D9412GV4 Series Control Panels

www.boschsecurity.com

BOSCH
Invented for life

▶ Fully integrated intrusion, fire, and access control allows users to interface with one system instead of three

▶ Conettix IP-based communication options provide high-speed, secure alarm transport and control through connection of wired and/or cellular network interfaces

▶ Up to 32 programmable areas, each supporting perimeter and interior points with your choice of touch screen, ATM style, or LED keypads

▶ 246 hardwired, addressable or wireless points with flexible configuration options to meet multiple installation requirements

▶ OPTIONAL GV4 version 2.00 firmware upgrade available **(NEW)**

GV4 panels are the premier commercial control panel line from Bosch. GV4 panels integrate intrusion, fire and access control providing one simple user interface for all systems. With the ability to adapt to large and small applications, the D9412GV4 provides up to 246 individually identified points that can be split into 32 areas. The control panel includes a communicator that sends events to selected public switched telephone network (PSTN), IP network, or cellular network destinations through four programmable route groups. With the D9412GV4 you can:

- Monitor alarm points for intruder or fire alarms while operating keypads and other outputs
- Program all system functions local or remote using Remote Programming Software (RPS) or by using basic programming through the keypad.
- Add up to eight doors of access control using the optional D9210C Access Control Interface Module.

Functions

Programmable Outputs
- 2 A alarm power at 12 VDC
- 1.4 A auxiliary power at 12 VDC
- Four alarm-output patterns
- Programmable bell test

System Response
- High-performance micro-controller provides industry-leading system response
- High-speed device bus
- 31 custom point indexes, including fire supervisory
- Selectable point response time
- Cross point capability
- Fire alarm verification
- Fire inspector's local test
- Watch mode
- Scheduled events (SKEDS) arm, disarm, bypass and unbypass points, control relays, control authority levels, and control door access

User Interface
- Supervision of up to 16 keypads

- Remote Programming Software (RPS) Lite allows end users to perform control panel management tasks – Add/Delete/Change user passcodes and authorities, view and print the panel history event log
- Custom keypad text is fully programmable, including remote programming
- Full function command menu including Custom Functions
- Authority by area and 16-character name for each user
- 14 custom authority levels control user's authority to change, add, or delete passcodes or access control credentials; to disarm or bypass points; and to start system tests

Area Configurations
Area programming offers a wide selection of different system configurations. Each area is assigned an account number to define annunciation, control, and reporting functions. Multiple areas can be linked to a shared area which is automatically controlled (hallway or lobby). Area arming can be conditional on other areas (master or associate). Any area can be configured for perimeter and interior arming, not requiring a separate area for this function.

Custom Functions
For added convenience, Custom Functions can be programmed to eliminate keystrokes for users allowing the installer to program an easy command for a complicate function. For example, a custom function can be written to bypass a group of points and arm the system, allowing the user to perform this function with one easy command. This can be used to control a particular room, or even a single door allowing customized access. In additions, Custom Functions can be activated with a token or card, or automatically as a scheduled event (SKED) providing further flexibility and ease of use.

Door-Activated Custom Function
A custom function activates when user credentials are presented to a D9210C Access Control Interface Module door controller's reader. The custom function behaves as though the user performed a function at the keypad associated with the door controller.

Passcode Security
For high security applications, GV4 can be configured for several different passcode options.
- Dual Authentication – requires a user to enter their passcode and also use a token or card.
- Two-Man Rule - Requires two people with two unique passcodes to be present at the time of opening.
- Early Ambush - Allows users to verify that the facility is safe by requiring two passcode entries at different keypads within the same area, sending a duress event if the user does not enter the passcode a second time after inspecting the premises.

Easy Exit Control
The D9412GV4 Control Panel changes from one armed state to another armed state without disarming. For example, if you change the state from Perimeter Arm to Master Arm, the control panel complies and reports the change. Easy Exit Control reduces the number of keystrokes, simplifying system operation.

Programmable Passcode-controlled Menu List
The system prompts users to enter a passcode prior to viewing the keypad menu. The keypad display shows the user the menu options allowed according to the user's authority level. Passcode-controlled menus provide users only with the options and information pertinent to them, simplifying system operation.

Flexible Control
The system provides the flexibility to select added convenience or high security. For example, you can restrict passcode arming and disarming to a keypad's immediate local area, even if the user has access to other areas. This is particularly useful for high security areas, where a user may have access to the area, but would prefer to only disarm the area individually rather than with the rest of the system. Another option is to program the system to disarm all areas the user can access from any keypad.

Invisible Walk Test
A menu item allows the user to test invisible 24-hour points within the scope of the keypad without sending a report to the central station.

System Users
The system supports up to 1000 users, each can have a passcode, an access token and a wireless keyfob. User passcodes contain three to six digits. Passcodes can be assigned to one of 14 customized authority levels in each area, and can be restricted to operate only during certain times.

Communication Formats
The D9412GV4 Control Panel prioritizes and sends reports in Contact ID or Modem IIIa[2] communications formats to four route groups. Each group has a programmable primary and backup destination. The D9412GV4 provides flexible communications for most central stations with reporting capabilities such as:
- Individual point numbers
- Opening or closing reports by user and area number
- Remote programming attempts
- Diagnostic reports

IP Communication
The D9412GV4 uses the B426/B420 Connetix Ethernet Communication Module, DX4020 and/or the ITS-DX4020-G Cellular Communicator to communicate with the Conettix D6600 and D6100i Communications Receiver/Gateways. Using Conettix IP communication offers a secure path that includes anti-replay/anti-

substitution features and provides enhanced security with encryption. The B420, DX4020 and ITS-DX4020-G can all be used for remote programming.

GV4 is the first Security Control panel to support DNS (Domain Name System) for both remote programming and central station communication. DNS provides ease of use, eliminating the need to use static IP addresses as your reporting destination and accommodates a simple solution for central station disaster recovery. IP Setup is available via the installer keypad menus and the remote programming software, eliminating the need to use complicated internet programming tools such as ARP and Telnet.

Communication Paths
D9412GV4 Control Panels accommodate up to four separate destinations for primary, alternate, and backup receivers for automatic test reports.
When resetting alarms or arming or disarming a system, the user is identified by name and number.

Firmware Updates
Remote firmware updates using the RPS Firmware Update wizard through the IP connection (B426/B420 Connetix Ethernet Communication Module) as well as an on-site flash update key, provides for easy feature enhancements without replacing ROM chips.

*For GV4 version 2.00 firmware update information, refer to the, *"GV4 version 2.00 firmware updates" datasheet* to learn more about key enhancements, and supported products.

A wide variety of input options
Each point:
- Accommodates normally-open (NO) and normally-closed (NC) devices with end-of-line (EOL) resistor supervision.
- Is programmable for fire, fire supervisory, or intrusion application.
- Can be hard-wired, addressable, or wireless.

Security and Fire Detection
The D9412GV4 Control Panel provides eight on-board points, and up to 238 additional off-board points. You can program individual points to monitor all types of burglar alarms, fire alarms, and supervision devices.

Access Control
The D9412GV4 provides custom door strike, point shunt and auto disarming response by area. There are 14 panel-wide access levels with both manual and scheduled control.
Store, view, or print access events such as:
- Access granted
- No entry
- Request to enter
- Request to exit

Wireless Interface
The B820 SDI2 Inovonics Interface Module connects an Inovonics EN4200 Serial Receiver to the control panel SDI2 bus, allowing this UL Listed wireless system to be programmed locally via the panel keypad, as well as remotely through RPS.

Event Log
The event log stores up to 1,000 local and transmitted events. The event log includes time, date, event, area, point, user number, and transmission status. View the event log from a keypad or use RPS to remotely retrieve event information. RPS operators can retrieve events periodically using one call, rather than receiving several calls each day. When the event log reaches a programmed threshold of stored events, it can send an optional report to a receiver.

Scheduled Events (SKEDS)
The internal clock and calendar start individually scheduled events (SKEDS). SKEDS perform functions such as arm or disarm, relay control, or point bypassing. The D9412GV4 Control Panel offers:
- 40 scheduled events with up to 25 different functions
- Eight opening windows and eight closing windows
- Eight user windows
- Day-of-week, date-of-month, or holiday only schedules
- Four holiday schedules of 366 days each (leap year)

Fire Test
When a user activates Fire Test Mode, the control panel suppresses all reports to the central station. The keypad and annunciator show all testing data. An automatic sensor reset feature saves time; you do not need to reset the sensors manually. At the end of test, the keypad shows the number of untested points.

Programming, Diagnostics and Controls
Installers can program locally or remotely through RPS as well as basic keypad programming. A programmable system passcode prevents unauthorized remote programming.

Two Data Buses
GV4 provides 2 data buses which support a wide array of components. The SDI bus supports keypads, access, and communications modules and also allows connection of existing components in a retrofit application. The new SDI2 bus supports input and output devices as well as a new wireless interface module, and an Ethernet communicator. SDI2 allows these devices to be mounted up to 1000 ft (305 m) from the control panel, providing installation convenience and flexibility.

Commercial Fire Alarm Support
Suitable for Commercial Fire (UL 864, 9th Edition) applications.

Certifications and approvals

USA:

UL 365 — Police Station Connected Burglar Alarm Units and Systems

UL 609 — Local Burglar Alarm Units and Systems

UL 636 (NEW) — Holdup Alarm Units and Systems

UL 864 — Control Units and Accessories for Fire Alarm Systems (Commercial Fire)

UL 985 — Household Fire Warning System Units

UL 1023 — Household Burglar Alarm System Units

UL 1076 — Proprietary Burglar Alarm Units and Systems

UL 1610 — Central Station Burglar Alarm Units

ANSI/SIA CP-01:2010 — False Alarm Reduction

FM 3010 — Fire Alarm Signaling Systems

CSFM — California Office of The State Fire Marshall 7165-1615:0242 Control Unit (Commercial)

FCC Part 15 Class B, Part 68

Region	Certification	
USA	UL	20130918-S1871, UL 864, ANSI/SIA CP-01-2010, UL 1076, UL 1610, UL 1635, UL 365, UL 609, UL 985, UL 1023, UL 636
	CSFM	7167-1615:0243 7167 -- CONTROL UNIT (HOUSEHOLD)
	CSFM	7165-1615:0242 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)
	FDNY-CoA	#6174 UL 864 9th Edition
Canada	ULC	20140407-S1871; ULC/ORD-C1076-M1986, CAN/ULC-S304-06, CAN/ULC-S303-M91, CAN-ORD-C1023
Brazil	ANATEL	1083-12-1855

Installation/configuration notes

Compatible Products

Keypads

D1265 Touch Screen Keypad

D1255 Series Keypads

D1260 Series Keypads

D1256RB Fire Keypad

D1257RB Remote Fire Alarm Annunciator

D720 Series Keypads

D279A Independent Zone Control

Detectors

D278S Four-wire Addressable Detector Base, 12 VDC

D285/TH Photoelectric Smoke Detector Heads

D298S Addressable Detector Base, 24 VDC

D7050 Series Addressable Photoelectric Smoke and Smoke Heat Detector Heads

F220-B6PM/S 12/24 VDC Addressable Detector Bases with POPITs

FCC-380 Carbon Monoxide Detector

MX775i Addressable PIR Detector

MX794i Long Range Multiplex PIR Detector

MX934i Addressable PIR Detector

MX938i Addressable PIR Detector

ZX776Z PIR Detector

ZX794Z Long Range PIR Detector

ZX835 TriTech Microwave/PIR Detector

ZX935Z PIR Detector

ZX938Z PIR Detector

ZX970 PIR/Microwave Detector

Bosch conventional detectors, including Professional Series, Blue Line Gen2, Blue Line, Classic Line, Commercial Line, and Ceiling Mount motion detectors, as well as glass break, seismic, request-to-exit, photoelectric, heat, and smoke detectors.

Enclosures

D8103 Universal Enclosure

D8108A Attack-resistant Enclosure

D8109 Fire Enclosure

Magnetic Contacts

Bosch magnetic contacts include recessed, terminal connection, miniature, overhead door, and surface mount.

Modules

Conettix B426 Ethernet Communication Module (NEW)

B208 Octo-input Module

B308 Octo-output Module

B520 Auxiliary Power Supply Module (NEW)

B820 SDI2 Inovonics Interface Module

Conettix B420 Ethernet Communication Module

Conettix ITS-DX4020-G Cellular Integrated Communicator

Conettix DX4020 Network Interface Module

Conettix DX4010V2 USB/Serial Interface Module

Conettix C900V2 Dialer Capture Module

D113 Battery Lead Supervision Module

D125B Dual Class B Initiating Module

D126 Standby Battery (12V, 7 Ah)

D127 Reversing Relay Module

D129 Class A Initiating Module

D130 Auxiliary Relay Module

D185 Reverse Polarity Signaling Module

D161 Phone Cord

D162 Phone Cord

D192G Notification Appliance Circuit Module

D928 Phone Line Switcher

D5060 MUX Programmer

D8125 POPEX Point Expander

D8128D OctoPOPIT Eight-point Expander

D8125MUX Point Expander

D8125INV Wireless Interface Module

D8129 Octo-relay Module

D8130 Door Release Module

D9127 Series POPIT Modules

D9210C Access Control Interface Module

DS7432 Eight-input Remote Module

DS7457i Series Single-zone Multiplex Input Modules

DS7460i Two-input Module

DS7461i Single-input Multiplex Module

DS7465i Input and Output Module

ICP-SDI-9114 SDI Splitter

Transformers

D1640 Transformer

D1640-CA Transformer

Programming

RPS or RPS-LITE Remote Programming Software

Readers

ARD-R10 iCLASS Mullion Reader

ARD-R40 iCLASS Switchplate Reader

ARD-RK40-09 iCLASS PIN Reader

ARD-VSMART iCLASS Reader

D8223 Prox Pro Reader

D8224 Mullion Reader

D8224-SP Switch Plate Reader

D8225 Mini Mullion Reader

D8301W Low-profile Proximity Readers

Wireless

Inovonics wireless

B820 SDI2 Inovonics Interface Module

ENKIT-SDI2 Inovonics Interface and Receiver Kit. Includes B820 and EN4200

EN1210 Universal Transmitter (Single-input)

EN1210EOL Universal Transmitter with EOL Resistor

EN1210W Door-Window Transmitter with Reed Switch

EN1215EOL Universal Transmitter with Wall Tamper, Reed Switch, and EOL Resistor

EN1223D Water-resistant Pendant Transmitter (Double-button)

EN1223S Water-resistant Pendant Transmitter (Single-button)

EN1224-ON Multiple-Condition Pendant Transmitter

EN1233D Necklace Pendant Transmitter (Double-button)

EN1233S Necklace Pendant Transmitter (Single-button)

EN1235D Beltclip Pendant Transmitter (Double-button)

EN1235DF Fixed-location Transmitter (Double-button)

EN1235S Beltclip Pendant Transmitter (Single-button)

EN1235SF Fixed-location Transmitter (Single-button)

EN1247 Glass-break Detector Transmitter

EN1249 Bill Trap Transmitter

EN1242 Smoke Detector Transmitter

EN1260 Wall Mount Motion Detector

EN1261HT High Traffic Motion Detector

EN1262 Motion Detector with Pet Immunity

EM1265 360° Ceiling Mount Motion Detector

EN4200 Serial Receiver

EN5040-T High Power Repeater with Transformer

Parts included

The D9412GV4 includes the following parts:

Quant.	Component
1	D9412GV4
1	Faceplate with D9412GV4 Label
1	Literature pack • Installation Instructions • Owners Manual • Release Notes
1	Literature CD containing all product literature

The available kits come with the parts indicated in the following table:

Components	Kits		
	-A	-B	-C
D9412GV4	1	1	1
D122 Dual Battery Harness		1	

D161 Dual Modular Phone Cord		2	
D928 Dual Phone Line Switcher		1	
D1640 Transformer		1	1
D8103 Enclosure			1
D8108A Attack-resistant Enclosure	1		
D8109 Fire Enclosure		1	
D101 Lock and Key Set	1		1
D101F Lock and Key Set		1	

Technical specifications

Communications

Telephone Connection:	• One telephone line • D928 Dual Phone Line Module required for two telephone lines

Environmental Considerations

Relative Humidity:	5% to 93% at +30℃ (+86℉), non-condensing
Temperature (Operating):	0℃ to +50℃ (+32℉ to +122℉)

Number of...

Areas:	32
Card Readers (Doors):	8
Credentials (Tokens):	999
Custom Functions:	16
Events:	Up to 1000
Passcode Users:	999, plus 1 service passcode
Parallel Printers:	3
Points:	246 (8 on-board, up to 238 off-board)
Programmable Relay Outputs:	131
RF Points:	238
SKEDs:	40

Power Requirements

Current Draw (Maximum):	300 mA
Output (Alarm):	2 A at 12 VDC
Output (Auxiliary, Continuous Power, and Switched Auxiliary combined):	1.4 A at 12 VDC nominal
Voltage (Operating):	12 VDC nominal
Voltage (AC):	16.5 VAC 40 VA plug-in transformer (D1640)

Trademarks

Inovonics is a trademark of Inovonics Wireless Corporation.

Ordering information

D9412GV4 246-point Control Communicator
Order number **D9412GV4**

D9412GV4-A Attack-resistant Package
Contains one PCB, one transformer, and one attack-resistant enclosure.
Order number **D9412GV4-A**

D9412GV4-B Fire/Burglar Package
Contains one PCB, one dual battery harness, two telephone cords, one telephone line switcher, one transformer, and one fire enclosure.
Order number **D9412GV4-B**

D9412GV4-C Standard Burglar Package
Contains one PCB, one lock and key set, one transformer, and one universal enclosure.
Order number **D9412GV4-C**

Accessories

SDI2 Inovonics Interface and Receiver Kit
Kit containing B820 and EN4200 for use on SDI2 bus panels.
Order number **ENKIT-SDI2**

D928 Dual Phone Line Switcher
Allows the control panel to operate over and supervise two separate phone lines. Only one D162 phone cord is supplied. Two additional D161 or D162 phone cords are required.
Order number **D928**

D122 Dual Battery Harness
Harness with circuit breaker. Connects two batteries to a compatible control panel.
Order number **D122**

D122L Dual Battery Harness with Long Leads
Color-coded harness with circuit breaker and leads measuring 89 cm (35 in.). Connects 12 V batteries to compatible control panels.
Order number **D122L**

D126 Standby Battery (12 V, 7 Ah)
A rechargeable sealed lead-acid power supply used as a secondary power supply or in auxiliary or ancillary functions.
Order number **D126**

D1218 Battery (12 V, 18 Ah)
A 12 V sealed lead-acid battery for standby and auxiliary power with two bolt-fastened terminals. Includes hardware for attaching battery leads or spade connectors
Order number **D1218**

D1224 Battery (12 V, 26-28 Ah)
A 12 V sealed lead-acid battery for standby and auxiliary power with two bolt-fastened terminals. Includes hardware for attaching battery leads or spade connectors.
Order number **D1224**

D1238 Battery (12 V, 38 Ah)
A 12 V sealed lead-acid battery for standby and auxiliary power with two bolt-fastened terminals. Includes hardware for attaching battery leads or spade connectors.
Order number **D1238**

D137 Mounting Bracket
Used to mount accessory modules in D8103, D8108A, and D8109 enclosures.
Order number **D137**

D138 Mounting Bracket, Right Angle
Used to mount accessory modules in D8103, D8108A, and D8109 enclosures.
Order number **D138**

D1640 Transformer
System transformer rated at 16.5 VAC, 40 VA.
Order number **D1640**

D8004 Transformer Enclosure
For applications such as fire alarm that might require a transformer enclosure.
Order number **D8004**

D9002-5 Mounting Skirt
Mounts inside D8103, D8108A, and D8109 enclosures. Can accept up to six standard 7.62 cm x 12.7 cm (3 in. x 5 in.) cards.
Order number **D9002-5**

D101 Lock and Key Set
Short-body lock set with one key supplied. Uses the D102 (#1358) replacement key.
Order number **D101**

D110 Tamper Switch
Screw-on tamper switch that fits all enclosures. Shipped in packages of two.
Order number **D110**

ICP-EZTS Dual Tamper Switch
Combination tamper switch with a wire loop for additional tamper outputs.
Order number **ICP-EZTS**

D8108A Attack Resistant Enclosure
Grey steel enclosure measuring 41 cm x 41 cm x 9 cm (16 in. x 16 in. x 3.5 in.). UL Listed. Includes lock and key set. B520, B4512, and B5512 require the B12 mounting plate.
Order number **D8108A**

D8103 Enclosure
Grey steel enclosure measuring 41 cm x 41 cm x 9 cm (16 in. x 16 in. x 3.5 in.).
Order number **D8103**

D8109 Fire Enclosure
Red steel enclosure measuring 40.6 cm x 40.6 cm x 8.9 cm (16 in. x 16 in. x 3.5 in). UL Listed. Includes a lock and key set.
Order number **D8109**

Software Options

RPS Kit (USB)
Account management and control panel programming software with USB security key (dongle).
Order number **D5500C-USB**

B450 Conettix Plug-in Communicator Interfaces

www.boschsecurity.com

BOSCH
Invented for life

▶ Full two-way IP communication using Plug-in Cellular Communicators

▶ Plug and Play installation makes future radio technology changes easy

▶ Compatible with new and most deployed Bosch control panels

▶ Supports remote installation of cellular modules for improved signal

The Conettix Plug-in Communicator Interface is a four-wire powered SDI2, SDI, or option bus device that provides two-way communication with compatible control panels over commercial cellular networks using a plug-in communicator (available separately).

System overview

Conettix Plug-in Communicator Interfaces (B450/B450-M) work with plug-in communicators for primary or backup alarm communication, remote programming, and other remote applications. The plug-in communicator interface supports Conettix IP protocol with full authentication, 256-bit AES encryption, and resistance to Denial of Service attacks. The interface also supports compatible Bosch control panels with SIA DC-09, CSV-IP. The interface is a reliable way to add cellular network communications to existing or new commercial security and fire installations.
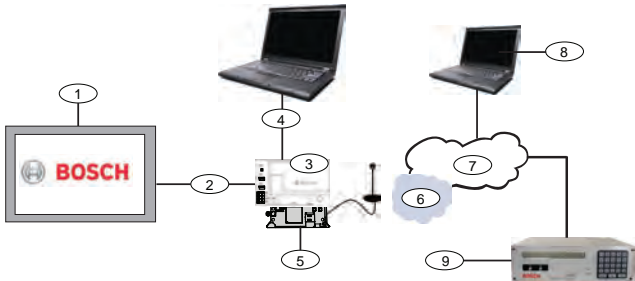
Callout – Description	Callout – Description
1 – Compatible control panel	6 – Cellular carrier network
2 – Panel data bus (SDI2, SDI, or option)	7 – Internet/LAN/WAN
3 – Module	8 – Remote Programming workstation
4 – USB connection for module configuration	9 – Compatible IP receiver (Bosch D6100IPv6 shown)
5 – B44x plug-in communicator (available separately)	

Functions

Conettix IP communication

The following features are supported with the plug-in communicator interface via BOSCH Conettix IP protocol and SIA DC-09 UDP, CSV-IP on supported control panels including:
- IP Alarm communication
- Remote programing
- Personal notification via text or email on supported panels

Addressing

Use the address switch to easily assign a bus address or setup for USB or SMS configuration where required.

Easy configuration

For most installations, the default plug-in communicator interface settings allow installation with no device programming required. An address switch allows easy bus address selection.
For customized network settings, the interfaces support a USB configuration menu, or configuration via SMS. The following control panels support RPS programming:
- B9512G/B9512G-E
- B8512G/B8512G-E
- B6512
- B5512/B5512E
- B4512/B4512E
- B3512/B3512E
- D9412GV4/D7412GV4/D7212GV4

LEDs

Three LEDs provide status and troubleshooting information.

LED	Indication
Heartbeat	Plug-in communicator and control panel connection status
RX	An inbound packet is received on the bus
TX	An outbound packet is transmitted on the bus

Certifications and approvals

ℹ️ **Notice**
The B450-M has received certifications only as noted. If not noted, the certification applies to the B450 only.

Region	Regulatory compliance/quality marks	
Europe	CE	EMC, LVD, RoHS
	EN50131	EN-ST-000245 EN-ST-000245_B450_B450-M_442_443_2021_04_25
USA	UL	UL 365 - Police Station Connected Burglar Alarm Units

Region	Regulatory compliance/quality marks	
	UL	UL 636 - Holdup Alarm Units and Systems
	UL	UL 864 - Standard for Control Units and Accessories for Fire Alarm Systems
	UL	UL 985 - Household Fire Warning System Units
	UL	UL 1023 - Household Burglar Alarm System Units
	UL	UL 1076 - Proprietary Burglar Alarm Units and Systems
	UL	UL 1610 - Central Station Burglar Alarm Units
	CSFM	see www.boschsecurity.com (the Bosch website)
	FCC	Part 15 Class B
	FDNY-CoA	6286 D7412GV4 D9412GV4 NYC COA 6286 2018-2021
	FDNY-CoA	6196
Canada	ULC	CAN/ULC S303 - Local Burglar Alarm Units and Systems
	ULC	CAN/ULC S304 - Standard for Signal Receiving Center and Premise Burglar Alarm
	ULC	CAN/ULC S545 - Residential Fire Warning System Control Units
	ULC	ULC-ORD C1023 - Household Burglar Alarm System Units
	ULC	ULC-ORD C1076 - Proprietary Burglar Alarm Units and Systems
	IC	ICES-003 - Information Technology Equipment (ITE)
Brazil	ANATEL	2708-14-1855

Installation/configuration notes

Mounting considerations

Install in a location with acceptable wireless network signal strength. Mount the module into the interior of a compatible enclosure. Use the 3-hole mounting pattern. Use the supplied mounting screws.

Wiring considerations

The interface connects to a control panel using a data bus connection via the module's terminal strip, or the module's interconnect wiring connectors.
For data bus powered installations outside the compatible control panel enclosure, follow the maximum wiring distances in the technical specifications.

Compatibilities

Control panels - B450	B9512G/B8512G B6512/B5512/B4512/B3512 (B5512E/B4512E/B3512E with firmware v2.03 and higher) D9412GV4/D7412GV4/D7212GV4 (v1.00.0xx+) D9412GV3/D7412GV3/D7212GV3 D9412GV2/D7412GV2/D7212GV2 (v7.06+) FPD-7024 (v1.03+) CMS 6/8 CMS 40 Easy Series (v3+) AMAX 2100/3000/4000 Solution 2000/3000*
Control panels - B450-M	*AMAX 2000/2100/3000/4000/ *Solution 2000/3000
Cellular communicators	B442 (3G GPRS GSM) B443 (3G/4G HSPA+ GSM) B444 (4G VZW LTE)
Enclosures	B10 B11 D8103 D203
Applications	Tera Term (for USB B450 configuration) Hyper Terminal (for USB B450 configuration) RPS version 5.16 or higher Remote Security Control (Supported on GV4, B9512G/B8512G, B9512G-G/B8512G-E, B6512/B5512/B4512/B3512, B5512%/B4512E/B3512E, and Solution 2000/3000 Remote Security Control+ (Supported on AMAX and Solution Series control panel)

*The B450-M is compatible with AMAX and Solution control panels only.

Function	Option/SDI bus	SDI2 bus	Details
IP Event Reporting	Y	Y	TCP protocols only supported on SDI2
Remote Program (RPS or A-link)	Y	Y	Requires Bosch Cellular service or other cellular network access
Configure B450 from control panel (RPS, A-link)	N	Y	GV4/B Series v2.03+, AMAX vX.X, Solution vX.X

Function	Option/SDI bus	SDI2 bus	Details
Personal Notification via SMS or Email	N	Y	Requires compatible control panel and cellular plan
Remote Security Control App	N	Y*	Requires Bosch Cellular service or other cellular network access

Cellular technology compatibility

Device	Cellular networks				
	2G (CDMA)	3G (CDMA)	GPRS (GSM)	HSPA+ (GSM)	4G (LTE)
B440/B440-C*	X	X			
B441/B441-C*	X				
B442*			X		
B443*			X	X	
B444*					X

*Check for availability in your region.

Technical specifications

Environmental

Relative humidity	Up to 93% at +32℃ (+90℉) non-condensing
Operating temperature	0℃ to +50℃ (+32℉ to +122℉)

Mechanical

Dimensions	79 mm x 128 mm x 38 mm (3.11 in x 5.03 in x 1.50 in)

Electrical

Current (operating)	**Standby:** With cellular communicator = 60 mA **Alarm:** With cellular communicator = 180 mA
Voltage (operating)	(Bus operation): 12 VDC nominal

Wiring

Data bus wire gauge	12 AWG to 22 AWG (2.0 mm to .06 mm)
USB cable	USB cable (Type A to A male-to-male) – not supplied
Data bus wire length	Maximum Distance – wire size 22 AWG (0.6 mm) - 12 m (40 ft) 18 AWG (1.0 mm) - 30 m (100 ft) 16 AWG (1.3 mm) - 48 m (158 ft) 12 AWG (2.0 mm) - 122 m (400 ft) You can extend the wire distances 300 m (1000 ft). Use a separate power supply, such as the B520 Auxiliary Power Supply Module.

Ordering information

B450 Plug-in Communicator Interface
Supports two-way IP communications using plug-in cellular communicators for compatible control panels
Order number **B450**

B450-CHI Plug-in Communicator Interface
Supports two-way IP communications using plug-in cellular communicators for Bosch 8500 and 5500 Series Control Panels
Order number **B450-CHI**

B450-M Plug-in communicator interface, mobile
Supports cellular communication for remote programming and mobile apps on AMAX and Solution Series control panels
Order number **B450-M**

B442 Plug-in cellular module, GPRS
Multi-function cellular communicator that provides IP communication over a (GPRS) cellular network
Order number **B442**

B443 Plug-in Cellular, HSPA+ (3G+)
Multi-function 3G/4G cellular communicator providing IP communication over a GPRS/EDGE/UMTS/HSPA+ cellular network
Order number **B443**

Accessories

B442 Plug-in cellular module, GPRS
Multi-function cellular communicator that provides IP communication over a (GPRS) cellular network
Order number **B442**

B443 Plug-in Cellular, HSPA+ (3G+)
Multi-function 3G/4G cellular communicator providing IP communication over a GPRS/EDGE/UMTS/HSPA+ cellular network
Order number **B443**

B444 Plug-in cellular module, VZW LTE, hot
Pre-activated 4G LTE cellular communicator for secure two-way IP communication on the Verizon Wireless LTE network.
Order number **B444**

D1256RB Fire Keypad

www.boschsecurity.com

BOSCH

Invented for life

▶ Compatible with Bosch GV3 control panels and GV2 control panels (firmware version 7.04 and higher)

▶ Provides system control with easy to use function keys

▶ Built-in multi-tone sounder

▶ Easy to read vacuum-fluorescent display (VFD) shows complete system status in English

▶ Programmable custom text for each point

The D1256RB Fire Keypad is a full-function system controller and annunciator. This SDI bus compatible device works with the Bosch Security Systems, Inc. GV3 control panels and GV2 control panels (firmware version 7.04 and higher). Four one-touch function keys provide user-friendly control over the system. The function keys allow the user to silence the audible alarm output, silence the trouble sounder, reset the annunciator display, and reset the system detectors. Four additional navigational keys allow access to other programmed system functions. The D1256RB can be mounted in secure areas.

Functions

Display

The display uses words, numbers, and symbols to show the status of the fire system. When several events occur, each event is shown in order of priority followed by the time of occurrence. In conjunction with the 16-character vacuum-fluorescent display (VFD), four LEDs provide the following system status indications:

- Fire
- Silenced
- Supervisory
- Trouble

Certifications and approvals

Region	Certification	
USA	UL	UOXX: Control Unit Accessories, System (ANSI/UL 864)
	FM	
	CSFM	see our website
	FDNY-CoA	6174
	FDNY-CoA	6059 [D9412GV3 & D7412GV3]
	FDNY-CoA	6196

Installation/configuration notes

Compatible Control Panels
- B9512G/B9512G-E
- B8512G/B8512G-E
- D9412GV4/D7412GV4/D7212GV4[1]
- D9412GV3/D7412GV3/D7212GV3[1]
- D9412GV2/D7412GV2/D7212GV2[1]

[1]The D7212GV4, D7212GV3, and D7212GV2 are not listed for commercial fire applications.

Mounting Considerations

The keypad is a low profile, surface-mounted unit molded in durable red plastic with three mounting holes in the base that allow secure, correct positioning during installation. Protect the surface-mounted keypad by mounting it to a D56 or D56R Conduit Back Box. For desktop applications, the keypad can be mounted to a D55 Desk Stand.

> **ℹ Notice**
>
> Do not install the keypad in direct sunlight. This damages the module components and makes the display less visible. Do not mount in wet or moist locations.

Wiring Considerations

The keypad connects to the control panel for data and power through a standard four-wire flying lead cable. For field wiring use 0.8 mm (22 AWG) or 1.2 mm (18 AWG) wires. Resistance cannot exceed 25 Ω. The field wiring connects to a four-wire harness supplied with the unit.

> **ℹ Notice**
>
> Use shielded cable where excessive electromagnetic interference is a problem.

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Parts included

Quant.	Component
1	Keypad
1	Hardware pack
1	Literature pack

Technical specifications

Environmental Considerations

Relative humidity	5% to 93% at +32°C (+90°F)
Temperature (operating)	0°C to +49°C (+32°F to +120°F)

Mechanical Properties

Color:	Red
Dimensions:	11.7 cm x 21 cm x 2 cm (4.6 in. x 8.2 in. x 0.8 in.)
Material:	CHI MEI POLYLAC PA757 ABS with UV Stabilizer. UL94-HB Fire Rated

Power Requirements

Current:	104 mA minimum, 225 mA maximum
Voltage:	12 VDC nominal supplied by the control panel

Ordering information

D1256RB Fire Keypad

The D1256RB Fire Keypad provides our one-touch function keys for user-friendly control over the system
Order number **D1256RB**

Accessories

D55 Keypad Desk Stand

Portable desk stand in smoke colored Plexiglas.
Order number **D55**

D56 Surface Mount Conduit Box

White surface mount box.
Order number **D56**

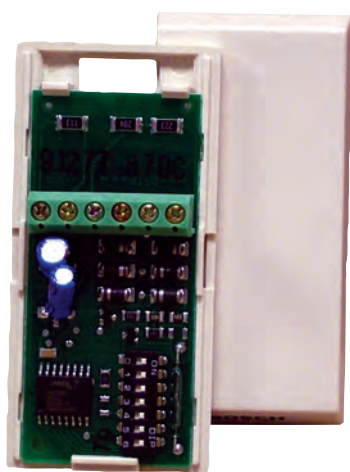### D56R Red Surface Mount Conduit Box

Red surface mount box.
Order number **D56R**

D9127 Series POPIT Modules

BOSCH

Invented for life

▶ Provides point identification of initiating devices

▶ Supervises wiring to devices for circuit integrity

▶ Expands the number of points in the system

▶ Compact size

▶ Terminal connections for reliability

The D9127 Series POPIT Modules includes the D9127T (with magnetic tamper switch) and the D9127U (without tamper). They are used with a D8125 Addressable Expansion Module when there is a need to expand a compatible control panel beyond its standard number of on-board initiating zones or points. Future system expansion is very economical as D9127 Series POPITs can be added anywhere along the two-wire data expansion loop from the D8125 module.

Both modules include proven technology that combines zone and point supervision with individual device addressing on one pair of wires. Screw terminals provide reliable connections for the data expansion loop and supervised sensor loop wiring. Install a 33 kΩ end-of-line resistor at the farthest point on the loop for proper supervision. The units are small and easily installed in standard outlet boxes, above false ceilings, closets, or other accessible locations.

Certifications and approvals

Australia	C-Tick

Region	Certification	
USA	UL	AMCX: Central Station Alarm Units (UL1610, UL1635), AMCX7: Central Station Alarm Units Certified for Canada (cULus), AOTX: Local Alarm Units (UL464, UL609), AOTX7: Local Alarm Units Certified for Canada (cULus), APAW: Police Station Alarm Units (UL365, UL464), APAW7: Police Station Alarm Units Certified for Canada (cULus), APOU: Proprietary Alarm Units (UL1076), APOU7: Proprietary Alarm Units Certified for Canada (cULus), NBSX: Household Burglar Alarm System Units (UL1023), NBSX7: Household Burglar Alarm System Units Certified for Canada (cULus), UOJZ: Control Units, System (UL864, 9th edition), UTOU: Control Units and Accessories - Household System Type (UL985), UTOU7: Control Units and Accessories - Household System Type Certified for Canada (cULus)
	FM	
	CSFM	7165-1615:0238 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)
	CSFM	7165-1615:0242 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)

Region	Certification	
	CSFM	7167-1615:0239 7167 -- CONTROL UNIT (HOUSEHOLD)
	CSFM	7167-1615:0243 7167 -- CONTROL UNIT (HOUSEHOLD)
	FDNY-CoA	6059
	NYC-MEA	12-92-E, Vol. 15 12-92-E, Vol. 15
	NYC-MEA	12-92-E, Vol.12 12-92-E, Vol. 12
Canada	ULC	AMCX7.S1871 - Central Station Alarm Units Certified for Canada
	ULC	AOTX7.S1871 Local Alarm Units Certified for Canada
	ULC	APAW7.S1871 Police-station-connected Alarm Units Certified for Canada
	ULC	APOU7.S1871 Proprietary Alarm Units Certified for Canada
	ULC	NBSX7.S1871 Household Burglar Alarm System Units Certified for Canada

Installation/configuration notes

Compatibility Information

Control Panels	All G Series control panels, D9412, D7412, D7212, D7212B1, D9112, D9112B1, D8112G1, D8112G2, and D9124
Module	D8125

The D8125 Multiplex Zone Expander is required. The D9127 modules are wired in parallel on the D8125 data loop.

Number of POPIT Modules per Control Panel

D7212G, D7212GV2, D7212GV3	32 D9127 POPITs
D7212B1	40 D9127 POPITs
D7212, D7412, D7412G, D7412GV2, D7412GV3	67 D9127 POPITs
D9124	119 D9127 POPITs
D9112B1	126 D9127 POPITs
D9112, D9412, D9412G, D9412GV2, D9412GV3	238 D9127 POPITs

Wiring Considerations

Wire Size	Maximum Length of all Data Expansion Loops Combined
0.8 mm (22 AWG)	549 m (1800 ft)
1.0 mm (20 AWG)	881 m (2890 ft)
1.2 mm (18 AWG)	1402 m (4600 ft)
1.5 mm (16 AWG)	2231 m (7320 ft)
1.8 mm (14 AWG)	3551 m (11650 ft)

D8125 to POPIT Loops

Use one two-wire data expansion loop, or distribute the POPITs on up to three loops. The maximum lengths shown in the following table are for all data expansion loops combined connected to the same D8125 module. Setting DIP switches on the POPIT modules assigns them to point numbers. The switch setting on each POPIT assigns it a point number, regardless of its physical location.

POPIT to Sensor Loops

The number of 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 Ω not including the end-of-line (EOL) resistor. Certain UL and National Fire Protection Association (NFPA) applications can limit the number of detection devices. Consult the appropriate UL or NFPA standards.

Terminate each POPIT sensor loop with the 33 kΩ EOL resistor included with each POPIT.

Use a twisted-pair wire (six twists per foot) in all POPIT installations for both the data expansion loop wiring and the POPIT sensor loops. Run wires away from AC sources to prevent AC induction.

Parts included

Quantity	Component
1	POPIT module
1	33 kΩ EOL resistor
1	Magnet (D9127T only)
1	Hardware pack
1	Literature pack

Technical specifications

Environmental Considerations

Relative Humidity:	Up to 93% non-condensing
Temperature (operating):	0°C to +50°C (+32°F to +122°F)

Properties

Color:	Off white
Dimensions:	8.1 cm x 3.8 cm x 2.4 cm (3.2 in. x 1.5 in. x 0.9 in.)
Material:	UL Listed fire-resistant

Power Requirements

Current Draw	0.8 mA maximum
Resistance:	Maximum increase in resistance on the POPIT loop is 1000 Ω. Maximum resistance between the D8125 module and each POPIT is 90 Ω.
Voltage (operating):	12 VDC nominal

Sensor Loop

Resistance:	Maximum resistance on the sensor loop is 100 Ω.
Response Time:	1 sec approximately

Ordering information

D9127T POPIT Module
Includes a magnetic tamper switch.
Order number **D9127T**

D9127U POPIT Module
No tamper switch.
Order number **D9127U**

D273 Series Photoelectric Smoke and Smoke and Heat Detectors

www.boschsecurity.com

BOSCH

Invented for life

▶ 12 VDC or 24 VDC input

▶ Designed for commercial or residential use

▶ Four-wire application

▶ Light-emitting diodes (LEDs) indicate the status of the chamber, power, and alarm

▶ Removable terminal block to simplify wiring connections

The D273 Series includes the following detector models:

Model	Description
D273	Four-wire
D273IS[1]	Four-wire with an isolated 135°F (57°C) heat sensor and sounder
D273TH	Four-wire with 135°F (57°C) heat sensor
D273THC	Four-wire with 135°F (57°C) heat sensor and auxiliary relay
D273THCS[1]	Four-wire with 135°F (57°C) heat sensor, auxiliary relay, and sounder
D273THE	Four-wire with 135°F (57°C) heat sensor and EOL relay
D273THR[2]	Four-wire with 135°F (57°C) heat sensor and trouble relay
D273THS[1]	Four-wire with 135°F (57°C) heat sensor and sounder
D273THES[1]	Four-wire with 135°F (57°C) heat sensor, sounder, and EOL relay

[1] Sounders produce 85 dB at 10 ft (3 m).

[2] The trouble relay indicates both Dirty Smoke Chamber and/or Power Loss conditions.

Each of the D273 Series Detector models is UL Listed and works with commercial fire protective signaling and household fire warning systems. Each model detects smoke particles produced during wood, paper, and fabric combustion.

System Overview

The D273 Series Detector models use an infrared (IR) LED light source and a silicon photodiode to measure light in a chamber. A fine screen covers the chamber to deter insects and reduce dust accumulation and nuisance alarms.

During a fire, smoke particles reflect light onto the photodiode. When the photodiode measurements exceed the alarm threshold, the detector signals an alarm condition. After the alarm condition clears, interrupt power at the control panel to reset the detector.

When a D132B Reversing Relay Module is used, the LED does not latch on alarm.

Functions

Chamber Calibration Tests

Check the sensitivity and calibration of any D273 Series Detector model using a visual check, a magnet test, or a voltage measurement test. Refer to the *D263/D273 Series Installation Guide* (P/N: 31341) for specific instructions to perform these sensitivity tests.

Certifications and Approvals

Region	Certification	
USA	UL	UROX: Smoke - Automatic Fire Detectors (UL268 and A), UROX7: Smoke - Automatic Fire Detectors Certified for Canada (cULus)
Hong Kong	HKFSD	D273IS, D273THC, D273THCS, D273THE, D273THES, D273R, and D273S only
USA	MSFM	
	NYC-MEA	274-93-E, Vol. VII
	CSFM	7272-1615:0134

Installation/Configuration Notes

Use smoke detectors for detection circuits that protect people. Use heat detectors for circuits that protect property.

Compatible Products

The following products are compatible with the D273 Series detectors:

Category	Product ID	Product Description
Control Panels	The D273 Series Detector models are compatible with UL Listed four-wire control panels. Refer to the manufacturer's installation instructions to select the correct EOL resistor.	
Modules	D132B	Reversing relay module

Loop Supervision

For loop supervision, install a Bosch Security Systems D275 Power Supervision Module and an EOL resistor after the last device on the loop.

Mounting

The detector has a mounting plate that attaches to a standard four-inch back box.

For commercial and industrial installations in accordance with NFPA 72, space each detector 30 ft (9.2 m) apart.

Wiring

The terminal block accepts up to 12 AWG (2.3 mm) wire. You can remove the terminal block from the detector for easier wiring. The terminal block snaps in and out of the detector.

Parts Included

Quant.	Component
1	Detector
1	Literature pack

Technical Specifications

Environmental Considerations

Relative Humidity:	Up to 93%, non-condensing
Operating and Storage Temperature:	+32°F to +120°F (0°C to +40°C)
Radio Frequency Interference (RFI) Immunity	No alarm or setup on critical frequencies in the range of 26 MHz to 950 MHz.

Mechanical Properties

Dimensions (Diameter x H):	5 in. x 2 in. (12.7 cm x 5.1 cm)
Material:	High impact, fire retardant ABS plastic

Power Requirements

Power-up Time:	22 sec maximum
RMS Ripple:	25% of DC input maximum
Voltage (stand-by):	10 VDC to 30 VDC

Current Draw (alarm) at 30 VDC

D273, D273TH:	18 mA maximum
D273THC:	33 mA maximum
D273THE, D273THR:	36 mA maximum
D273THS:	78 mA maximum
D273THCS:	90 mA maximum
D273THES:	96 mA maximum
D273IS:	100 mA maximum

Current Draw (standby)

D273, D273TH, D27THC, D273THCS, D273THS:	0.1 mA maximum
D273IS:	0.14 mA maximum
D273THE, D273THES:	15 mA
D273THR:	18 mA maximum

Ordering Information

D273 Four-Wire Smoke Detector

Four-wire smoke detector.
Order number **D273**

D273IS Four-Wire Smoke Detector with Isolated Heat Sensor and Sounder
Four-wire smoke detector with an isolated 135°F (57°C) heat sensor and a sounder.
Order number **D273IS**

D273TH Four-Wire Smoke/Heat Detector
Four-wire smoke detector with a 135°F (57°C) heat sensor.
Order number **D273TH**

D273THC Four-Wire Smoke/Heat Detector with Auxiliary Relay
Four-wire smoke detector with an isolated 135°F (57°C) heat sensor and an auxiliary relay.
Order number **D273THC**

D273THCS Four-Wire Smoke/Heat Detector with Auxiliary Relay and Sounder
Four-wire smoke detector with a 135°F (57°C) heat sensor, an auxiliary relay, and a sounder.
Order number **D273THCS**

D273THE Four-Wire Smoke/Heat Detector with EOL Relay
Four-wire smoke detector with a 135°F (57°C) heat detector and an EOL relay.
Order number **D273THE**

D273THES Four-Wire Smoke/Heat Detector with EOL Relay and Sounder
Four-wire smoke detector with a 135°F (57°C) heat sensor, a sounder, and an EOL relay.
Order number **D273THES**

D273THR Four-Wire Smoke/Heat Detector with Trouble Relay
Four-wire smoke detector with a 135°F (57°C) heat sensor and a trouble relay.
Order number **D273THR**

D273THS Four-Wire Smoke/Heat Detector with Sounder
Four-wire smoke detector with a 135°F (57°C) heat sensor and a sounder.
Order number **D273THS**

Accessories

D275 Power Supervision Module
Line supervision device for four-wire fire detection circuits
Order number **D275**

D1005 Test Cable
Connects a digital voltmeter to the detector's calibration pin for verifying that the detector is within its calibration range
Order number **D1005**

DT-2 Detector Removal Tool
Use the DT-2 to remove, replace, or test the detector head
Order number **DT-2**

TP280 Trim Plate
For retrofit and remodeling purposes; 16.2 cm (6 in.) diameter
Order number **TP280**

D1257RB Fire Annunciator

BOSCH

Invented for life

▶ Compatible with Bosch GV4 control panels, Bosch GV3 control panels, and GV2 control panels (firmware version 7.04 and higher)

▶ Can be remotely installed in public access areas

▶ Built-in multi-tone sounder

▶ Easy to read vacuum fluorescent display (VDF) shows complete system status in English

▶ Programmable custom text for each point

The D1257RB Fire Annunciator is typically installed in building entrances and areas with unrestricted access because it lacks function keys. This SDI bus compatible device works with the Bosch Security Systems, Inc. GV4 control panels, GV3 control panels, and GV2 control panels (firmware version 7.04 and higher). Two navigational keys allow the user to step forward or backward through a list of system events. This allows a responding agency or persons evacuating the building to quickly and safely identify the type and location of the emergency.

The annunciator has a built-in sounder that allows it to be installed out of sight. Audible tones alert personnel to fire system events and assist fire fighters to locate the annunciator.

Functions

Display

The display uses words, numbers, and symbols to show the status of the fire system. When several events occur, each event is shown in order of priority followed by the time of occurrence. In conjunction with the 16-character vacuum-fluorescent display (VFD), four LEDs provide the following system status indications:

- Fire
- Silenced
- Supervisory
- Trouble

Certifications and approvals

Region	Certification	
USA	UL	UOXX: Control Unit Accessories, System (ANSI/UL 864)
	FM	
	CSFM	see our website
	FDNY-CoA	6174
	FDNY-CoA	6059 [D9412GV3 & D7412GV3]
	FDNY-CoA	6196

Installation/configuration notes

Compatible Control Panels
- B9512G/B9512G-E
- B8512G/B8512G-E
- D9412GV4/D7412GV4/D7212GV4[1]
- D9412GV3/D7412GV3/D7212GV3[1]

- D9412GV2/D7412GV2/D7212GV2[1]

[1]The D7212GV4, D7212GV3, and D7212GV2 are not listed for commercial fire applications.

Mounting Considerations

The annunciator is a low profile, surface-mounted unit molded in durable red plastic with three mounting holes in the base that allow secure, correct positioning during installation. Protect the surface-mounted annunciator by mounting it to a D56 or D56R Conduit Back Box. For desktop applications, the annunciator can be mounted to a D55 Desk Stand.

> ℹ️ **Notice**
> Do not install the annunciator in direct sunlight. This damages the module components and makes the display less visible. Do not mount in wet or moist locations.

Wiring Considerations

The annunciator connects to the control panel for data and power through a standard four-wire flying lead cable. For field wiring use 0.8 mm (22 AWG) or 1.2 mm (18 AWG) wires. Resistance cannot exceed 25 Ω. The field wiring connects to a four-wire harness supplied with the unit.

> ℹ️ **Notice**
> Use shielded cable where excessive electromagnetic interference is a problem.

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Parts included

Quant.	Component
1	Annunciator
1	Hardware pack
1	Literature pack

Technical specifications

Environmental Considerations

Relative humidity	5% to 93% at +32°C (+90°F)
Temperature (operating)	0°C to +49°C (+32°F to +120°F)

Mechanical Properties

Color:	Red
Dimensions:	11.7 cm x 21 cm x 2 cm (4.6 in. x 8.2 in. x 0.8 in.)
Material:	CHI MEI POLYLAC PA757 ABS with UV Stabilizer. UL94-HB Fire Rated

Power Requirements

Current:	104 mA minimum, 225 mA maximum
Voltage:	12 VDC nominal supplied by the control panel

Ordering information

D1257RB Fire Annunciator
Red and gray case.
Order number **D1257RB**

Accessories

D55 Keypad Desk Stand
Portable desk stand in smoke colored Plexiglas.
Order number **D55**

D56 Surface Mount Conduit Box
White surface mount box.
Order number **D56**

D56R Red Surface Mount Conduit Box
Red surface mount box.
Order number **D56R**

Altronix®

AL602ULADA, AL802ULADA, AL1002ULADA NAC Power Extenders

Overview

- The AL602ULADA, AL802ULADA and AL1002ULADA are extremely cost effective voltage regulated remote NAC Power Extenders. They may be connected to any 12 or 24 volt Fire Alarm Control Panel (FACP). Primary applications include Notification Appliance Circuit (NAC) expansion (supports ADA requirements) and will provide auxiliary power to support system accessories.

AL602ULADA
- 24VDC or 12VDC rated @ 6.5 amp max.
- Two (2) Class A or four (4) Class B outputs.

AL602ULADAJ
- Larger enclosure.

AL802ULADA
- 24VDC or 12VDC rated @ 8 amp max.
- Two (2) Class A or four (4) Class B outputs.

AL802ULADAJ
- Larger enclosure.

AL1002ULADA
- 24VDC rated @ 10 amp max.
- Two (2) Class A or four (4) Class B outputs.

AL1002ULADAJ
- Larger enclosure.

Specifications

- Two (2) Class A or two (2) Class B FACP inputs.
- Two (2) NC dry contact trigger inputs (AL802ULADA and AL1002ULADA only)
- Two (2) Class A or four (4) Class B indicating circuits.
- Two (2) Class B outputs may be paralleled for more power on an indicating circuit.
- One (1) Aux. Power Output @ 1 amp supply current (w/battery back up).
- Signal Circuit Trouble Memory - facilitates quickly locating intermittent system trouble and eliminates costly and unnecessary service calls. LED's indicate a prior fault (short, open, ground) has occurred on one or more signaling circuit outputs.
- 2-wire Horn/Strobe Sync mode allows audible notification appliances (Horns) to be silenced while visual notification appliances (Strobes) continue to operate.
- Horn/Strobe sync protocols include: Gentex®, System Sensor®, Faraday, Amseco.

- Temporal Code 3 Mode.
- Steady Mode.
- Input to Output Follower Mode (maintains synchronization of notification appliance circuits).
- March Time.
- Compatible with 24VDC or 12VDC fire panels.
- Common trouble inputs and outputs.
- Ground fault detection.
- Input 115VAC.
- AC fail supervision (form "C" contacts).
- Low battery supervision (form "C" contacts).
- Battery presence supervision (form "C" contacts).
- Power supply, logic board, red enclosure, cam lock, transformer & battery leads.
- Enclosure:
  - Combination knockouts re 1/2" and 3/4"
  - Accommodates up to two (2) 12VDC/12AH batteries.

Agency Approvals

UL Listed Control Units and Accessories for Fire Alarm Systems (UL 864), UL Listed Standard for Safety for Fire Protective Signaling Systems (UL 1481).

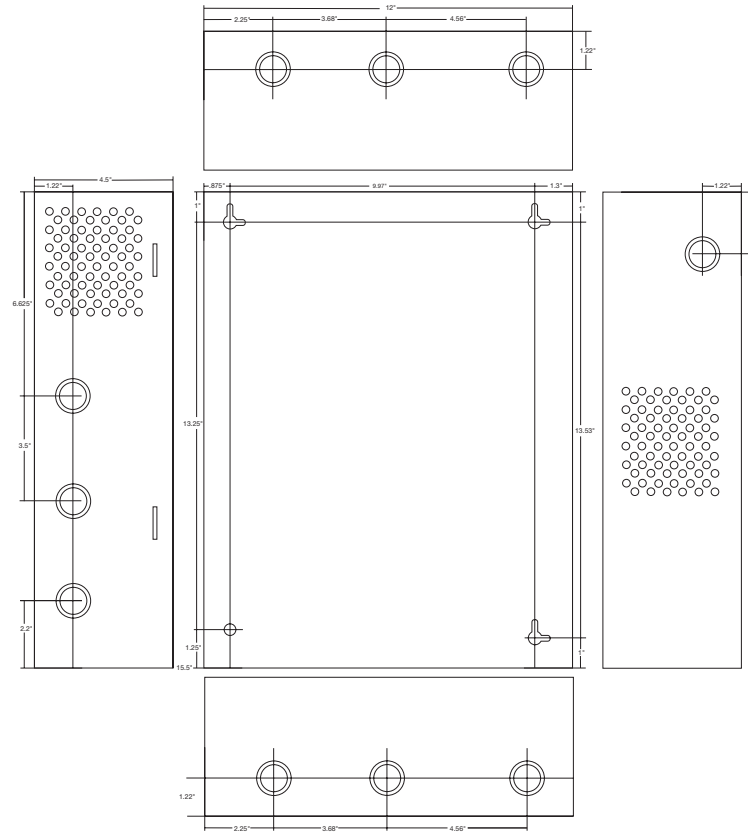California State Fire Marshal Approved.

MEA Approved NYC Department of Buildings Approved.
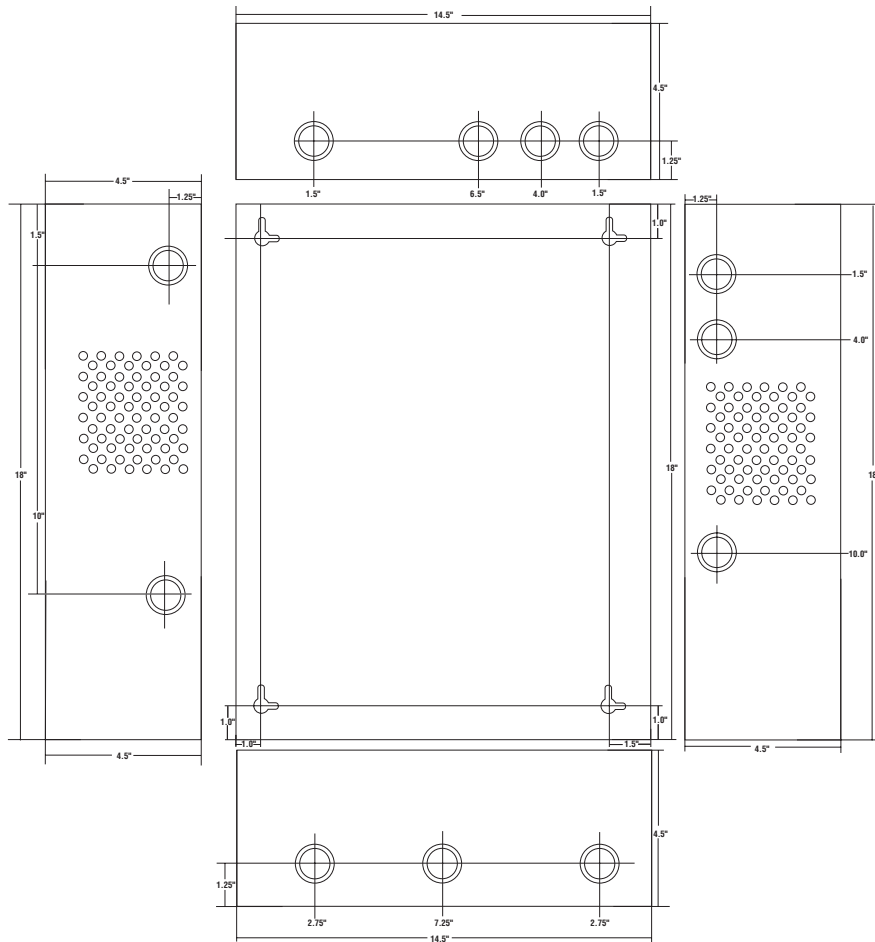
FM APPROVED Factory Mutual Approved.

Enclosure Dimensions

AL602ULADA, AL802ULADA and AL1002ULADA: 15.5"H x 12"W x 4.5"D

AL602ULADAJ, AL802ULADAJ and AL1002ULADAJ: 18"H x 14.5"W x 4.625"D

BOSCH

Invented for life

FMM-100 Series Die-cast Metal Fire Alarm Manual Stations

▸ **Single or dual action**

▸ **Terminal connections**

▸ **Gold-plated alarm contacts for corrosion resistance**

▸ **Surface or weatherproof back boxes**

The FMM-100 Series is a family of versatile, high-quality, metal fire alarm manual stations. Single-action or dual-action models are available. All models come with a key lock and contain gold-plated contacts to resist corrosion.

Functions

Operation

Single-action

When the bar on the front of the manual station is pulled, it latches open and is easily visible from 50 ft (15 m). Reset the activation bar by opening the manual station with the key and placing the activation bar in its normal upright position. An optional scored acrylic break rod is available.

Dual-action

With the dual-action configuration the upper bar on the front of the manual station rotates inward allowing the activation bar to be grasped and operated by a single hand.

Certifications and Approvals

Region	Certification	
USA	UL	UNIU: Boxes, Non-Coded (UL38), UNIU7: Boxes, Non-Coded Certified for Canada (cULus)
	CSFM	7150-1615: 224
	NYC-MEA	382-94-E or 382-94-E, Vol. 3

Installation/Configuration Notes

Compatibility Information

Compatible with all Bosch Security Systems, Inc. Fire Alarm Control Panels.

Mounting Considerations

The FMM Series manual stations can be surface mounted on either the FMM-100BB-R Surface-mount Back Box or the FMM-100WPBB-R Weatherproof Back Box. They can also be flush mounted on a standard single-gang back box.

Note   When properly mounted on the FMM-100WPBB-R Weatherproof Back Box, these manual stations meet UL requirements for outdoor use.

To comply with ADA standards, the manual station must be less than 48 in. (1.2 m) above the floor for front wheelchair access and less than 54 in. (1.3 m) above the floor for side wheelchair access.

Parts Included

Quant.	Component
1	Manual station
1	D102 Key (1358 key)
1	FMM-100GR Acrylic Break Rod
1	Hardware pack
1	Literature pack

Technical Specifications

Environmental Considerations

Relative Humidity:	90% at +100℉ (+38℃)
Temperature (operating):	-40℉ to +150℉ (-40℃ to +66℃)

Mechanical Properties

Color:	Red
Dimensions (H x W x D):	4.75 in. x 3.25 in. x 1.1 in. (12 cm x 8.3 cm x 2.8 cm)
Material:	die-cast metal

Inputs

Switch Rating:	1 A at 30 VDC or 125 VAC

Ordering Information

FMM-100SATK Single-action Manual Station (red)
Versatile, high-quality, metal single-action fire alarm manual station with key lock and gold-plated contacts
FMM-100SATK

FMM-100SATK-NYC Single-action Manual Station for New York City
Versatile, high-quality, metal single-action fire alarm manual station for New York City with key lock and gold-plated contacts
FMM-100SATK-NYC

FMM-100DATK Dual-action Manual Station (red)
Versatile, high-quality, metal dual-action fire alarm manual station with key lock and gold-plated contacts
FMM-100DATK

Accessories

D102 Replacement Key
Replacement key (#1358) for the D101 lock.
D102

FMM-100BB-R Surface-mount Back Box (red)
Red cast-metal back box
FMM-100BB-R

FMM-100WPBB-R Weatherproof Back Box (red)
Red cast-metal weatherproof back box
FMM-100WPBB-R

FMM-100GR Scored Acrylic Break Rods
Scored acrylic rods (12 per package)
FMM-100GR

Indoor Selectable-Output Strobes and Horn Strobes for Ceiling Applications

SpectrAlert® Advance audible visible notification products are rich with features guaranteed to cut installation times and maximize profits.

Features

- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Field-selectable candela settings on ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and three volume selections
- Universal mounting plate for ceiling units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically Compatible with legacy SpectrAlert devices
- Compatible with MDL sync module
- Listed for ceiling or wall mounting

The SpectrAlert Advance series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry. With white and red plastic housings, wall and ceiling mounting options, and plain and FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement.

Like the entire SpectrAlert Advance product line, ceiling-mount strobes and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, SpectrAlert Advance utilizes a universal mounting plate with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to a suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with three volume selections.

Agency Listings

SIGNALING
UL LISTED
S4011 (chimes, horn strobes, horns)
S5512 (strobes)

FM APPROVED
3023572

MEA approved
MEA452-05-E

7125-1653:186 (indoor strobes)
7125-1653:188 (horn strobes, chime strobes)
7135-1653:189 (horns, chimes)

SpectrAlert Advance Specifications

General

SpectrAlert Advance strobes and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 17⁄8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn on horn strobe models shall operate on a coded or non-coded power supply.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 411⁄16 × 411⁄16 × 21⁄8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications	
Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8″ diameter × 2.5″ high (173 mm diameter × 64 mm high)
Ceiling-Mount Back Box Skirt Dimensions (BBSC-2, BBSCW-2)	7.1″ diameter × 2.2″ high (180 mm diameter × 57 mm high)
Ceiling-Mount Trim Ring Dimensions (sold as a 5 pack) (TRC-HS, TRCW-HS)	6.9″ diameter × 0.35″ high (175 mm diameter × 9 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

| | Candela | 8–17.5 Volts | | 16–33 Volts | |
		DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71
	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)

| | 8–17.5 Volts | | 16–33 Volts | | | | | | |
DC Input	15	15/75	15	15/75	30	75	95	110	115
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non-Temporal High	141	152	91	100	116	176	201	221	229
Non-Temporal Medium	133	145	75	85	102	163	187	207	216
Non-Temporal Low	131	144	68	79	96	156	182	201	210
FWR Input									
Temporal High	136	155	88	97	112	168	190	210	218
Temporal Medium	129	152	78	88	103	160	184	202	206
Temporal Low	129	151	76	86	101	160	184	194	201
Non-Temporal High	142	161	103	112	126	181	203	221	229
Non-Temporal Medium	134	155	85	95	110	166	189	208	216
Non-Temporal Low	132	154	80	90	105	161	184	202	211

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135–185 cd)

| | 16–33 Volts | | | | | 16–33 Volts | | | |
DC Input	135	150	177	185	FWR Input	135	150	177	185
Temporal High	245	259	290	297	Temporal High	215	231	258	265
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258
Temporal Low	232	251	282	292	Temporal Low	207	221	248	256
Non-Temporal High	255	270	303	309	Non-Temporal High	233	248	275	281
Non-Temporal Medium	242	259	293	299	Non-Temporal Medium	219	232	262	267
Non-Temporal Low	238	254	291	295	Non-Temporal Low	214	229	256	262

Horn Strobe Tones and Sound Output Data

Horn Strobe Output (dBA)

| Switch Position | Sound Pattern | dB | 8–17.5 Volts | | 16–33 Volts | | 24-Volt Nominal | | | |
| | | | | | | | Reverberant | | Anechoic | |
			DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100
5	Non-Temporal	Medium	78	78	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7[†]	Coded	High	82	82	88	88	93	92	101	101
8[†]	Coded	Medium	78	78	85	85	90	90	97	98
9[†]	Coded	Low	75	75	81	81	88	85	96	92

[†]Settings 7, 8, and 9 are not available on 2-wire horn strobes.

AVDS00501

SpectrAlert Advance Dimensions

6.8″ Dia.

2.5″

Ceiling-mount horn strobes

7.1″ Dia.

2.25″

Ceiling back box skirt
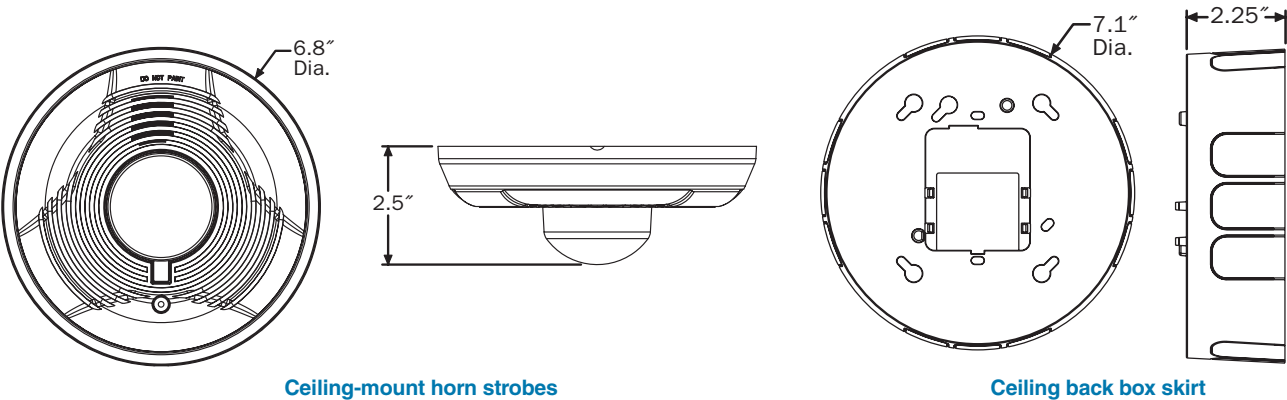
SpectrAlert Advance Ordering Information

Model	Description
Ceiling Horn Strobes	
PC2R*	2-Wire Horn Strobe, Standard cd, Red
PC2RH	2-Wire Horn Strobe, High cd, Red
PC2W*†	2-Wire Horn Strobe, Standard cd, White
PC2WH*	2-Wire Horn Strobe, High cd, White
PC4R	4-Wire Horn Strobe, Standard cd, Red
PC4RH	4-Wire Horn Strobe, High cd, Red
PC4W	4-Wire Horn Strobe, Standard cd, White

Model	Description
Ceiling Strobes	
SCR	Strobe, Standard cd, Red
SCRH	Strobe, High cd, Red
SCW*	Strobe, Standard cd, White
SCWH	Strobe, High cd, White
Accessories	
BBSC-2	Back Box Skirt, Ceiling, Red
	Back Box Skirt, Ceiling, White
TRC-HS	Trim Ring, Ceiling, Red
TRCW-HS	Trim Ring, Ceiling, White

Notes:

* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g., P2R-P.

† Add "-SP" to model number for "FUEGO" marking on cover, e.g., P2R-SP.

‡ "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings.

System Sensor

Outdoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

SpectrAlert® Advance outdoor audible visible products are rich with features that cut installation times and maximize profits.

SpectrAlert Advance

Features

- Weatherproof per NEMA 4X, IP56
- Listed to UL 1638 (strobe) and UL 464 (horn)
- Compatible with System Sensor synchronization protocol and legacy SpectrAlert products
- Field-selectable candela settings: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Rotary switch for horn tone and three volume selections
- Horn rated at 88+ dBA at 16 volts
- Rated from –40°F to 151°F
- Universal mounting plate with an onboard shorting spring that tests wiring continuity before devices are installed
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Listed for ceiling or wall mounting

SpectrAlert Advance offers the broadest line of outdoor horns, strobes, and horn strobes in the industry. With white or red plastic housings, wall or ceiling mounting options, and plain or FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement, including indoor, outdoor, wet, and dry applications in temperatures from –40°F to 151°F.

Like the entire SpectrAlert Advance line, outdoor horns, strobes, and horn strobes for wall applications include a variety of features that increase application flexibility and simplify installation. First, field-selectable settings, including candela, automatic selection of 12- or 24-volt operation, horn tones, and three volume options enable installers to easily adapt devices to meet requirements.

Next, SpectrAlert Advance devices use a universal mounting plate for both wall and ceiling applications. This mounting plate includes an onboard shorting spring that ensures wiring continuity before devices are installed, so installers can verify proper wiring without mounting the devices and exposing them to potential construction damage. Once the plates are mounted, all SpectrAlert Advance devices utilize a plug-in design with a single captured screw to speed installation and virtually eliminate costly ground faults.

Outdoor devices ship with weatherproof plastic back boxes (metal back boxes are available separately) that accommodate in-and-out wiring for daisy chaining devices. Plastic back boxes feature removable side flanges and improved resistance to saltwater corrosion. Knock-outs located on the back eliminate the need to drill holes for screw-in mounting. Plastic and metal weatherproof back boxes come with ¾-inch top and bottom conduit entries and ¾-inch knock-outs at the back. A screw-in NPT plug with an O-ring gasket for a watertight seal is included with each back box.

Agency Listings

SIGNALING

UL LISTED
S4011 (chimes, horn strobes, horns)
S3593 (outdoor and alert strobes)

FM APPROVED
3023572

MEA approved
MEA452-05-E

7300-1653:187 (outdoor strobes)
7125-1653:188 (horn strobes, chime strobes)
7135-1653:189 (horns, chimes)

SpectrAlert Advance Outdoor Horn, Strobe, and Horn Strobe Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance outdoor horns, strobes, and horn strobes shall mount to a weatherproof back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 17 and 33 volts. Outdoor SpectrAlert Advance products shall operate between –40 and 151 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The strobe shall be suitable for use in wet environments.

Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options shall be set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn or horn strobe models shall operate on a coded or non-coded power supply. The horn strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The horn strobe shall be suitable for use in wet environments.

Physical/Electrical Specifications	
Operating Temperature	–40°F to 151°F (–40°C to 66°C)
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Wall-Mount Dimensions (including lens)	5.6˝L × 4.7˝W × 2.5˝D (142 mm L × 119 mm W × 64 mm D)
Horn Dimensions	5.6˝L × 4.7˝W × 1.3˝D (142 mm L × 119 mm W × 33 mm D)
Wall-Mount Weatherproof Back Box Dimensions (SA-WBB)	5.7˝L × 5.1˝W × 2.0˝D (145 mm L × 130 mm W × 51 mm D)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

		8–17.5 Volts		16–33 Volts	
	Candela	DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71
	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

UL Max. Horn Current Draw (mA RMS)

		8–17.5 Volts		16–33 Volts	
Sound Pattern	dB	DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non-Temporal	High	57	56	69	75
Non-Temporal	Medium	42	50	60	69
Non-Temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)

	8–17.5 Volts		16–33 Volts						
DC Input	15	15/75	15	15/75	30	75	95	110	115
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non-Temporal High	141	152	91	100	116	176	201	221	229
Non-Temporal Medium	133	145	75	85	102	163	187	207	216
Non-Temporal Low	131	144	68	79	96	156	182	201	210
FWR Input									
Temporal High	136	155	88	97	112	168	190	210	218
Temporal Medium	129	152	78	88	103	160	184	202	206
Temporal Low	129	151	76	86	101	160	184	194	201
Non-Temporal High	142	161	103	112	126	181	203	221	229
Non-Temporal Medium	134	155	85	95	110	166	189	208	216
Non-Temporal Low	132	154	80	90	105	161	184	202	211

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135–185 cd)

	16–33 Volts					16–33 Volts			
DC Input	135	150	177	185	**FWR Input**	135	150	177	185
Temporal High	245	259	290	297	Temporal High	215	231	258	265
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258
Temporal Low	232	251	282	292	Temporal Low	207	221	248	256
Non-Temporal High	255	270	303	309	Non-Temporal High	233	248	275	281
Non-Temporal Medium	242	259	293	299	Non-Temporal Medium	219	232	262	267
Non-Temporal Low	238	254	291	295	Non-Temporal Low	214	229	256	262

Candela Derating

For K series products used at low temperatures, listed candela ratings must be reduced in accordance with this table.

Strobe Output (cd)

Listed Candela	Candela rating at –40°F
15	Do not use below 32°F
15/75	
30	
75	44
95	70
110	110
115	115
135	135
150	150
177	177
185	185

Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)

Switch Position	Sound Pattern	dB	8–17.5 Volts		16–33 Volts		24-Volt Nominal			
							Reverberant		Anechoic	
			DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100
5	Non-Temporal	Medium	78	78	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7[†]	Coded	High	82	82	88	88	93	92	101	101
8[†]	Coded	Medium	78	78	85	85	90	90	97	98
9[†]	Coded	Low	75	75	81	81	88	85	96	92

[†]Settings 7, 8, and 9 are not available on 2-wire horn strobe.
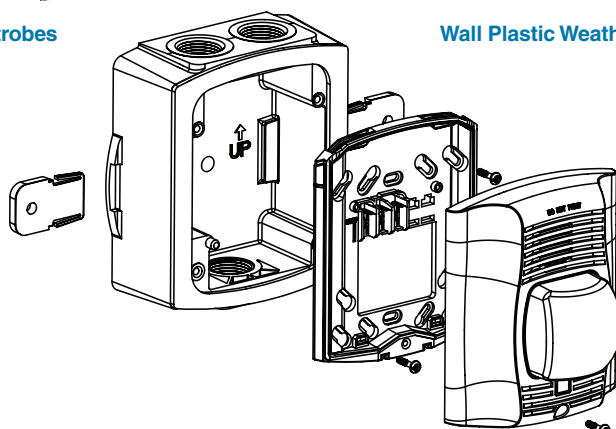
AVDS01201

SpectrAlert Advance Diagrams

4.7˝

2.5˝

5.6˝
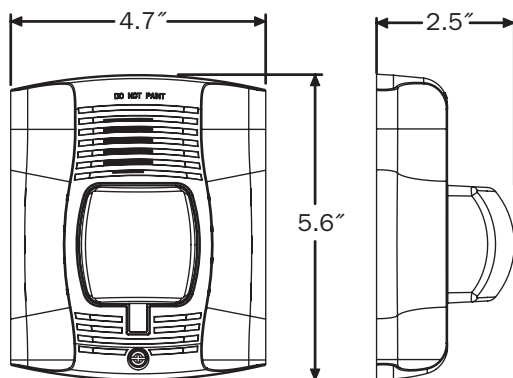
Wall-Mount Horn Strobes
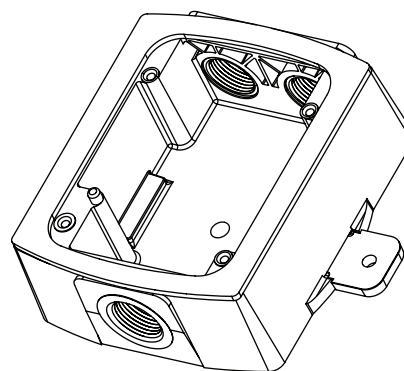
Wall Plastic Weatherproof Back Box

Wall-Mount Horn Strobe with Plastic Weatherproof Back Box

SpectrAlert Advance Ordering Information

Model	Description
Wall Horn Strobes	
P2RK*†	2-Wire Horn Strobe, Standard cd, Red, Outdoor (includes plastic weatherproof back box)
P2RHK*†	2-Wire Horn Strobe, High cd, Red, Outdoor (includes plastic weatherproof back box)
P2WK*†	2-Wire Horn Strobe, Standard cd, White, Outdoor (includes plastic weatherproof back box)
P2WHK*†	2-Wire Horn Strobe, High cd, White, Outdoor (includes plastic weatherproof back box)
P4RK†	4-Wire Horn Strobe, Standard cd, Red, Outdoor (includes plastic weatherproof back box)
P4WK	4-Wire Horn Strobe, Standard cd, White, Outdoor (includes plastic weatherproof back box)
P2RHK-120	2-Wire Horn Strobe, High cd, Red, Outdoor, 120 V (includes plastic weatherproof back box)
Wall Strobes	
SRK*†	Strobe, Standard cd, Red, Outdoor (includes plastic weatherproof back box)
SRHK*†	Strobe, High cd, Red, Outdoor (includes plastic weatherproof back box)
SWK*†	Strobe, Standard cd, White, Outdoor (includes plastic weatherproof back box)
SWHK*†	Strobe, High cd, White, Outdoor (includes plastic weatherproof back box)
Horns	
HRK†	Horn, Red, Outdoor (includes plastic weatherproof back box)
Accessories	
SA-WBB	Red, Metal Weatherproof Back Box
SA-WBBW	White, Metal Weatherproof Back Box

Notes:
* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g., P2RK-P.
† Add "-R" to model number for weatherproof replacement device (no back box included), only for use with weatherproof outdoor flush mounting plate, WTP and WTPW. "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. **When replacing standard outdoor units both the device and back box must be replaced.**

Indoor Selectable-Output Strobes and Horn Strobes for Ceiling Applications

System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.

Features

- Plug-in design with minimal intrusion into the back box

- Tamper-resistant construction

- Automatic selection of 12- or 24-volt operation at 15 and 30 candela

- Field-selectable candela settings on ceiling units: 15, 30, 75, 95, 115, 150, and 177

- Horn rated at 88+ dBA at 16 volts

- Rotary switch for horn tone and two volume selections

- Universal mounting plate for ceiling units

- Mounting plate shorting spring feature checks wiring continuity before device installation

- Electrically Compatible with legacy SpectrAlert and SpectrAlert Advance devices

- Compatible with MDL3 sync module

- Listed for ceiling mounting only

The System Sensor L-Series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, wall and ceiling mounting options, System Sensor L-Series can meet virtually any application requirement.

The entire L-Series product line of ceiling-mount strobes and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature a plug-in design with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation, the L-Series utilizes a universal mounting plate so installers can mount them to a wide array of back boxes. With an onboard shorting spring, installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to a suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

Agency Listings

SIGNALING
UL
LISTED
S5512
S4011

FM
APPROVED
FM approved except for ALERT models
3057383

7125-1653:0504
7135-1653:0503

L-Series Specifications

General

L-Series ceiling-mount strobes and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 1⅞-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Ceiling strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 115, 150, and 177.

Strobe

The strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Horn Strobe Combination

The horn strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have two audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. The horn on horn strobe models shall operate on a coded or non-coded power supply.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize L-Series strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 11/16 × 4 11/16 × 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications	
Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 VDC or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage Range (MDL3)	8.5 to 17.5V (12 V nominal) or 16.5 to 33 V (24V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8" diameter × 2.5" high (173 mm diameter × 64 mm high)
Ceiling-Mount Surface Mount Back Box Skirt Dimensions (SBBCRL, SBBCWL)	6.9" diameter x 3.4" high (175 mm diameter x 86 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 30 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

		8–17.5 Volts	16–33 Volts	
	Candela	DC	DC	FWR
Candela Range	15	87	41	60
	30	153	63	86
	75	N/A	111	142
	95	N/A	134	164
	115	N/A	158	191
	150	N/A	189	228
	177	N/A	226	264

UL Max. Horn Current Draw (mA RMS)

		8–17.5 Volts	16–33 Volts	
Sound Pattern	dB	DC	DC	FWR
Temporal	High	39	44	54
Temporal	Low	28	32	54
Non-Temporal	High	43	47	54
Non-Temporal	Low	29	32	54
3.1 KHz Temporal	High	39	41	54
3.1 KHz Temporal	Low	29	32	54
3.1 KHz Non-Temporal	High	42	43	54
3.1 KHz Non-Temporal	Low	28	29	54
Coded	High	43	47	54
3.1 KHz Coded	High	42	43	54

UL Max. Current Draw (mA RMS), Ceiling Horn Strobe, Candela Range (15–177 cd)

	8–17.5 Volts		16–33 Volts						
DC Input	15cd	30cd	15cd	30cd	75cd	95cd	115cd	150cd	177cd
Temporal High	103	167	71	90	143	165	187	217	254
Temporal Low	96	165	54	71	137	161	185	211	249
Non-Temporal High	106	173	71	90	141	165	187	230	273
Non-Temportal Low	95	166	54	71	124	161	170	216	258
3.1K Temporal High	111	164	69	94	147	163	184	229	257
3.1K Temporal Low	103	163	54	88	143	155	185	212	252
3.1K Non-Temporal High	111	172	69	94	144	164	202	229	271
3.1K Non-Temporal Low	103	169	54	88	131	155	187	217	259

	16–33 Volts								
FWR Input	15cd	30cd	75cd	95cd	115cd	150cd	177cd		
Temporal High	107	135	179	198	223	254	286		
Temporal Low	78	101	151	172	199	229	262		
Non-Temporal High	107	135	179	198	223	254	286		
Non-Temportal Low	78	101	151	172	199	229	262		
3.1K Temporal High	108	135	179	200	225	255	289		
3.1K Temporal Low	79	101	150	171	196	229	260		
3.1K Non-Temporal High	108	135	179	200	225	255	289		
3.1K Non-Temporal Low	79	101	150	171	196	229	260		

Horn Strobe Tones and Sound Output Data

Horn Strobe Output (dBA)

Switch Position	Sound Pattern	dB	8–17.5 Volts DC	16–33 Volts DC	FWR
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83

L-Series Dimensions

2.47" (62.7 mm)
1.37" (34.8 mm)

6.83" diam.
(173 mm)

A0545-00

Ceiling-Mount Horn Strobes

6.92" diam.
(175.77 mm)

2.5"
(64 mm)
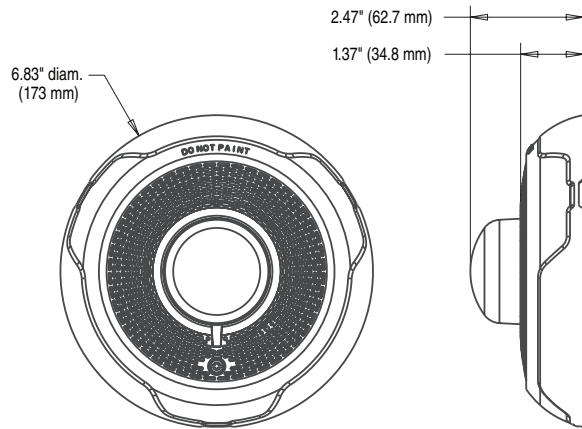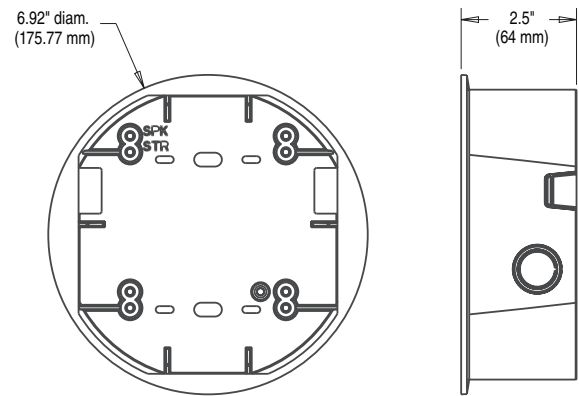
A0546-00
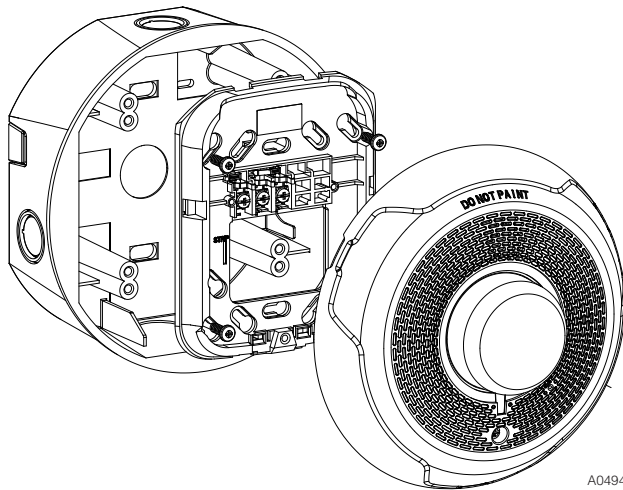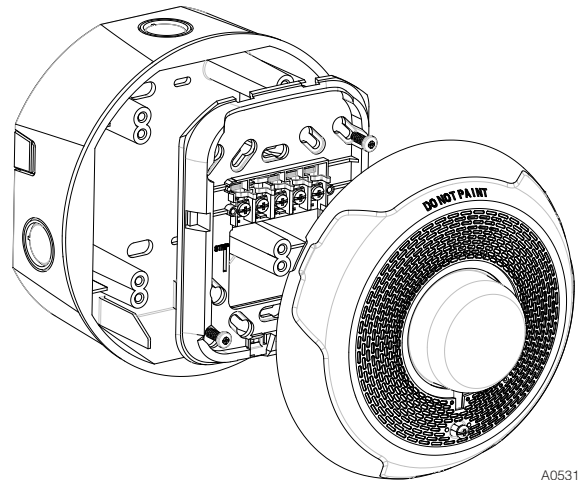
Ceiling Surface Mount Back Box

A0494-01

**2-Wire Ceiling Mount Horn Strobes
with Ceiling Surface Mount Back Box**

A0531-01

**4-Wire Ceiling Mount Horn Strobes
with Ceiling Surface Mount Back Box**

L-Series Ordering Information

Model	Description
Ceiling Horn Strobes	
PC2RL	2-Wire, Horn Strobe, Red
PC2WL	2-Wire, Horn Strobe, White
PC4RL	4-Wire, Horn Strobe, Red
PC4WL	4-Wire, Horn Strobe, White

Model	Description
Ceiling Strobes	
SCRL	Strobe, Red
SCWL	Strobe, White
SCWL-CLR-ALERT	Strobe, White, ALERT
Accessories	
TRC-2	Universal Ceiling Trim Ring Red
TRC-2W	Universal Ceiling Trim Ring White
SBBCRL	Ceiling Surface Mount Back Box, Red
SBBCWL	Ceiling Surface Mount Back Box, White

For a ceiling-listed horn-only device, see AVDS865 "Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications".

POTTER
The Symbol of Protection

PROVIDED AS A COURTESY BY:
PACIFIC
PIPELINE SUPPLY

UL, ULC, and CSFM Listed, FM Approved, NYMEA Accepted, CE Marked

Dimensions: 4.75"L x 2.25"W x 8.2"H (stem extended)
12,1cm L x 5,7cm W x 18,3cm H

Weight: 1.35 lb. (0,61 kg.)

Enclosure: Cover - Die-cast
Finish - Red Spatter Enamel
Base - Die Cast Zinc
All parts have corrosion resistant finishes.

Cover Tamper: Tamper Resistant Screws,
Optional cover tamper switch kit available

Mounting: 1/2" NPT

Contact Rating: PCVS-1: One set of SPDT (Form C)
PCVS-2: Two sets of SPDT (Form C)
15 Amps at 125/250VAC
2.5 Amps at 30VDC resistive

Environmental Limitations: -40°F to +140°F (-40°C to 60°C)
NEMA 4 and NEMA 6P Enclosure (IP67) when used with appropriate watertight conduit fittings.
Indoor or Outdoor Use (Not for use in hazardous locations. See bulletin no. 5400694 PIVS-U-EX for hazardous locations.)

Conduit Entrances: Two knockouts for 1/2" conduit provided.

Service Use:

Automatic Sprinkler	NFPA-13
One or two family dwelling	NFPA-13D
Residential occupancy up to four stories	NFPA-13R
National Fire Alarm Code	NFPA-72

The Model PCVS is a weather proof and tamper resistant switch for monitoring the open position of fire sprinkler control valves of the post indicator, butterfly and other types. Depending on the model, one or two SPDT (Form C) contacts are provided which will operate when the valve position is altered from an open state.

The unit mounts in a 1/2" NPT tapped hole in the post indicator or butterfly valve housing. The device is engaged by the indicating assembly of the post indicator or the operating mechanism of the butterfly valve, actuating switch(es) when the valve is fully open. The unit should be installed where it is accessible for service.

The cover is held in place by two tamper resistant screws that require a special tool to remove. The tool is furnished with each device and should be left with the building owner or responsible party. Replacement or additional cover screws and hex keys are available. See ordering information.

Optional Cover Tamper Switch

A field installable cover tamper switch is available as an option which may be used to indicate removal of the cover. See ordering information.

Testing

The PCVS and its associated protective monitoring system should be tested in accordance with applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Ordering Information

Model	Description	Stock No.
PCVS-1	Potter Control Valve Switch (single switch)	1010107
PCVS-2	Potter Control Valve Switch (double switch)	1010207
--	Cover Screw	5490424
--	Hex Key for Cover Screws and Installation Adjustments	5250062
PBK-S	Pratt Butterfly Valve Kit - Up to 12" (300mm)	0090133
PBK-L	Pratt Butterfly Valve Kit - 14" (355mm) and Up	0090132
PVK	Pratt Valve Kit	1000060
--	Optional Cover Tamper Switch Kit	0090131
KBK	Kennedy Butterfly Valve Kit	0090143

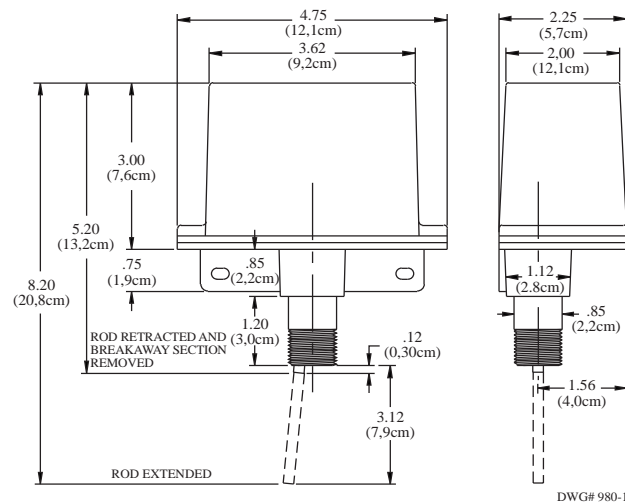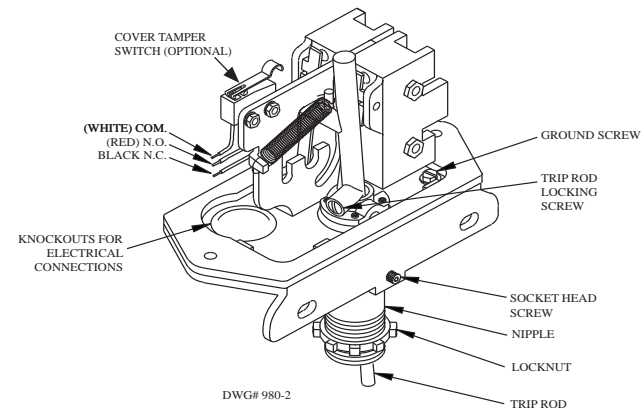For pressure reducer type valve installation kits (if required) contact valve manufacturer.

PROVIDED AS A COURTESY BY:
PACIFIC PIPELINE SUPPLY

POTTER
The Symbol of Protection

Fig. 1   Dimensions

4.75 (12,1cm)
3.62 (9,2cm)
3.00 (7,6cm)
5.20 (13,2cm)
8.20 (20,8cm)
.75 (1,9cm)
.85 (2,2cm)
1.20 (3,0cm)
.12 (0,30cm)
3.12 (7,9cm)
ROD RETRACTED AND BREAKAWAY SECTION REMOVED
ROD EXTENDED

2.25 (5,7cm)
2,00 (12,1cm)
1.12 (2.8cm)
.85 (2,2cm)
1.56 (4,0cm)

DWG# 980-1

Fig. 2   Parts

COVER TAMPER SWITCH (OPTIONAL)
(WHITE) COM.
(RED) N.O.
BLACK N.C.
KNOCKOUTS FOR ELECTRICAL CONNECTIONS
GROUND SCREW
TRIP ROD LOCKING SCREW
SOCKET HEAD SCREW
NIPPLE
LOCKNUT
TRIP ROD
DWG# 980-2

Typical Installations On Post Indicator Valve Housings (See Figs. 3 Thru 6)

Refer to Fig. 2 for the location of parts described in the following instructions.

Note: If the sprinkler system is in service the owner or authorized representative should be notified, before any work is done on the system, that the valve controlling the water supply to the system may be closed for periods of time during the installation and testing of this device, resulting in all or portions of the system being inoperative during these periods.

If the system is not in service and valve is closed, be sure that opening the valve will not allow any unwanted water flow due to openings in the system, such as heads off, broken or incomplete piping, etc.

1. Position the valve to fully open ("OPEN" should appear in the window of the housing). Partially close the valve while observing the direction that the target assembly moves. Reopen the valve.

    If the valve housing is predrilled with a 1/2" NPT for installation of a monitoring switch, remove the 1/2" plug and fully open the valve. Make sure that "OPEN" appears in the window of the housing. GO TO STEP NO. 6.

2. Remove the head and target assembly (consultation with valve manufacturer is recommended).

3. If the target assembly moved up as the valve was closed, measure the distance from the bottom of the head to the lower part of the target assembly that will contact the trip rod of the PCVS (see Fig. 3). This is usually a plate or bar on the target assembly, on a side adjacent to the "OPEN/SHUT" plates. Subtract 1/8" from the measurement.

    If the target moved down as the valve was closed, measure the distance from the bottom of the head to the upper portion of the target assembly that will contact the trip rod of the PCVS (see Fig. 4). Add 1/8" (3,2mm) to this measurement.

4. Mark the housing at the proper location. Using a 23/32" (18,2mm) drill bit, drill and then tap a 1/2" NPT in the housing on the side that coincides with the portion of the target assembly that will engage the trip rod of the PCVS.

5. Replace the head and target assembly.

6. Loosen the socket head screw that holds the nipple in the PCVS and remove the nipple.

7. Screw the locknut that is provided onto the nipple.

8. Screw the nipple into the 1/2" NPT hole in the valve housing - hand tighten. Tighten the locknut against the valve housing to secure the nipple firmly in place.

9. Insert a scale or probe thru the nipple to measure the distance from the open end of the nipple to the target assembly. Subtract 1/2" (12,5mm) from this measurement.

    NOTE: In some cases, it may be necessary to attach an angle bracket to the target assembly to engage the PCVS trip rod.

10. Using the special tool provided, loosen the two cover screws and remove the cover from the PCVS.

11. Loosen the locking screw that holds the trip rod in place and adjust the rod length, from the end of the collar to the end of the rod, using the dimension determined in Step 9. Tighten the locking screw to hold the rod in place.

    NOTE: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 7). Reinstall trip rod and repeat Step 11 procedure.

12. Partially close the valve (3 to 4 revolutions of the handle/hand wheel).

13. Slide the PCVS unit as far as possible onto the nipple, observing which direction the rod will move when the valve is closed. Orient the device to actuate the switches when the valve is open. Tighten the socket head screw in the collar.

14. Carefully open the valve to the fully open position. As the target moves to the open position it should engage the trip rod and actuate the switch(es). There should be a minimum overtravel of 1/2 revolution of the handle/hand wheel after the switch(es) actuate (a continuity meter connected to each set of contacts is one method that could be used to determine this).

15. Slowly close the valve. The switch must operate during the first two revolutions of the handle/hand wheel or during 1/5 of the travel distance of the valve control apparatus from its normal condition.

    NOTE: Small adjustments of the target position may be necessary (consultation with valve manufacturer is recommended).

16. Complete the required electrical wiring, connections and tests. The valve should be operated through the entire cycle of fully closed and fully open to determine the integrity of the PCVS installation and the signaling system. Check that all electrical and mechanical connections are secure.

17. When the installation and testing are complete, return valve to its proper position.

18. Alternative installation for other post indicator valve housing shown in Fig. 5 and 6.

P POTTER
The Symbol of Protection

PROVIDED AS A COURTESY BY:
PACIFIC
PIPELINE SUPPLY

PCVS-1, -2
CONTROL VALVE
SUPERVISORY SWITCH

Fig. 3

TARGET MOVES UP AS VALVE IS SHUT

OPEN
UT

TAMPER SWITCH

Fig. 4

UT
OPEN

TAMPER SWITCH

TARGET MOVES DOWN AS VALVE IS SHUT

Fig. 5

METAL PLATE REPLACES GLASS

STEEL TRIPPING BLOCK - REPLACES OPEN MARKER

SHUT MARKER

TARGET ASSEMBLY

TARGET MOVES UP AS VALVE IS SHUT

Fig. 6

LOCKNUT

TAMPER SWITCH

OPEN

UT

FLEXIBLE CONDUIT

11 3/8" (28,9cm)

HOOD MOVES DOWN AS VALVE IS SHUT

DWG# 980-30
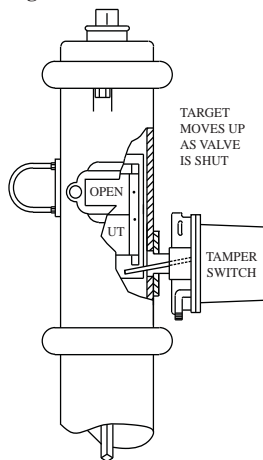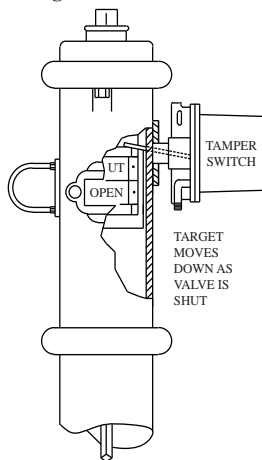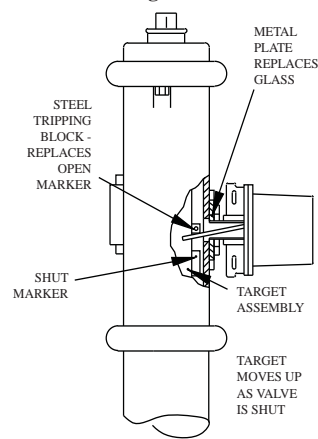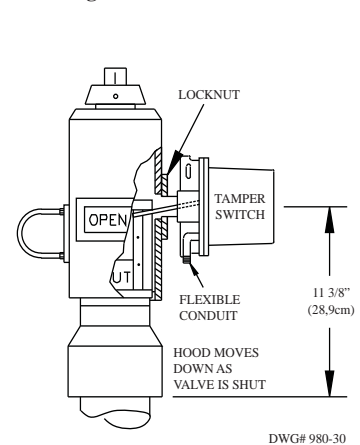
Notes:

1. Subject to the approval of the "authority having jurisdiction" the alternate method of installation shown in Fig. 5 may be used. In this method, one of the glass windows of the housing is replaced with a 1/4" thick metal plate that is cut to fit in place of the glass and drilled and tapped to receive the 1/2" NPT pipe nipple. In some cases it may be necessary to attach an angle bracket to the target assembly to engage the PCVS trip rod.

2. If the target is stationary and a hood arrangement is used, such as is shown in Fig. 6, the hood must be drilled with a 23/32" drill and tapped with a 1/2" NPT. The center line of this hole should be 1/8" below the portion of target assembly that strikes the PCVS trip rod. The 11 3/8" dimension shown is for a Clow Valve. Flexible conduit must be used for this type of installation.

Typical Installation On A Butterfly Valve (See Figs. 9 And 10)

Refer to Fig. 2 for location of parts described in the following instructions:

B1. Remove the 1/2" NPT plug from the gear operator case.

B2. Loosen the set screw that holds the nipple in the PCVS and remove the nipple.

B3. Screw the locknut that is provided onto the nipple.

B4. Screw the nipple into the 1/2" NPT hole in the gear operator - hand tighten. Tighten the locknut against the case, to secure the nipple firmly in place.

B5. Partially close the valve (3 or 4 revolutions of the hand wheel or crank).

B6. Using the special tool provided, loosen the two cover screws and remove the cover from the PCVS.

B7. Loosen the locking screw that holds the trip rod in place. Estimate trip rod length required and extend slightly past that point. Slide the PCVS unit as far as possible onto the nipple, observing which direction the rod will move when the valve is closed. Orient the device to actuate switches when valve is open.

Note: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 7). Reinstall trip rod and repeat Step B7 procedure.

B8. Remove device from nipple and withdraw trip rod 1/32" (0,80mm) (this dimension is important). Tighten the locking screw to hold the

rod in place. Re-install the device on the nipple. Tighten the screw in the collar against the nipple.

Note: In some cases it may be necessary to remove the gear box cover to ensure correct operation (consultation with the valve manufacturer is recommended).

B9. Carefully open the valve to its full open position, as the boss on the gear hub moves to the open position it must engage the PCVS trip rod and actuate the switch(es). There should be a minimum overtravel or revolution of the crank or hand wheel after the switch(es) actuate (a continuity meter connected to each set of contacts is one method that could be used to determine this).

Note: Slight adjustment of gear stops may be necessary to prevent overtravel of the trip rod (consultation with valve manufacture is recommended).

B10. Carefully close the valve. The switch(es) must operate during the first two revolutions of the crank or hand wheel or during 1/5 of the travel distance of the valve control apparatus from its normal condition.

B11. Complete the required electrical wiring, connections and tests. The valve should be operated through the entire cycle of fully closed and fully open to determine the integrity of the PCVS installation and signaling system.

Check that all electrical and mechanical connections are secure.

B12. When the installation and testing are complete, return valve to its proper position.
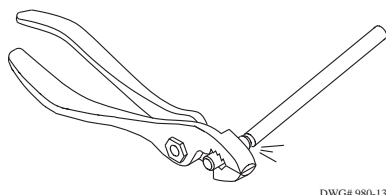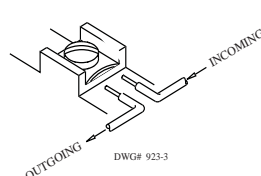
Fig. 7   Breaking Excessive Rod Length

DWG# 980-13

Fig. 8   Switch Terminal Connections Clamping Plate Terminal
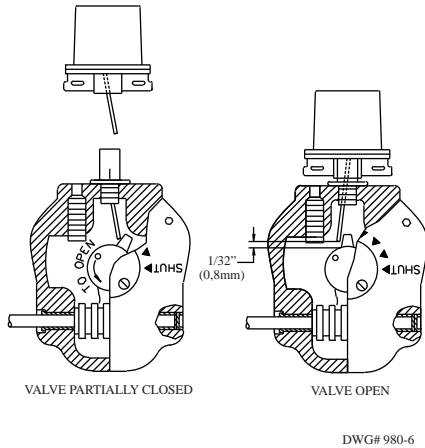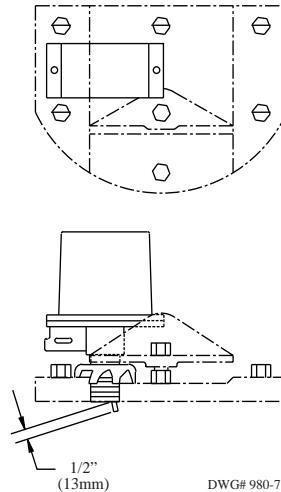
INCOMING
OUTGOING
DWG# 923-3

⚠ **CAUTION**

An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.
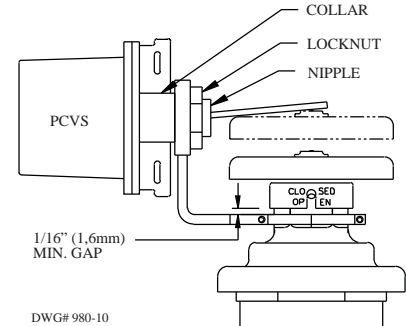
PROVIDED AS A COURTESY BY:
PACIFIC PIPELINE SUPPLY

POTTER
The Symbol of Protection

ITT Grinnell/Kennedy Indicating Butterfly Valve
Fig. 9

1/32" (0,8mm)

VALVE PARTIALLY CLOSED

VALVE OPEN

DWG# 980-6

Dresser Indicating Butterfly Valve
Fig. 10

1/2" (13mm)

DWG# 980-7

Typical Pressure Reducer Type Valve Installation
Fig. 11

COLLAR
LOCKNUT
NIPPLE
PCVS
CLOSED OPEN

1/16" (1,6mm) MIN. GAP

DWG# 980-10

This figure shows the Model PCVS mounted on the valve yoke, with a bracket supplied by the valve manufacturer, to supervise a pressure reducer type valve.

Note: This application is subject to the approval of the authority having jurisdiction.

PBK - Pratt IBV Butterfly Valve Kit
Fig. 12

LOCKNUTS BOTH SIDES

BRACKET AND LOCHNUT SUPPLIED WITH PBK MOUNTING KIT
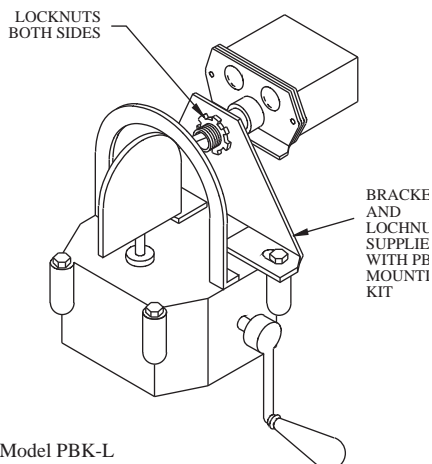
Model PBK-L
Stock No. 0090132
(MDT-4S Actuator)

Model PBK-M
Stock No. 0090146
(MDT-3S Actuator)

Model PBK-S
Stock No. 0090133
(MDT-2S Actuator)

Pratt Butterfly Valve Kit as used to mount a PCVS on a Pratt Model IBV Valve.

Kits contain: Bracket, nuts and instructions

Note: This application is subject to the approval of the authority having jurisdiction.

PVK - Pratt PIVA Post Indicator Valve Kit
(Stock No. 1000060)
Fig. 13

MACHINE SCREW #8-32

OPEN

DWG# 980-9
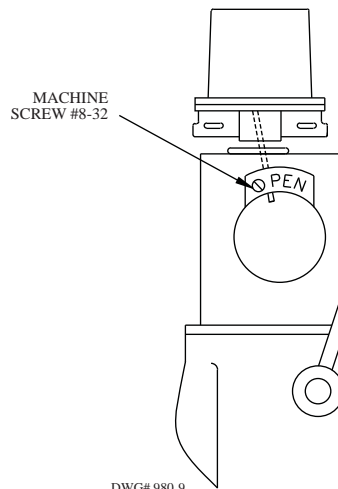
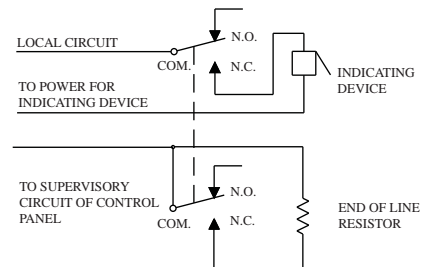Pratt Valve Kit as used to mount a PCVS on a Pratt Model PIVA Valve.

Kit contains: Instructions, template, screw and nut.

Note: This application is subject to the approval of the authority having jurisdiction.
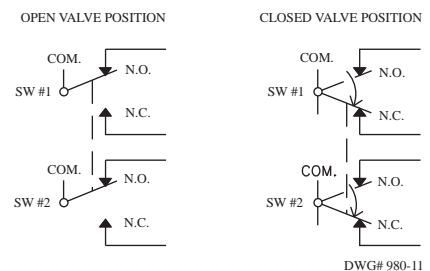

Typical Electrical Connections

Please Note: This device should be wired in accordance with the applicable parts of the National Electrical Code, all state and local codes, applicable NFPA Standards and the requirements of the authority having jurisdiction.

Fig. 14

LOCAL CIRCUIT
N.O.
COM.
N.C.
TO POWER FOR INDICATING DEVICE
INDICATING DEVICE

TO SUPERVISORY CIRCUIT OF CONTROL PANEL
N.O.
COM.
N.C.
END OF LINE RESISTOR

Contacts shown in normal (valve open) condition.

Typical Switch Action

OPEN VALVE POSITION

COM.
SW #1
N.O.
N.C.

COM.
SW #2
N.O.
N.C.

CLOSED VALVE POSITION

COM.
SW #1
N.O.
N.C.

COM.
SW #2
N.O.
N.C.

DWG# 980-11

Switches Shown in Valve Open Position

UL, CUL and CSFM Listed, FM Approved, LPCB Approved, For CE Marked (EN12259-5) / VdS Approved model use VSR-EU

Service Pressure: 450 PSI (31 BAR) - UL

Flow Sensitivity Range for Signal:
4-10 GPM (15-38 LPM) - UL

Maximum Surge: 18 FPS (5.5 m/s)

Contact Ratings: Two sets of SPDT (Form C)
10.0 Amps at 125/250VAC
2.0 Amps at 30VDC Resistive
10 mAmps min. at 24VDC

Conduit Entrances: Two knockouts provided for 1/2" conduit. Individual switch compartments suitable for dissimilar voltages.

Environmental Specifications:
- NEMA 4/IP54 Rated Enclosure suitable for indoor or outdoor use with factory installed gasket and die-cast housing when used with appropriate conduit fitting.
- Temperature Range: 40°F - 120°F, (4.5°C - 49°C) - UL
- Non-corrosive sleeve factory installed in saddle.

Service Use:
Automatic Sprinkler	NFPA-13
One or two family dwelling	NFPA-13D
Residential occupancy up to four stories	NFPA-13R
National Fire Alarm Code	NFPA-72

Specifications subject to change without notice.

Ordering Information		
Nominal Pipe Size	Model	Part Number
2" DN50	VSR-2	1144402
2 1/2" DN65	VSR-2 1/2	1144425
3" DN80	VSR-3	1144403
3 1/2" -	VSR-3 1/2	1144435
4" DN100	VSR-4	1144404
5" -	VSR-5	1144405
6" DN150	VSR-6	1144406
8" DN200	VSR-8	1144408

Optional: Cover Tamper Switch Kit, stock no. 0090148
Replaceable Components: Retard/Switch Assembly, stock no. 1029030

⚠ WARNING
- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

CAUTION
Waterflow switches that are monitoring wet pipe sprinkler systems shall not be used as the sole initiating device to discharge AFFF, deluge, or chemical suppression systems. Waterflow switches used for this application may result in unintended discharges caused by surges, trapped air, or short retard times.

Important: This document contains important information on the installation and operation of the VSR waterflow switches. Please read all instructions carefully before beginning installation. A copy of this document is required by NFPA 72 to be maintained on site.

General Information
The Model VSR is a vane type waterflow switch for use on wet sprinkler systems. It is UL Listed for use on a steel pipe; schedules 5 through 40, sizes 2" - 6" and is UL Listed and FM Approved for use on steel pipe; schedules 10 through 40, sizes 2" thru 8" (50 mm thru 200 mm). LPC approved sizes are 2" thru 8" (50 mm thru 200 mm). See Ordering Information chart.

The VSR may also be used as a sectional waterflow detector on large systems. The VSR contains two single pole, double throw, snap action switches and an adjustable, instantly recycling pneumatic retard. The switches are actuated when a flow of 10 GPM (38 LPM) or more occurs downstream of the device. The flow condition must exist for a period of time necessary to overcome the selected retard period.

Enclosure
The VSR switches and retard device are enclosed in a general purpose, die-cast housing. The cover is held in place with two tamper resistant screws which require a special key for removal. A field installable cover tamper switch is available as an option which may be used to indicate unauthorized removal of the cover. See bulletin number 5401103 for installation instructions of this switch.

Installation (see Fig. 1)

These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they shall be installed on the top side of the pipe where they will be accessible. The device should not be installed within 6" (15 cm) of a fitting which changes the direction of the waterflow or within 24" (60 cm) of a valve or drain.
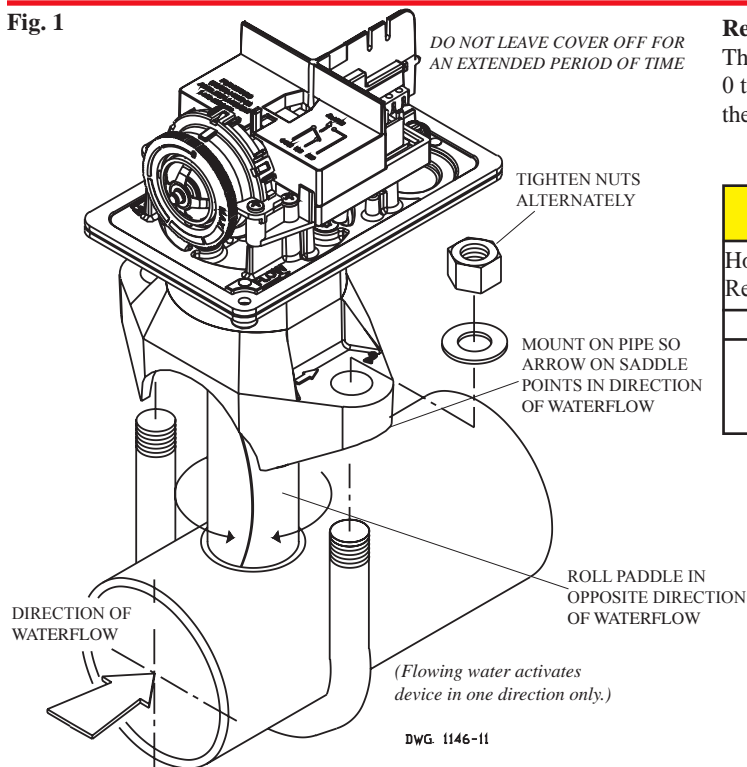
NOTE*:* Do not leave cover off for an extended period of time.

Drain the system and drill a hole in the pipe using a hole saw in a slow speed drill (see Fig. 1). Clean the inside pipe of all growth or other material for a distance equal to the pipe diameter on either side of the hole. Roll the vane so that it may be inserted into the hole; do not bend or crease it. Insert the vane so that the arrow on the saddle points in the direction of the waterflow. Take care not to damage the non-corrosive bushing in the saddle. The bushing should fit inside the hole in the pipe. Install the saddle strap and tighten nuts alternately to required torque (see the chart in Fig. 1). The vane must not rub the inside of the pipe or bind in any way.

⚠ CAUTION

Do not trim the paddle. Failure to follow these instructions may prevent the device from operating and will void the warranty. Do not obstruct or otherwise prevent the trip stem of the flow switch from moving when water flows as this could damage the flow switch and prevent an alarm. If an alarm is not desired, a qualified technician should disable the alarm system.

Fig. 1

DO NOT LEAVE COVER OFF FOR AN EXTENDED PERIOD OF TIME

TIGHTEN NUTS ALTERNATELY

MOUNT ON PIPE SO ARROW ON SADDLE POINTS IN DIRECTION OF WATERFLOW

ROLL PADDLE IN OPPOSITE DIRECTION OF WATERFLOW

DIRECTION OF WATERFLOW

(Flowing water activates device in one direction only.)
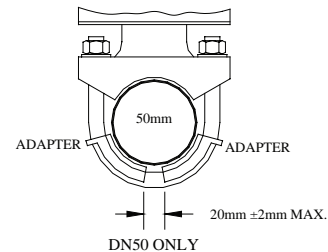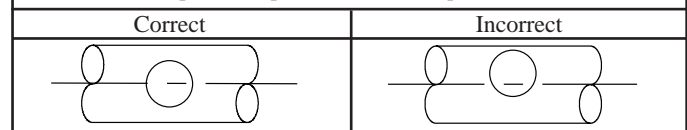
DWG. 1146-1I

Retard Adjustment

The delay can be adjusted by rotating the retard adjustment knob from 0 to the max setting (60-90 seconds). The time delay should be set at the minimum required to prevent false alarms

CAUTION

Hole must be drilled perpendicular to the pipe and vertically centered. Refer to the Compatible Pipe/Installation Requirements chart for size.

Correct	Incorrect

50mm

ADAPTER   ADAPTER

20mm ±2mm MAX.

DN50 ONLY

USE (2) 5180162 ADAPTERS AS SHOWN ABOVE

DWG# 1146-1F

Compatible Pipe/ Installation Requirements																	
Model	Nominal Pipe Size		Nominal Pipe O.D.		Pipe Wall Thickness										Hole Size		U-Bolt Nuts Torque
					Lightwall		Schedule 10 (UL)		Schedule 40 (UL)		BS-1387 (LPC)		DN (VDS)				
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	ft-lb	n-m
VSR-2	2	DN50	2.375	60.3	.065	1.651	0.109	2.77	0.154	3.91	0.142	3.6	0.091	2.3	1.25 + .125/-.062	33.0 ± 2.0		
VSR-2 1/2	2.5	-	2.875	73.0	.084	2.134	0.120	3.05	0.203	5.16	-	-	-	-				
VSR-2 1/2	-	DN65	3.000	76.1	-	-	-	-	-	-	0.142	3.6	0.102	2.6				
VSR-3	3	DN80	3.500	88.9	.083	2.108	0.120	3.05	0.216	5.49	0.157	4.0	0.114	2.9	2.00 ± .125	50.8 ± 2.0	20	27
VSR-3 1/2	3.5	-	4.000	101.6	-	-	0.120	3.05	0.226	5.74	-	-	-	-				
VSR-4	4	DN100	4.500	114.3	.084	2.134	0.120	3.05	0.237	6.02	0.177	4.5	0.126	3.2				
VSR-5	5	-	5.563	141.3	-	-	0.134	3.40	0.258	6.55	-	-	-	-				
VSR-6	6	DN150	6.625	168.3	.115	2.921	0.134	3.40	0.280	7.11	0.197	5.0	0.157	4.0				
VSR-8	8	DN200	8.625	219.1	-	-	0.148	3.76	0.322	8.18	0.248	6.3	0.177	4.5				

NOTE: For copper or plastic pipe use Model VSR-CF.

Fig. 2

To remove knockouts: Place screwdriver at inside edge of knockouts, not in the center.
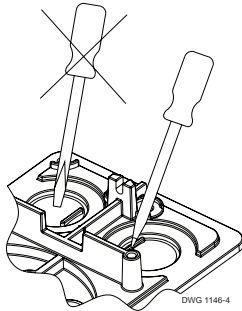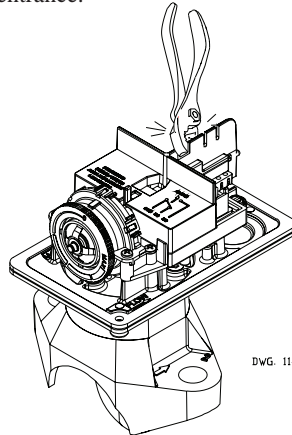

DWG 1146-4

NOTICE

Do not drill into the base as this creates metal shavings which can create electrical hazards and damage the device. Drilling voids the warranty.
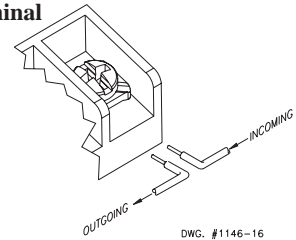
Fig. 3

Break out thin section of cover when wiring both switches from one conduit entrance.

DWG. 1146-13

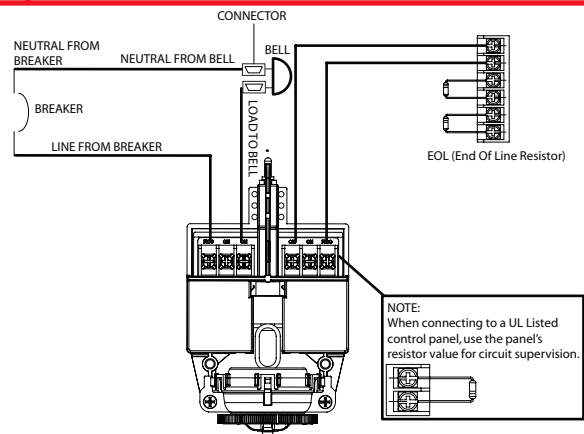**Fig. 4   Switch Terminal Connections Clamping Plate Terminal**

INCOMING

OUTGOING

DWG. #1146-16

⚠ WARNING

An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire become dislodged from under the terminal. Failure to sever the wire may render the device inoperable risking severe property damage and loss of life.

Do not strip wire beyond 3/8" of length or expose an uninsulated conductor beyond the edge of the terminal block. When using stranded wire, capture all strands under the clamping plate.

Fig. 5   Typical Electrical Connections

Notes:

1. The Model VSR has two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other contact is used to operate a local audible or visual annunciator.

2. For supervised circuits, see "Switch Terminal Connections" drawing and warning note (Fig. 4).

CONNECTOR

NEUTRAL FROM BREAKER

NEUTRAL FROM BELL

BELL

BREAKER

LINE FROM BREAKER

LOAD TO BELL

EOL (End Of Line Resistor)

NOTE:
When connecting to a UL Listed control panel, use the panel's resistor value for circuit supervision.

Testing

The frequency of inspection and testing for the Model VSR and its associated protective monitoring system shall be in accordance with applicable NFPA Codes and Standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).
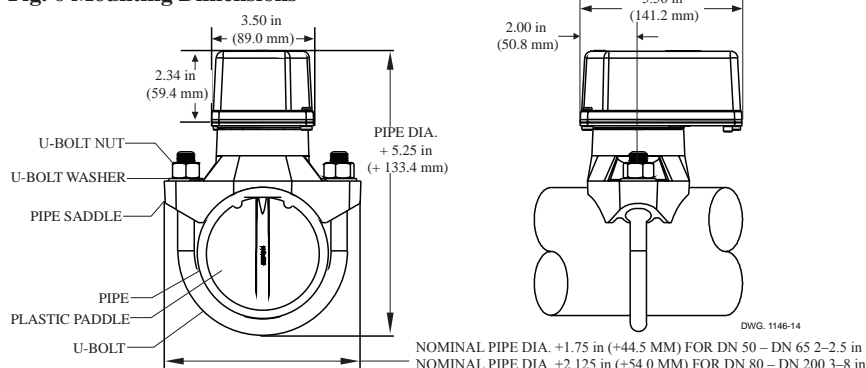
If provided, the inspector's test valve shall always be used for test purposes. If there are no provisions for testing the operation of the flow detection device on the system, application of the VSR is not recommended or advisable.

A minimum flow of 10 GPM (38 LPM) is required to activate this device.

NOTICE Advise the person responsible for testing of the fire protection system that this system must be tested in accordance with the testing instructions.
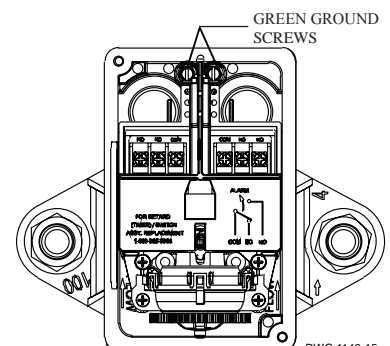
Fig. 6 Mounting Dimensions

3.50 in (89.0 mm)

2.34 in (59.4 mm)

5.56 in (141.2 mm)

2.00 in (50.8 mm)

PIPE DIA. + 5.25 in (+ 133.4 mm)

U-BOLT NUT

U-BOLT WASHER

PIPE SADDLE

PIPE

PLASTIC PADDLE

U-BOLT

DWG. 1146-14

NOMINAL PIPE DIA. +1.75 in (+44.5 MM) FOR DN 50 – DN 65 2–2.5 in
NOMINAL PIPE DIA. +2.125 in (+54.0 MM) FOR DN 80 – DN 200 3–8 in

Fig. 7

GREEN GROUND SCREWS

DWG 1146-15

POTTER
The Symbol of Protection

Maintenance

Inspect detectors monthly. If leaks are found, replace the detector. The VSR waterflow switch should provide years of trouble-free service. The retard and switch assembly are easily field replaceable. In the unlikely event that either component does not perform properly, please order replacement retard switch assembly stock #1029030 (see Fig. 8). There is no maintenance required, only periodic testing and inspection.
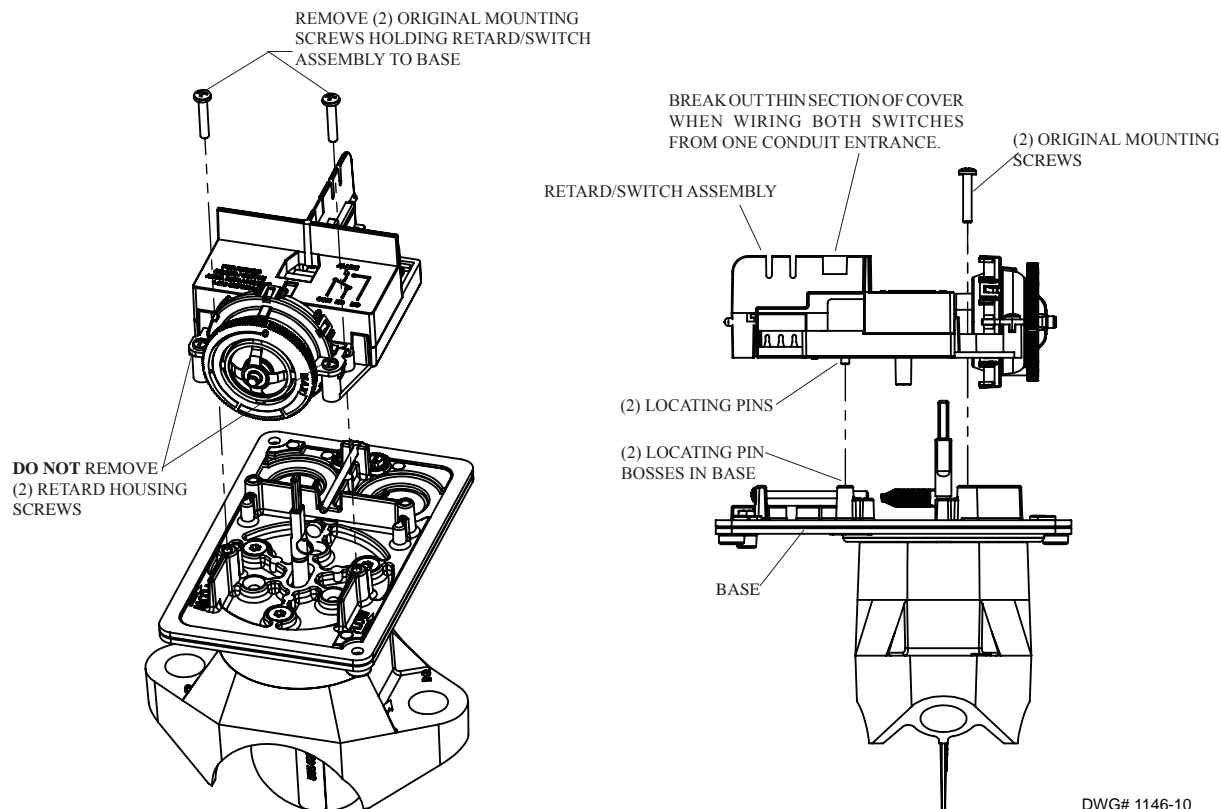
Retard/Switch Assembly Replacement (See Fig. 8)

NOTICE   The Retard/Switch Assembly is field-replaceable without draining the system or removing the waterflow switch from the pipe

1. Make sure the fire alarm zone or circuit connected to the waterflow switch is bypassed or otherwise taken out of service.
2. Disconnect the power source for local bell (if applicable).
3. Identify and remove all wires from the waterflow switch.
4. Remove the (2) mounting screws holding retard/switch assembly to the base. **Do not** remove the (2) retard housing screws.
5. Remove the retard assembly by lifting it straight up over the tripstem.
6. Install the new retard assembly. Make sure the locating pins on the retard/switch assembly fit into the locating pin bosses on the base.
7. Re-install the (2) original mounting screws.
8. Reconnect all wires. Perform a flow test and place the system back in service.

Fig. 8

REMOVE (2) ORIGINAL MOUNTING SCREWS HOLDING RETARD/SWITCH ASSEMBLY TO BASE

BREAK OUT THIN SECTION OF COVER WHEN WIRING BOTH SWITCHES FROM ONE CONDUIT ENTRANCE.

(2) ORIGINAL MOUNTING SCREWS

RETARD/SWITCH ASSEMBLY

(2) LOCATING PINS

(2) LOCATING PIN BOSSES IN BASE

DO NOT REMOVE (2) RETARD HOUSING SCREWS

BASE

DWG# 1146-10

Removal of Waterflow Switch

• To prevent accidental water damage, all control valves should be shut tight and the system completely drained before waterflow detectors are removed or replaced.
• Turn off electrical power to the detector, then disconnect wiring.
• Loosen nuts and remove U-bolts.
• Gently lift the saddle far enough to get your fingers under it. With your fingers, roll the vane so it will fit through the hole while continuing to lift the waterflow detector saddle.
• Lift detector clear of pipe.

Paige® spec 74183PRWH

3 PAIRS 18 AWG STRANDED TYPE FPL
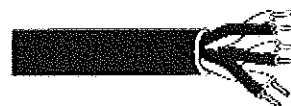
1.0 SCOPE:

1.1 18 AWG, 3 pair unshielded cable constructed with stranded bare copper conductors, polypropylene insulation, and an overall white PVC jacket for data communications / security applications. Manufactured in the USA.
Type FPL
UL Standard 1424
NEC Article 760
UL 1581
CSFM

2.0 CONSTRUCTION:

2.1 CONDUCTOR:

2.1.1 Material: Bare Copper
2.1.2 Size: 18 AWG
2.1.3 Construction: 7 Strand

2.2 INSULATION:

2.2.1 Material: Polypropylene
2.2.2 Wall Thickness: .006" nom.
2.2.3 O.D.: .058" nom.
2.2.4 Color code:
Pair 1: Black, Red
Pair 2: Yellow, Green
Pair 3: Brown, Blue

2.3 ASSEMBLY:

2.3.1 Lay Length:
Pairs: 1.75" - 2.0" LHL nom.
Cable: 4.5" LHL nom.

2.4 JACKET:

2.4.1 Material: PVC
2.4.2 Wall Thickness: .020"
2.4.3 OD: .264" nom.
2.4.4 Color: White
2.4.5 RIPCORD UNDER JACKET
2.4.6 Markings: Paige 74183PRWH 18/3PR E191596 C(UL) FPL "RoHS COMPLIANT" DESCENDING FOOTAGE MARKINGS EVERY TWO FEET

2.5 ELECTRICAL PROPERTIES

2.5.1 Temperature: -20°C to 75°C
2.5.2 Voltage: 300 Volt
2.5.3 Capacitance: 20 pF/Ft nom.
2.5.4 Impedance: 81 Ohms
2.5.5 DC Resistance: 6.3 Ohms/M' @ 20°C

2.6 PUT-UPS

2.6.1 1000' 1 Pac 3 Box 99H002G
2.6.2 Weight: 41 lbs / 1000'

PAIGE® spec 74122ZWH

2 CONDUCTOR 12 AWG STRANDED
TYPE CL3/FPL
PARALLEL / ZIP

1.0 SCOPE:

1.1 12 AWG, 2 conductor cable constructed with stranded bare copper in a parallel / zip construction with one leg red striped for polarity; for data communications / security applications manufactured in the USA and (UL) listed CL3/FPL
UL Standards 13 &1424
NEC Articles 725 & 760
UL 1581
CSFM

2.0 CONSTRUCTION:

2.1 CONDUCTOR:
2.1.1 Material: Stranded Bare Copper
2.1.2 Size: 12 AWG
2.1.3 Construction: 7 Strand

2.2 ASSEMBLY:
2.2.1 Lay Length: Parallel

2.3 INSULATION:
2.3.1 Material: PVC
2.3.2 Wall Thickness: .030″ nom.
2.3.3 OD: .150″ x .320″ nom.
2.3.4 Color: White, with one leg red striped for polarity
2.3.5 Markings: PAIGE 74122ZWH E191596 12/2C PARALLEL/ZIP C(UL) CL3/FPL OR CMG "RoHS COMPLIANT" DESCENDING FOOTAGE MARKINGS EVERY TWO FEET

2.4 ELECTRICAL PROPERTIES
2.4.1 Temperature: -20˚C to 75˚C
2.4.2 Voltage: 300 Volt
2.4.3 Impedance: 100 Ohms
2.4.4 DC Resistance: 1.6 Ohms/M′ @ 20˚C

2.5 PUT-UPS:
2.5.1 1000′ 1 Pac 2 Box 99H003HG
2.5.2 Weight: 56 lbs / 1000′

CERTIFICATE OF COMPLIANCE
COVER PAGE

-

Applicant Subscriber No: 974889-001

Service Center Number: 1

Service Contract No: -

<u>ACTIVE LISTINGS</u>

<u>CCN</u>	<u>File No.</u>	<u>Vol. No.</u>
UUFX	S3152	7
UUKA	S25115	1

Listed Service From: BENTONVILLE, AR

<u>Alarm Service Company:</u>

WAL-MART STORES INC (SUPPLIER DIRECT)
702 SW 8TH ST
BENTONVILLE AR 72716

<u>Service Center:</u>

WAL-MART STORES INC (SUPPLIER DIRECT)
702 SW 8TH ST
BENTONVILLE AR 72716

01-APR-15

UL

CERTIFICATE OF COMPLIANCE

THIS IS TO CERTIFY that the Alarm Service Company indicated below is included by Underwriters Laboratories Inc. (UL) in its Product Directories as eligible to use the UL Listing Mark in connection with Certificated Alarm Systems. The only evidence of compliance with UL's requirements is the issuance of a UL Certificate for the Alarm System and the Certificate is current under UL's Certificate Verification Service. This Certificate does not apply in any way to the communication channel between the protected property and any facility that monitors signals from the protected property unless the use of a UL listed or Classified Alarm Transport Company is specified on the Certificate.

Listed Service From: **BENTONVILLE, AR**

Alarm Service Company: (974889-001)

WAL-MART STORES INC (SUPPLIER DIRECT)
702 SW 8TH ST
BENTONVILLE AR 72716

Service Center: (974889-001)

WAL-MART STORES INC (SUPPLIER DIRECT)
702 SW 8TH ST
BENTONVILLE AR 72716

The Alarm Service Company is Listed in the following Certificate Service Categories:

File - Vol No.	CCN	Listing Category
S3152-7	UUFX	[Signal and Fire Alarm Equipment and Services] (Protective Signaling Services) Central Station
S25115-1	UUKA	Proprietary Fire Alarm Monitoring Stations

THIS CERTIFICATE EXPIRES ON 01-JAN-2023

"LOOK FOR THE UL ALARM SYSTEM CERTIFICATE"