FIREWORX
Fire Protection Solutions

Intelligent/Addressable Detectors & Bases

Detectors: FX-PD, FX-PHD, FX-PDD, FX-HD
Bases: B4U, RB4U, IB4U, SB4U

Overview

FireworX intelligent addressable 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 FireworX intelligent detectors add value throughout their service life. Replacable optical chambers make maintenance a snap, while the head and terminal base 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 single tri-color LED flashes green for normal, yellow for trouble, and red for alarm, thus eliminating much of the guesswork when responding to detector status.

- **The FX-PD** houses a replaceable optical sensing chamber that detects particles produced by smoke.
- **The FX-PHD** houses a replaceable 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 FX-PDD** duct detector prevents smoke from circulating throughout the building – *see data sheet FX85001-0613.*
- **The FX-HD** is a selectable rate of rise or fixed-temperature heat detector with a fixed alarm threshold of 135° F (57° C).

FX-PD and FX-PHD optical detectors have drift compensation enabling continuous adjustment of their sensitivity to compensate for changes in the environment such as the presence of dust, temperature, and humidity. These detectors issue a CleanMe® signal when they have reached their preset limit, reducing the chance of a nuisance alarm.

Standard Features

- Optical smoke, heat, and multisensor models available
- World's only field replaceable optical chamber makes cleaning a snap
- Fast alarm reporting with microprocessor in each head also enabling use with any approved existing wiring
- Field-proven highly stable design
- Compatible standard, relay, isolator, and audible bases
- Head and terminal base-tamper resistent design for fast installation & security
- Self diagnostic capability with on-board storage of data
- Optical detectors feature automatic sensitivity drift compensation, as well as CleanMe® sensor maintenance alerts
- Listed to UL 268, CSFM, ULC-S529-02, UL 521, ULC-S530-M91, CAN/ULC S524-01,& ISO 9001 Standards
- Low profile, aesthetically-pleasing design
- Auto programming feature saves installation labor time
- Available alarm verification programming reduces chance of nuisance alarm

For more information on all FireworX intelligent fire alarm system components visit www.Edwards.com/fireworx

Detector details & Application

FX-PHD Optical/Fixed Temperature Detector

This intelligent digital device 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 FX-PHD is capable of performing comprehensive self-diagnostics and storing the data.

The detector continuously adjusts its sensitivity based on fluctuating environmental conditions such as the presence of dirt, 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. Cleaning is accomplished simply by replacing the detector's optical chamber.

The FX-PHD 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.

FX-HD Fixed Temperature Heat Detector

This intelligent digital device 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. The FX-HD also can be programmed as a rate-of-rise heat detector.

Thanks to its advanced thermistor technology, the FX-HD detector is ideal for sensing fast, flaming fires and for applications where smoke detection is inappropriate. The FX-HD is capable of performing comprehensive self-diagnostics and storing the results. It is particularly well-suited to areas such as laundries and industries where fluctuations in ambient temperature is expected.

FX-PDD Intelligent Addressable Duct Detector

Duct detector prevents smoke from circulating throughout the building – see data sheet FX85001-0613.

FX-PD Optical Smoke Detector

This intelligent digital device uses an optical sensing chamber to detect smoke. The detector analyzes data gathered by the sensor to determine when an alarm is initiated. The FX-PD is capable of performing comprehensive self-diagnostics and storing the data.

The detector continuously adjusts its sensitivity based on fluctuating environmental conditions such as the presence of dirt, humidity, or changes in temperature, and notifies the FireworX intelligent control panel of any changes in sensor sensitivity. When the detector approaches its preset sensitivity threshold, it issues a dirty sensor warning, allowing enough of a margin for maintenance personnel to replace the optical chamber before it goes into trouble condition.

Thanks to its high-performance optical sensing chamber, the FX-PD 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.

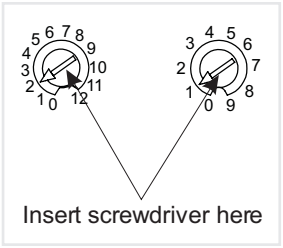
LED Indication

The detector provides a tri-color LED that shows its status.

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

Module Addressing

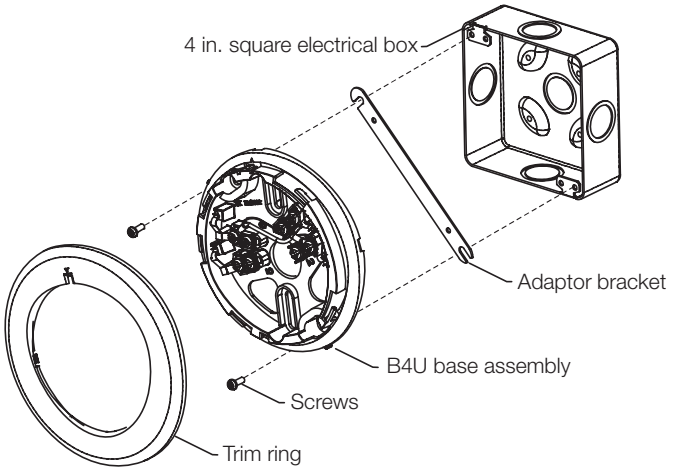
Programming is made easy through the rotary dials located on the back of the detector head. Use a screwdriver to adjust the TENS rotary switch (0 through 12) to set the 10s digit and the ONES rotary switch to set the digit 0 through 9. The FX panel will identify any duplicate addresses.



Example: device address 21, set TENS rotary switch to 2 and set the ONES rotary switch to 1.

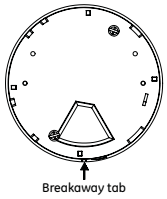
Refer to the Specifications Table for available address numbers.

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.

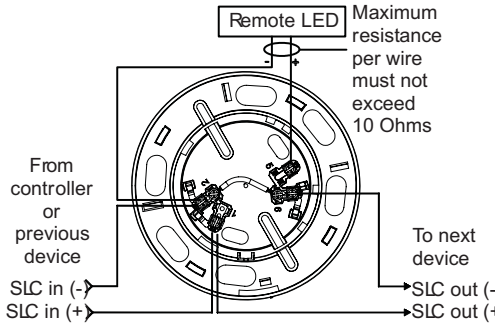


If the head must lock to the base, break away the locking tab shown below using a pair of pliers.

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

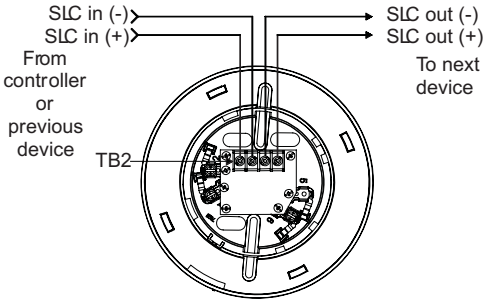
The B4U Digital Standard Detector Base features twist-and-lock detector installation and is compatible with with FX-Series intelligent digital detectors. The base does not require a separate address because it shares the address of the device it is connected to.



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

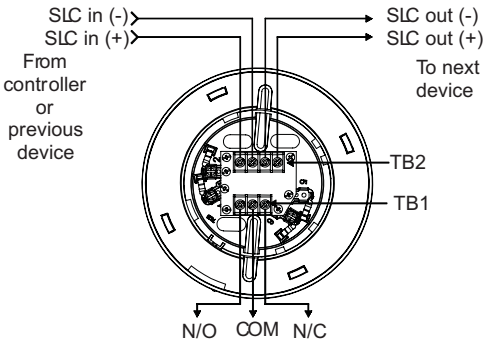
The IB4U Digital Isolator Detector Base is designed to prevent an entire communications loop from being disabled when a short circuit occurs. This is accomplished by isolating the part of the loop containing the short from the remainder of the circuit. These bases automatically restore the entire loop when the cause of the short circuit is corrected. The base can operate as an independent local alarm or as part of a zone.



Term	Description
SLC in (+)	DATA + (IN)
SLC in (-)	DATA - (IN)
SLC out (+)	DATA + (OUT)
SLC out (-)	DATA - (OUT)

RB4U Relay Detector Base

The RB4U Digital 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. The base can operate as an independent local alarm or as part of a zone.



Term	Description	Term	Description
TB1	N/O (Normally open)	SLC in (+)	DATA + (IN)
	COM (Common)	SLC in (-)	DATA - (IN)
	N/C (Normally Closed)	SLC out (+)	DATA + (OUT)
		SLC out (-)	DATA - (OUT)

Notes

1. Bases do not require separate addresses because they share the address of the device it is connected to.
2. Wire in accordance with NFPA 70, National Electrical Code.
3. Be sure to observe the polarity of the terminals on the terminal block as shown in the diagram.
4. Break wire run at each terminal. Do not loop signaling circuit field wires around terminals.

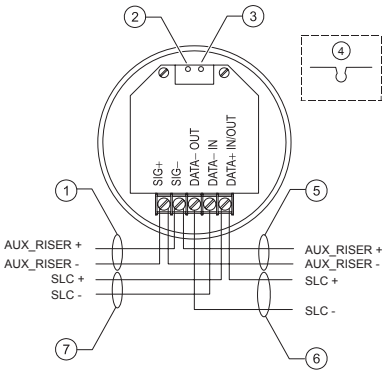
SB4U Audible (Sounder) Detector Base

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 3) 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. Always check with your Authority Having Jurisdiction for local requirements for sounder patterns and dBA output.

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 Output tone	 High dBA 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 Humidity	 32 to 120°F (0 to 49°C) 0 to 93% RH, noncondensing at 90°F (32°C)
Storage temperature	-4 to 140°F (-20 to 60°C)
Compatible detectors	FX-PD, FX-PHD, and FX-HD 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
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

	FX-PHD	FX-PD	FX-HD
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	N/A		50 ft (15 m) centers
Rate-of-Rise			N/A
Operating voltage	15.2 to 19.95 VDC		
Normal operating current	45 µA, average		
Alarm current			
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, and CAN/ULC S524-01. Manufactured to ISO 9001 standards.	Meets UL 268, ULC-S529-02, and CAN/ULC S524-01. Manufactured to ISO 9001 standards.	Meets UL 521, ULC-S530-M91, and CAN/ULC S524-01. Manufactured to ISO 9001 standards.

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	FX-PD, FX-PHD and FX-HD 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		
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)
FX-PHD	Intelligent Addressable Optical/Fixed Temperature Heat Detector	0.25 (0.11)
FX-PD	Intelligent Addressable Optical Smoke Detector	0.25 (0.11)
FX-HD	Intelligent Addressable Fixed Temperature or Rate-of-rise Heat Detector	0.25 (0.11)
FX-PDD	Intelligent Addressable Optical Duct Detector (see data sheet 85001-0613)	2.4 (1.1)
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)
SM200-12PKG	Smoke! in a Can aerosol smoke detector test spray (package of 12)	
FX-64RD	FireworX 64-point intelligent/addressable fire control panel (see data sheet FX85005-0131)	
FX-254RD	FireworX 127-point intelligent/addressable fire control panel expandable to 254-points (see data sheet FX85005-0130)	

For more information on all FireworX intelligent fire alarm system components visit www.Edwards.com/fireworx

Contact us...

Email: edwards.fire@fs.utc.com
Web: *http://fireworx.edwardsfire.com/*

FireworX is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302