

Technology that saves lives

Intelligent Detectors and Bases

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



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Overview

Kidde 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 Kidde 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 135°F (57°C) fixed temp with a 15°F (8°C) per minute rate-of-rise function.
- 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

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 both a 135°F (57°C) fixed temp and a 15°F (8°C) per minute rate-of-rise function for the detection of heat due to fire.

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.

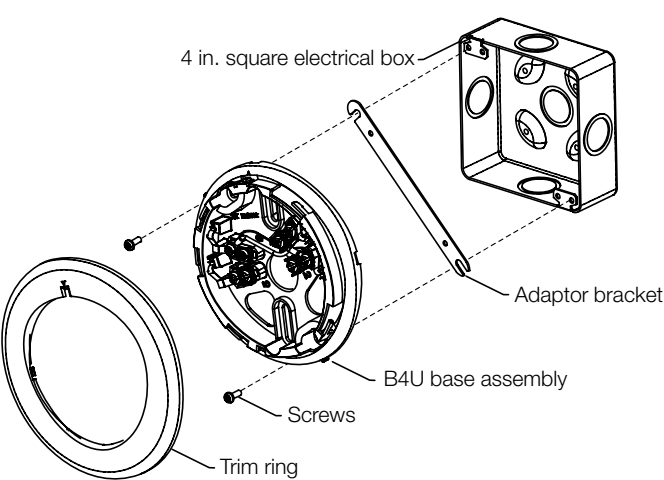
Thanks to its high-performance optical sensing chamber, the V-PS responds quickly and reliably to a wide range of fire types, especially slow burning fires fuelled by combustibles typically found in modern multi-use buildings. The V-PS detects extremely small particles and triggers an alarm at the first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

LED Indication

V-Series detectors provide a bicolor status LED:

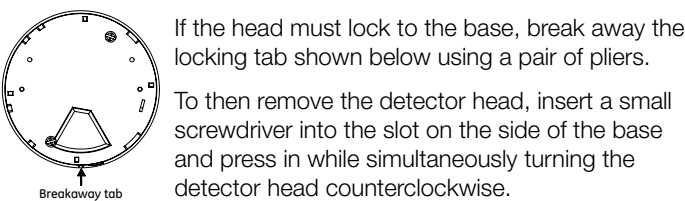
- Normal: Green LED flashes
- Alarm/active: Red LED flashes

Detector Bases



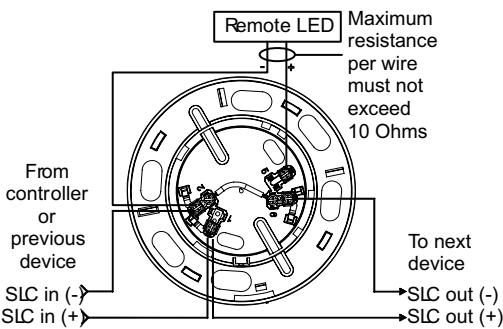
Connect the detector to the base by rotating the detector clockwise until it snaps into the locked position.

The head can be removed by turning it counterclockwise.



B4U Standard Base

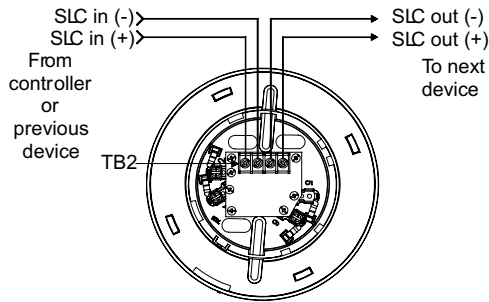
The B4U Analog Standard Detector Base features twist-and-lock detector installation and is compatible with V-Series analog detectors. The base does not require a separate address because it shares the address of the device it is connected to.



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

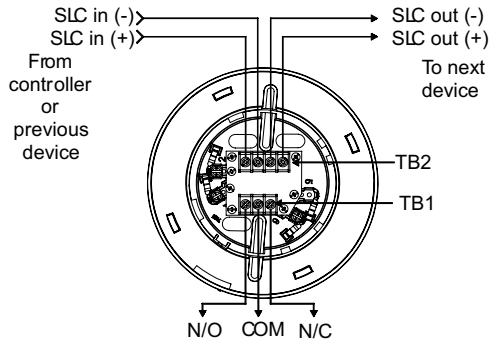
The IB4U Analog Isolator Detector Base is designed to prevent an entire communications loop from being disabled when a short circuit occurs. This is accomplished by isolating the part of the loop containing the short from the remainder of the circuit. These bases automatically restore the entire loop 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.

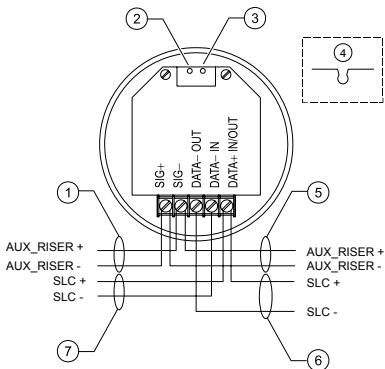
SB4U/SB4U-LF Audible (Sounder) Detector Bases

SB4U and SB4U-LF sounder bases are designed to add an audible output function to compatible detectors. These bases can operate as an independent local alarm, or as part of a zone or system alarm with synchronized audible output. The SB4U-LF model provides 520 Hz output suitable for applications requiring low frequency audible tones.

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

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

The SB4U and SB4U-LF are field-configurable for output tone (steady or temporal) and output volume (low dBA or high dBA). Bases must be connected to a continuous voltage whether the output tone is set to steady or temporal. Bases do not require separate addresses because they share the address of the devices to which they are connected.



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. Some jurisdictions require the low frequency output provided by the SB4U-LF.

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

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 Temperature	32 to 100°F (0 to 38°C)	32 to 120°F (0 to 49°C)		32 to 100°F (0 to 38°C)	
Operating 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	

Bases	B4U Standard Base		IB4U Isolator Detector Base	RB4U Relay Detector Base
Operating environment	32 to 120°F (0 to 49°C) 0 to 93% RH, noncondensing at 90°F (32°C)			
Temperature				
Humidity				
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)			

Sounder Bases	SB4U	SB4U-LF (low frequency model)
Riser operating voltage	16 to 33 VDC	
Operating Current	See tables above.	
Supervisory Current	DC = 1.46 mA	DC = 6.0 mA
Default Output Volume	High dBA	
Default Tone	Temporal	
Resonant frequency	3.2 kHz	520 Hz +/- 10%
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	
Compatible detectors	Refer to Ordering Information table.	
Compatible electrical boxes	AB4G-SB surface box for audible base; 4 in. square by 2-1/8 in. (54 mm) deep box; 3-1/2 in. octagonal by 2-1/8 in. (54 mm) deep box; Standard European 100 mm² box	
Wire size	12 to 18 AWG (0.75 to 2.50 mm²)	
Base diameter	6.8 in. (173 mm)	
Base height from box	0.8 in. (21 mm)	1.4 in. (35 mm)
Maximum distance from ceiling	Wall mount — 12 in. (305 mm)	
Environment type	Indoor only	
Agency Listings	UL, ULC, CSFM	UL, CSFM
Operating environment	32 to 120°F (0 to 49°C) 0 to 93% noncondensing	
Temperature		
Relative humidity		
Storage temperature	-4 to 140°F (-20 to 60°C)	

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)
SB4U-LF	Audible (Sounder) Detector Base, Low Frequency Output	0.11 (0.05)
AB4G-SB	Surface Box for Audible Base	1.0 (0.45)
GSA-LED	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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