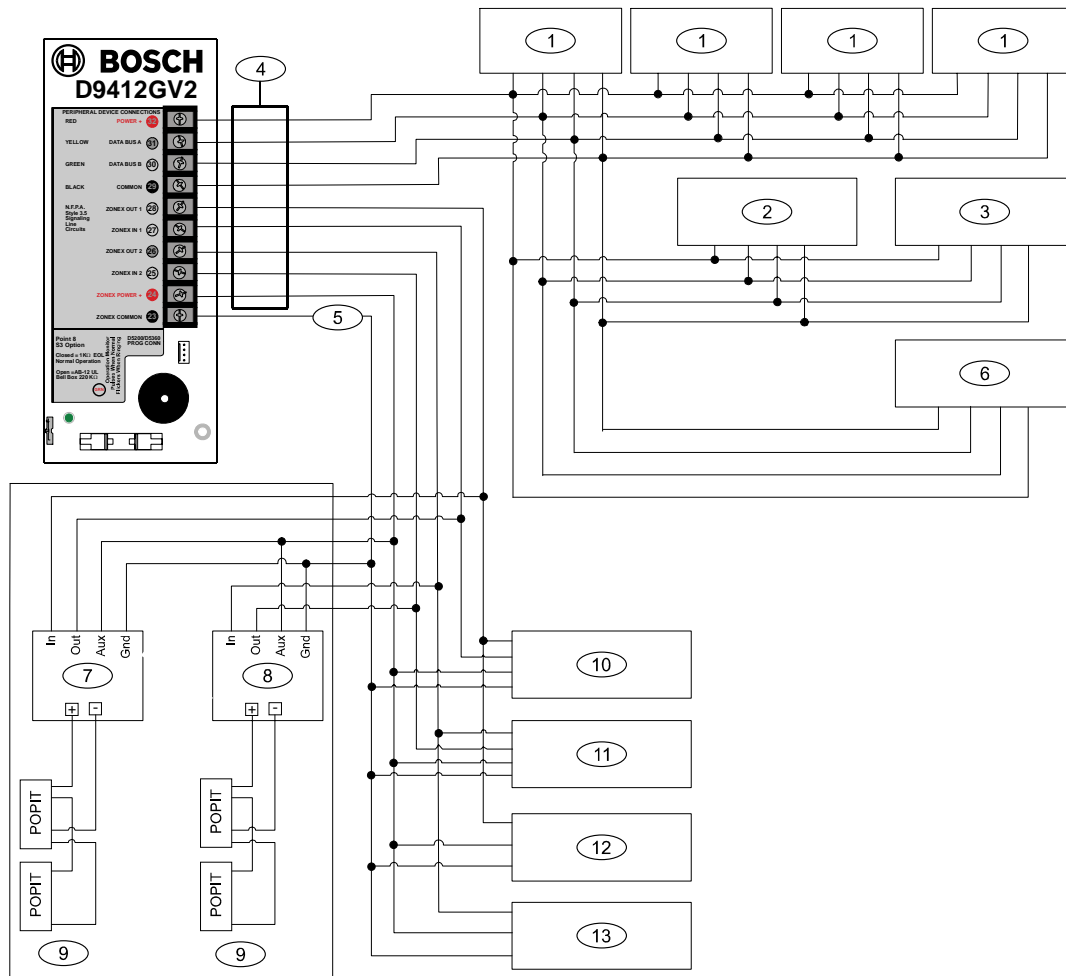
- 5 - P105F 1 kΩ EOL resistor (P/N: 14-03130-004): Suitable for non-powered initiating and supervisory devices such as pull stations, heat sensors, and valve tampers.
- 6 - P105BL1 1kΩ EOL resistor (P/N: 16179B): For typical burglar alarm applications.
- 7 - D129 Dual Class A Initiation Circuit Module: Provides optional Waterflow Alarm Retard feature. Not suitable for two-wire smoke detectors.



Use zero retard except for waterflow devices.

All external connections except Terminal 5 (battery positive) are power limited.

Figure 40: D9412GV2, SDI Devices



- | | |
|--|---|
| <p>1 - Up to eight supervised D1255RB, D1256RB, D1255, D1256, D1260B, or D1260 Keypads, or D1257RB or D1257 Fire Annunciators</p> <p>2 - Up to 8 D9210B Access Control Interface Modules</p> <p>3 - Up to 3 supervised 9131A Parallel Printer Interface Modules, or other SDI devices</p> <p>4 - Power limited, supervised</p> <p>5 - Power limited</p> <p>6 - D9133TTL-E or DX4020 Network Interface Module or other SDI device</p> | <p>7 - D8125 POPEX No.1</p> <p>8 - D8125 POPEX No. 2</p> <p>9 - Up to 119 D9127U/T POPITs or up to 63 D8127U/T POPITs</p> <p>10 - Zonex 1: 15 D8128Ds*</p> <p>11 - Zonex 2: 15 D8128Ds maximum*</p> <p>12 - Zonex 1: Up to 8 D8129s maximum*</p> <p>13 - Zonex 2: Up to 8 D8129s maximum*</p> |
|--|---|

* The number of D8129 OctoRelays that can be connected to each zonex terminal on the control panel is limited by the number of D8128D OctoPOPITs connected to the same terminal. Refer to the *D8128D Installation Guide* (P/N: 41242) or the *D8129 Operation and Installation Guide* (P/N: 74-04562-000) for specific information.



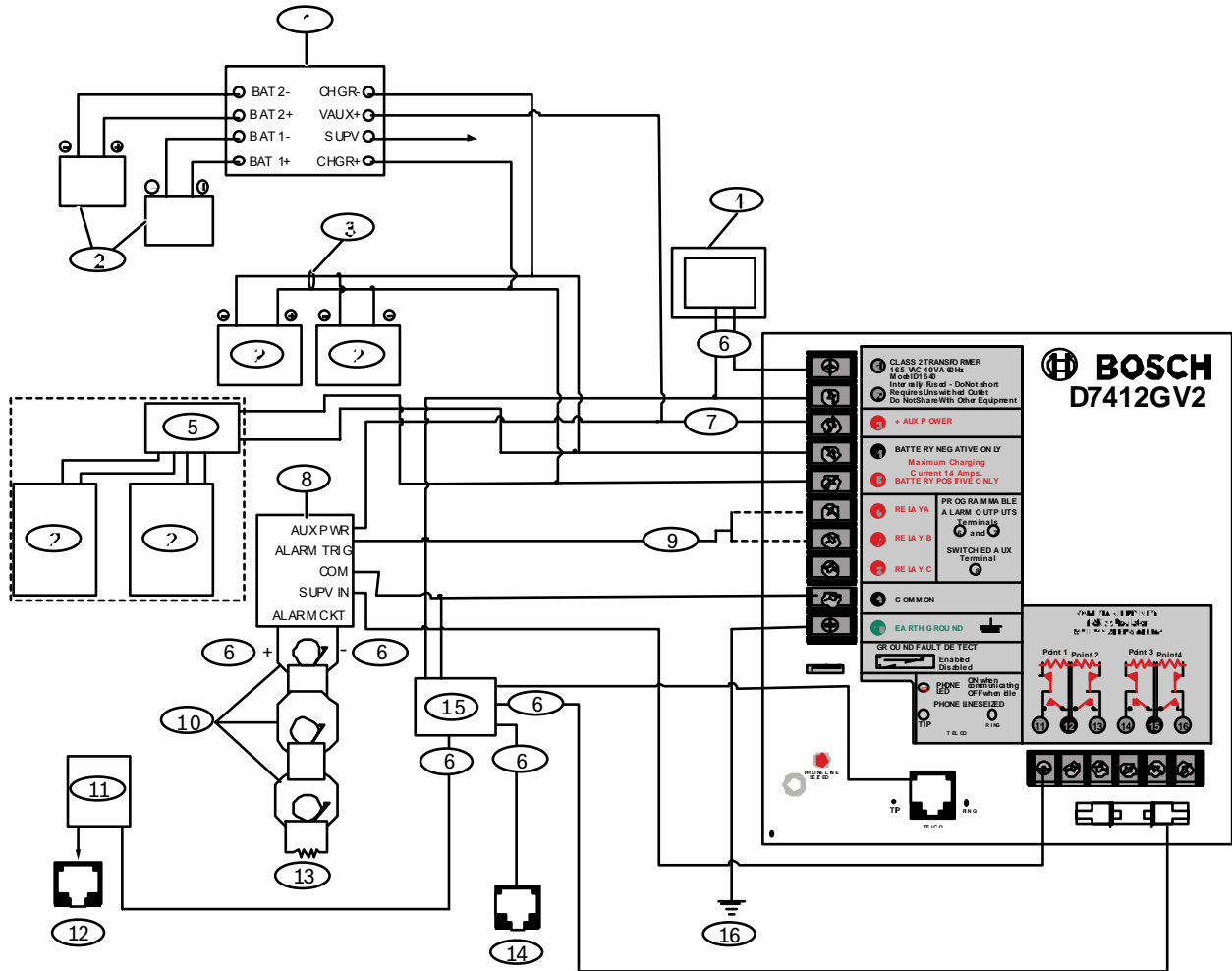
Do not connect the D9131A to systems that require commercial fire listings. The electrical ground on the D9131A does not isolate earth ground.



All external connections except Terminal 5 (battery position) are power limited.

A.2 D7412GV2 Control Panel

Figure 41: D7412GV2, Power Supply Side



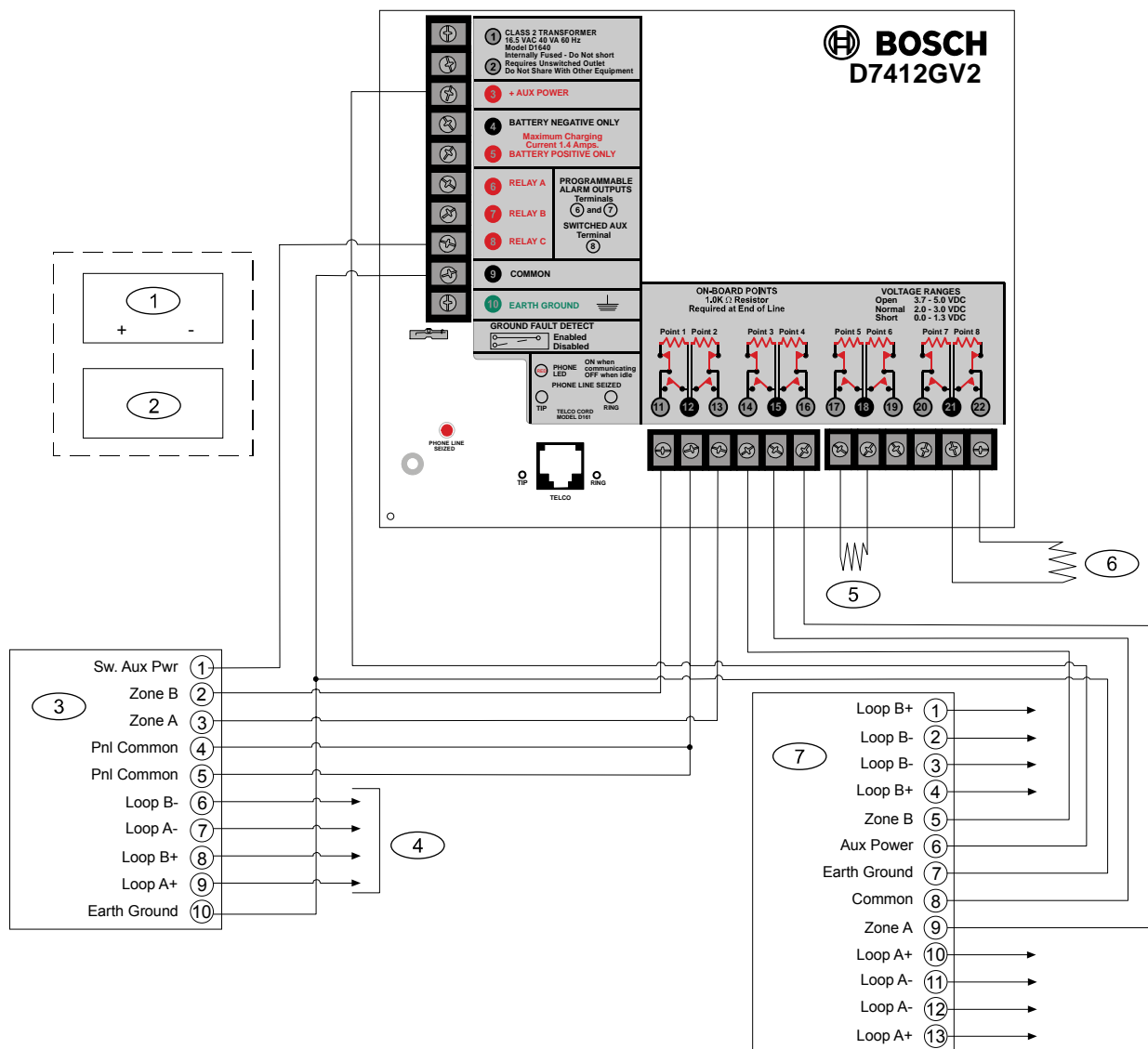
- 1 - If required by local AHJ, connect D113 Battery Lead Supervision Module.
- 2 - Batteries
- 3 - D122 Dual Battery Harness, as required
- 4 - D1640 Transformer and D8004 Transformer Enclosure required for NFPA Applications
- 5 - D8132 Dual Battery Charger with two batteries (Batteries are not supervised.)
- 6 - Power limited, supervised
- 7 - Power limited
- 8 - D192G Bell Supervision Module

- 9 - To Relay A or Relay B
- 10 - Listed Audible Signaling Devices rated at 12.0 VDC nominal (Do not use vibrating type horns.)
- 11 - C900V2 or C900TTL-E (optional)
- 12 - RJ31X, secondary phone line
- 13 - 560 Ω , 2 W EOL Resistor
- 14 - RJ31X, primary phone line
- 15 - D928
- 16 - To earth ground



All external connections except Terminal 5 (battery positive) are power limited.

Figure 42: D7412GV2, Input Points and Peripheral Devices



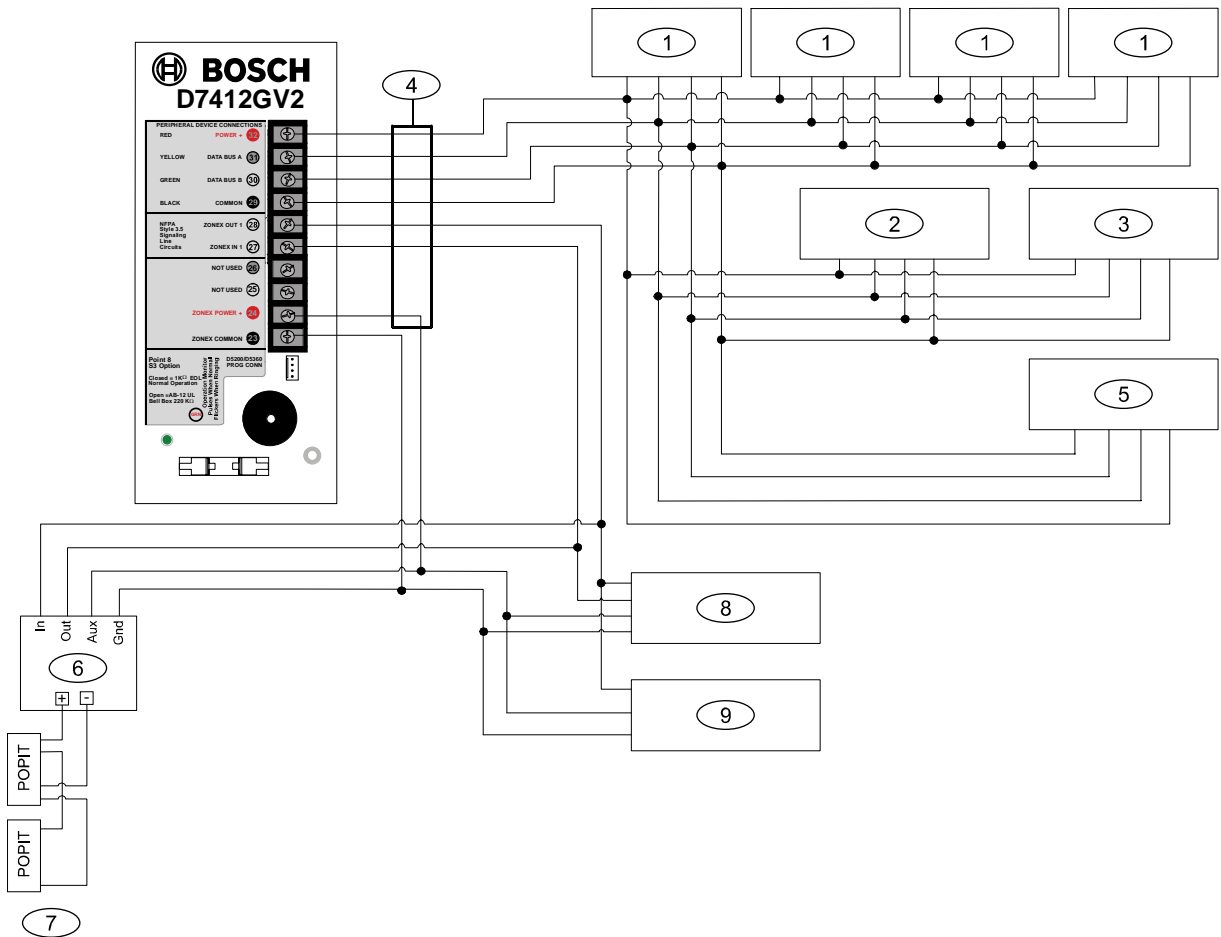
- 1 - (Optional): For 24 V applications use a UL Listed 24 VDC power supply with a D130 Relay Module. Refer to the D130 Installation Instructions (P/N: 74-06262-000) for correct wiring requirements.
- 2 - D130 Relay Module
- 3 - D125B Powered Loop Interface Module
- 4 - To UL Listed 2-wire smoke detectors. Refer to Two-Wire Smoke Detectors in the D7212GV2 Approved Applications Compliance Guide (P/N: F01U003806) for a listing of compatible two-wire smoke detectors.

- 5 - P105F 1 kΩ EOL resistor (P/N: 14-03130-004): Suitable for non-powered initiating and supervisory devices such as pull stations, heat sensors, and valve tampers.
- 6 - P105BL1 1kΩ EOL resistor (P/N: 16179B): For typical burglar alarm applications.
- 7 - D129 Dual Class A Initiation Circuit Module: Provides optional Waterflow Alarm Retard feature. Not suitable for two-wire smoke detectors.



All external connections except Terminal 5 (battery positive) are power limited.

Figure 43: D7412GV2, SDI Devices



- | | |
|--|---|
| <p>1 - Up to eight supervised D1255RB, D1256RB, D1255, D1256, D1260B, or D1260 Keypads, or D1257RB or D1257 Fire Annunciators</p> <p>2 - Up to 8 D9210B Access Control Interface Modules</p> <p>3 - Up to 1 supervised 9131A Parallel Printer Interface Module, or other SDI device</p> <p>4 - Power limited, supervised</p> | <p>5 - D9133TTL-E or DX4020 Network Interface Module or other SDI device</p> <p>6 - D8125 POPEX No.1</p> <p>7 - Up to 67 D9127U/T POPITs or up to 63 D8127U/T POPITs</p> <p>8 - Zonex 1: Up to 9 D8128Ds</p> <p>9 - Zonex 1: Up to 8 D8129s maximum</p> |
|--|---|

* The number of D8129 OctoRelays that can be connected to each zonex terminal on the control panel is limited by the number of D8128D OctoPOPITs connected to the same terminal. Refer to the *D8128D Installation Guide* (P/N: 41242) or the *D8129 Operation and Installation Guide* (P/N: 74-04562-000) for specific information.



Do not connect the D9131A to systems that require commercial fire listings. The electrical ground on the D9131A does not isolate earth ground.



All external connections except Terminal 5 (battery positive) are power limited.

Appendix B: Point Address Charts

B.1 Zonex 1, Points 9 to 127 (D9412GV2); Zonex 1, Points 9 to 75 (D7412GV2)



Place the labels on the base of the POPIT. Do **not** attach labels to the POPIT cover.

A bullet (•) in the switch column indicates that the switch is set to ON.

D8127 or D9127 POPITs can be used for Points 9 to 72; however, only D9127 POPITs can be used for Points 73 to 127.

D8127 POPITs have DIP switches 1 to 6; D9127 POPITs have DIP switches 0 to 6.

Table 25: Zonex 1 Point Address Chart

Switch ²		Address ₁						Switch ²		Address ₁						Switch ²		Address ₁													
Address ₁	0	1	2	3	4	5	6	Address ₁	0	1	2	3	4	5	6	Address ₁	0	1	2	3	4	5	6	Address ₁	0	1	2	3	4	5	6
009	•	•	•	•	•	•	•	049	•		•		•	•	•	089		•		•	•	•	•								
010	•	•	•	•	•	•		050	•		•		•	•		090		•		•	•	•									
011	•	•	•	•	•		•	051	•		•		•		•	091		•		•	•										
012	•	•	•	•	•			052	•		•		•			092		•		•	•										
013	•	•	•	•		•	•	053	•		•			•	•	093		•		•	•		•	•							
014	•	•	•	•		•		054	•		•			•		094		•		•	•			•							
015	•	•	•	•			•	055	•		•				•	095		•		•	•										
016	•	•	•	•				056	•		•					096		•		•	•										
017	•	•	•		•	•	•	057	•			•	•	•	•	097		•			•	•	•								
018	•	•	•		•	•		058	•			•	•	•		098		•			•	•	•								
019	•	•	•			•	•	059	•			•	•	•	•	099		•			•	•									
020	•	•	•		•			060	•			•	•			100		•			•										
021	•	•	•			•	•	061	•			•		•	•	101		•				•	•								
022	•	•	•			•		062	•			•		•		102		•				•									
023	•	•	•				•	063	•			•			•	103		•													
024	•	•	•					064	•			•				104		•													
025	•	•		•	•	•	•	065	•				•	•	•	105				•	•	•	•	•							
026	•	•		•	•	•		066	•				•	•		106				•	•	•	•								
027	•	•		•	•		•	067	•				•		•	107				•	•	•									
028	•	•		•	•			068	•				•			108				•	•	•									
029	•	•			•	•	•	069	•					•	•	109				•	•	•	•								
030	•	•		•		•		070	•					•		110				•	•	•	•								
031	•	•		•			•	071	•						•	111				•	•									6	
032	•	•		•				072	•							112				•	•										
033	•	•			•	•	•	073		•	•	•	•	•	•	113				•		•	•	•							
034	•	•			•	•		074		•	•	•	•	•		114				•		•	•	•							
035	•	•				•	•	075		•	•	•	•	•	•	115				•		•	•	•							
036	•	•			•			076		•	•	•	•			116				•		•									
037	•	•				•	•	077		•	•	•		•	•	117				•			•	•							
038	•	•				•		078		•	•	•		•		118				•			•								
039	•	•					•	079		•	•	•			•	119				•				•							
040	•	•						080		•	•	•				120				•											
041	•		•	•	•	•	•	081		•	•		•	•	•	121					•	•	•	•							
042	•		•	•	•	•		082		•	•		•	•		122					•	•	•								
043	•		•	•	•		•	083		•	•		•		•	123					•	•									
044	•		•	•	•			084		•	•		•			124					•	•									
045	•		•	•	•		•	085		•	•			•	•	125					•		•								
046	•		•	•		•		086		•	•			•		126					•		•								
047	•		•	•			•	087		•	•				•	127					•			•							
048	•		•	•				088		•	•					128 ³															

1 - Points 9 to 127 (D9412GV2); Points 9 to 75 (D7412GV2).

2 - A dot (•) in the Switch column indicates the switch is set to ON.

3 - The control panel reserves Point 128 for internal use.

B.2 Zonex 2, Points 129 to 247 (D9412GV2 Only)



Place the labels on the base of the POPIT. Do **not** attach labels to the POPIT cover.

A number in the switch column indicates that the switch is set to ON.

Table 26: Zonex 2 Point Address Chart

Table 26: Zonex 2 Point Address Chart																															
Switch ²								Switch ²								Switch ²															
Address ¹	0	1	2	3	4	5	6	Address ¹	0	1	2	3	4	5	6	Address ¹	0	1	2	3	4	5	6	Address ¹	0	1	2	3	4	5	6
129	169	.	.	.	.	.	.	.	209	.	.	.	.	.	.	.	209	.	.	.	.	.	.
130	170	.	.	.	.	.	.	.	210	.	.	.	.	.	.	.	210	.	.	.	.	.	.
131	171	.	.	.	.	.	.	.	211	.	.	.	.	.	.	.	211	.	.	.	.	.	.
132	172	.	.	.	.	.	.	.	212	.	.	.	.	.	.	.	212	.	.	.	.	.	.
133	173	.	.	.	.	.	.	.	213	.	.	.	.	.	.	.	213	.	.	.	.	.	.
134	174	.	.	.	.	.	.	.	214	.	.	.	.	.	.	.	214	.	.	.	.	.	.
135	175	.	.	.	.	.	.	.	215	.	.	.	.	.	.	.	215	.	.	.	.	.	.
136	176	.	.	.	.	.	.	.	216	.	.	.	.	.	.	.	216	.	.	.	.	.	.
137	177	.	.	.	.	.	.	.	217	.	.	.	.	.	.	.	217	.	.	.	.	.	.
138	178	.	.	.	.	.	.	.	218	.	.	.	.	.	.	.	218	.	.	.	.	.	.
139	179	.	.	.	.	.	.	.	219	.	.	.	.	.	.	.	219	.	.	.	.	.	.
140	180	.	.	.	.	.	.	.	220	.	.	.	.	.	.	.	220	.	.	.	.	.	.
141	181	.	.	.	.	.	.	.	221	.	.	.	.	.	.	.	221	.	.	.	.	.	.
142	182	.	.	.	.	.	.	.	222	.	.	.	.	.	.	.	222	.	.	.	.	.	.
143	183	.	.	.	.	.	.	.	223	.	.	.	.	.	.	.	223	.	.	.	.	.	.
144	184	.	.	.	.	.	.	.	224	.	.	.	.	.	.	.	224	.	.	.	.	.	.
145	185	.	.	.	.	.	.	.	225	.	.	.	.	.	.	.	225	.	.	.	.	.	.
146	186	.	.	.	.	.	.	.	226	.	.	.	.	.	.	.	226	.	.	.	.	.	.
147	187	.	.	.	.	.	.	.	227	.	.	.	.	.	.	.	227	.	.	.	.	.	.
148	188	.	.	.	.	.	.	.	228	.	.	.	.	.	.	.	228	.	.	.	.	.	.
149	189	.	.	.	.	.	.	.	229	.	.	.	.	.	.	.	229	.	.	.	.	.	.
150	190	.	.	.	.	.	.	.	230	.	.	.	.	.	.	.	230	.	.	.	.	.	.
151	191	.	.	.	.	.	.	.	231	.	.	.	.	.	.	.	231	.	.	.	.	.	.
152	192	.	.	.	.	.	.	.	232	.	.	.	.	.	.	.	232	.	.	.	.	.	.
153	193	.	.	.	.	.	.	.	233	.	.	.	.	.	.	.	233	.	.	.	.	.	.
154	194	.	.	.	.	.	.	.	234	.	.	.	.	.	.	.	234	.	.	.	.	.	.
155	195	.	.	.	.	.	.	.	235	.	.	.	.	.	.	.	235	.	.	.	.	.	.
156	196	.	.	.	.	.	.	.	236	.	.	.	.	.	.	.	236	.	.	.	.	.	.
157	197	.	.	.	.	.	.	.	237	.	.	.	.	.	.	.	237	.	.	.	.	.	.
158	198	.	.	.	.	.	.	.	238	.	.	.	.	.	.	.	238	.	.	.	.	.	.
159	199	.	.	.	.	.	.	.	239	.	.	.	.	.	.	.	239	.	.	.	.	.	.
160	200	.	.	.	.	.	.	.	240	.	.	.	.	.	.	.	240	.	.	.	.	.	.
161	201	.	.	.	.	.	.	.	241	.	.	.	.	.	.	.	241	.	.	.	.	.	.
162	202	.	.	.	.	.	.	.	242	.	.	.	.	.	.	.	242	.	.	.	.	.	.
163	203	.	.	.	.	.	.	.	243	.	.	.	.	.	.	.	243	.	.	.	.	.	.
164	204	.	.	.	.	.	.	.	244	.	.	.	.	.	.	.	244	.	.	.	.	.	.
165	205	.	.	.	.	.	.	.	245	.	.	.	.	.	.	.	245	.	.	.	.	.	.
166	206	.	.	.	.	.	.	.	246	.	.	.	.	.	.	.	246	.	.	.	.	.	.
167	207	.	.	.	.	.	.	.	247	.	.	.	.	.	.	.	247	.	.	.	.	.	.
168	208	.	.	.	.	.	.	.	248 ³	.	.	.	.	.	.	.	248 ³	.	.	.	.	.	.

1 - Points 129 to 247 (D9412GV2 only).

2 - A dot (·) in the Switch column indicates the switch is set to ON.

3 - The control panel reserves Point 248 for internal use.

Specifications

Table 27: Specifications			
Voltage Input (Power Supply)	Primary:	Terminals 1 and 2	16.5 VAC 40 VA class 2 plug-in transformer (D1640)
	Secondary:	Terminals 4 and 5	Sealed lead-acid rechargeable battery (12 VDC, 7 Ah or 12 VDC, 17.2 or 18 Ah). The control panel supports up to two 12 VDC, 7 Ah batteries using the D122 Dual Battery Harness or two D1218 (12 VDC, 17.2 or 18 Ah) batteries using a D122.
Current Requirements	Control Panel: Idle 225 mA; Alarm 300 mA Refer to the <i>Current Rating Chart for Standby Battery Calculations</i> section in the <i>D9412GV2/D7412GV2 Approved Applications Compliance Guide</i> (P/N: F01U003639) for the current draw requirements of other system components.		
Power Outputs*	All external connections are power-limited except battery terminals.		
	Continuous Power Outputs	Terminals 3, 24, and 32	1.4 A maximum at 12.0 VDC nominal (continuous supply) total for all devices and outputs supplied at Terminals 3, 24, and 32 and at the accessory and programming connectors.
	Alarm Power Output	Terminals 6 and 7	2.0 A maximum at 12.0 VDC nominal output. Output can be steady or one of three pulsed patterns depending on programming. Refer to <i>Relays</i> in the <i>D9412GV2/D7412GV2 Program Entry Guide</i> (P/N: F01U003636).
	Switched Aux Power	Terminal 8	1.4 A maximum at 12.0 VDC nominal output. Continuous output is interrupted by Sensor Reset or alarm verification depending on programming. Refer to <i>Relays</i> in the <i>D9412GV2/D7412GV2 Program Entry Guide</i> (P/N: F01U003636).
	Fire and Fire/Burglary Systems	To comply with UL 985 and 864 listing standards for fire alarm systems (effective March 1, 1989), the total combined continuous and alarm current draw for the system during alarm conditions must be limited to 1.4 A provided by the primary power supply (rectified AC). If current draw for the system exceeds 1.4 A, remove connected devices until the current draw falls below 1.4 A. Then, connect the removed devices to a D8132 Battery Charger Module or to an external power supply (refer to <i>Figure 30</i> on page 61).	
Minimum Operating Voltage	10.2 VDC		
SDI Bus	SDI Bus A (+): SDI Bus B (-):	9 VDC 4572 m (15000 ft) maximum 9 VDC 4572 m (15000 ft) maximum	
Telephone Connections	Connection: Two telco lines:	RJ31X or RJ38X jack can connect the control panels. Bosch Security Systems, Inc. D928 Dual Phone Line Module required for two phone line service. Supervision supplied by the control panel.	
Battery Discharge/Recharge Schedule	Discharge Cycle	13.9 VDC 13.8 VDC 12.1 VDC 10.2 VDC 10.0 VDC	Charging float level. Charging status LED on. Low Battery and AC Fail Reports if programmed. Low Battery LED on. Minimum operational voltage Battery load shed (processing functions continue if AC is present).
	Recharge Cycle	AC ON 13.7 VDC 13.9 VDC	Load shed relay resets, battery charging begins, Battery Trouble and AC Restoral Reports sent. Battery Restoral Report sent, Low Battery LED off. Charging status LED off, battery float charged.
Environmental	Temperature:	0°C to +50°C (+32°F to +122°F)	
	Relative Humidity:	Maximum 93% non-condensing	
Arming Stations	D720/D720B Keypads, D1255/D1255B/D1255RB Keypads, D1256/D1256RB Fire Command Centers; D1257/D1257RB Fire Alarm Annunciators; D1260/D1260B Keypads; Keypswitch		
Point Thresholds	On-board Points 1 to 8	Open Normal Short	Greater than 3.7 VDC, but less than 5.0 VDC. Greater than 2.0 VDC, but less than 3.0 VDC. Greater than 0.0 VDC, but less than 1.3 VDC.
Compatible Enclosures	D8103 Universal Enclosure, D8109 Fire Enclosure, D8108A Attack Resistant Enclosure, BATB-40 Battery Box		

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecurity.com

© 2009 Bosch Security Systems, Inc.
F01U003641-04



BOSCH

D1255/D1255B



Security Systems

EN | Installation Instructions
Keypads

BOSCH

1.0 Description

The D1255/D1255B Keypad is an SDI Bus compatible device used with Bosch Security Systems control panels. The D1255/D1255B features a keypad that illuminates when you press the keys, a 16-character English language display, and a built-in speaker that emits several distinct warning tones.

The D1255/D1255B Keypad is a low profile, surface-mounted unit.

The control panel supplies all power and data requirements for the D1255/D1255B using a simple four-wire connection. For specific control panel compatibility refer to *Table 6* on page 6.

Refer to the *Current Rating Chart for Standby Battery Calculations* provided in the following documentation, based on which control panel connected to the D1255/D1255B Keypad to determine if you need an additional power supply:

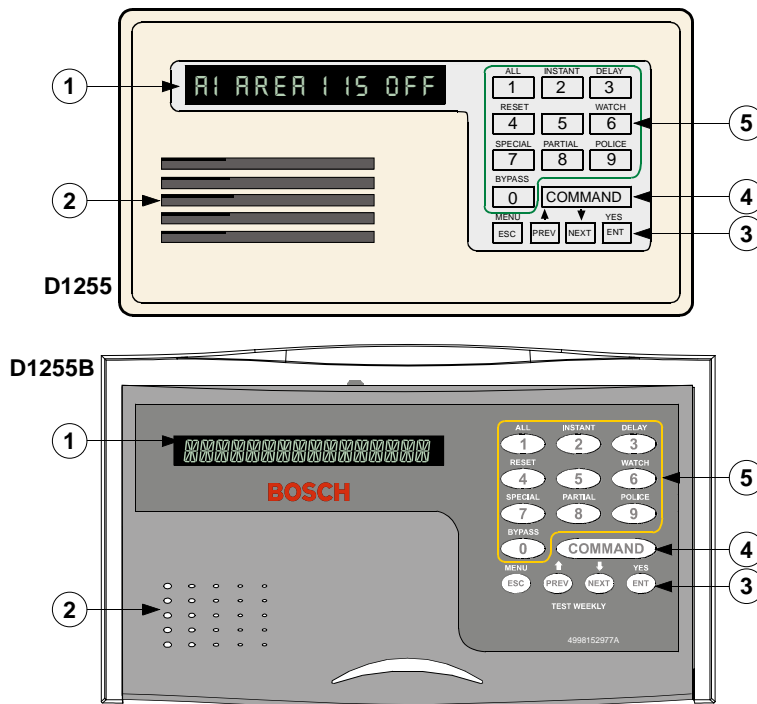
- *D9412G/D7412G Approved Applications Compliance Guide* (P/N: 43494) if using a D9412G or D7412G Control Panel.
- *D7212G Approved Applications Compliance Guide* (P/N: 4998138560) if using a D7212G Control Panel.

Configurations combining supervised and unsupervised keypads are also possible.

You can program the control panel to generate messages to the Central Station identifying the supervised keypad that is in trouble. If a keypad loses communication with the control panel for more than 60 sec, the keypad buzzes and CALL FOR SERVICE displays. The control panel transmits a serial device trouble report to the receiver. The keypad shows SDI FAILURE # if the Modem IIIa² communication format is used or TROUBLE ZN D if the BFSK communication format is used. For more information, refer to the *D6600 Computer Interface Manual* (P/N: 4998122703).

Depending on programming in the control panel, the D1255/D1255B permits remote control of relays and real time clock display; adding, deleting and changing passcodes; system tests, and more. Refer to the *Keypad and User Interface* sections of the *D9412G/D7412G Program Entry Guide* (P/N: 47775) for complete programming details on keypad options. You can initiate a variety of system commands with the touch of two or three keys at the D1255/D1255B keypad. To navigate through the system use the four keys near the bottom of the keypad (*Item 3 in Figure 1*).

Figure 1: D1255/D1255B Layout



- | | | |
|--------------------------|------------------|--------------------|
| 1 - Alphanumeric display | 3- Function Keys | 5 - Digital Keypad |
| 2 - Siren/Speaker | 4 - Command Bar | |

2.0 Digital Keypad

The D1255/D1255B Keypad features a digital keypad for accessing the menus, entering user passcodes and executing system commands in the control panel. As you press keys, the D1255/D1255B emits a muted beep tone (refer to *Section 2.3 Audible Tones*) to indicate that the entry is accepted. The keypad lights when you press keys, and remains lit for 20 sec.

When entering a passcode, press keys within 15 sec of each other. If 15 sec elapse between keystrokes, the entire entry clears, and you must start over. The keypad also "times out" on other functions if you wait 15 sec or more between key presses.

2.1 Keypad Function Keys

The D1255/D1255B has five function keys. These keys control your system.

Key	Description
COMMAND	Use the [COMMAND] bar in combination with one or two numeric keys to perform a function.
ENT/YES	Use the [ENT/YES] key to complete the entry of your passcode at the keypad. The [ENT/YES] key also selects the menu item shown during a menu selection.
PREV	When viewing a list, pressing the [PREV] key returns you to the previously shown item.
NEXT	Press the [NEXT] key to pass over the present item in a menu or list.
MENU/ESC	Use the [ESC/MENU] key to returns to the idle display.

2.2 Display

The D1255/D1255B Keypad displays the latest status conditions of the security system using words, numbers, and symbols in its display. When a series of events occur that affects the system, the D1255/D1255B displays each event in order of its priority.

For a complete listing and description of the D1255/D1255B 16-character displays and command functions available, consult the following documentation:

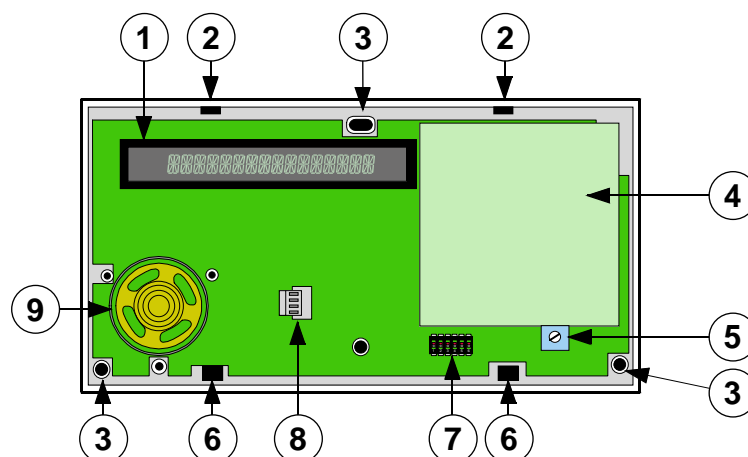
For the D9412G, D7412G, D7212G, D9124, D9412, D9112, D7412, and D7212 Control Panels consult *Security System User's Guide* (P/N: 71-06141-000) and the *D9412G/D7412G Program Entry Guide* (P/N: 47775).

2.3 Audible Tones

The D1255/D1255B Keypad has a built-in speaker that produces several distinct warning tones. The speaker volume is changed by adjusting the potentiometer (refer to *Item 5* in *Figure 2* on page 4). Turn the potentiometer clockwise to increase volume and counterclockwise to decrease volume. The speaker volume also changes as you adjust the brightness of the display. Refer to *Command 49 "Dim Display"* in the *Security System User's Guide* (P/N: 71-06141-000) for more information. You cannot connect external annunciation devices to the D1255/D1255B. The tones in *Table 2* are silenced by entering a programmed passcode with the appropriate authority.

Tone	Description
Burglary Signal	When an area is in alarm, the D1255/D1255B emits a steady, high-pitched "bell" tone.
Entrance Warning	The D1255/D1255B emits an intermittent beep tone during entry delay periods to remind the user to disarm the area. This is a programmable option.
Exit Warning	The D1255/D1255B emits an intermittent beep tone during exit delay and counts down the number of seconds left until arming takes place. This is a programmable option.
Fire Signal	When an area is in fire alarm, the D1255/D1255B emits a pulsed, high-pitched "bell" tone.
Invalid Key Buzz	Pressing an invalid key, or sequence of keys, causes the D1255/D1255B to emit a flat buzz tone.
Keypad Encoding Tone	The D1255/D1255B emits a muted beep tone as each key is pressed to indicate that the entry is accepted. To disable this feature refer to <i>Section 3.3.1 Setting the DIP Switches</i> on page 5.
Trouble Buzzer	When a trouble event occurs, such as a service alert, the D1255/D1255B emits a two tone warble until you enter COMMAND 4.
Watch Tone	When you activate the Watch feature, an intermittent beep tone (the same as the Entrance Warning Signal) alerts the user anytime a watch point is faulted. This option is programmable by point.

Figure 2: D1255/D1255B Internal Features



- | | |
|--|-------------------------------------|
| 1 - 16-Character Display | 6 - Bottom Tab Slot |
| 2 - Top Tab Slot | 7 - Dip Switch |
| 3 - Mounting Hole | 8 - Four-Wire Flying Lead Connector |
| 4 - Keypad | 9 - Speaker |
| 5 - Speaker Volume Control (Potentiometer) | |

3.0 Installation

3.1 Mounting the D1255/D1255B

The D1255/D1255B Keypad can be mounted using the following optional packages:

- D54B Keypad Flush Mount Kit (Brass)
- D54C Keypad Flush Mount Kit (Stainless)
- D55 Keypad Desk Stand - Desktop
- D56 and D56R Keypad Conduit Box

3.1.1 Mounting Locations



Do not mount the keypad in a location where it is exposed to direct sunlight. Direct sunlight can interfere with the D1255/D1255B display screen visibility and damage internal components.

Do not mount the D1255/D1255B in wet or moist locations.

3.2 Wiring

Data and power connections between the control panel and the D1255/D1255B require a four-wire flying lead. The D1255/D1255B includes a wiring assembly consisting of four color-coded flying leads and a female four-pin connector plug at one end.

The maximum recommended wire run for each D1255/D1255B is 2000 ft (610 m) with either 22 AWG (0.8 mm) gauge or 18 AWG (1.2 mm) gauge wire.

To wire the D1255/D1255B:

1. Power down the control panel.
2. Gently push in the two bottom tabs of the D1255/D1255B enclosure cover using a small flat-bladed screwdriver.
3. Lift the D1255/D1255B cover away from the base as the tabs are pushed back.
4. Set the address switches (refer to *Section 3.3.1 Setting the DIP Switches* on page 5).
5. Connect the flying leads of the wiring assembly (provided) to the wires from the control panel (*Table 3*).
6. Turn the keypad over and plug in the wiring connector through the opening in the back of the enclosure base.
7. Mount the keypad base in the desired location.
8. Secure the keypad in place from inside the enclosure base by inserting screws in the mounting holes.
9. Replace the cover by aligning and inserting the top two tabs of the enclosure cover into the top two tab slots of the enclosure base.
10. Hold the top edges of the enclosure cover and base in position.
11. Push the tabs inward.
12. Press the enclosure and cover together until the cover snaps into place.

- Press each key on the keypad toward the top of the keypad to ensure proper alignment and operation of each key through the mating keypad faceplate openings.

Table 3: Wiring Connections

Four-Wire Flying Leads from control panel	D1255/D1255B Flying Leads
DATA BUS B (30)	To Data Out (Green)
DATA BUS A (31)	To Data In (Yellow)
POWER + (32*)	To 12 VDC (Red)
COMMON – (29*)	To Common (Black)

* = only on the D9412G Control Panel

3.3 DIP Switch Settings and Associated Functions

Select the address of each keypad and silence the keypad encoding tone by setting the six-position DIP Switch (refer to *Item 7* in *Figure 2*) located under the D1255/D1255B Keypad cover.

3.3.1 Setting the DIP Switches

Switches 1 through 3 assign the address for the specific keypad. Leave Switches 4 and 6 in the ON position.



For supervised keypads, assign only one keypad to each address. Switch 5 toggles the encoding tone ON and OFF. With the encoding tone turned ON, the keypad sounds a beep every time a key is pressed.

Table 4: Switch Settings

Address #	Switch					
	1	2	3	4	5*	6
1	ON	ON	ON	ON		ON
2	OFF	ON	ON	ON		ON
3	ON	OFF	ON	ON		ON
4	OFF	OFF	ON	ON		ON
5	ON	ON	OFF	ON		ON
6	OFF	ON	OFF	ON		ON
7	ON	OFF	OFF	ON		ON
8	OFF	OFF	OFF	ON		ON

*Encoding Tone ON/OFF.

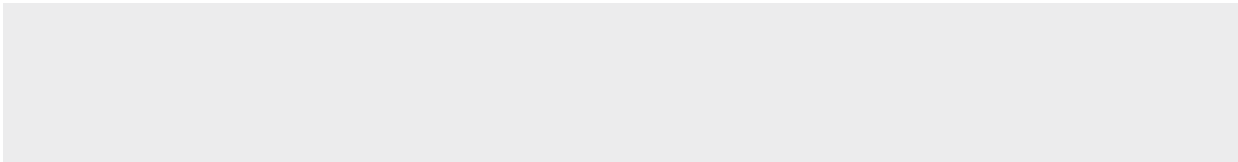
4.0 Specifications

Table 5: D1255/D1255B Specifications

Power	Nominal 12 VDC supplied by the control panel
Current Required	Idle: 104 mA, armed or disarmed. Maximum: 206 mA, with keypad lighted and warning tone ON.
Wiring	Four-wire expansion cable supplies Data In, Data Out, +12 VDC, and Common. Maximum resistance on the conductors connected to SDI BUS A and SDI BUS B is 25 Ω.
Dimensions H x W x D	4.6 in. x 8.1 in. x 0.8 in. (11.6 cm x 20.7 cm x 20.7 cm)
Color	D1255 PMS Warm Gray D1255B White and PMS 429 Gray
Display	16-character vacuum fluorescent display. Each character is a 14-segment unit. Soft blue color.
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Relative Humidity	5% to 85% @ +86°F (+30°C)

Table 6: Control panel compatibility chart

Control panel	Maximum Number of Keypads	
	Supervised	Unsupervised
D9412G	8	32
D7412G	8	32
D7212G	8	32
D9124	8	32
D9412	8	32
D9112	8	32
D7412	8	32
D7212	8	32



Bosch Security Systems
130 Perinton Parkway
Fairport, NY 14450-9199
Customer Service: (800) 289-0096
Technical Support: (888) 886-6189

© 2004 Bosch Security Systems
74-06819-000-F



BOSCH

Installation Instructions for the DS1101i/1102i/1108i Glass Breakage Detectors

1.0 Specifications

- **Coverage:** 25 ft. (7.6 m) maximum to farthest point of glass being protected. For glass sizes over 12 in. by 12 in. (0.3 m by 0.3 m); types of 1/4 in. (0.64 cm) Plate, Tempered, Laminated, and Wired glass; and 1/8 in. (0.32 cm) Plate glass (DSB).
- **Mounting:** Directly to the ceiling, on an opposite wall, or on an adjacent wall.
- **Input Power:** **DS1101i/1102i:** 12 VDC (6 VDC min. to 15 VDC max.), 23 mA nominal @ 12 VDC (29 mA max. in LED latch mode). **DS1108i:** 12 VDC (9 VDC min. to 15 VDC max.), 21 mA nominal @ 12 VDC (24 mA max. in LED latch mode).
- **Standby Power:** Connect to power sources capable of supplying standby power of 23 mA-H for each hour of required standby time. *Four hour minimum standby time required for UL Certified installations.*
- **Alarm Relay:** **DS1101i/1102i:** Form "C" reed relay (NO/C/NC). Contacts rated 3.5 Watts, 125 mA @ 28 VDC for DC resistive loads. Protected by a 4.7 ohm resistor in the common "C" leg. **DS1108i:** Normally Closed reed relay (NC/C). Contacts rated 3.5 Watts, 125 mA @ 28 VDC for DC resistive loads. Protected by a 4.7 ohm resistor in the common "C" leg.
- **Tamper:** Normally Closed (NC/C) rated 125 mA @ 28 VDC maximum.
- **Operating Temperature:** -20° to +120°F (-29° to +49°C). *For UL Certified installations, the temperature range is +32° to +120°F (0° to +49°C).*
- **Enclosure:** Round = **DS1101i/DS1108i** = 3.4 in. diameter by 0.83 in. D (8.6 cm diameter by 2.1 cm D). Square = **DS1102i** = 3.4 in. H, 3.4 in. W, 0.83 in. D (8.6 cm H, 8.6 cm W, 2.1 cm D).
- **Accessories:** DS1110i Glass Breakage Tester.

2.0 Installation Considerations

NOTE: Always pre-test the detector's location using the DS1110i Glass Breakage Tester.

- **Do Not...**
 - ...Mount the detector with obstructions between the glass being protected and the detector.
 - ...Mount on the same wall as the glass being protected.
 - ...Mount the detector closer than 5 ft. (1.5 m) to the wall that the glass being protected is on, or any hard, sound reflecting surface.
 - ...Mount closer than 2 ft. (0.6 m) to heating or cooling outlets; mount as far away as possible. If drafts from these outlets blow on the detector, select a different location for the detector. Use the environmental test (see Section 4) to verify good installation locations.
 - ...Install on 24-hour protection circuits.
- **If you must install the DS1101i, DS1102i, or DS1108i in a zone that is armed when occupied...**
 - ...Avoid acoustically live areas such as kitchens and bathrooms.
 - ...Use a delay zone to provide the user time to acknowledge the false alarms.
 - ...Instruct system users how to respond to a false alarm.

Remember...

- ...The best mounting location is 10 to 20 ft. (3 to 6 m) from the glass, in-line with the glass's center, and on the ceiling or opposite wall of the glass being protected. Do not exceed maximum range.
- ...The detector should be within $\pm 30^\circ$ of the center of the glass to be protected.
- ...Range will be reduced in areas that are acoustically soft. This may be due to carpeting, drapes, plants, or other sound absorbing materials. The DS1110i Glass Breakage Tester should be used to verify range in all installations.
- ...Glass break detectors are intended only as a component of a perimeter protection system. They should always be used in conjunction with motion sensors.
- ...Glass breakage detectors are designed to detect the breakage of framed glass and may not detect such things as bullet holes, spontaneous breakage of glass (with no impact), and removal of glass.

Maximum range:

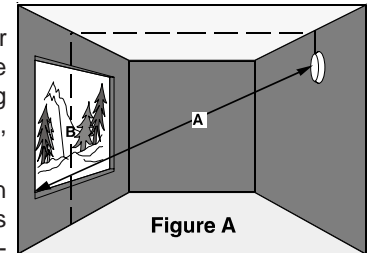
The maximum detection range is 25 ft. (7.6 m) from the farthest corner, for glass sizes 12" by 12" (0.3 m by 0.3 m) and larger.

Hint: Tie a 25 ft. (7.6 m) string to the detector. The string should be able to touch every part of the glass being protected. If any part of the glass can not be touched by the string, it is outside of the detector's coverage and additional detectors should be used.

3.0 Selecting a Mounting Location

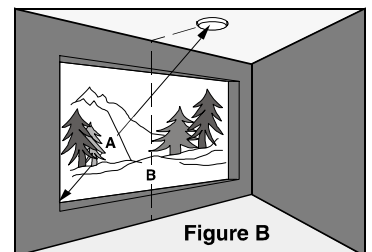
Opposite Wall Mounting

- Mount the detector where there are no objects between itself and the glass.
- Do not mount the detector closer than 5 ft. (1.5 m) to the wall that the glass being protected is on, or any hard, sound reflecting surface.
- The detector should be within $\pm 30^\circ$ of the center of the glass to be protected (line B in Figure A).
- Make sure the detector is no farther than 25 ft. (7.6 m) from any corner of the glass (line A in Figure A).



Ceiling Mounting

- The recommended location is half the distance between the glass and its opposite wall or 2/3 of the rated range, whichever is smaller.
- Mount the detector where there are no objects between itself and the glass.
- Mounting to drop ceiling tiles is acceptable.
- Do not mount the detector closer than 5 ft. (1.5 m) to the wall that the glass being protected is on, or any hard, sound reflecting surface.
- Make sure the detector is no farther than 25 ft. (7.6 m) from any corner of the glass (line A in Figure B).
- The detector should be within $\pm 30^\circ$ of the center of the glass to be protected (line B in Figure B).



BOSCH

Adjacent Wall Mounting (not preferred)

- Mount the detector where there are no objects between itself and the glass.
- Do not mount the detector closer than 5 ft. (1.5 m) to the wall that the glass being protected is on, or any hard, sound reflecting surface.
- Make sure the detector is no farther than 25 ft. (7.6 m) from the farthest corner of the glass (line A in Figure C).

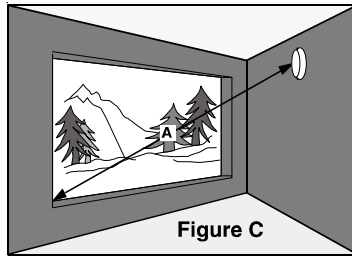


Figure C

Multiple Detectors

In some installations, multiple detectors must be used to protect larger glass.

As a general rule, if the glass is wider than 20 ft. (6.1 m), multiple detectors should be used.

- Place each detector in-line with the center of each 20 ft. (6.1 m) section of glass.
- Space the detectors evenly across the glass, but no farther than 20 ft. (6.1 m) apart (line B in Figure D).
- Do not mount the detector closer than 5 ft. (1.5 m) to the wall that the glass being protected is on, or any hard, sound reflecting surface.
- Make sure each detector is no farther than 25 ft. (7.6 m) from any corner of its 20 ft. (6.1 m) section (lines A in Figure D).

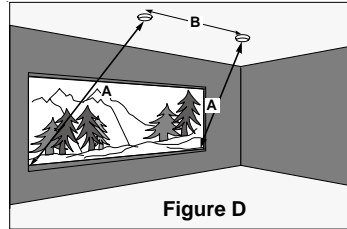


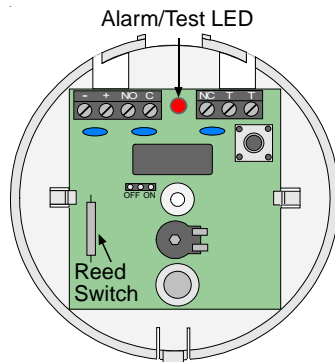
Figure D

4.0 Testing

Testing the Location

- Temporarily mount the detector using 2-sided tape.
- Power the detector using a 9 Volt battery.
- The detector will enter the test mode, for five minutes, as soon as power is applied. The detector will indicate that it is in the test mode by flashing the LED for 10 seconds. At the end of five minutes the detector will flash the LED again for 10 seconds to indicate the test period is over. The test mode can be restarted at any time by powering the unit off and then on or by placing a magnet next to the "T" on the cover. Placing a magnet next to the "T" when the unit is in the test mode will terminate the test.

NOTE: All testing should be done with the detector's cover in place.



TEST #1: ENVIRONMENTAL TEST

Remember: The detector must be in test mode to perform this test.

During the 5 minute test mode, the LED will indicate low or high frequency disturbances by flashing at specific rates. **Occasional (random) flashes of the LED are normal.** To rule out random flashes affecting this test, observe the LED for the full five minutes.

- Turn on all sources of noise (e.g. forced air blowers, air conditioners, compressor motors, etc.).
- The LED will flash 5 times per second each time a low frequency disturbance is detected. If the 5 flashes per second occur more than once every 15 seconds or if the unit alarms, then do not mount in this location.
- The LED will flash once each time a high frequency disturbance is detected. If any flashes occur more than once every 15 seconds, do not mount in this location.

Remember: If the detector happens to alarm during this test, the alarm relay **will** activate as well.

NOTE: If disturbances exist while positioning the detector in-line with the center of the window, then the detector may be moved within a 60° (±30°) arc of the window's center.

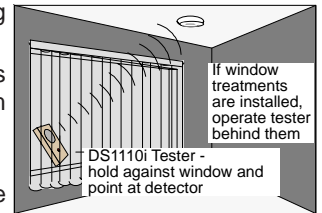
TEST #2: RESPONSE TEST

Remember: The detector must be in test mode to perform this test.

This test should be performed using the DS110i Glass Breakage Tester. The DS110i produces a high frequency tone designed to alarm the unit to further verify proper location.

CAUTION: Don't point the tester directly at your or anyone's ear. Doing so could damage hearing.

- Hold the DS110i Glass Breakage Tester against the window being tested and point it at the detector.
 - If there are curtains or blinds covering the window, close them over the Tester.
- Activate the Tester.
 - Setting the Tester to automatic mode causes it to activate every 6 seconds. This will allow you to better observe the detector's LED.
 - For large windows, perform this test at different placements along the window.
- **The alarm/test LED and the alarm relay will activate for three seconds if this is an acceptable detector placement.**



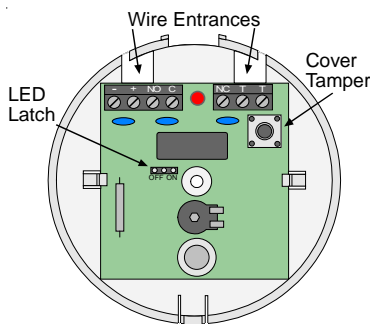
NOTE: The low frequency response of the detector can be tested (while still in the test mode) by opening a door about 1 inch and slamming it shut. The detector should indicate an alarm.

- During the last 10 seconds of the detector's test mode, its LED will pulse. To end the test mode before the 5 minute time-out period, place a magnet next to the "T" on the detector case.

5.0 Mounting and Setup

Mount the Detector

- After verifying an acceptable location, permanently mount the detector. The detector can be mounted using the one center screw or with two screws for more stability. If mounting using the center screw only, the circuit board does not need to be removed.



If mounting using two screws:

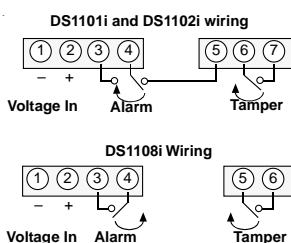
- Remove the circuit board from the enclosure by pushing back the two retainer tabs and lifting out the circuit board.
- Use the two mounting holes in the enclosure to secure it to the mounting surface.
- Replace the circuit board.

Install Wiring

CAUTION: ONLY APPLY POWER AFTER ALL CONNECTIONS HAVE BEEN MADE AND INSPECTED.

NOTE: Do not coil excess wire inside the unit.

NOTE: For Canadian installations, install in accordance with the Canadian Electrical Code.



Select LED Latching Mode



ON: The LED will latch on when the unit is alarmed and will stay on until it is reset. Momentarily interrupt input power to reset the LED.

OFF: The LED will not latch after an alarm.

NOTE: If the jumper is removed or missing, the LED Latching Mode will default to OFF.

Setup and Testing

- Replace the detector's cover, install tamper screw (if desired), then apply power.
- Re-test the unit with the DS110i Glass Breakage Tester.

Automatic Sound Check

- This detector features Automatic Sound Check, to allow the end user to test the unit on a periodic basis. To perform the test, simply clap your hands or create some other loud sound. When the detector hears this sound the LED (but not the alarm relay) will activate. This feature works in the normal operating mode and does not require that the detector be in the test mode.

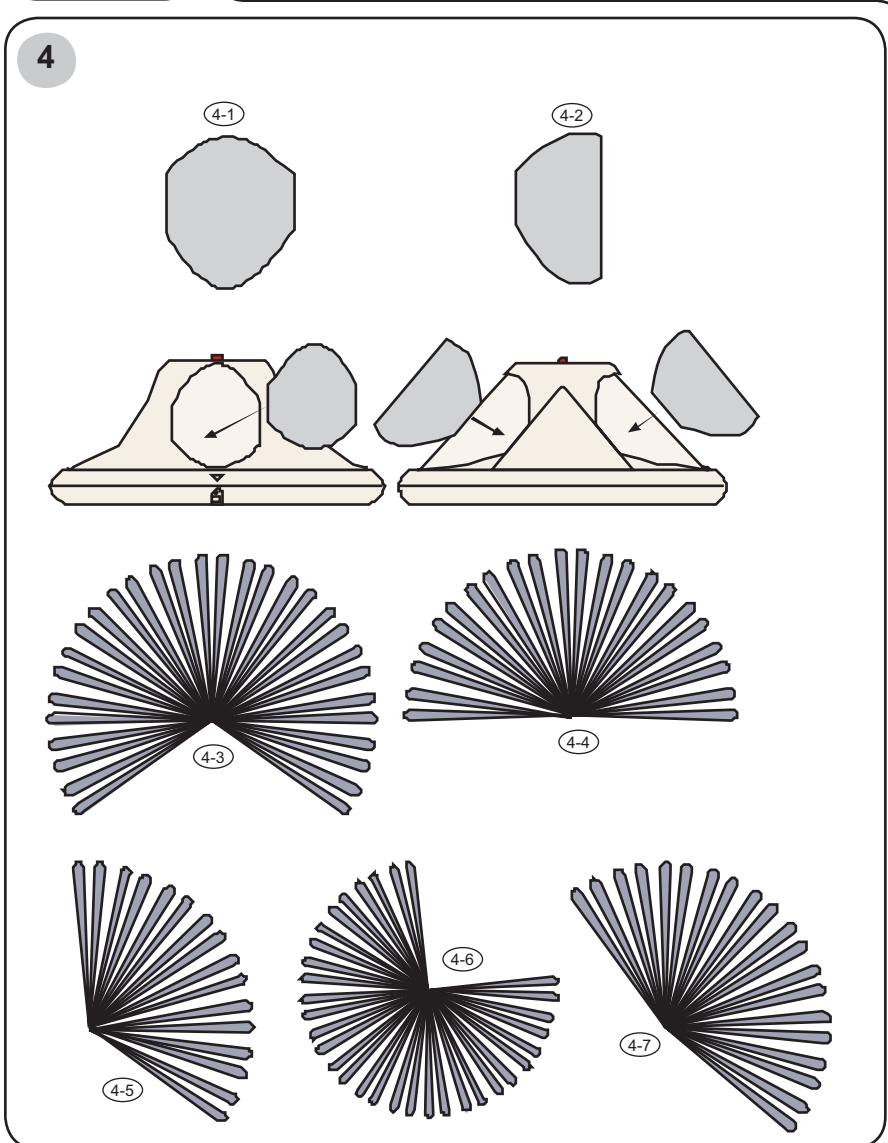
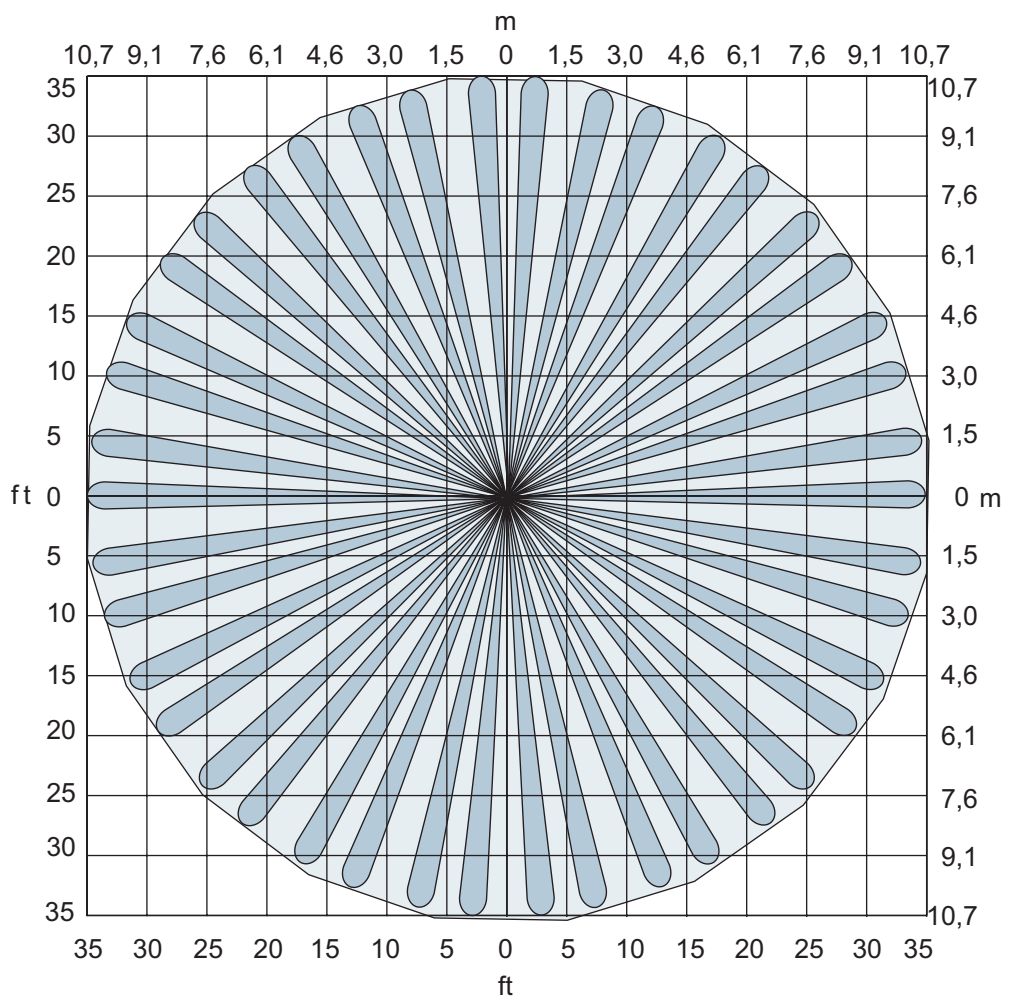
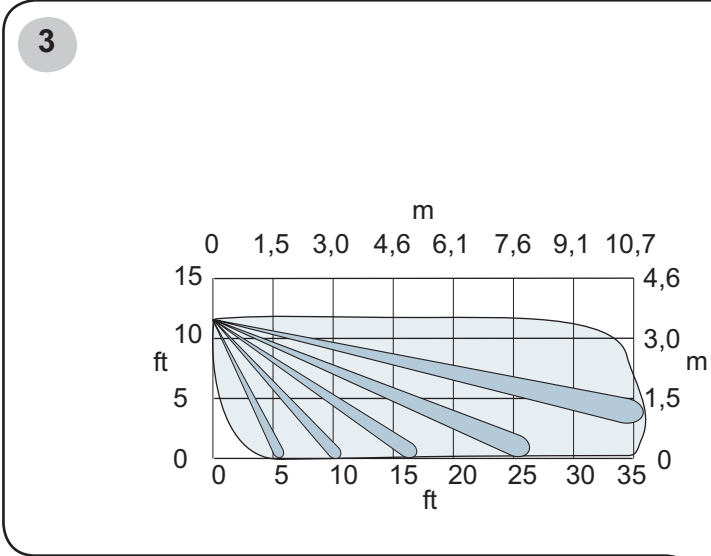
The DS1101i/1102i/1108i are protected by the following patents: #5,450,061 and #5,438,317.



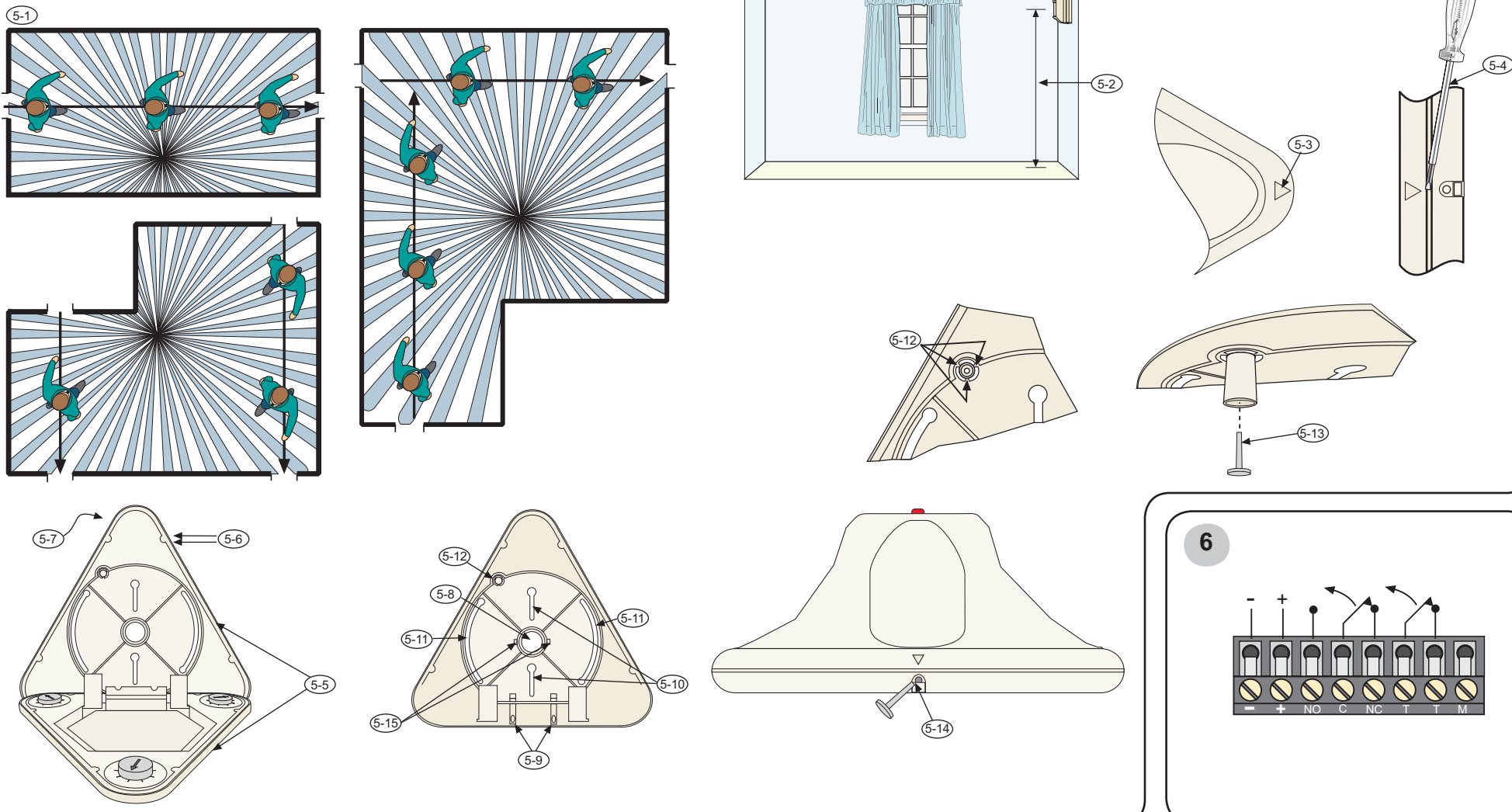


DS9370/DS9371 TriTech® Ceiling Mount Passive Infrared Detector/Microwave Intrusion Detector Installation Instructions	Page 3
DS9370 TriTech Plafondbevestiging Gebruiksaanwijzing voor de installatie van de passieve infrarooddetector/microgolf inbraakdetector	Pagina 4
Notice d'installation du détecteur à infrarouge passif/détecteur d'intrusion à hyperfréquence DS9370 TriTech pour installation au plafond	Page 5
DS9370 TriTech-Deckenmelder Passiver Infrarotmelder/Mikrowelleneinbruchsmelder-Installationsanleitungen	Seite 6
Istruzioni di installazione del rilevatore a infrarossi passivi e del rilevatore a microonde antintrusione con montaggio a soffitto TriTech DS9370	Pagina 7
Instruções de instalação do detector contra intrusos por Microondas/Infravermelhos passivos DS9370 TriTech Montagem no tecto	Página 8
Instrucciones de instalación del detector de intrusión por infrarrojos pasivos/microondas TriTech de montaje de techo DS9370.....	Página 9
DS9370/DS9371 TriTech 顶式安装 被动红外线探测器/微波入侵探测器安装说明	第10页

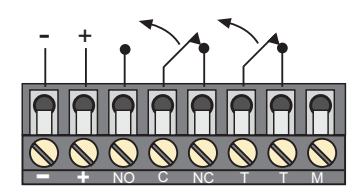
- 2**
- 2-1
 - 2-2
 - 2-3
 - 2-4
 - 2-5
 - 2-6



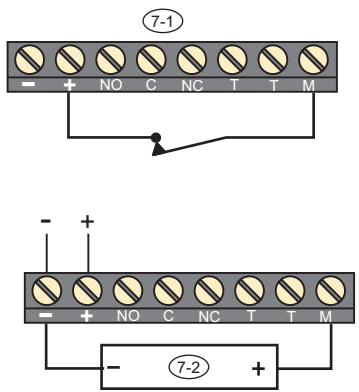
5



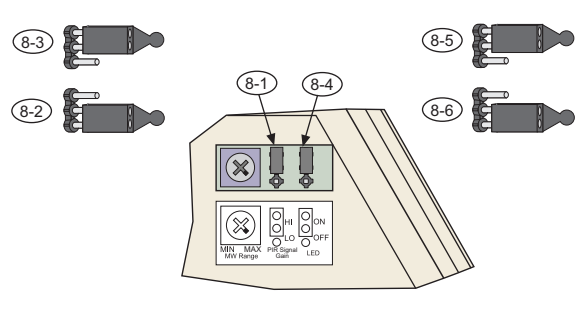
6



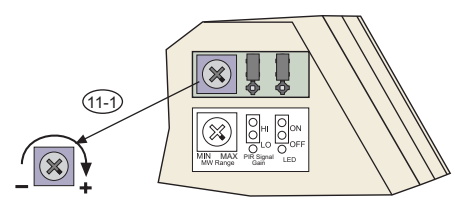
7



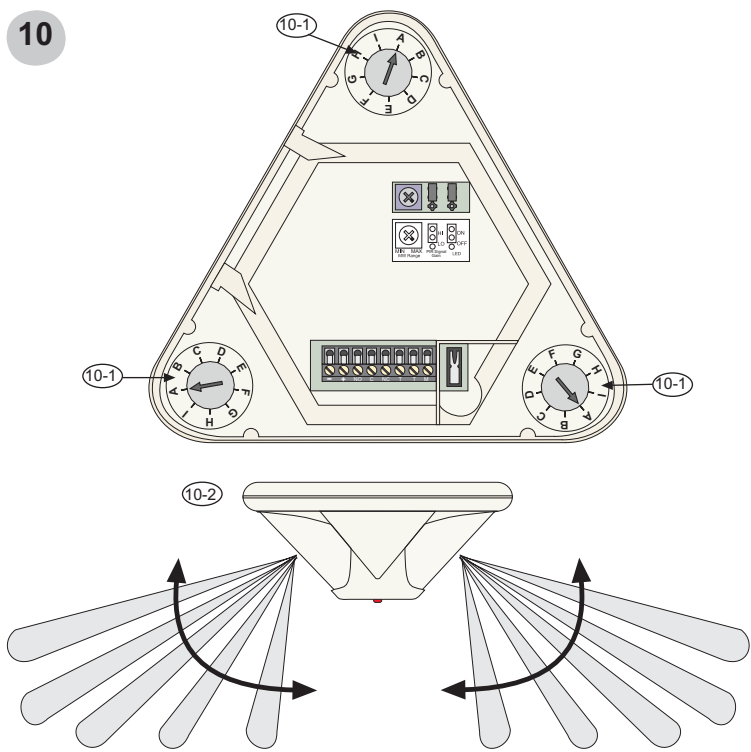
8



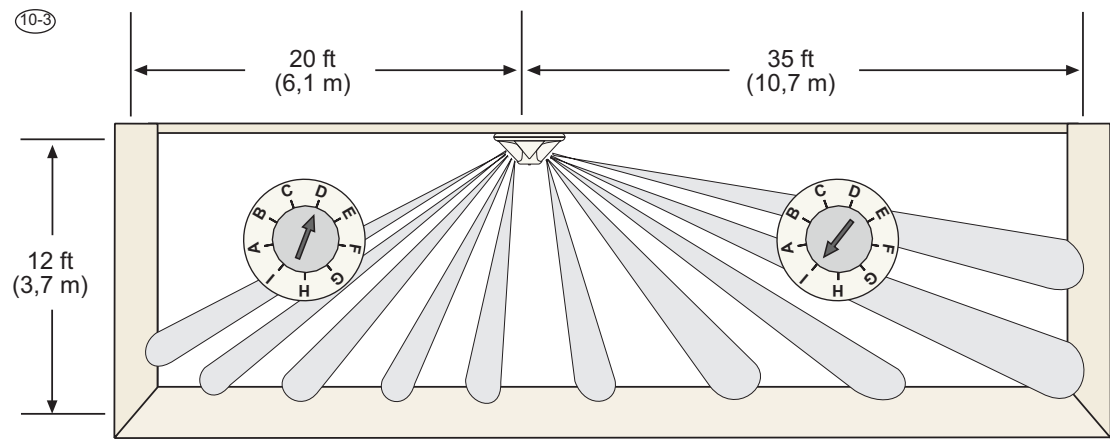
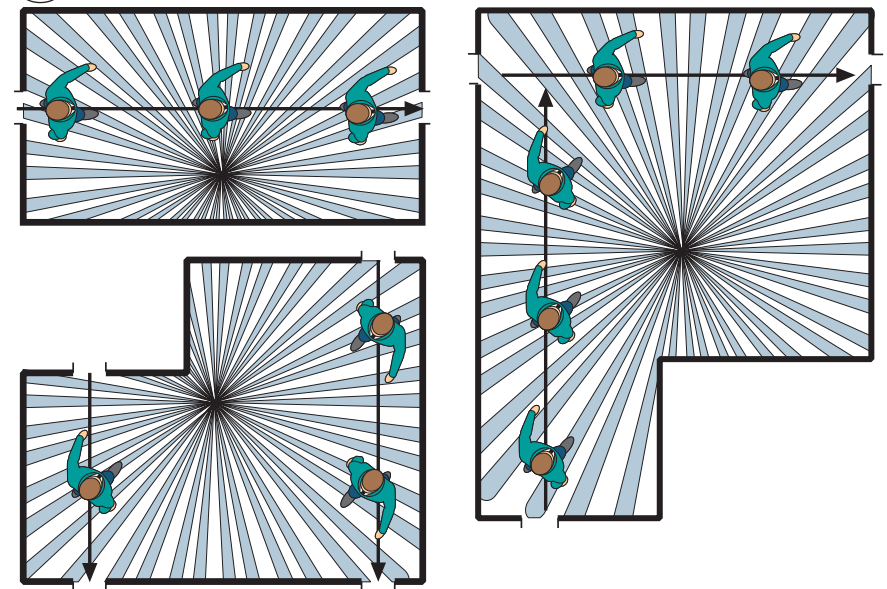
11



10



11-2



(10-5) m (ft)	(10-6) m (ft)											
	2,4 (7.8)	3 (9.8)	3,7 (12)	4,3 (14)	4,6 (15)	4,9 (16)	5,5 (18)	6,1 (20)	6,7 (22)	7,3 (24)	25 (7,6)	
3 (9.8)	C	A										
4,6 (15)	G	D	A	A								
6,1 (20)	I	G	D	B	A	A						
7,6 (25)		I	F	E	D	C	A	A				
9,1 (30)			H	F	E	E	C	B	A			
10,7 (35)			I	G	G	F	E	C	B	A	A	

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

**DS9370/DS9371 TriTech® Ceiling Mount
Passive Infrared Detector/Microwave Intrusion Detector
Installation Instructions**



1

Specifications

Dimensions: Height: 3.5 in. (8.9 cm)
Diameter: 7 in. (17.8 cm)

Versions: DS9370: Pearl white
DS9371: Black (only for use in the U.S.)

Coverage: 360° by 70 ft (21 m) diameter coverage when mounted on 12 ft (3.7 m) to 25 ft (7.6 m) high ceilings. A coverage area diameter of 40 ft (12 m) is available when mounted at 8 ft (2.4 m) and a 50 ft (15 m) diameter at a height of 10 ft (3 m). The pattern consists of 69 zones grouped into 3 sets of 23 zones. Each set covers one-third of the 360° coverage pattern. Each set also has a vertical adjustment for precise pattern alignment.

Input Power: 9 VDC to 15 VDC, 19 mA standby, 39 mA in alarm with LEDs enabled, and 39 mA maximum current. Use only a Listed limited-power source.

Standby Power: There is no internal standby battery. An external standby battery capacity of 29 mAh is required for each hour of standby time needed. For UL Listed product installations, 4 h (116 mAh) must be provided by the control unit or a UL Listed limited-power source.

Sensitivity: Low and high settings.

Alarm Relay: Silent-operating Form "C" relay. Contacts rated 125 mA, 28 VDC, 3 W maximum for DC-resistive loads. The contacts transfer on alarm for a period of 4 sec.

Tamper: **Note:** Do not use with capacitive or inductive loads. Tamper switch is normally closed (NC), with cover on. A ceiling tamper is included for surface mounting. Contacts rated at 28 VDC, 125 mA, 3 W maximum.

Supervision Features: **Microwave:** The complete circuit operation of this subsystem is checked approximately every 4 h.

Temperature Range: **PIR:** The detector defaults to PIR technology protection if the microwave subsystem fails. The detector indicates an alarm using the green LED only and activates the alarm relay.
The storage and operating range is -40°F to +120°F (-40°C to +49°C).
For UL Listed installations, the temperature range is (+32°F to +120°F (0°C to +49°C)).

Microwave Frequencies: 10.525 GHz
DS9370-C: 10.588 GHz (Export only, not UL Listed.)

2

Installation Considerations

Not suitable for outdoor use (2-1).

Never install the detector where the PIR or microwave is in constant alarm (LED on). The LED is off when properly installed.

Point away from outside traffic. Microwave energy passes through non-metallic walls.

Point away from direct and indirect sunlight (2-2).

Point away from glass or other objects that rapidly change temperatures (2-3, 2-4, and 2-5).

Point away from rotating machines (fans) (2-6).

Mount the detector on a solid and vibration free surface. Secure drop-ceiling tiles, if the area above the tiles is used as an air return for heating, ventilating, and air conditioning (HVAC) systems.

Avoid mounting the detector within 1 ft (0.3 m) of any fluorescent light fixtures.

Warning!
Apply power only after all connections are made and inspected. Do not coil excess wiring inside detector.

SELV

- Some countries require the relay to be connected to a Safety Extra-Low Voltage (SELV) circuit only.
- Some countries require the tamper switch to be connected to a SELV circuit only. Connect tamper circuit to a 24-hour protection circuit.

3

Coverage Patterns

Microwave coverage
PIR coverage

Typical coverage pattern shown for 12 ft (3.7 m) mounting height with optical adjustments set to "I" (refer to Section 10 Optical Module Adjustment).

4

Coverage Pattern Masking

To reduce the detector's coverage area, use the masks provided. The masking kit contains two 120° (4-1) and two 90° (4-2) masks. You can mask:

- 90° (4-6)
- 120° (4-3)
- 180° (4-4)
- 210° (4-7)
- 240° (4-5)
- 330°

Place the masks on the outside of the detector. Do not open the detector and place the masks on the inside.

Note: Masking does not affect the microwave.

5

Mounting

1. Select a mounting location. Mount the sensor where an intruder is most likely to cross the coverage pattern (5-1).
2. Mount the detector 12 ft to 25 ft (3.7 m to 7.6 m) above the floor (5-2).
3. To open the detector, locate the arrow (5-3) on the cover of the detector. Insert a flat head screwdriver in the recess (5-4) between the cover and the base and twist. One side of the cover remains attached to the base of the detector.
4. Optional: Remove the cover from the base. Grasp the top of the cover with one hand while holding the base with the other (5-5).
5. Gently push the cover to one side (5-6) while twisting the cover back and away from the base (5-7).

Note: Ensure all wiring is de-energized before routing.

6. Route wiring as necessary to the rear of the base and through the center hole (5-8) or wire entrance for surface mounting (5-9).

Note: Do not mount on removable ceiling tiles unless a sandwich is made of the base, ceiling tile, and a back plate behind the tile.

7. Firmly mount the base using the mounting holes (5-10, 5-11) and one of these options:
 - Depending on local regulations, mount the base directly on the surface using anchors, mollies, or wing-nuts.
 - Mount the detector on an electrical box.
 - Connect the detector directly to short lengths of electro-magnetic tubing (EMT), 0.5 in. (1.27 cm) (short enough to avoid movement of the detector). Use the wire entrance for the EMT (5-8).

Note: Use the curved mounting slots (5-11) to rotate the detector up to 60° to establish the best coverage.

8. If a ceiling tamper is needed, remove the tamper post (5-12) by tapping it gently with a hammer to detach it from the three tabs.
9. Mount the post to the ceiling using the #8 screw provided (5-13).
10. Attach the cover if removed, and close it.
11. Secure the entire assembly with the supplied anti-vandal screw (5-14).
12. Use the cable ties (5-15) for strain relief.

6

Wiring

Terminal	Label	Function
1	(-)	Input power: Use at least a 22 AWG (0.8 mm) wire pair between the unit and the power source.
2	(+)	
3	NO	Alarm relay
4	C	Alarm relay
5	NC	Alarm relay
6	T	Tamper
7	T	Tamper
8	M	Memory input (refer to Section 7 Other Features)

7

Other Features

Memory, Night Mode, and Walk Test need a control voltage on Terminal 8 to activate these features (refer to Table 1). The control voltage must be between 6 VDC and 18 VDC.

Use a supply voltage to apply a control voltage to Terminal 8 (7-1).

Or, use a control panel or external DC power supply as control voltage (7-2):

- +6 VDC to +18 VDC = On (switch closed)
- 0 VDC = Off (switch open)

Day Mode Disables the alarm memory and allows the LED (if activated) to operate normally.

Memory When the detector is in Night Mode, the memory activates. The detector stores an alarm for display when switched to Day Mode.
Note: The LED jumper must be in the On position (8-5).

Night Mode Enables the alarm memory and disables the LED operation.

Remote Walk Test Remotely enable the LED operation from Terminal M for walk testing. Use this feature when the LED jumper is in the Off position (8-6).

Table 1: Mode Switching

Action	Control Voltage (Terminal M)	LED
Turn on Night Mode	On for more than 20 sec	On
Turn off Night Mode and display stored alarm	Off from Night Mode	On
Reset stored alarm	On for more than 5 sec or enter Night Mode	On
Turn on Remote Walk Test	On for more than 5 sec, but less than 20 sec	Off
Turn off Remote Walk Test	On for more than 1 sec, but less than 20 sec	Off

8

LED Operation

Feature	Setting	Description
PIR Sensitivity Selection Pins (8-1)	Low (8-2)	Recommended setting for most installations. Tolerates environmental extremes. Note: The detector is shipped in Low Sensitivity mode.
	High (8-3)	Use this setting if more sensitivity is needed. Note: This setting is more sensitive to environmental changes that can cause false alarms.
LED On/Off Pins (8-4)	On (8-5)	Operates the tri-color LED.
	Off (8-6)	If LED indication is not wanted after set up and walk tests are complete, place in the Off position. No jumper across the On or Off pins disables the LED.

9

LED Display

LED	Cause
Steady red	Unit alarm
Steady yellow	Microwave activation (walk test)
Steady green	PIR activation (walk test)
Flashing red	Warm-up period after power up

10

Optical Module Adjustment

The PIR zones of the detector are divided into three groups. Use the PIR adjustment knobs (10-1) to independently adjust each group vertically to provide the best coverage within a room. Two coverage patterns are shown (10-2).

If targeted coverage is required for part of the area, adjust the optical modules for the correct coverage.

For example (10-3): The detector is mounted 12 ft (3.7 m) above the floor. The distance to one wall is 20 ft (6.1 m) and 35 ft (10.7 m) to the opposite wall. Using the *Optical Module Adjustments Table (10-4)*, set the optical module for the 20 ft (6.1 m) range to "D" and the optical module for the 35 ft (10.7 m) to "I". Refer to (10-5) for the maximum range and (10-6) for the mounting height.

Note: The range shown in (10-4) is the distance from the detector to the outside edge of the coverage pattern.

Two coverage patterns are shown (10-3).

11

Walk Test

Note: Ensure the LED jumper is set to on (8-5).

Note: To avoid false alarms, set the microwave range (11-1) to its minimum setting before starting the Walk Test.

1. Wait at least 2 minutes after power up to start the Walk Test.
The red LEDs flashes until the detector stabilizes and no movement is detected for 2 seconds.
2. Watch the LED as you walk towards the edge of the pattern (11-2). The LED lights at the outside edge of the coverage range.
The green LED lights, identifying the PIR pattern edge.
The yellow LED lights, identifying the microwave pattern edge.
The red LED indicates alarms in both the microwave and PIR mode.
3. Repeat Step 3 from different directions until you adequately verify the coverage pattern.
4. Repeat Step 3 from different directions until you adequately verify the coverage pattern.
5. If the required microwave coverage is not achieved, increase the microwave adjustment (11-1) by turning it clockwise slightly. Wait 1 min after adjusting the microwave range before continuing the Walk Test.

Note: Do not adjust the microwave range higher than needed.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

TriTech® is a registered trademark of Bosch Security Systems, Inc. in the United States.

© 2007 Bosch Security Systems, Inc.
48781-01

DS9370 TriTech Plafondbevestiging Gebruiksaanwijzing voor de installatie van de passieve infrarooddetector/microgolf inbraakdetector



1 Technische beschrijving

- Afmetingen:** Hoogte: 8,9 cm
Diameter: 17,8 cm
- Versies:** DS9370: parelwit
- Bereik:** 360° bij 21 m diameter bereik wanneer aangebracht op 3,7 m tot 7,6 m hoge plafonds. Een bereik met een diameter van 12 m is mogelijk wanneer aangebracht op 2,4 m en een diameter van 15 m op een hoogte van 3 m. Het gezichtsveld bestaat uit 69 vakken die gegroepeerd zijn in drie groepen van elk zeven vakken. Elke groep beslaat één derde van het 360°-bereik. Bovendien heeft elke groep een verticale aanpassing voor precieze bereikuitlijning.
- Ingangsvermogen:** 9 VDC t/m 15 VDC, 19 mA stand-by, 39 mA in alarm met LED's aan, en 39 mA maximale stroom.
- Stand-by vermogen:** Er is geen interne stand-by batterij. Voor elk uur dat stand-by nodig is, dient een externe stand-by batterij met een capaciteit van 29 mAh gebruikt te worden.
- Gevoeligheid:** Lage en hoge instellingen.
- Alarmrelais:** Stille bediening Form "C" relais. Contacten berekend op 125 mA, 28 VDC, 3 W maximaal voor DC-resistente ladingen. Bij alarm gaan de contacten voor een periode van 4 seconden over.
- Opmerking:** Niet gebruiken met capacatieve of inductieve ladingen.
- Knoei-optie:** De knoeischakelaar is normaal gesloten (NG), met de kap erop. Voor bevestiging op een oppervlakte wordt een knoeischakelaar voor het plafond bijgeleverd. Contacten berekend op 28 VDC, 125 mA, 3 W maximum.
- Toezichtsfuncties:** **Microgolf:** Elke 4 uur wordt de gehele circuitbediening van dit subsysteem gecontroleerd.
PIR: Wanneer het microgolf subsysteem uitvalt, gaat de detector over op de standaard PIR-technologie bescherming. De detector geeft een alarm alleen met een groene LED aan en activeert het alarmrelais.
- Temperatuursgebied:** Opslag en werkingsbereik is -40°C tot +49°C.
- Microgolffrequenties:** 10,525 GHz
DS9370-C: 10,588 GHz (Alleen export)

2 Aandachtspunten voor installatie

- Niet geschikt voor buitengebruik (2-1).
- Installeer de detector niet waar de PIR of microgolf in constant alarm verkeert (LED aan). De LED staat uit bij correcte installatie.
- Niet op het verkeer buiten richten. Microgolffrequentie gaat door niet-metalen wanden heen.
- Niet op direct of indirect zonlicht richten (2-2).
- Niet op glas of andere objecten richten die snel van temperatuur veranderen (2-3, 2-4 en 2-5).
- Niet op draaiende apparaten richten (ventilatoren) (2-6).
- Bevestig de detector op een stevig en trivrij oppervlak. Indien de ruimte boven plafondtegels wordt gebruikt als luchtkeer voor verwarmings-, ventilatie- en airconditioning (HVAC) systemen, zet dan de plafondtegels vast.
- Bevestig de detector niet binnen een straal van 0,3 m van tl-verlichting.
- Waarschuwing!**
Sluit elektriciteit alleen aan wanneer alle aansluitingen zijn gemaakt en geïnspecteerd. Overvloedige bedrading niet in de detector oprollen.
- SELV**
- In sommige landen dient het relais alleen aangesloten te worden op een Safety Extra-Low Voltage (SELV) circuit.
 - In sommige landen dient de knoeischakelaar uitsluitend aangesloten te worden op een SELV-circuit. Verbindt knoeischakelaarcircuit met een 24-uurs beschermingscircuit.

3 Gezichtsvelden

- Microgolfbereik
 - PIR-bereik
- Het afgebeelde bereik is voor 3,7 m montagegewicht met optische afstellingen afgesteld op "I" (raadpleeg hoofdstuk 10 Optische module-aanpassing).

4 Gezichtsvelden afschermen

- Gebruik de bijgeleverde maskers om het bereik van de detector te verkleinen. Het maskeerpakket bevat twee maskers van 120° (4-1) en twee van 90° (4-2). Met de geleverde maskers kunt u:
- 90° (4-6),
 - 120° (4-3),
 - 180° (4-4),
 - 210° (4-7),
 - 240° (4-5)
 - of 330° afschermen.
- Plaats de maskers aan de buitenzijde van de detector. Open de detector niet en plaats de maskers aan de binnenzijde.
- Opmerking:** Het afschermen heeft geen invloed op het bereik van de microgolf.

5 Bevestiging

1. Selecteer een bevestigingsplek. Bevestig de sensor waar een indringer het bereik bijna zeker zal doorkruisen (5-1).
 2. Bevestig de detector op 3,7 m tot 7,6 m boven de vloer (5-2).
 3. Zoek de pijl (5-3) op de detectorkap om de kap te openen. Steek een platkopschroevendraaier in de ruimte (5-4) tussen de kap en de onderkant en draai dan. Eén zijde van de kap blijft aan de onderkant van de detector vastzitten.
 4. Optioneel: Verwijder de kap van de onderkant. Pak de bovenkant van de kap met één hand vast terwijl u de onderkant met de andere hand vasthoudt (5-5).
 5. Duw de onderkant voorzichtig naar één kant (5-6) terwijl u de onderkant van de kap wegdraait (5-7).
- Opmerking:** Voordat u gaat routeren, dient u er voor te zorgen dat er geen stroom op de bedrading staat.
6. Routeer de bedrading bij oppervlaktemontage zoals gewenst naar de achterzijde van de onderkant en door het middelste gat (5-8) of draaingang (5-9).
- Opmerking:** Bevestig niet op verwijderbare plafondtegels, tenzij er een sandwich wordt gemaakt van de onderkant, de plafondtegel en een muurplaat achter de tegel.
7. Bevestig de onderkant stevig met behulp van de bevestigingsgaten (5-10, 5-11) en een van de volgende opties:
 - Bevestig de onderkant direct op het oppervlak met behulp van ankers, schroeven of vleugelmoeren.
 - Bevestig de detector op een elektrische kast.
 - Verbind de detector direct met korte elektromagnetische buizen (EMT) van 1,27 cm (kort genoeg om beweging van de detector te voorkomen). Gebruik de draaingang voor de EMT (5-8).
- Opmerking:** Gebruik de geboogde bevestigingsgroeven (5-11) om de detector tot 60° te draaien om het beste bereik vast te stellen.
8. Indien de knoefunctie voor het plafond nodig is, verwijder dan de stijl (5-12) door er lichtjes met een hamer op te tikken om het van de drie tabs los te maken.
 9. Bevestig de stijl aan het plafond met behulp van de bijgeleverde nr. 8 schroef (5-13).
 10. Indien de kap is verwijderd, maak deze dan vast en sluit hem.
 11. Zet het geheel vast met de bijgeleverde antivandaal-schroef (5-14).
 12. Gebruik de draadbinders (5-15) om spanning te voorkomen.

6 Bedrading

Terminal	Label	Functie
1	(-)	Ingangsvermogen: Gebruik tenminste een 22 AWG (0,8 mm) aderpaar tussen de unit en de energiebron.
2	(+)	
3	NO	Alarmrelais
4	G	Alarmrelais
5	NG	Alarmrelais
6	T	Knoei-optie
7	T	Knoei-optie
8	M	Geheugen-input (raadpleeg hoofdstuk 7: Andere functies)

9 LED-display

LED	Oorzaak
Constant rood	Unit alarm
Constant geel	Microwave activation (walk test)
Constant groen	PIR activation (walk test)

10 Aanpassing van de optische module

- De PIR-vlakken van de detector zijn in drie groepen verdeeld. Gebruik de aanpassingsknoppen (10-1) van de PIR om elke groep apart en verticaal aan te passen en zodoende het beste bereik in een kamer te leveren. Er worden twee gezichtsvelden afgebeeld (10-2).
- Pas de optische modules aan voor een juist bereik in gebieden waarin voor een gedeelte een gericht bereik nodig is.
- Bijvoorbeeld (10-3): De detector is op 3,7 m boven de vloer bevestigd. De afstand naar één muur is 6,1 m en 10,7 m naar de andere muur. Zet met behulp van de Tabel voor aanpassing van de optische module (10-4) de optische module voor het 6,1 m bereik op "D" en voor het 10,7 m bereik op "I". Raadpleeg hoofdstuk 10-5 voor het maximum bereik en hoofdstuk 10-6 voor de bevestigingshoogte.
- Opmerking:** Het in (10-4) afgebeelde bereik is de afstand van de detector naar de buitenkant van het gezichtsveld.
- Er worden twee gezichtsvelden afgebeeld (10-3).

7 Andere functies

- Geheugen, nachtstand en looptest vereisen een stuurspanning op terminal 8 om deze functies te kunnen activeren (raadpleeg tabel 1). De stuurspanning dient tussen de 6 en 18 VDC te zijn.
- Gebruik een voedingsspanning om een stuurspanning op terminal 8 toe te passen (7-1).
- Of gebruik een bedieningspaneel of externe DC-energievoeder als stuurspanning (7-2):
- +6 VDC tot +18 VDC = Aan (schakelaar gesloten)
 - 0 VDC = Uit (schakelaar open)
- Dagmodus** Zet het alarmgeheugen uit en zorgt ervoor dat de LED (indien geactiveerd) normaal kan functioneren.
- Geheugen** Het geheugen wordt geactiveerd wanneer de detector in nachtmodus staat. De detector slaat een alarm op en geeft die weer wanneer naar dagmodus wordt overgeschakeld.
Opmerking: De LED-geleidingsbrug dient Aan te staan (8-5).
- Nachtmodus** Zet het alarmgeheugen aan en zet de LED-bediening uit.
- Looptest op afstand** Zet de LED-bediening op afstand aan vanaf Terminal M om de looptest uit te voeren. Gebruik deze functie wanneer de LED-geleidingsbrug uit staat (8-6).

Tabel 1: Modusshakeling		
Handeling	Stuurspanning (aansluitklem M)	LED-geleidingsbrug
Zet nachtmodus aan	Voor meer dan 20 sec aan	Aan
Zet nachtmodus uit en beeld opgeslagen alarm af	Uit vanuit nachtmodus	Aan
Stel opgeslagen alarm opnieuw in	Voor meer dan 5 sec aan of voer nachtmodus in	Aan

8 LED-bediening

Functie	Instelling	Omschrijving
PIR Sensitivity Selection Pins (8-1)	Laag (8-2)	Aanbevolen instelling voor de meeste installaties. Toleereert omgevingsextremen. Opmerking: De detector wordt aangeleverd in lage gevoeligheidsmodus.
	Hoog (8-3)	Gebruik deze instelling indien meer gevoeligheid nodig is. Opmerking: Deze stand is gevoeliger voor omgevingsveranderingen die vals alarm kunnen veroorzaken.
LED Aan/Uit-pinnen (8-4)	Aan (8-5)	Bedient de driekleurige LED. Wacht tenminste
	Uit (8-6)	Izet de LED-indicatie in de uit-stand indien deze, nadat de opstelling en looptesten voltooid zijn, niet gewenst is. Geen geleidingsbrug over de Aan en Uitpinnen kan de LED uitzetten.

11 Looptest

- Opmerking:** Zorg ervoor dat de LED-geleidingsbrug aangeschakeld staat (8-5).
- Opmerking:** Zet, voordat u de looptest start, het microgolfbereik (11-1) in op de minimuminstelling om vals alarm te voorkomen.
1. Wacht na inschakeling tenminste 2 minuten voordat u met de looptest begint.
De rode LED blijft knipperen tot de detector is gestabiliseerd en er gedurende twee seconden geen beweging wordt waargenomen.
 2. Kijk naar de LED wanneer u naar de rand van het gezichtsveld loopt (11-2). De LED aan de buitenkant van het gezichtsveld licht op.
De groene LED, die de rand van het PIR-gezichtsveld identificeert, licht op.
De gele LED, die het gezichtsveld van de microgolf identificeert, licht op.
De rode LED geeft alarmen in zowel de microgolf- als de PIR-modus aan.
 3. Herhaal stap 2 vanuit diverse richtingen totdat u het gezichtsveld voldoende getest heeft.
 4. Verhoog de microgolf-afstelling (11-1) door het enigszins met de klok mee te draaien indien het benodigde microgolfbereik niet behaald wordt. Wacht na het afstellen van het microgolfbereik 1 minuut voordat u met de looptest verder gaat.
- Opmerking:** Stel het microgolfbereik niet hoger in dan nodig is.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

Notice d'installation du détecteur à infrarouge passif/détecteur d'intrusion à hyperfréquence DS9370 TriTech pour installation au plafond



1 Caractéristiques techniques

- Dimensions :** Hauteur : 8,9 cm (3,5 po.)
Diamètre : 17,8 cm (7 po.)
- Versions :** DS9370 : blanc nacré
- Portée :** Portée de 360° avec diamètre de 21 m (70 pi) lorsque l'appareil est installé sur des plafonds de 3,7 m (12 pi) à 7,6 m (25 pi) de haut. Un diamètre de zone de détection de 12 m (40 pi) est disponible avec une installation à 2,4 m (8 pi) et de 15 m (50 pi) avec une installation à 3 m (10 pi). Le champ de détection consiste en 69 zones regroupées en 3 séries de 23 zones. Chaque série couvre un tiers du champ de détection de 360° et permet un ajustement vertical pour obtenir un alignement précis du champ.
- Alimentation :** De 9 Vcc à 15 Vcc, 19 mA en veille, 39 mA en alarme avec les voyants LED activés et consommation maximum de 39 mA.
- Alimentation de secours :** Il n'y a pas de batterie de secours interne. Une capacité de 29 mAh fournie par une batterie de secours externe est requise pour chaque heure d'autonomie en veille nécessaire.
- Sensibilité :** Faible et élevée.
- Relais d'alarme :** Relais Form « C » silencieux. Contacts calibrés à 125 mA, 28 Vcc, 3 W maximum pour charges résistives en courant continu. Les contacts sont transférés en cas d'alarme durant 4 sec.
- Remarque :** Ne pas utiliser avec des charges capacitatives ou inductives.
- Autoprotection :** L'interrupteur de sécurité est normalement fermé (NF) avec le capot en place. Une autoprotection plafond est fournie pour le montage sur surface plane. Contacts calibrés à 28 Vcc, 125 mA, 3 W maximum.
- Fonctions de contrôle :** **Hyperfréquence :** Le fonctionnement du circuit complet de ce sous-système est vérifié environ toutes les 4h.
IRP : Le détecteur utilise par défaut la protection par technologie IRP en cas de défaillance du sous-système d'hyperfréquence. Le détecteur indique une alarme à l'aide du voyant LED vert uniquement et active le relais d'alarme.
- Température :** Les températures de stockage et de fonctionnement admises vont de -40°C à +49°C (-40°F à +120°F).
- Hyperfréquences :** 10,525 GHz/DS9370-C : 10,588 GHz (Exportation uniquement)
- Conformité :** Ce dispositif est conforme à la section 15 du règlement de la FCC et aux directives de RSS-210 de « Industry and Science Canada ». Le fonctionnement est soumis à deux conditions :
1. Ce dispositif n'entraîne pas d'interférence préjudiciable.
 2. Ce dispositif accepte tout type d'interférence, y compris les interférences susceptibles d'entraîner un dysfonctionnement.
- Toute modification que Bosch Security Systems n'aurait pas expressément approuvée peut annuler la capacité de l'utilisateur à utiliser le dispositif.

2 Conseils relatifs à l'installation

- Ne pas utiliser à l'extérieur (2-1).
- Ne jamais installer le détecteur à un endroit où l'IRP ou hyperfréquence est constamment activé (voyant LED allumé). Si le détecteur est correctement installé, le voyant LED est éteint.
- Ne pas diriger vers les mouvements provenant de l'extérieur. L'énergie hyperfréquence passe au travers des murs non métalliques.
- Ne pas exposer à la lumière directe et indirecte du soleil (2-2).
- Ne pas diriger vers une vitre ou d'autres objets changeant rapidement de température (2-3, 2-4 et 2-5).
- Ne pas diriger vers des machines produisant un mouvement circulaire (ventilateurs) (2-6).
- Installer le détecteur sur une surface solide et exempte de vibrations. Bien fixer les dalles de faux-plafond si l'espace au-dessus des dalles est utilisé comme retour d'air pour des systèmes de chauffage, de ventilation et de climatisation.
- Éviter d'installer le détecteur à moins de 0,3 m (1 pi) de tout éclairage fluorescent.
- Attention !**
Ne mettre l'appareil sous tension qu'une fois tous les branchements effectués et vérifiés. Ne pas accumuler l'excès de fil à l'intérieur du détecteur.
- SELV**
- Dans certains pays, le relais doit être connecté à un circuit de très basse tension de sécurité (SELV) uniquement.
 - Certains pays exigent aussi que l'interrupteur de sécurité soit exclusivement connecté à un circuit SELV. Connecter le circuit d'autoprotection à un circuit de protection fonctionnant 24h/24.

3 Diagrammes illustrant le champ de détection

- Portée hyperfréquence
- Portée IRP
- Champ de détection courant illustré pour hauteur de montage de 3,7 m (12 pi) avec paramètres optiques réglés sur « I » (consultez la Section 10, Réglage du module optique).

4 Masquage du champ de détection

- Pour réduire la zone de couverture du détecteur, utilisez les feuilles de masquage fournies. Le kit de masquage contient deux feuilles masquage de 120° (4-1) et deux feuilles de masquage de 90° (4-2). Vous pouvez masquer:
- 90° (4-6)
 - 120° (4-3)
 - 180° (4-4)
 - 210° (4-7)
 - 240° (4-5)
 - 330°
- Placez les feuilles de masquage sur les bords externes du détecteur. N'ouvrez pas le détecteur pour y placer les feuilles de masquage à l'intérieur.
- Remarque :** Le masquage n'affecte pas la portée hyperfréquence.

5 Installation

1. Choisissez l'emplacement où vous installerez le détecteur. Installez-le à un endroit où le champ de détection sera presque inévitablement traversé en cas d'intrusion (5-1).
 2. Installez le détecteur à une hauteur de 3,7 m à 7,6 m (12 pi à 25 pi) au-dessus du sol (5-2).
 3. Avant d'ouvrir le détecteur, repérez la flèche (5-3) située sur le capot. Insérez un tournevis à tête plate dans la fente (5-4) entre le capot et le socle et tournez. Un côté du capot reste fixé au socle du détecteur.
 4. Facultatif : Retirez le capot du socle. Saisissez la partie supérieure du capot d'une main tout en tenant le socle de l'autre (5-5).
 5. Poussez doucement le socle vers un côté (5-6) en tournant et dégageant le socle du capot (5-7).
- Remarque :** Assurez-vous que les fils ne sont pas alimentés avant de les disposer.
6. Faites passer les fils à l'arrière du socle et par l'orifice central (5-8) ou par les ouvertures prévues pour le montage sur surface plane (5-9).
- Remarque :** N'installez pas sur une dalle de faux-plafond amovible à moins qu'elle ne soit intercalée entre le socle et une plaque à l'arrière.
7. Fixez le socle à l'aide des trous de montage (5-10, 5-11) en procédant de l'une des manières suivantes :
 - Selon les réglementations locales, fixez le socle directement sur la surface à l'aide de brides d'ancrage, de chevilles Molly ou d'écrous à oreilles.
 - Fixez le détecteur sur un coffret électrique.
 - Branchez le détecteur directement à de petites parties de la gaine électromagnétique (EMT), de 1,27 cm (0,5 po.) (assez court pour éviter que le détecteur ne se déplace). Pour l'EMT, utilisez l'ouverture prévue pour les fils (5-8).
- Remarque :** Utilisez les fentes de montage arrondies (5-11) pour faire tourner le détecteur de 60° maximum afin d'établir la meilleure portée.
8. Si une autoprotection plafond est nécessaire, retirez le montant (5-12) en tapant doucement dessus avec un marteau pour le séparer des trois languettes.
 9. Installez le montant au plafond en utilisant la vis #8 fournie (5-13).
 10. Remplacez le capot s'il a été retiré et fermez-le.
 11. Fixez tout l'assemblage avec la vis anti-sabotage fournie (5-14).
 12. Assurez la tenue des fils (5-15) à l'aide des frettes.

6 Câblage

Borne	Indication	Fonction
1	(-)	Alimentation : Utilisez au moins une paire de fils de 22 AWG (0,8 mm) entre l'appareil et la source d'alimentation.
2	(+)	
3	NO	Relais d'alarme
4	C	Relais d'alarme
5	NF	Relais d'alarme
6	T	Autoprotection
7	T	Autoprotection
8	M	Entrée de mémoire (consultez la Section 7, Autres fonctions)

9 Ecran LED

Voyant LED	Cause
Rouge en continu	Unité d'alarme
Jaune en continu	Activation hyperfréquence (test de marche)
Vert en continu	Activation IRP (test de marche)
Clignotement rouge	Période de réchauffement après la mise sous tension

10 Réglage du module optique

- Les zones IRP du détecteur sont divisées en trois groupes. Utilisez les boutons de réglage IRP (10-1) pour ajuster un à un chaque groupe verticalement afin d'assurer la meilleure couverture dans une pièce. Deux champs de détection sont illustrés (10-2).
- Si une couverture ciblée est requise pour cette partie de la zone, ajustez les modules optiques pour obtenir la protection requise.
- Par exemple (10-3) : Le détecteur est monté à 3,7 m (12 pi) du sol. Il se trouve à 6,1 m (20 pi) d'un mur et à 10,7 m (35 pi) du mur opposé. À l'aide de la Table de réglages du module optique (10-4), ajustez le module optique sur « D » pour la distance de 6,1 m (20 pi) et sur « I » pour la distance de 10,7 m (35 pi). Vous trouverez la portée maximale sur la colonne (10-5) et la hauteur de montage dans la partie (10-6).
- Remarque :** La portée illustrée sur le tableau (10-4) est la distance qui sépare le détecteur du bord extérieur du champ de détection.
- Deux champs de détection sont illustrés (10-3).

7 Autres fonctions

- Appliquez une tension de commande à la borne 8 pour activer la mémoire, le mode Nuit et le test de marche (consultez le Tableau 1). La tension de commande doit être comprise entre 6 Vcc et 18 Vcc.
- Utilisez une tension d'alimentation pour appliquer une tension de commande à la borne 8 (7-1).
- Vous pouvez aussi utiliser un panneau de contrôle ou une alimentation en courant continu comme tension de commande (7-2) :
- +6 Vcc à +18 Vcc = On (commutateur fermé)
 - 0 Vcc = Off (commutateur ouvert)
- Mode Jour** Désactive la mémoire d'alarme et permet au voyant LED (s'il est activé) de fonctionner normalement.
- Mémoire** Lorsque le détecteur est en mode Nuit, la mémoire est activée. Le détecteur stocke une alarme qu'il affichera lors du passage au mode Jour.
Remarque : Le cavalier LED doit être en position On. (8-5)
- Mode Nuit** Active la mémoire d'alarme et désactive le fonctionnement du voyant LED.
- Test de marche à distance** Active à distance les voyants LED à partir de la borne M pour effectuer un test de marche. Utilisez cette fonction lorsque le cavalier LED est en position Off (8-6).

Action	Tension de commande (borne M)	Cavalier LED
Activation du mode Nuit	Appliquée durant plus de 20 sec	On
Désactivation du mode Nuit et affichage de l'alarme stockée	Pas appliquée au mode Nuit	On
Réinitialisation de l'alarme stockée	Appliquée durant plus de 5 sec ou entrée du mode Nuit	On

8 Activation des voyants LED

Fonction	Réglage	Description
Fiches de sélection de la sensibilité IRP (8-1)	Faible (8-2)	Réglage recommandé pour la plupart des installations. Tolère les environnements extrêmes. Remarque : Le détecteur est livré en mode Faible sensibilité.
	Élevée (8-3)	Utilisez ce paramètre si vous avez besoin de davantage de sensibilité. Remarque : Ce paramètre est plus sensible aux changements de l'environnement qui peuvent causer de fausses alarmes.
Fiches LED On/Off (8-4)	On (8-5)	Fait fonctionner le voyant LED tricolore.
	Off (8-6)	Si vous ne désirez pas que les voyants LED signalent les divers états après la configuration et les tests de marche, placez-le en position Off. Aucun cavalier placé devant les fiches On ou Off ne désactive le voyant LED.

11 Test de marche

- Remarque :** Vérifiez que le cavalier LED est réglé sur On (8-5).
- Remarque :** Afin d'éviter les fausses alarmes, réglez la portée hyperfréquence (11-1) au minimum avant d'effectuer le test de marche.
1. Pour commencer le test de marche, patientez au moins deux minutes après la mise sous tension. Le voyant LED rouge clignote, puis le détecteur se stabilise quand aucun mouvement n'est détecté durant 2 secondes.
 2. Approchez-vous de la limite du champ de détection tout en observant le voyant LED (11-2). Le voyant LED s'allume sur le bord extérieur du champ de détection. Le voyant LED vert s'allume, identifiant le bord du champ IRP. Le voyant LED jaune s'allume, identifiant le bord du champ d'hyperfréquence. Le voyant LED rouge indique les alarmes dans les deux modes, hyperfréquence et IRP.
 3. Recommencez l'étape 2 en procédant dans différentes directions jusqu'à ce que vous ayez bien vérifié le champ de détection.
 4. Si la portée hyperfréquence requise n'est pas obtenue, augmentez le réglage de l'hyperfréquence (11-1) en tournant légèrement dans le sens des aiguilles d'une montre. Patientez 1 minute après avoir réglé la portée hyperfréquence et avant de poursuivre le test de marche.
- Remarque :** Ne réglez pas la portée hyperfréquence au-delà du réglage requis.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

DS9370 TriTech-Deckenmelder Passiver Infrarotmelder/Mikrowelleneinbruchsmelder- Installationsanleitungen



1 Technische Daten

- Abmessungen:** Höhe 8,9 cm
Durchmesser: 17,8 cm
- Versionen:** DS9370: Perlweiß
- Überwachungsbereich:** 360° x 21 m Durchmesser Überwachungsbereich bei Montage an 3,7 bis 7,6 m hohen Decken. Wenn der Melder auf 2,4 m (3 m) Höhe montiert wird, beträgt der Durchmesser des Überwachungsbereichs 12 m (15 m). Der Bereich besteht aus 69 Zonen, die in drei Gruppen mit jeweils 23 Zonen aufgeteilt sind. Jede Gruppe deckt ein Drittel des 360° umfassenden Überwachungsbereichs ab. Zudem verfügt jede Gruppe über eine Vertikaleinstellung für die präzise Ausrichtung der Bereiche.
- Eingangleistung:** 9 V DC bis 15 V DC, 19 mA (Ruhestrom), 39 mA (Alarmstrom) mit aktivierten LEDs und 39 mA Höchststrom. Es darf nur eine zugelassene begrenzte Stromquelle verwendet werden.
- Notstrom:** Es ist keine interne Notstrombatterie vorhanden. Eine externe Notstrombatterie verbraucht 29 mAh je Stunde.
- Empfindlichkeit:** Hohe und niedrige Einstellungen.
- Alarmrelais:** Geräuschlos betriebenes Form C-Relais Kontaktnennleistung bei max. 125 mA, 28 V DC, 3 W für ohmsche Belastungen. Die Kontakte übertragen bei Alarm 4 Sek. Lang.
Hinweis: Nicht mit kapazitiven oder induktiven Lasten verwenden.
- Sabotageschutz:** Der Sabotageschutzschalter ist ein Öffnerkontakt (bei geschlossener Abdeckung). Für die Oberflächenmontage ist ein Deckensabotageschutz vorgesehen. Kontaktnennleistung bei max. 28 V DC, 125 mA, 3 W.
- Überwachungsfunktionen:** **Mikrowelle:** Die Funktion des gesamten Schaltkreises dieses Untersystems wird ca. alle 4 Stunden überprüft.
PIR: Falls das Mikrowellen-Untersystem versagt, schaltet der Melder automatisch zum PIR-Untersystem um. Der Melder zeigt nur mit der grünen LED einen Alarm an und aktiviert das Alarmrelais.
- Temperaturbereich:** Der Lager- und Betriebstemperaturbereich ist -40°C bis +49°C.
- Mikrowellenfrequenzen:** 10,525 GHz
DS9370-C 10,588 GHz (nur für den Export)

2 Hinweise für die Installation

- Nicht geeignet für den Einsatz im Freien (2-1).
- Der Melder darf unter keinen Umständen installiert werden, wenn sich das PIR- oder Mikrowellensystem ständig im Alarmzustand befindet (LED eingeschaltet). Bei ordnungsgemäßer Installation ist die LED ausgeschaltet.
- Der Melder sollte nicht auf Außenwände gerichtet sein. Mikrowellen durchdringen nicht-metallische Wände.
- Den Melder nicht ins direkte oder indirekte Sonnenlicht weisen lassen (2-2).
- Den Melder nicht auf Glas oder andere Objekte mit starken Temperaturschwankungen richten (2-3, 2-4 und 2-5).
- Den Melder nicht auf rotierende Geräte richten (2-6).
- Die Montageoberfläche muss fest und vibrationsfrei sein. Falls der Raum über einer Zwischendecke als Umlufttraum für Heizungs-, Lüftungs- und Klimaanlage dient, müssen die Deckenfliesen gut befestigt werden.
- Zwischen Melder und Neonbeleuchtung sollte ein Abstand von wenigstens 0,3 m eingehalten werden.
- Achtung!**
Strom erst anlegen, wenn alle Anschlüsse vorgenommen und überprüft wurden. Drähte nicht im Melder aufwickeln.
- SELV**
- In einigen Ländern darf das Relais nur an einen SELV-Stromkreis (Sicherheits-Kleinspannungs-Stromkreis) angeschlossen werden.
 - In einigen Ländern darf der Sabotageschutzschalter nur einen SELV-Stromkreis angeschlossen werden. Schließen Sie den Sabotageschutz-Stromkreis an eine ständig aktive Schutzschaltung an.

3 Überwachungsbereiche

- Mikrowellenüberwachung
 - PIR-Überwachung
- Typischer Überwachungsbereich bei 3,7 m Montagehöhe mit optischer Einstellung auf „I“ (siehe Abschnitt 10 Einstellung des Optikmoduls).

4 Abdeckung des Überwachungsbereichs

- Mit den mitgelieferten Vorhangsmasken kann der Überwachungsbereich des Melders verringert werden. Der Vorhangsmaskensatz enthält zwei 120°- (4-1) und zwei 90°-Vorhangsmasken (4-2) Vorhangsmasken. Sie können einen Bereich von:
- 90° (4-6),
 - 120° (4-3),
 - 180° (4-4),
 - 210° (4-7),
 - 240° (4-5),
 - oder 330° abdecken.
- Die Vorhangsmasken müssen an der Außenseite des Melders angebracht werden. Der Melder darf nicht geöffnet werden, um die Vorhangsmasken innen anzubringen.

5 Montage

1. Wählen Sie einen Montageort. Installieren Sie den Sensor an einer Stelle, an der ein Einbrecher höchstwahrscheinlich den Überwachungsbereich durchqueren würde (5-1).
 2. Montieren Sie den Melder 3,7 m bis 7,6 m über dem Boden (5-2).
 3. An der Pfeilmarkierung (5-3) können Sie den Deckel des Melders abnehmen. Stecken Sie einen Senkkopf-Schraubendreher in die Aussparung (5-4) zwischen dem Deckel und drehen Sie den Schraubendreher. Eine Seite des Deckels ist an der Grundplatte des Melders befestigt.
 4. Optional: Nehmen Sie den Deckel von der Grundplatte ab. Ergreifen Sie die Oberseite des Deckels mit einer Hand und halten Sie die Grundplatte (5-5) mit der anderen Hand fest.
 5. Schieben Sie die Grundplatte (5-6) auf eine Seite. Drehen Sie die Grundplatte dabei zurück und weg vom Deckel (5-7).
- Hinweis: Vor dem Verlegen der Drähte müssen Sie sicherstellen, dass sie nicht unter Strom stehen.**
6. Verlegen Sie die Drähte bei Bedarf zur Rückseite der Grundplatte und durch das Loch in der Mitte (5-8) oder das Drahtloch für die Oberflächenmontage (5-9).
- Hinweis: Der Melder darf nur an abnehmbare Deckenfliesen angebracht werden, wenn ein Verbund aus Grundplatte, Deckenfliese und einer Ankerplatte hinter der Fliese hergestellt wird.**
7. Montieren Sie die Grundplatte mit den Montagelöchern (5-10, 5-11). Für die Montage bieten sich folgenden Optionen:
 - Je nach örtlichen Vorschriften muss die Grundplatte mit Ankern, Ankerschrauben oder Flügelmuttern direkt an der Oberfläche befestigt werden.
 - Montieren Sie den Melder an eine Elektrodose.
 - Schließen Sie den Melder direkt an kurze Längen Elektroschutzrohr (EMT) an (1,27 cm lang und kurz genug, um den Melder festzustellen). Verwenden Sie die Drahtöffnung für das Elektroschutzrohr (5-8).
- Hinweis:** In den gebogenen Montageschlitzen (5-11) kann der Melder um bis zu 60° gedreht werden, um einen optimalen Überwachungsbereich einzurichten.
8. Falls ein Deckensabotageschutz erforderlich ist, nehmen Sie den Sabotageschutzpfosten (5-12) ab. Klopfen Sie vorsichtig mit einem Hammer auf den Pfosten, um ihn von den drei Laschen zu lösen.
 9. Montieren Sie den Pfosten mit der mitgelieferten Schraube Nr. 8 (5-13) an der Decke.
 10. Bringen Sie den unter Umständen abgenommenen Deckel wieder an und schließen Sie ihn.
 11. Befestigen Sie den gesamten Bausatz mit der mitgelieferten Beschädigungsschutzschraube (5-14).
 12. Verwenden Sie die Kabelbinder (5-15) für Zugentlastung.

6 Verdrahtung

Klemme	Etikett	Funktion
1	(-)	Eingangleistung: Gerät und Stromquelle müssen mit einem wenigstens 0,8 mm dickes Drahtpaar verbunden sein.
2	(+)	
3	NO	Alarmrelais
4	C	Alarmrelais
5	Öffner	Alarmrelais
6	T	Sabotageschutz
7	T	Sabotageschutz
8	M	Speichereingang (siehe Abschnitt 7 Weitere Funktionen)

9 LED-Anzeige

LED	Ursache
Ständig Rot	Gerätealarm
Ständig Gelb	Mikrowellen-Aktivierung (Gehtest)
Ständig Grün	PIR-Aktivierung (Gehtest)
Blinken Rot	Aufwärmen nach dem Start

10 Einstellung des Optikmoduls

- Die PIR-Zonen des Melders sind in drei Gruppen aufgeteilt. Mit den PIR-Einstellknöpfen (10-1) kann jede Gruppe unabhängig vertikal eingestellt werden, um die optimale Überwachung eines Raums zu gewährleisten. Es werden zwei Überwachungsbereiche (10-2) gezeigt.
- Falls ein Teil des Bereichs gezielt überwacht werden soll, müssen die Optikmodule für den gewünschten Überwachungsbereich eingestellt werden.
- Zum Beispiel (10-3): Der Melder befindet sich 3,7 m über dem Fußboden. Der Abstand zu einer Wand beträgt 6,1 m und zur gegenüber liegenden Wand 10,7 m. Mit der Tabelle für die Anpassung des Optikmoduls (10-4) wird das Optikmodul für den 6,1 m Bereich auf „D“ und für den 10,7 m Bereich auf „I“ eingestellt. Siehe (10-5) für den Höchstbereich und (10-5) für die Montagehöhe.
- Hinweis:** Der in (10-4) gezeigte Bereich ist der Abstand vom Melder zur äußeren Grenze des Überwachungsbereichs.
- Es werden zwei Überwachungsbereiche gezeigt (10-3).

7 Weitere Funktionen

- Legen Sie eine Steuerspannung an Klemme 8 an, um Speicher, Nachtmodus und Gehtest zu aktivieren (Siehe Tabelle 1). Die Steuerspannung muss zwischen 6 V DC und 18 V DC liegen.
- Eine Steuerspannung ist mit einer Betriebsspannung an die Klemme 8 (7-1) anzulegen.
- Sie können auch eine Schalttafel oder ein externes DC-Netzteil als Steuerspannung einsetzen (7-2).
- +6 V DC bis +18 V DC = On (Ein - Schalter geschlossen)
 - 0 V DC = Off (Aus - Schalter geöffnet)
- Tagesmodus** Deaktivierung des Alarmspeichers und normaler Betrieb der aktivierten LED
- Speicher** Speicher wird aktiviert, wenn sich der Melder im Nachtmodus befindet. Der Melder speichert einen Alarm für die Anzeige, wenn er in den Tagesmodus umgeschaltet wird.
Hinweis: Die LED-Drahtbrücke muss auf ON (Ein) gesetzt sein (8-5).
- Nachtmodus** Aktiviert den Alarmspeicher und deaktiviert den LED-Betrieb.
- Ferngehtest** Für Gehtests können Sie die LED ferngesteuert von Klemme M aus aktivieren. Für diese Funktion muss die LED-Drahtbrücke auf Off (Aus) gesetzt sein (8-6).

Maßnahme	Steuerspannung (Klemme M)	LED-Drahtbrücke
Nachtmodus einschalten	Länger als 20 Sek. eingeschaltet	Ein
Ausschalten des Nachtmodus und Anzeige des gespeicherten Alarms	Aus vom Nachtmodus	Ein
Zurücksetzen des gespeicherten Alarms	Länger als 5 Sek. eingeschaltet oder Nachtmodus eingeben	Ein
Einschalten des Ferngehtests	Länger als 5 Sek. jedoch kürzer als 20 Sek. eingeschaltet	Aus
Ausschalten des Ferngehtests	Länger als 1 Sek. jedoch kürzer als 20 Sek. eingeschaltet	Aus

8 LED-Funktion

Funktion	Einstellung	Beschreibung
Auswahlstifte (8-1) für PIR-Empfindlichkeit	Niedrig (8-2):	Empfohlene Einstellung für die meisten Installationen. Umgebungsextreme werden toleriert Hinweis: Der Melder wird im Modus „Niedrige Empfindlichkeit“ versandt.
	Hoch (8-3):	Diese Einstellung ist für eine höhere Empfindlichkeit gedacht. Hinweis: In dieser Einstellung werden Umgebungsveränderungen eher festgestellt, was zu Fehlalarmen führen kann.
Ein-/Aus-Stifte der LED (8-4)	Ein (8-5)	Bedienung der dreifarbigem LED
	Aus (8-6)	Falls nach dem Einrichten keine LED-Anzeige gewünscht wird und die Gehtests abgeschlossen wurden, auf Aus stellen. Keine Drahtbrücke über Ein- oder Aus-Stifte deaktiviert die LED.

11 Gehtest

- Hinweis:** Stellen Sie sicher, dass die LED-Drahtbrücke auf ON (8-5) gesetzt ist.
- Hinweis:** Setzen Sie vor Beginn des Gehtests den Mikrowellenbereich (11-1) auf seine niedrigste Einstellung, um Fehlalarme zu vermeiden.
1. Warten Sie mindestens 2 Minuten nach dem Einschalten, bevor Sie mit dem Gehtest beginnen.
Die rote LED blinkt, bis sich der Melder stabilisiert hat und zwei Sekunden keine Bewegung erfasst hat.
 2. Beobachten Sie die LED, während Sie an die äußerste Grenze des Überwachungsbereichs gehen (11-2). Die LED leuchtet an der Außengrenze des Überwachungsbereichs auf.
Die grüne LED leuchtet auf und zeigt die Grenze des PIR-Überwachungsbereichs an.
Die gelbe LED leuchtet auf und zeigt die Grenze des Mikrowellen-Überwachungsbereichs an.
Die rote LED meldet Alarme im Mikrowellen- und PIR-Modus.
 3. Wiederholen Sie Schritt 2 aus verschiedenen Richtungen, bis Sie den Überwachungsbereich ausreichend überprüft haben.
 4. Falls der erforderliche Mikrowellenbereich nicht erreicht wird, erhöhen Sie die Mikrowelleneinstellung (11-1) durch leichtes Drehen nach links.
Warten Sie 1 Minute nach der Einstellung des Mikrowellenbereichs, bevor Sie mit dem Gehtest fortfahren.
- Hinweis:** Der Mikrowellenbereich darf nicht höher als erforderlich eingestellt werden.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

© 2007 Bosch Security Systems, Inc.
48781-01

Istruzioni di installazione del rilevatore a infrarossi passivi e del rilevatore a microonde antintrusione con montaggio a soffitto TriTech DS9370



1 Specifiche tecniche

Dimensioni: Altezza: 8,9 cm
Diametro: 17,8 cm

Versioni: DS9370: Bianco perla

Copertura: 360° con una copertura di 21 m di diametro quando montato su soffitti di altezza compresa tra 3,7 m e 7,6 m. È possibile raggiungere un'area di copertura di 12 m di diametro se il dispositivo viene montato a un'altezza di 2,4 m e di 15 m di diametro se il dispositivo viene montato a un'altezza di 3 m. L'area di copertura è composta da 69 zone suddivise in 3 gruppi di 23 zone. Ciascun gruppo copre un terzo dell'area di copertura di 360°. Inoltre, ciascun gruppo dispone di una regolazione verticale per un preciso allineamento dell'area di copertura.

Alimentazione: Da 9 Vcc a 15 Vcc, 19 mA a riposo, 39 mA in stato di allarme con i LED abilitati e 39 mA di corrente massimo.

Alimentazione di riserva: Nessuna batteria di riserva interna. È necessaria una capacità della batteria di riserva esterna di 29 mAh per ogni ora di funzionamento con alimentazione di riserva.

Sensibilità: Impostazione bassa ed elevata.

Relè di allarme: Relè Form "C" silenzioso. Contatti da 125 mA, 28 Vcc, 3 W massimo per carichi resistivi cc. I contatti passano alla condizione di allarme per un periodo di 4 secondi.

Nota: non utilizzare con carichi capacitivi o induttivi.

Tamper: L'interruttore tamper è normalmente chiuso (NC), con il coperchio nella sua sede. Viene fornito un tamper a soffitto per il montaggio su superficie. Contatti da 28 Vcc, 125 mA, 3 W massimo.

Funzioni di supervisione: **Microonde:** il funzionamento dell'intero circuito di questo sottosistema viene controllato ogni 4 ore circa.
PIR: il rilevatore utilizza per impostazione predefinita la protezione della tecnologia PIR se il sottosistema a microonde si guasta. Il rilevatore indica uno stato di allarme utilizzando solo il LED verde e attiva il relè di allarme.

Range della temperatura: Il range della temperatura di stoccaggio e di esercizio è compreso tra -40°C e +49°C.

Frequenze microonde: 10,525 GHz
DS9370-C: 10,588 GHz (solo esportazione)

2 Informazioni sull'installazione

Non adatto per uso esterno (2-1).

Non installare il rilevatore dove il sensore PIR o a microonde sono in costante allarme (LED ON). Quando l'installazione è corretta, il LED è spento (OFF).

Tenere lontano dal traffico esterno. L'energia delle microonde passa attraverso le pareti non metalliche.

Tenere lontano da fonti luminose dirette e indirette (2-2).

Tenere lontano da vetro o altri oggetti che cambiano rapidamente la temperatura (2-3, 2-4 e 2-5).

Tenere lontano da macchine rotanti (ventole) (2-6).

Montare il rilevatore su una superficie solida e antivibranti. Fissare i pannelli del controsoffitto se l'area al di sopra dei pannelli viene utilizzata come aria di recupero per i sistemi di riscaldamento, ventilazione aria condizionata (HVAC).

Non montare il rilevatore nel raggio di 0,3 m da apparecchiature fisse di luce fluorescente.

Avvertenza!
Attivare l'alimentazione solo dopo aver effettuato e controllato tutti i collegamenti. Non avvolgere cavi di lunghezza eccessiva nel rilevatore.

SELV

- In alcuni paesi è possibile collegare il relè esclusivamente a un circuito SELV (bassissima tensione di sicurezza).
- In alcuni paesi è possibile collegare l'interruttore tamper esclusivamente a un circuito SELV. Collegare il circuito di tamper a una zona 24 ore in centrale.

3 Area di copertura

- Copertura del sensore a microonde
- Copertura del sensore PIR

Tipica area di copertura per l'altezza di montaggio di 3,7 m con le regolazioni ottiche impostate su "I" (fare riferimento alla Sezione 10 Regolazione del modulo ottico).

4 Mascheramento dell'area di copertura

Per ridurre l'area di copertura del rilevatore, utilizzare le maschere in dotazione. Il kit delle maschere contiene due maschere di 120° (4-1) e due maschere di 90° (4-2). È possibile mascherare a:

- 90° (4-6),
- 120° (4-3),
- 180° (4-4),
- 210° (4-7),
- 240° (4-5)
- o 330°.

Posizionare le maschere sul lato esterno del rilevatore. Non aprire il rilevatore per inserire le maschere all'interno.

Nota: il mascheramento non influisce sulla copertura delle microonde.

5 Montaggio

1. Scegliere un'ubicazione per il montaggio. Installare il rilevatore in un luogo in cui sia probabile che l'intruso ne attraversi l'area di copertura (5-1).
2. Posizionare il rilevatore a un'altezza compresa tra 3,7 m e 7,6 m dal pavimento (5-2).
3. Per aprire il rilevatore, individuare la freccia (5-3) sul coperchio del rilevatore. Inserire un cacciavite a testa piatta nella cavità (5-4) tra il coperchio e la base e girare. Un lato del coperchio resta collegato alla base del rilevatore.
4. Opzionale: rimuovere il coperchio dalla base. Mantenere la parte superiore del coperchio con una mano reggendo la base con l'altra (5-5).
5. Spingere delicatamente la base su un lato (5-6) inclinandola all'indietro e staccandola dal coperchio (5-7).

Nota: assicurarsi che i cavi non siano alimentati prima di eseguire questa operazione.

6. Inserire i cavi nella parte posteriore della base e attraverso il foro centrale (5-8) oppure attraverso l'ingresso cavi per il montaggio su superficie (5-9).

Nota: non montare sui pannelli rimovibili del soffitto a meno che non venga creato un pannello a sandwich con la base, il pannello del soffitto e la piastra di supporto dietro il pannello.

7. Montare saldamente la base utilizzando i fori di montaggio (5-10, 5-11) e una delle seguenti opzioni:
 - in base alle normative locali, montare la base direttamente sulla superficie utilizzando ancore, dispositivi di fissaggio o dadi ad alette.
 - montare il rilevatore su una scatola elettrica.
 - collegare il rilevatore direttamente ai lati corti del tubo elettromagnetico (EMT) di 1,27 cm (abbastanza corto da evitare che il rilevatore si muova). Utilizzare l'ingresso cavi per il tubo EMT (5-8).

Nota: utilizzare le guide di montaggio curve (5-11) per ruotare il rilevatore fino a 60° in modo da ottenere la copertura migliore.

8. Se è necessario utilizzare un tamper a soffitto, rimuovere il montante del tamper aiutandosi con un martello per estrarlo dalle tre alette.
9. Montare il montante sul soffitto utilizzando la vite N° 8 in dotazione (5-13).
10. Inserire il coperchio, se è stato rimosso, e chiuderlo.
11. Fissare tutta l'apparecchiatura con la vite antivandalismo in dotazione (5-14).
12. Utilizzare le fascette per cavi (5-15) come serracavi.

6 Cablaggio

Morsetto	Etichetta	Funzione
1	(-)	Alimentazione: utilizzare una coppia di cavi di almeno 22 AWG (0,8 mm) tra l'unità e l'alimentatore.
2	(+)	
3	NO	Relè di allarme
4	C	Relè di allarme
5	NC	Relè di allarme
6	T	Tamper
7	T	Tamper
8	M	Ingresso memoria (fare riferimento alla Sezione 7 Altre funzioni)

9 Visualizzazione dei LED

LED	Cause
Fisso rosso	Allarme unità
Fisso giallo	Attivazione microonde (Walk Test)
Fisso verde	Attivazione PIR (Walk Test)
Lampeggiante rosso	Periodo di preparazione dopo l'accensione

10 Regolazione del modulo ottico

Le aree PIR del rilevatore sono divise in tre gruppi. Utilizzare le manopole di regolazione del PIR (10-1) per regolare ciascun gruppo verticalmente e fornire la copertura migliore in una stanza. Le figure illustrano due aree di copertura (10-2).

Se è necessario utilizzare una copertura personalizzata per una parte dell'area, regolare i moduli ottici per ottenere la corretta copertura.

Ad esempio (10-3): il rilevatore è stato montato a un'altezza di 3,7 m dal pavimento. La distanza da una delle pareti è di 6,1 m e dalla parete opposta di 10,7 m. Utilizzando la tabella delle regolazioni del modulo ottico (10-4), impostare il modulo ottico per il range di 6,1 m su "D" e il modulo ottico per 10,7 m su "I". Fare riferimento alla figura (10-5) per il range massimo e alla figura (10-6) per l'altezza di montaggio.

Nota: il range mostrato nella figura (10-4) rappresenta la distanza dal rilevatore all'estremità esterna dell'area di copertura.

La figura illustra due aree di copertura (10-3).

7 Altre funzioni

La memoria, la modalità Night e il Walk Test richiedono una tensione di controllo sul morsetto 8 per attivare queste funzioni (fare riferimento alla Tabella 1). La tensione di controllo deve essere compresa tra 6 Vcc e 18 Vcc.

Utilizzare una tensione di alimentazione per applicare la tensione di controllo al morsetto 8 (7-1).

Oppure, utilizzare un pannello di controllo o un alimentatore cc esterno come tensione di controllo (7-2):

- da +6 Vcc a +18 Vcc = ON (switch chiuso)
- 0 Vcc = OFF (switch aperto)

Modalità Day Disabilita la memoria di allarme e consente al LED (se attivato) di funzionare normalmente.

Memoria Quando il rilevatore è in modalità Night, la memoria si attiva. Il rilevatore memorizza la situazione di allarme e la visualizza quando viene attivata la modalità Day.
Nota: il ponticello del LED deve essere impostato su ON (8-5).

Modalità Night Abilita la memoria di allarme e disabilita il funzionamento del LED.

Walk Test remoto Abilita in remoto il funzionamento del LED dal morsetto M per il Walk Test. Utilizzare questa funzione quando il ponticello del LED è impostato su OFF (8-6).

Tabella 1: Attivazione delle modalità

Azione	Tensione di controllo (Morsetto M)	Ponticello del LED
Attivazione della modalità Night	ON per più di 20 secondi	ON
Disattivazione della modalità Night e visualizzazione dell'allarme memorizzato	OFF dalla modalità Night	ON
Ripristino dell'allarme memorizzato	ON per più di 5 secondi o attivazione della modalità Night	ON
Attivazione del Walk Test remoto	ON per più di 5 secondi ma per meno di 20 secondi	OFF
Disattivazione del Walk Test remoto	Disattivazione del Walk Test remoto	OFF

8 Funzionamento dei LED

Funzione	Impostazione	Descrizione
Pin di selezione della sensibilità PIR (8-1)	Bassa (8-2)	Impostazione consigliata per gran parte delle installazioni. Tollera condizioni ambientali estreme. Nota: il rilevatore viene fornito in modalità sensibilità bassa.
	Elevata (8-3)	Utilizzare questa impostazione se è necessario aumentare la sensibilità. Nota: questa impostazione è più sensibile ai cambiamenti ambientali che possono causare falsi allarmi.
Pin del LED ON/OFF (8-4)	ON (8-5)	Attiva il LED a tre colori.
	OFF (8-6)	Se si desidera che il LED venga disabilitato dopo l'impostazione e l'esecuzione dei Walk Test, impostare questa opzione su OFF. L'assenza di ponticelli tra i pin ON e OFF disabilita il LED.

11 Walk Test

Nota: assicurarsi che il ponticello del LED sia impostato su ON (8-5).

Nota: per evitare falsi allarmi, prima di cominciare il Walk Test impostare il range delle microonde (11-1) sul minimo.

1. Dopo l'accensione, attendere almeno 2 minuti prima di cominciare il Walk Test.

Il LED rosso lampeggia fino a quando il rilevatore non si stabilizza e non vengono rilevati movimenti per 2 secondi.

2. Osservare il LED mentre ci si dirige verso l'estremità dell'area di copertura (11-2). Il LED si illumina una volta giunti all'estremità esterna dell'area di copertura.

Il LED verde si illumina indicando il limite dell'area di copertura del sensore PIR.

Il LED giallo si illumina indicando il limite dell'area di copertura del sensore a microonde.

Il LED rosso indica gli allarmi in entrambe le modalità, PIR e a microonde.

3. Ripetere il passo 2 partendo da direzioni diverse fino a controllare adeguatamente tutta l'area di copertura.
4. Se non si raggiunge la copertura delle microonde desiderata, aumentare la regolazione delle microonde (11-1) girando leggermente la relativa manopola in senso orario. Attendere 1 minuto dopo aver regolato il range delle microonde prima di continuare il Walk Test.

Nota: non regolare il range delle microonde su valori più alti del necessario.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

Instruções de instalação do detector contra intrusos por Microondas/Infravermelhos passivos DS9370 TriTech Montagem no tecto



1 Especificações

Dimensões:	Altura: 8,9 cm (3,5") Diâmetro: 17,8 cm (7")
Versões:	DS9370: branco pérola
Cobertura:	Cobertura de diâmetro de 360° por 21 m (70 pés) quando montado em tectos com uma altura de 3,7 m (12 pés) a 7,6 m (25 pés). Está disponível um diâmetro de zona de cobertura de 12 m (40 pés) quando é montado a uma altura de 2,4 m (8 pés) e um diâmetro de 15 m (50 pés) a uma altura de 3 m (10 pés). A zona é composta por 69 zonas agrupadas em 3 conjuntos de 23 zonas cada. Cada conjunto cobre um terço da zona de cobertura de 360°. Cada conjunto possui igualmente um ajuste vertical para um alinhamento preciso do padrão.
Alimentação:	9 VCC a 15 VCC, 19 mA em espera, 39 mA em alarme com os LEDs activados e 39 mA de corrente máxima.
Alimentação de reserva:	Não existe uma bateria interna de reserva. É necessária uma capacidade de bateria externa de reserva de 29 mAh para cada hora de reserva necessária.
Sensibilidade:	Definição de baixa e elevada.
Relé do alarme:	Funcionamento silencioso do relé Form "C". Contactos com capacidade nominal de 125 mA, 28 VCC, máximo de 3 W para cargas resistivas CC. Os contactos mudam de estado aquando de um alarme durante um período de 4 segundos.
Tamper:	O interruptor do tamper está normalmente fechado (NF) com a tampa. Está incluído um tamper do tecto para montagem numa superfície. Contactos com capacidade nominal de 28 VCC, 125 mA, no máximo 3 W.
Características de supervisão:	Microondas: O funcionamento do circuito completo deste subsistema é verificado aproximadamente a cada 4 horas. PIR: o detector regressa por predefinição à tecnologia de protecção PIR se o subsistema de microondas falhar. O detector indica um alarme utilizando apenas o LED verde e activa o relé do alarme.
Intervalo de temperatura:	O intervalo da temperatura de armazenamento e funcionamento é de 40°C a +49°C (-40°F a + 120°F).
Frequências microondas:	10,525 GHz DS9370-C: 10,588 GHz (apenas exportação)

2 Notas de instalação

Não é adequado para utilização no exterior (2-1).
Nunca instale o detector onde o dispositivo PIR ou de microondas esteja em alarme constante (LED aceso). O LED está apagado quando o sistema estiver correctamente instalado.
Não aponte para o trânsito exterior. A energia das microondas passa através de paredes não metálicas.
Não aponte para a luz solar directa e indirecta (2-2).
Não aponte para vidros ou outros objectos que possam alterar rapidamente a respectiva temperatura (2-3, 2-4 e 2-5).
Não aponte para máquinas com peças móveis (ventoinhas) (2-6).

A superfície de montagem deve ser sólida e sem vibrações. Fixe bem os azulejos de tecto se a área acima dos azulejos for utilizada como um retorno de ar para sistemas de aquecimento, ventilação e ar condicionado (AVAC).

Evite montar o detector a menos de 0,3 m de quaisquer instalações de luzes fluorescentes.

Aviso!
Ligar a tensão apenas após terem sido efectuadas e inspeccionadas todas as ligações. Não empurrar fio excessivo para dentro do detector.

SELV
- Alguns países exigem que o relé seja ligado apenas a um circuito SELV (Tensão extrema inferior de segurança).
- Alguns países exigem que o interruptor do tamper seja ligado apenas a um circuito SELV. Ligue o circuito tamper a um circuito de protecção de 24 horas.

3 Zonas de cobertura

Cobertura por microondas

Cobertura por PIR

Zona de cobertura típica apresentada para uma altura de montagem de 3,7 m (12 pés) com as regulações ópticas definidas para "I" (consulte a Secção 10 Regulação do módulo óptico).

4 Máscaras da zona de cobertura

Para reduzir a zona de cobertura do detector, utilize as máscaras fornecidas. O kit de máscaras contém duas máscaras de 120° (4-1) e duas de 90° (4-2). Pode tapar a:

- 90° (4-6),
- 120° (4-3),
- 180° (4-4),
- 210° (4-7),
- 240° (4-5)
- ou 330°.

Coloque as máscaras no exterior do detector. Não abra o detector e coloque as máscaras no interior.

Nota: as máscaras não afectam a cobertura por microondas.

5 Montaggio

- Scegliere un'ubicazione per il montaggio. Installare il rilevatore in un luogo in cui sia probabile che l'intruso ne attraversi l'area di copertura (5-1).
- Posizionare il rilevatore a un'altezza compresa tra 3,7 m e 7,6 m dal pavimento (5-2).
- Per aprire il rilevatore, individuare la freccia (5-3) sul coperchio del rilevatore. Inserire un cacciavite a testa piatta nella cavità (5-4) tra il coperchio e la base e girare. Un lato del coperchio resta collegato alla base del rilevatore.
- Opzionale: rimuovere il coperchio dalla base. Mantenere la parte superiore del coperchio con una mano reggendo la base con l'altra (5-5).
- Spingere delicatamente la base su un lato (5-6) inclinandola all'indietro e staccandola dal coperchio (5-7).

Nota: assicurarsi che i cavi non siano alimentati prima di eseguire questa operazione.

- Inserire i cavi nella parte posteriore della base e attraverso il foro centrale (5-8) oppure attraverso l'ingresso cavi per il montaggio su superficie (5-9).

Nota: non montare sui pannelli rimovibili del soffitto a meno che non venga creato un pannello a sandwich con la base, il pannello del soffitto e la piastra di supporto dietro il pannello.

- Montare saldamente la base utilizzando i fori di montaggio (5-10, 5-11) e una delle seguenti opzioni:
 - in base alle normative locali, montare la base direttamente sulla superficie utilizzando ancore, dispositivi di fissaggio o dadi ad alette.
 - montare il rilevatore su una scatola elettrica.
 - collegare il rilevatore direttamente ai lati corti del tubo elettromagnetico (EMT) di 1,27 cm (abbastanza corto da evitare che il rilevatore si muova). Utilizzare l'ingresso cavi per il tubo EMT (5-8).

Nota: utilizzare le guide di montaggio curve (5-11) per ruotare il rilevatore fino a 60° in modo da ottenere la copertura migliore.

- Se è necessario utilizzare un tamper a soffitto, rimuovere il montante del tamper aiutandosi con un martello per estrarlo dalle tre alette.
- Montare il montante sul soffitto utilizzando la vite N° 8 in dotazione (5-13).
- Inserire il coperchio, se è stato rimosso, e chiuderlo.
- Fissare tutta l'apparecchiatura con la vite antivandalismo in dotazione (5-14).
- Utilizzare le fascette per cavi (5-15) come serracavi.

6 Cablagem

Terminal	Símbolo	Função
1	(-)	Alimentação: Utilize pelo menos um par de fios 22 AWG (0,8 mm) entre a unidade e a fonte de alimentação.
2	(+)	
3	NA	Relé do alarme
4	C	Relé do alarme
5	NF	Relé do alarme
6	T	Tamper
7	T	Tamper
8	M	Entrada de memória (consulte a Secção 6, Outras funções)

9 Visualização dos LEDs

LED	Causa
Vermelho fixo	Alarme da unidade
Amarelo fixo	Activação das microondas (teste de passagem)
Verde fixo	Activação PIR (teste de passagem)
Vermelho a piscar	Período de aquecimento após o arranque

10 Regulação do módulo óptico

As zonas PIR do detector estão divididas em três grupos. Utilize os manipuladores de regulação PIR (10-1) para regular independentemente cada grupo na vertical e proporcionar a melhor cobertura numa divisão. São apresentadas duas zonas de cobertura (10-2).

Se é necessária uma cobertura específica para parte da zona, regule os módulos ópticos para a cobertura correcta.

Por exemplo, (10-3): O detector está montado a uma altura de 3,7 m. A distância a uma parede é de 6,1 m (20 pés) e de 10,7 (35 pés) m à parede oposta. Utilizando a Tabela de regulações do módulo óptico (10-4), defina o módulo óptico do intervalo de 6,1 m (20 pés) para "D" e o módulo óptico de 10,7 m (35 pés) para "I". Consulte (10-5) para conhecer o intervalo máximo e (10-6) para a altura de montagem.

Nota: o intervalo apresentado em (10-4) é a distância do detector para a extremidade exterior da zona de cobertura.

São apresentadas duas zonas de cobertura (10-3).

7 Altre funzioni

La memoria, la modalità Night e il Walk Test richiedono una tensione di controllo sul morsetto 8 per attivare queste funzioni (fare riferimento alla Tabella 1). La tensione di controllo deve essere compresa tra 6 Vcc e 18 Vcc.

Utilizzare una tensione di alimentazione per applicare la tensione di controllo al morsetto 8 (7-1).

Oppure, utilizzare un pannello di controllo o un alimentatore cc esterno come tensione di controllo (7-2):

- da +6 Vcc a +18 Vcc = ON (switch chiuso)
- 0 Vcc = OFF (switch aperto)

Modalità Day Disabilita la memoria di allarme e consente al LED (se attivato) di funzionare normalmente.

Memoria Quando il rilevatore è in modalità Night, la memoria si attiva. Il rilevatore memorizza la situazione di allarme e la visualizza quando viene attivata la modalità Day.
Nota: il ponticello del LED deve essere impostato su ON. (8-5)

Modalità Night Abilita la memoria di allarme e disabilita il funzionamento del LED.

Walk Test remoto Abilita in remoto il funzionamento del LED dal morsetto M per il Walk Test. Utilizzare questa funzione quando il ponticello del LED è impostato su OFF (8-6).

Tabella 1: Attivazione delle modalità

Azione	Tensione di controllo (Morsetto M)	Ponticello del LED
Attivazione della modalità Night	ON per più di 20 secondi	ON
Disattivazione della modalità Night e visualizzazione dell'allarme memorizzato	OFF dalla modalità Night	ON
Ripristino dell'allarme memorizzato	ON per più di 5 secondi o attivazione della modalità Night	ON
Attivazione del Walk Test remoto	ON per più di 5 secondi ma per meno di 20 secondi	OFF
Disattivazione del Walk Test remoto	Disattivazione del Walk Test remoto	OFF

8 Funcionamento do LED

Função	Definição	Descrição
Pinos da selecção da sensibilidade PIR (8-1)	Low (baixa) (8-2)	A definição recomendada para a maior parte das instalações. Tolera as condições extremas do ambiente. Nota: o detector é fornecido em modo de sensibilidade baixa.
	High (elevada) (8-3)	Utilize esta definição se for necessária mais sensibilidade. Nota: Esta definição é mais sensível às alterações ambientais que podem provocar falsos alarmes.
Pinos de Ligar/Desligar o LED (8-4)	On (8-5)	Comanda o LED tricolor.
	Off (8-6)	Se a indicação do LED não for pretendida após a configuração e testes de passagem terem sido concluídos, coloque na posição Off. Se não existir um comutador nos pinos de ligar ou desligar, o LED fica desactivado.

11 Teste de passagem

Nota: Certifique-se de que o comutador do LED está na posição on (8-5).

Nota: para evitar falsos alarmes, regule o alcance do dispositivo de microondas (11-1) para o mínimo antes de iniciar o teste de passagem.

- Aguarde pelo menos 2 minutos após ligar para iniciar o teste de passagem.
O LED vermelho pisca até que o detector estabilize e não sejam detectados movimentos durante 2 segundos.
- Observe o LED à medida que caminha para a extremidade mais afastada da zona (11-2). O LED acende-se na extremidade exterior da zona de cobertura.

Acende-se o LED verde, identificando a extremidade da zona do PIR.

Acende-se o LED amarelo, identificando a extremidade da zona do dispositivo de microondas.

Acende-se o LED vermelho, que indica um alarme no modo microondas e PIR.

- Repita o Passo 2 a partir de diferentes direcções até que verifique de forma adequada a zona de cobertura.
- Se o alcance de microondas necessário não for obtido, aumente a regulação do dispositivo de microondas (11-1) rodando ligeiramente no sentido dos ponteiros do relógio. Aguarde 1 minuto após regular o alcance de microondas antes de continuar o teste de passagem.

Nota: Não regule o alcance de microondas para um valor maior do que o necessário.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

© 2007 Bosch Security Systems, Inc.
48781-01

Instrucciones de instalación del detector de intrusión por infrarrojos pasivos/microondas TriTech de montaje de techo DS9370



1 Especificaciones

Dimensiones:	Altura: 8,9 cm (3,5 pulg.) Diámetro: 17,8 cm (7 pulg.)
Versiónes:	DS9370: blanco perla
Cobertura:	Diámetro de cobertura de 360° por 21 m (70 pies) montado o de 3,7 m (12 pies) a 7,6 m (25 pies) en techos altos. El dispositivo tiene un diámetro de área de cobertura de 12 m (40 pies) cuando está montado a 2,4 m (8 pies) y un diámetro de 15 m (50 pies) a una altura de 3 m (10 pies). El patrón está formado por 69 zonas agrupadas en 3 grupos de 23 zonas. Cada grupo cubre un tercio del patrón de cobertura de 360°. Cada grupo también tiene un ajuste vertical para la alineación precisa de patrón.
Alimentación:	9 Vcc a 15 Vcc, 19 mA en reposo, 39 mA en alarma con los LEDs activados y 39 mA de corriente máxima.
Alimentación en reposo:	No incorpora batería interna en reposo. Se requiere una capacidad de batería externa en reposo de 29 mAh por cada hora de reposo necesaria.
Sensibilidad:	Ajustes para sensibilidad baja y alta.
Relé de alarma:	Relé Form "C" de funcionamiento silencioso. Contactos especificados a 125 mA, 28 Vcc, 3 W de máximo para cargas resistivas de CC. Los contactos transfieren la alarma durante 4 seg.
Bucle de antisabotaje:	Interruptor de bucle antisabotaje normalmente cerrado (NC) cubierto. Se incluye un bucle antisabotaje de techo para el montaje en superficies. Contactos especificados a 28 Vcc, 125 mA, 3 W de máximo.
Características de supervisión:	Microondas: El funcionamiento completo del circuito de este subsistema se comprueba cada 4 h aproximadamente. Infrarrojos pasivos: Si el subsistema de microondas falla, el detector cambia automáticamente a la protección de tecnología de infrarrojos pasivos. El detector indica una alarma utilizando solamente el LED verde y activa el relé de alarma.
Rango de temperatura:	El rango de almacenamiento y de funcionamiento es de -40°C a +49°C (-40°F a +120°F).
Frecuencias microondas:	10,525 GHz DS9370-C: 10,588 GHz (para exportación únicamente).

2 Consejos de instalación

El aparato no debe instalarse en el exterior (2-1).

Nunca instale el detector en lugares en los que los infrarrojos pasivos o las microondas estén en alarma constante (LED encendido). El LED se apaga cuando el detector está correctamente instalado.

No oriente el dispositivo hacia la actividad exterior. La energía microondas atraviesa las paredes no metálicas.

No oriente el dispositivo hacia luz solar directa e indirecta (2-2).

No oriente el dispositivo hacia cristales u otros objetos que puedan cambiar rápidamente de temperatura (2-3, 2-4 y 2-5).

No oriente el dispositivo hacia mecanismos giratorios (ventiladores) (2-6).

Monte el detector sobre una superficie sólida y sin vibraciones. Asegure los azulejos de los techos abuhardillados si la zona que se encuentra sobre los azulejos se utiliza como retorno de aire para los sistemas de calefacción, ventilación o aire acondicionado (HVAC).

Evite montar el detector a menos de 0,3 m (1 pie) de instalaciones de luz fluorescente.

¡Advertencia!

No conecte la alimentación hasta que se hayan realizado e inspeccionado todas las conexiones. No enrolle el cable sobrante dentro del detector.

SELV

- En algunos países, los relés deben conectarse únicamente a circuitos de seguridad para voltajes muy bajos (SELV).
- En algunos países es obligatorio que el interruptor de bucle de antisabotaje esté conectado únicamente a circuitos de seguridad para voltajes muy bajos (SELV). Conecte el circuito de bucle de antisabotaje a un circuito de protección 24 horas.

3 Patrones de cobertura

- Cobertura de microondas
- Cobertura de infrarrojos pasivos

Patrón de cobertura típico para una altura de montaje de 3,7 m (12 pies) con ajustes ópticos fijados en "I" (consulte la Sección 10 Ajuste del módulo óptico).

4 Enmascaramiento del patrón de cobertura

Para reducir el área de cobertura del detector, utilice las máscaras provistas. El kit de enmascaramiento contiene dos máscaras de 120° (4-1) y dos de 90° (4-2). Puede enmascarar:

- 90° (4-6),
- 120° (4-3),
- 180° (4-4),
- 210° (4-7),
- 240° (4-5)
- o 330°.

Sitúe las máscaras en la parte exterior del detector. No abra el detector y sitúe las máscaras en el interior.

Nota: El enmascaramiento no afecta a la cobertura de microondas.

5 Montaje

1. Seleccione una ubicación para el montaje. Coloque el sensor donde sea más probable que un intruso cruce el patrón de cobertura (5-1).
 2. Sitúe el detector de 3,7 m a 7,6 cm (12 pies a 25 pies) del suelo (5-2).
 3. Para abrir el detector, busque la flecha (5-3) situada en la tapa del detector. Introduzca un destornillador de cabeza plana en el hueco (5-4) que hay entre la tapa y la base y gírelo. Una parte de la tapa permanece unida a la base del detector.
 4. Opcional: Retire la tapa de la base. Agarre la parte superior de la tapa con una mano mientras sujeta la base con la otra (5-5).
 5. Empuje suavemente la base hacia un lado (5-6) mientras la gira hacia atrás y hacia afuera de la tapa (5-7).
- Nota:** Asegúrese de que todos los cables están desactivados antes de enrutarlos.
6. Enrute el cableado hacia la parte posterior de la base y a través del orificio central (5-8) o de los preorificios de cableado adecuados para el montaje en superficie (5-9).
- Nota:** No realice el montaje sobre azulejos de techo a no ser que se hayan intercalado la base, el azulejo del techo y la placa trasera detrás del azulejo.
7. Monte la base firmemente utilizando los orificios de montaje (5-10, 5-11) y una de las opciones siguientes:
 - Monte la base directamente en la superficie por medio de anclajes, tornillos de sujeción o palomillas, según las regulaciones locales.
 - Monte el detector sobre una caja eléctrica.
 - Conecte el detector directamente a longitudes cortas de tubos electromagnéticos (EMT), 1,27 cm (0,5 pulg.) (suficientemente cortas como para evitar el movimiento del detector). Utilice el preorificio de cableado para el EMT (5-8).
- Nota:** Utilice las ranuras de montaje curvas (5-11) para rotar el detector hasta 60° y establecer la mejor cobertura posible.
8. Si fuera necesario un bucle de antisabotaje de techo, retire la fijación de bucle de antisabotaje (5-12) golpeándolo suavemente con un martillo para despegarlo de las tres pestañas.
 9. Utilice el tornillo nº 8 provisto para montar la fijación en el techo (5-13).
 10. Si había quitado la tapa, vuelva a colocarla y ciérrela.
 11. Asegure el conjunto con el tornillo anti-vandalismo provisto (5-14).
 12. Utilice los anclajes de plástico (5-15) para liberar tensión.

6 Conexión

Terminal	Etiqueta	Función
1	(-)	Alimentación: Utilice un par de cables de por lo menos 22 AWG (0,8 mm) entre la unidad y la fuente de alimentación.
2	(+)	
3	NO	Relé de alarma
4	C	Relé de alarma
5	NC	Relé de alarma
6	T	Bucle de antisabotaje
7	T	Bucle de antisabotaje
8	M	Entrada de memoria (consulte la Sección 7 Otras características)

7 Otras características

La memoria, el modo noche y la prueba de paseo requieren un voltaje de control en la terminal 8 para su activación (consulte la Tabla 1). El voltaje de control debe estar entre 6 Vcc y 18 Vcc.

Utilice el voltaje de alimentación para aplicar un voltaje de control a la terminal 8 (7-1).

También puede utilizar un panel de control o una fuente de alimentación de CC externa como voltaje de control (7-2):

- +6 Vcc a +18 Vcc = Encendido (interruptor cerrado)
- 0 Vcc = Apagado (interruptor abierto)

Modo día Desactiva la memoria de alarma y permite que el LED (si está activado) funcione normalmente.

Memoria Cuando el detector está en modo noche, la memoria se activa. El detector almacena una alarma para mostrarla al cambiar al modo día.
Nota: El interruptor del LED debe estar en la posición de encendido. (8-5).

Modo noche Activa la memoria de alarma y desactiva el funcionamiento del LED.

Prueba de paseo remota Activa el funcionamiento del LED desde el terminal M para la prueba de paseo. Utilice esta opción cuando el interruptor del LED esté en la posición de apagado (8-6).

Acción	Voltaje de control (Terminal M)	Interruptor del LED
Activar el modo noche	Encendido durante más de 20 segundos	Encendido
Apagar el modo noche y mostrar la alarma almacenada	Apagado del modo noche	Encendido
Restablecer la alarma almacenada	Encendido durante más de 5 seg. o entra en modo noche	Encendido
Activar la prueba de paseo remota	Encendido más de 5 segundos pero menos de 20.	Apagado
Apagar la prueba de paseo remota	Encendido más de 1 segundo pero menos de 20.	Apagado

8 Funcionamiento del LED

Característica	Ajuste	Descripción
Clavijas de selección de la sensibilidad de los infrarrojos pasivos (8-1)	Baja (8-2):	Ajuste recomendado para la mayoría de las instalaciones. Tolera condiciones ambientales extremas. Nota: El detector se sirve en modo de baja sensibilidad.
	Alta (8-3):	Utilice este ajuste si necesita más sensibilidad. Nota: Este ajuste es más sensible a los cambios ambientales que pueden producir falsas alarmas.
Clavijas de activación/desactivación de los LEDs (8-4)	Encendido (8-5)	Activa el LED tricolor.
	Apagado (8-6)	Si no desea la indicación de los LEDs tras completar los ajustes y la prueba de paseo, mueva la clavija a la posición de apagado. Si no hay ningún interruptor en las clavijas de activación o desactivación, el LED se desactiva.

9 Visualización de los LED

LED	Causa
Rojo fijo	Alarma de la unidad
Amarillo fijo	Activación de microondas (prueba de paseo)
Verde fijo	Activación de infrarrojos pasivos (prueba de paseo)
Rojo parpadeante	Periodo de calentamiento después del encendido

10 Ajuste del módulo óptico

Las zonas de infrarrojos pasivos del detector están divididas en tres grupos: Utilice los botones de ajuste de los infrarrojos pasivos (10-1) para ajustar de forma independiente cada grupo verticalmente y proporcionar la mejor cobertura posible dentro de una habitación. Se muestran dos patrones de cobertura (10-2).

Si se requiere una cobertura específica de parte del área, ajuste los módulos ópticos para conseguirla.

Por ejemplo (10-3): El detector está montado a 3,7 m (12 pies) del suelo. La distancia a una de las paredes es de 6,1 m (20 pies) y de 10,7 m (35 pies) a la pared opuesta. Utilice la Tabla de ajustes del módulo óptico (10-4) para fijar el módulo óptico para el rango de 6,1 m (20 pies) a "D" y el módulo óptico para el de 10,7 m (35 pies) a "I". Consulte (10-5) para ver el rango máximo y (10-6) para la altura de montaje.

Nota: El rango mostrado en (10-4) es la distancia que existe desde el detector hasta el extremo exterior del rango de cobertura.

Se muestran dos patrones de cobertura. (10-3)

11 Prueba de paseo

Nota: Asegúrese de que el interruptor del LED está en la posición de encendido (8-5).

Nota: Para evitar alarmas falsas, ajuste el rango de microondas (11-1) al mínimo antes de comenzar la prueba de paseo.

1. Espere al menos 2 minutos después del encendido para comenzar la prueba de paseo.

El LED rojo parpadea hasta que el detector se estabiliza y no se detecta movimiento durante 2 segundos.
 2. Observe el LED mientras camina hacia el extremo del patrón (11-2). El LED se enciende en el extremo exterior del rango de cobertura.

El LED verde se ilumina identificando el extremo del patrón de infrarrojos pasivos.

El LED amarillo se ilumina identificando el extremo del patrón de microondas.

El LED rojo indica alarmas en los modos de microondas y de infrarrojos pasivos.
 3. Repita el paso 2 desde distintas direcciones hasta verificar el patrón de cobertura.

El LED verde se ilumina identificando el extremo del patrón de infrarrojos pasivos.
 4. Si no consigue la cobertura de microondas deseada, aumente el ajuste de microondas (11-1) girándolo ligeramente en el sentido de las agujas del reloj. Espere 1 min después de ajustar el rango de microondas antes de continuar con la prueba de paseo.
- Nota:** No ajuste el rango de microondas más de lo necesario.

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

DS9370 TriTech 顶式安装 被动红外线探测器/微波入侵探测器安装说明



1 规格

- 尺寸：高度：3.5英寸（8.9厘米）
直径：7英寸（17.8厘米）
- 版本：DS9370：乳白色
- 覆盖范围：安装在12英尺（3.7米）至25英尺（7.6米）高度的天花板上时，可获得360° x 直径70英尺（21米）的覆盖范围。安装高度为8英尺（2.4米）和10英尺（3米）时，可分别获得直径为40英尺（12米）和50英尺（15米）的覆盖范围。覆盖区域由69个区组成，共分为三组，每组包括23个区。每组覆盖360°覆盖区域的三分之一面积。每组还有一个纵向调节装置，用于精确地校准覆盖区域。
- 输入功率：9 VDC至15 VDC、19 mA备用电流、39 mA警报电流（LED启用）和39 mA最大电流。
- 备用电源：无内装备用电池。每小时备用时间要求有一节功率为29 mAh的外装备用电池。
- 敏感度：低和高设定值。
- 警报继电器：无声操作Form “C” 继电器。直流电阻负荷的接点最高额定值为125 mA、28 VDC、3 W。接点传输警报的时间为4秒。
- 备注：请勿在电容性或电感性负荷上使用。
- 动态传感：动态传感开关通常关闭（NC），盖板盖上。随附一个顶式动态传感开关，用于平面安装。接点最高额定值为28 VDC、125 mA、3 W。
- 监测功能：微波：每隔约四小时对本子系统的完整电路操作进行一次检查。
- PIR：如果微波子系统发生故障，探测器会自动使用PIR技术保护。探测器仅使用绿色LED发出警报指示，并激活警报继电器。
- 温度范围：储存和操作范围为 -40oF 至 +120oF（-40° C 至 +49° C）。
- 微波频率：10,525 GHz DS9370-C；10,588 GHz（仅限输出）

2 安装注意事项

- 不适合户外使用（2-1）。
- 切勿在PIR或微波经常处于警报状态（LED打开）的位置安装探测器。适当安装后，LED关闭。
- 请勿朝向室外有车辆经过的方向。微波能量可穿透非金属墙壁。
- 请勿朝向直接和间接日光（2-2）。
- 请勿朝向玻璃或温度会急剧变化的其他物体（2-3、2-4和2-5）。
- 请勿朝向旋转的机器（电扇）（2-6）。
- 将探测器安装在稳固且不会振动的平面上。如果吊顶式饰板上用作暖气、通风和空调（HVAC）系统的回风口，固定吊顶式饰板。
- 避免将探测器安装在位于任何荧光灯装置1英尺（0.3米）范围内的位置。
- 警告！
仅限在所有连接均完成并检查后再接通电源。请勿将多余的电线卷起放置在探测器中。
- SELV
- 有些国家要求继电器必须与安全极低电压（SELV）电路连接。
 - 有些国家要求动态传感开关必须与SELV电路连接。将动态传感电路与二十四小时保护电路连接。

3 覆盖区域

- 微波覆盖范围
- PIR覆盖范围

所显示的典型覆盖区域为12英尺（3.7米）安装高度，光学调节装置设在“1”（请参阅第九节：光学模块调节）。

4 覆盖区域掩蔽

欲缩小探测器的覆盖范围，请使用随附的掩模。掩蔽材料包含两个120°（4-1）和两个90°（4-2）掩模。您可以遮蔽：

- 90°（4-6）、
- 120°（4-3）、
- 180°（4-4）、
- 210°（4-7）、
- 240°（4-5）
- 或330°

视角。将掩模放置在探测器外部。请勿打开探测器并将掩模放在探测器内部。

备注：使用掩模不会影响微波覆盖范围。

5 安装

- 选择一个安装位置。在入侵者最可能穿过覆盖区域的位置安装探测器（5-1）。
 - 将探测器安装在高出地面12英尺至25英尺（3.7米至7.6米）的位置（5-2）。
 - 欲打开探测器，找到探测器盖板上的箭头（5-3）。在盖板和底座之间的凹槽（5-4）内插入一把平头螺丝刀并旋转。盖板的一面依然与探测器底座相连。
 - 供选用：从底座上取下盖板。用一只手抓住盖板顶端，同时用另一只手握紧底座（5-5）。
 - 轻轻地底座推向一侧（5-6），同时将底座朝后方与盖板相反的方向转动（5-7）。
- 备注：布线前核实所有线路均已切断电源。
- 必要时将电线经过中心孔（5-8）或平面安装电线入口（5-9）穿至底座背面。
- 备注：请勿在可移动天花板饰板上安装，除非用安装底座、天花板饰板和一块背板做成一个三层结构。
- 使用安装孔（5-10、5-11）遵循下列一种方法牢固安装底座：
 - 按照当地的规定，用锚钉、螺帽或蝶形螺母直接在平面上安装底座。
 - 在接线盒上安装探测器。
 - 将探测器直接连接在电磁管（EMT）短插入段，0.5英寸（1.27厘米）（必须很短，以防探测器移动）。请使用电线入口插入电磁管（EMT）（5-8）。
- 备注：使用弧形安装槽（5-11）旋转探测器，最多可旋转60°，建立最佳覆盖范围。
- 如果需要使用顶式动态传感开关，取下动态传感柱（5-12），方法是用锤子轻轻地敲打，使动态传感柱从三个卡片中脱落。
 - 用随附的8号螺钉（5-13）将动态传感柱安装在天花板上。
 - 如果盖板取下，装上盖板并盖上。
 - 用随附的放损螺钉（5-14）固定整个装置。
 - 使用电缆固定卡（5-15）减轻拉力。

6 布线

终端	标签	功能
1	(-)	I输入功率：在装置和电源之间至少使用一对22 AWG（0.8 mm）电线。
2	(+)	
3	NO	警报继电器
4	C	警报继电器
5	NC	警报继电器
6	T	动态传感
7	T	动态传感
8	M	记忆体输入（请参阅“第六节：其他功能”）

9 LED显示

LED	原因
持续红色	装置警报
持续黄色	微波激活（走动测试）
持续绿色	PIR激活（走动测试）
闪烁红色	电源启动后的预热阶段

10 光学模块调节

探测器的PIR区分为三组。使用PIR调节旋钮（10-1）纵向单独调节每个组，提供室内最佳覆盖范围。显示两个覆盖区域（10-2）。

如果需要将部分区域包括在目标覆盖范围内，调节光学模块，获得正确的覆盖范围。

例如（10-3）：探测器安装在高出地面12英尺（3.7米）的位置。与一面墙的距离为20英尺（6.1米），与对面墙的距离为35英尺（10.7米）。使用“光学模块调节表”（10-4）将20英尺（6.1米）范围的光学模块设为“D”，将35英尺（10.7米）范围的光学模块设为“1”。请参阅（10-5）中的最大范围和（10-6）中的安装高度。

备注：（10-4）显示的范围是探测器与覆盖区域外侧的距离。

显示两个覆盖区域。（10-3）

7 其他功能

至于记忆体、夜间模式和行走测试，8号终端必须有控制电压才能激活这些功能（请参阅表1）。控制电压必须在6 VDC和18 VDC之间。

使用电源电压为8号终端提供控制电压（7-1）。

或者将控制面板或外部直流电源用作控制电压

- （7-2）：
- +6 VDC 至 +18 VDC = 打开（开关关闭）
 - 0 VDC = 关闭（开关打开）

日间模式 禁用警报记忆体，允许LED（如激活）正常操作。

记忆体 当探测器位于“夜间模式”时，记忆体激活。转换为“日间模式”时，探测器储存供显示的警报。
备注：LED跨接线必须设在“打开”位置。（8-5）

夜间模式 启用警报记忆体，并禁用LED操作。

远程走动测试 从终端M远程启动LED操作，进行走动测试。当LED跨接线设在“关闭”位置（8-6）时，使用该功能。

表1：模式转换

行动	控制电压（终端M）	LED跨接线
打开“夜间模式”	打开超过20秒	打开
关闭“夜间模式”，并显示储存警报	从“夜间模式”关闭	打开
重置储存警报	打开超过5秒或进入“夜间模式”	打开
打开“远程走动测试”	打开超过5秒，但不足20秒	关闭
关闭“远程走动测试”	打开超过1秒，但不足20秒	关闭

8 LED操作

功能	设定值	说明
PIR敏感度选择插头（8-1）	低（8-2）	建议大部分安装使用的设定值。可在极端环境状况下使用。 备注：提供的探测器为低敏感度模式。
	高（8-3）	如果需要更高的敏感度，使用该设定值。 备注：该设定值对环境变化更敏感，可能引发错误警报。
LED打开/关闭插头（8-4）	打开（8-5）	操作三色LED。
	关闭（8-6）	如果在设置和步行测试完成后不需要LED指示，设在“关闭”位置。 无跨接“打开”或“关闭”插头的跨接线禁用LED。

11 走动测试

备注：核实LED跨接线设在打开位置（8-5）。

备注：为了避免错误警报，在开始走动测试之前将微波范围（11-1）设为最小值。

- 电源开启后，至少等候2分钟，再开始走动测试。
红色LED会闪烁，直至探测器状况稳定，且在2秒钟内未探测到任何活动。
 - 当您步行至覆盖区域边缘时，观察LED的状况（11-2）。LED在覆盖范围外侧亮起。
绿色LED会亮起，识别PIR覆盖区域边缘。
黄色LED会亮起，识别微波覆盖区域边缘。
红色LED表示微波和PIR两种模式发出警报。
 - 从不同的方向重复步骤2，直至以适当的方式核实覆盖区域。
 - 如果未达到要求的微波覆盖范围，将微波调节器（11-1）按顺时针方向略微转动。
调节微波范围后，等候1分钟，再继续走动测试。
- 备注：请勿将微波范围调节至超过需要的高度。

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450-9199
www.boschsecuritysystems.com

Microwave PIR Detector with POPIT Interface ZX835

Installation Instructions

1.0 Specifications

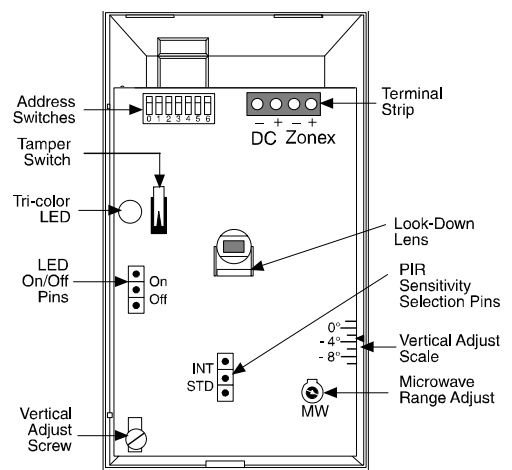
- **Input Power:** 9 to 15 VDC, 6 mA nominal (35 mA with LED on).
- **Standby Power:** There is no internal standby battery. Connect to standby power as a backup in the event primary power fails. Six mA-H required for each hour of standby time needed. *Four hours minimum is required for UL Listed Requirements.*
- **Temperature:** The operating temperature range is -20° to +120°F (-29° to +49°C). *For UL Listed Requirements, the temperature range is +32° to +120°F (0° to +49°C).*
- **Microwave Frequency:** 10.525 Ghz, ±25.000 Mhz.
- **Coverage:** 35 ft. by 35 ft. (10.7 m by 10.7 m)
- **Internal Pointability:** +2° to -10° Vertical, ±10° Horizontal.
- **Tamper:** Tamper condition transmitted through the Zonex bus when the cover is removed.
- **Requirements:** Requires a compatible control panel with a POPEX module installed.
- **Options:** B328 Gimbal Mount Bracket, B335 Low Profile Swivel Mount Bracket (use of a bracket may reduce range and dead zone areas).
- **Reading Bosch Security Systems, Inc. Product Date Codes:** For Product Date Code information, refer to the Bosch Security Systems, Inc. Web site at: <http://www.boschsecurity.com/datecodes/>

2.0 Installation Considerations

- Never install the detector in an environment that causes an alarm condition in one technology. Good installations start with the LED OFF when there is no target motion. It should never be left to operate with the tri-color LED in a constant or intermittent green, yellow, or red condition.
- Point the unit away from outside traffic (roads/alleys). **Remember:** Microwave energy will pass through glass and most common non-metallic construction walls. Avoid installations where rotating machines (e.g., ceiling fans) are normally in operation within the coverage pattern.
- Point the unit away from glass exposed to the outdoors and objects that may change temperature rapidly. **Remember:** The PIR detector will react to objects rapidly changing temperature within its field-of-view.
- Eliminate interference from nearby outside sources.

3.0 Mounting

1. Select a location likely to intercept an intruder moving across the coverage pattern. The surface should be solid and vibration free. Mounting height range is 6 to 8 ft. (1.8 to 2.4 m). **Recommended mounting height is 6.5 ft. (2 m).**
2. Remove the cover. Insert a flathead screwdriver into the locking tab hole at the bottom front of the detector. Pull the cover up and forward.
3. Mount the unit with the terminal block up.
4. Remove the circuit board from the base. Loosen the Vertical Adjust Screw and slide the circuit board down then out.
5. Break away the appropriate thin-wall wire entrance and mounting hole coverings in the base.
6. Using the base as a template, mark the location of the holes on the mounting surface.
7. Route wiring (unpowered) as necessary. Route to the rear of the base and through the wire entrance.
8. Firmly mount the base to the mounting surface. Return the circuit board to the base and tighten the Vertical Adjust Screw.



BOSCH

4.0 Programming

Program the address DIP switches as described for the control panel you are using.

Note: When installing the ZX835 with a D7212B1, D8112, or D9112B1; place switch number “0” in the ON position.

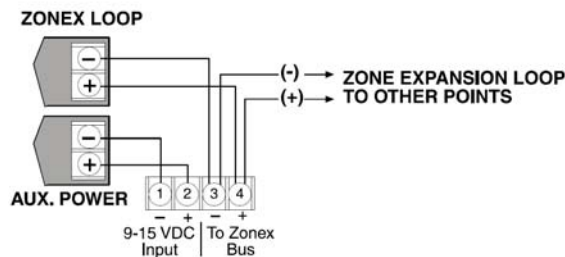
Recommended point type programming:

D8112 = 7571

D9112B1/D7212B1 = Point type 2, point response 2, no ring until restored.

D9412/D9112 = Point type 2, point response E, no ring until restored.

5.0 Wiring



Apply power after all connections have been inspected. Do not coil excess wiring inside. Plug the wire entrance hole with the foam plug provided after all wiring connections have been made.

6.0 LED Operation

The detector uses a tri-color LED to indicate the various alarm and supervision trouble conditions that may exist

LED	CAUSE
Steady red	Unit alarm
Steady yellow	Microwave activation (walk test)
Steady green	PIR activation (walk test)
Flashing red	Warm-up period after power-up
Flashing red (4-pulse sequence)	Microwave or PIR failure; replace unit

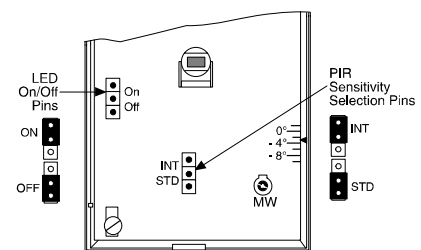
If the detector experiences a Microwave or PIR self-test failure, it is in need of replacement.

During walk testing, the LED will light for the first technology (microwave or PIR) and then light red to indicate a detector alarm. The LED will not indicate activation of the second technology by lighting its color.

7.0 Feature Selection

- **LED On/Off Pins:** The ON position allows operation of the tri-color LED. If the tri-color LED indication is not desired after setup and walk tests are completed, place the plug in the OFF position. The OFF position does not prevent the tri-color LED from indicating a supervision trouble condition.
- **PIR Sensitivity Selection Pins:** The PIR response sensitivity may be selected by placing the plug across the pins marked (STD) for Standard or (INT) for Intermediate mode.

- **Standard Sensitivity:** The recommended setting for maximum false alarm immunity. Tolerates environmental extremes on this setting.
- **Intermediate Sensitivity:** The recommended setting for non-pet applications where an intruder is expected to cover only a small portion of the protected area. Tolerates normal environments on this setting. This setting will improve your intruder catch performance. (Recommended for higher mounting heights).



8.0 Setup and Walk Tests

Select the vertical starting angle from the chart. To adjust the vertical starting angle for the desired mounting height and range, loosen the vertical adjust screw and slide the board up, to point the angle down. Note the settings on the vertical adjust scale.

Note: A mounting height of 6 1/2 ft. (2 m) and the proper vertical angle must be selected for installations containing pets. See Section 12.0 Special Instructions, p. 4.

- Place the LED plug in the ON position.
- Wait at least two minutes, after applying power, to start walk tests.

Note: During the warm-up period, the tri-color LED will flash red until the unit has stabilized and has seen no movement for two seconds (approx. 1 to 2 minutes). When the LED stops flashing, the detector is ready to be tested. With no motion in the protection area, the LED should be OFF. If the LED is on, re-check the protection area for disturbances affecting the microwave (yellow) or PIR (green) technologies.

D8635T	
Mounting Height	Range
6.5 ft. (2 m)	35 ft. (10.7 m)
7.0 ft. (2.1 m)	-5°
8.0 ft. (2.4 m)	-6°
	-7°

8.1 Establishing PIR Pattern Coverage

1. Turn the Microwave range adjust to minimum and replace the cover.
2. Walk test across the pattern at its farthest edge, then several times closer to the detector. Start walking from outside of the intended protection area, and observe the tri-color LED. The edge of the pattern is determined by the first green, PIR activation of the LED (or the first red activation if the yellow microwave LED activates first).
3. Walk test from the opposite direction to determine both boundaries. The center of the pattern should be pointed toward the center of the intended protection area.
4. Slowly bring your arm up and into the pattern to mark the lower boundary on PIR alarm. Perform this task at 10 to 20 ft. (3.1 to 6.1 m) from the unit. Repeat from above for the upper boundary. **The center of the pattern should not be tilted upward.**
5. If desired coverage can not be achieved, try angling the coverage pattern up or down to assure the pattern is not aimed too high or low. For pet applications, do not adjust below recommended angle. **The angle of the PIR pattern may be vertically positioned between -10° and +2° by loosening the Vertical Adjust screw and sliding the circuit board up or down. Moving the board up will angle the pattern downward. Tighten the screw snug when positioning is completed.**

Note: The pattern may be moved $\pm 10^\circ$ horizontally by moving the lens window left/right.

8.2 Establishing Microwave Coverage

Note: It is important to wait one minute after removing/replacing the cover so the microwave portion of the detector can settle, and to wait at least 10 seconds between the following walk testing procedures.

- The tri-color LED should be OFF before walk testing.
1. Walk test across the pattern at the intended coverage's farthest end. Start walking from outside the intended protection area and observe the tri-color LED. The edge of the microwave pattern is determined by the first yellow, microwave activation of the LED (or the first red activation if the green PIR LED activates first).
 2. If adequate range can not be reached, increase the Microwave Range Adjust **slightly**. Continue walk testing (waiting one minute after removing/replacing the cover) and adjusting the range until the farthest edge of desired coverage has been accurately placed.

Note: Do not adjust the microwave range higher than required. Doing so will enable the detector to catch movement outside of the intended coverage pattern.

- Walk test the unit from all directions to determine all the detection pattern boundaries.

8.3 Establishing Detector Coverage

- The tri-color LED should be OFF before walk testing.
- Walk test the unit from all directions to determine the detection boundaries. A detector alarm is signaled by the first red activation of the tri-color LED after an initial green or yellow activation.

9.0 Supervision Features

The supervision features function as follows:

- **PIR/Microwave:** The complete circuit operation of these subsystems is tested approximately every 6 hours. If the PIR or microwave subsystem fails, a second test is performed after one hour. If the PIR or microwave subsystem fails the second test, the tri-color LED will flash red 4 times per cycle and the unit should be replaced.
- **Default:** The detector will default to PIR technology protection if the microwave subsystem fails. When defaulting to PIR, the PIR signal processing will change from INT to STD sensitivity.

10.0 Other Information

Maintenance: At least once a year, the range and coverage should be verified. To ensure continual daily operation, the end user should be instructed to walk through the far end of the coverage pattern. This ensures an alarm output prior to arming the system.

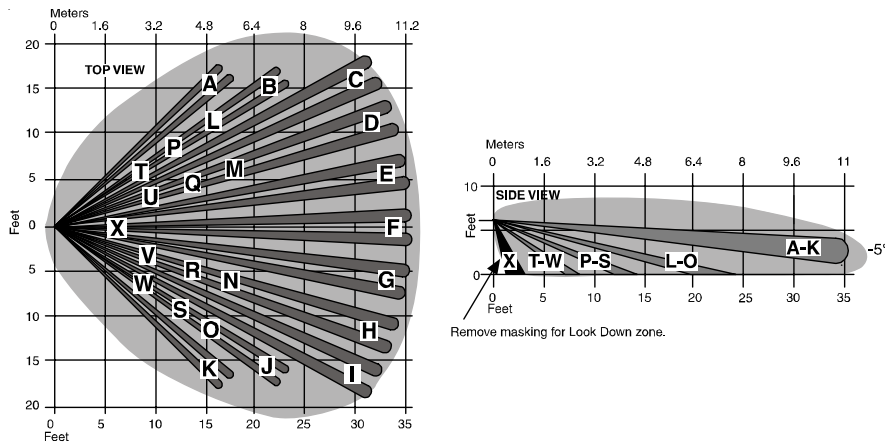
Pattern Masking: The PIR coverage pattern may be masked using masking tape or electrical tape on the inside of the lens.

Note: *Masking only eliminates the PIR portion of the coverage and has no effect on the microwave pattern.*

11.0 Coverage Pattern

The protected coverage area is where the microwave and PIR patterns overlap.

An optional Look Down lens is located under the detector. This lens must be unmasked before it is operational. The Look Down lens is **not recommended** for installations containing pets or small animals. The Look Down finger is shown in black below.



12.0 Special Instructions for Installations Containing Pets

The ZX835 will provide reasonable protection from nuisance alarms caused by the following sources:

- A dog up to 100 pounds (45 kg)
- Up to 10 cats
- Two 60 pound (27 kg) dogs
- Random flying birds
- Multiple small rodents, such as rats

To take full advantage of the ZX835's Signature Recognition Technology, the following guidelines should be followed:

- Mount the detector 6½ ft. (2 m) high and adjust the PIR angle to -5°.
- Set the PIR sensitivity for Standard (STD).
- Mount where the animals cannot come within 6 ft. (1.8 m) of the detector by climbing on furniture, boxes or other objects.
- Do not remove the Look Down lens mask.
- Don't aim the detector at stairways the animals can climb on.
- Adjust the microwave range for the minimum acceptable coverage for the room in which the detector is installed.

Note: *Pet avoidance is only available when using the lens provided with the detector.*

This nuisance protection has not been verified by Underwriter's Laboratories, Inc.

