VIGILANT™
Fire & Life Safety

Intelligent Detectors and Bases
Detectors: V-PS, V-PHS, V-HFD, V-HRD
Bases: B4U, RB4U, IB4U, SB4U

Overview

Edwards Vigilant brand intelligent analog detectors are meticulously engineered to deliver high-performance features, superb reliability, and unbeatable quality. With their highly stable design, these detectors resist air movement caused by heating and air conditioning, making them reliable performers ideally suited to modern building interiors.

The installation and maintenance advantages of Vigilant brand intelligent detectors add value throughout their service life. The twist-and-lock design makes short work of installation and maintenance operations. A plastic breakout on the detector housing optionally prevents removal from the base except with a special tool.

A bright, easy-to-see LED flashes red when the detector is in alarm, thus eliminating much of the guesswork when responding to front-panel indications.

- The V-HFD is fixed-temperature heat detector with an alarm threshold of 135° F (57° C).
- The V-HRD is a rate-of-rise heat detector calibrated for 15°F (8°C) per minute.
- The V-PHS houses an optical sensing chamber that detects smoke, as well as a fixed-temperature sensor that detects heat. The detector analyzes data from both sensors to determine when an alarm is initiated.
- The V-PS houses an optical sensing chamber that detects smoke.

All detectors feature comprehensive self-diagnostic capability. V-PS and V-PHS optical detectors continuously adjust their sensitivity to compensate for changes in the environment such as the presence of dirt, smoke, temperature, and humidity. These detectors issue a dirty sensor warning when they reach their preset limit.

Standard Features

- Optical, heat, and multisensor models available
- Compatible standard, relay, isolator, and audible bases
- Field replaceable optical chamber
- Electronic Addressing including mapping location
- Bases mount to standard North American two-gang or 4" square electrical boxes
- Dual color LED provides at-a-glance alarm indication
- Tamper-resistant feature
- Self diagnostic capability with on-board storage of results
- Optical detectors feature automatic rate compensated sensitivity adjustment, as well as dirty sensor warnings
- Manufactured to strict international ISO 9001 standards
- Assembled using surface mount technology for RF resistance
- Conformally coated components resist dust and humidity
- Automatic detector test
- Low Profile Design

DATA SHEET **M85001-0592**
Not to be used for installation purposes. **Issue 1.2**

Heat Detectors

The V-Series heat detectors are capable of performing comprehensive self-diagnostics and storing the results.

Thanks to advanced thermistor technology, V-Series heat detectors are ideal for sensing fast, flaming fires and for applications where smoke detection is inappropriate. They are particularly well-suited to areas such as kitchens and shower rooms, where the ambient temperature is relatively constant, but where steam and smoke are present.

V-HRD Rate-of-Rise Heat Detector provides a 15°F (8°C) per minute rate-of-rise heat sensor for the detection of heat due to fire. The heat sensor monitors the temperature of the air and determines whether an alarm should be initiated.

V-HFD Fixed Temperature Heat Detector provides a 135°F (57°C) fixed-temperature heat sensor for the detection of heat due to fire. The heat sensor monitors the temperature of the air and determines whether an alarm should be initiated.

Optical and combination detectors

V-Series optical detectors continuously adjust their sensitivity based on fluctuating environmental conditions such as the presence of dirt, smoke, humidity, or changes in temperature, and notifies the panel of any changes in sensor sensitivity. When the detector has adjusted its sensitivity to its maximum limit, it issues a dirty sensor warning, allowing enough of a margin for maintenance personnel to clean the detector before it goes into trouble condition.

These detectors perform comprehensive self-diagnostics and store these details in their on-board memory.

V-PHS Optical/Fixed Temperature Detector houses an optical sensing chamber that detects smoke, as well as a fixed-temperature sensor that detects heat. The detector analyzes data from both sensors to determine when an alarm is initiated. This combines the suitability of optical sensing for slow burning fires with the sensitivity of fixed-temperature detection for fast flaming fires to arrive at a solution that responds reliably to the widest range of fire types.

A sophisticated algorithm processes data from both sensors over time so that an alarm is only reported when conditions precisely match the signature of a fire. This eliminates the shortcomings of single-sensor optical and heat detection, and significantly reduces the risk of nuisance alarms.

V-PS Optical Smoke Detector uses an optical sensing chamber to detect smoke. The detector analyzes data gathered by the sensor to determine when an alarm is initiated.

Thanks to its high-performance optical sensing chamber, the V-PS responds quickly and reliably to a wide range of fire types, especially slow burning fires fuelled by combustibles typically found in modern multi-use buildings. The V-PS detects extremely small particles and triggers an alarm at the first sign of smoke.

LED Indication

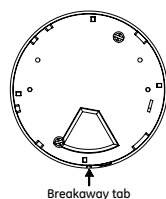V-Series detectors provide a bicolor status LED:

- Normal: Green LED flashes
- Alarm/active: Red LED flashes

Detector Bases

Compatible electrical box

Base plate

6-32 screws

Gasket

Detector   Trim ring
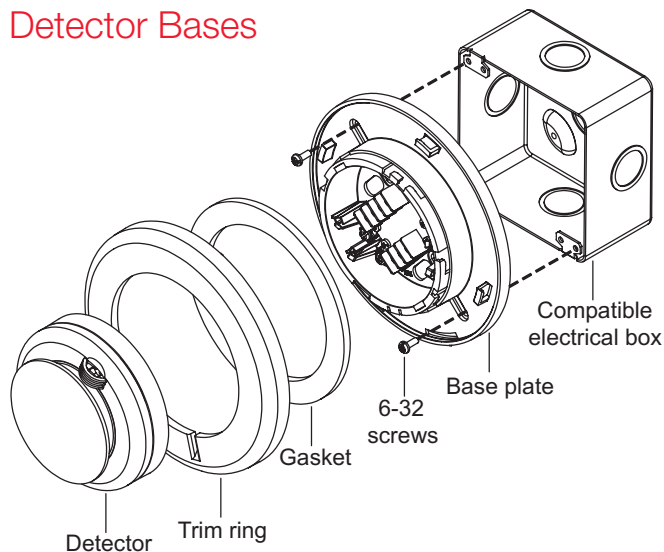
Connect the detector to the base by rotating the detector clockwise until it snaps into the locked position.

The head can be removed by turning it counterclockwise.
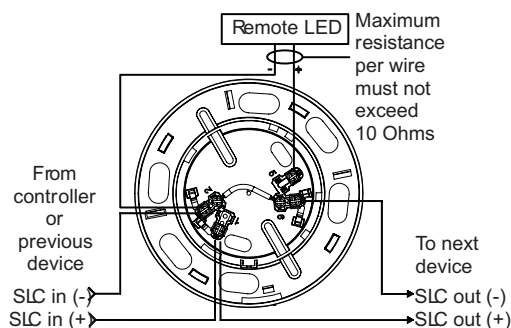

Breakaway tab

If the head must lock to the base, break away the locking tab shown below using a pair of pliers.

To then remove the detector head, insert a small screwdriver into the slot on the side of the base and press in while simultaneously turning the detector head counterclockwise.

B4U Standard Base

The B4U Analog Standard Detector Base features twist-and-lock detector installation and is compatible with with V-Series analog detectors. The base does not require a separate address because it shares the address of the device it is connected to.

Remote LED

Maximum resistance per wire must not exceed 10 Ohms

From controller or previous device

SLC in (-)
SLC in (+)

To next device

SLC out (-)
SLC out (+)

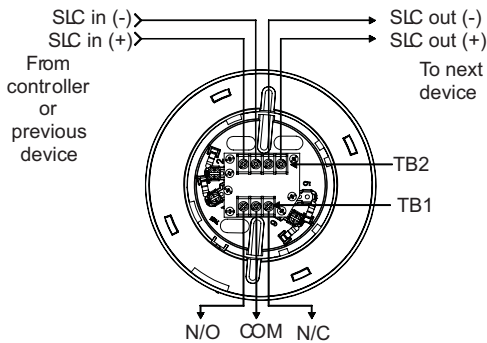| Term	Description	Term	Description
1	SLC in and SLC out (+)	4	Not used
2	SLC in (-)	5	Remote LED (+)
3	Not used	6	SLC out (-)
3	Not used	6	Remote LED (-)

IB4U Isolator Detector Base

The IB4U Analog Isolator Detector Base is designed to prevent an entire communications loop from being disabled when a short circuit occurs. This is accomplished by isolating the part of the loop containing the short from the remainder of the circuit. These bases automatically restore the entire loop when the cause of the short circuit is corrected.
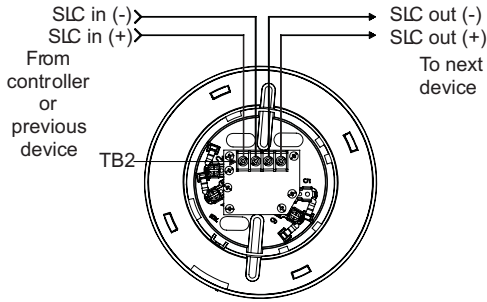
Term	Description
SLC in (+)	DATA + (IN)
SLC in (-)	DATA - (IN)
SLC out (+)	DATA + (OUT)
SLC out (-)	DATA - (OUT)

RB4U Relay Detector Base

The RB4U Analog Relay Detector Base is designed to add relay functionality to the listed compatible detectors. Form C latching relay contacts are included for the control of appliances such as door closers, fans, dampers, etc.

Term	Description	Term	Description
TB1	N/O (Normally open)	SLC in (-)	DATA - (IN)
	COM (Common)	SLC out (+)	DATA + (OUT)
	N/C (Normally Closed)	SLC out (-)	DATA - (OUT)
SLC in (+)	DATA + (IN)	Contact rating: 2.0a @ 30vdc resistive	

Notes
1. Wire in accordance with NFPA 70, National Electrical Code.
2. Be sure to observe the polarity of the terminals on the terminal block as shown in the diagram.
3. Break wire run at each terminal. Do not loop signaling circuit field wires around terminals.

SB4U Audible (Sounder) Detector Base

The SB4U is designed to add an audible output function to compatible detectors. The base can operate as an independent local alarm, or as part of a zone or system alarm with synchronized audible output.

Depending on the system supporting the device loop, the base can operate as follows:

- It can follow the state of the device it supports
- It can be controlled and configured for other operating modes through programming.

The SB4U is field-configurable for output tone (steady or temporal) and output volume (low dBA or high dBA). The base must be connected to a continuous voltage whether the output tone is set to steady or temporal. The base does not require a separate address because it shares the address of the device it is connected to.
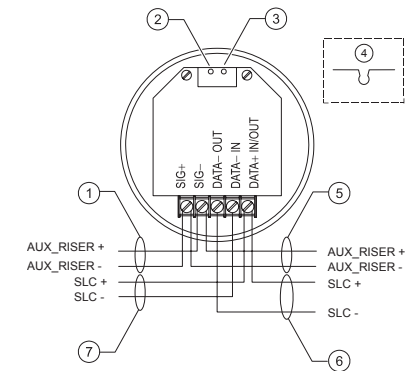
1. AUX-RISER IN (from power supply or previous base)
2. Volume setting: default is high volume; cut per item 4 for low volume
3. Tone setting: default is temporal pattern; cut per item 4 for steady tone
4. To configure output volume or tone, cut the circuit board as shown
5. AUX_RISER OUT To next base or EOL relay
6. SLC OUT to next intelligent addressable device
7. SLC IN from intelligent addressable controller or previous device

Sleeping rooms: In sleeping areas, the high dBA output and temporal tone settings must be used. However, if the FACP is producing the three-tone temporal evacuation signal, then the high dBA output and steady tone settings may be used.

AB4G-SB: When using the AB4G-SB box, install a reinforcing plate at every knockout used. (Reinforcing plates are included with the box.) Remove the knockout first, then slide the reinforcing plate into the plastic housing. After the plate is in place, install the conduit connector and nut.

Specifications, SB4U Audible Detector Base

Operating voltage	24 VDC or 24 VFWR, nominal
Operating current	See Table 1
Supervisory current	DC = 1.46 mA, FWR = 2.15 mA
Default settings	
Output volume	High dBA
Output tone	Temporal pattern
Sound level output	See Table 2
Temporal pattern	0.5 s on, 0.5 s off, 0.5 s on, 0.5 s off, 0.5 s on, 1.5 s off, repeat cycle
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)
Storage temperature	-4 to 140°F (-20 to 60°C)
Compatible detectors	V-PS, V-PHS, V-HRD, and V-HFD detectors
Compatible electrical boxes	North American 2-1/2 in. (64 mm) deep 2 gang box Standard 4" square box 1-1/2 in. (38 mm) deep box European 100 mm square box
Wire size	12, 14, 16, or 18 AWG wire (2.5, 1.5, 1.0, or 0.75 sq. mm) (Sizes 16 and 18 AWG are preferred)
Base diameter	6.0 in. (152 mm)
Height from box (including detector)	2.58 in. (66 mm)
Maximum distance from ceiling (wall mount)	12 in. (305 mm)

Operating current in mA (RMS)

Voltage	Low dBA	High dBA
16 VDC	17	28
24 VDC	24	41
33 VDC	31	52
16 VFWR	41	48
24 VFWR	51	60
33 VFWR	60	66

VDC = Volts direct current, regulated and filtered
VFWR = Volts full wave rectified

Sound level output (dBA)

Signal	Voltage	Low dBA	High dBA
Reverberant room per UL 464 [1]			
Temporal	16 VDC	71.3	77.2
	24 VDC	75.0	79.8
	33 VDC	77.7	81.5
Steady	16 VDC	75.8	80.5
	24 VDC	79.2	84.1
	33 VDC	82.0	86.0
Reverberant room per UL 268 [2]			
Temporal	16 VDC	77.3	83.2
	24 VDC	81.0	85.8
	33 VDC	83.7	87.5
Steady	16 VDC	81.8	86.5
	24 VDC	85.2	90.1
	33 VDC	88.0	92.0

dBA = Decibels, A-weighted
[1] For UL 464 applications, low dBA settings are for private mode only
[2] For UL268 applications, high setting must be used for evacuation

Specifications, Detectors

	V-PHS	V-PS	V-HRD	V-HFD
Air velocity	0 to 5,000 ft/min (0 to 25.39 m/s)		N/A	
Smoke sensitivity range	0.67% - 3.66%			
ULI fixed-temp alarm rating	135°F (57°C)	N/A		135°F (57°C)
ULC fixed-temp alarm rating	140°F (60°C)			140°F (60°C)
Maximum Spacing	30 ft (9.1 m)			50 ft (15 m) centers
Rate-of-Rise	N/A		15°F (8°C)/min.	N/A
Operating voltage	15.2 to 19.95 VDC			
Normal operating current	45 µA, average			
Alarm current	45 µA, average			
Environmental compensation	Automatic			
Compatible bases	B4U Standard, RB4U Relay, IB4U Isolator, SB4U Audible			
Maximum distance from ceiling wall-mounted	12 in (305 mm)			
Storage temperature	-4 to 140°F (-20 to 60°C)			
Operating environment	Temperature: 32 to 120°F (0 to 49°C); Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)			
Agency listings	Meets UL 268, ULC-S529-02, UL 521, ULC-S530-M91, NFPA 72, and CAN/ULC S524-01	Meets UL 268, ULC-S529-02, NFPA 72, and CAN/ULC S524-01	Meets UL 521, ULC-S530-M91, NFPA 72, and CAN/ULC S524-01	

Specifications, Bases

	B4U Standard Base	IB4U Isolator Detector Base	RB4U Relay Detector Base
Operating environment Temperature Humidity	32 to 120°F (0 to 49°C) 0 to 93% RH, noncondensing at 90°F (32°C)		
Storage temperature range	-4 to 140°F (-20 to 60°C)		
Compatible detectors	V-PS, V-PHS, V-HRD, and V-HFD detectors		
Compatible electrical boxes	North American 2-1/2 in. (64 mm) deep 2 gang box Standard 4 in. square box 1-1/2 in. (38 mm) deep box European 100 mm square box		
Wire size	12, 14, 16, or 18 AWG wire (2.5, 1.5, 1.0, or 0.75 sq. mm) (Sizes 16 and 18 AWG are preferred)		
Base diameter	6.0 in. (152 mm)		
Height from box (including detector)	2.08 in. (53 mm)	2.57 in. (65 mm)	
Maximum distance from ceiling (wall mount)	12 in. (305 mm)		

Ordering Information

Model	Description	Ship Wt.: lb. (kg)
V-PHS	Intelligent Analog Optical/Fixed Temperature Detector	0.25 (0.11)
V-PS	Intelligent Analog Optical Smoke Detector	0.25 (0.11)
V-HRD	Intelligent Analog Rate-of-Rise Heat Detector	0.25 (0.11)
V-HFD	Intelligent Analog Fixed Temperature Heat Detector	0.25 (0.11)
B4U	Standard Base	0.11 (0.05)
RB4U	Relay Detector Base	0.11 (0.05)
IB4U	Isolator Detector Base	0.11 (0.05)
SB4U	Audible (Sounder) Detector Base	0.11 (0.05)
AB4G-SB	Surface Box for Audible Base	1.0 (0.45)
RLED	Remote alarm LED, use with standard base only	0.2 (.09)
211-10PKG	Replacement optical chambers (package of 10)	0.25 (0.11)

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Detection & alarm since 1872

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