

# KS-PHD Addressable SmartOne® Protocol Combination Photoelectric Smoke and Heat Detector



Effective: January 2021  
K-71-103

## FEATURES

- **Multi-criteria optical smoke sensing technology initiates an alarm in conjunction with rate-of-rise/ fixed temperature heat sensing technology**
- **Additional protection and simplified installation with smoke and heat detection inside one detector**
- **Advanced data analysis reduces chance of nuisance alarms**
- **Compatible with Kidde®, Fenwal® and Chemetron® intelligent control units**
- **Works with SmartOne® communication protocol**
- **Operates in conjunction with legacy SmartOne DS, PSD, CPD and THD smoke and heat detectors**
- **Two-color (green/red) status LED**
- **Supports remote LED alarm indication**
- **Detector head and terminal base design (bases sold separately)**
- **Low-profile design blends into ceiling**
- **Attractive 6 in. diameter trim ring provided with bases**
- **Electronic addressing performed with SmartOne Hand-Held Programmer**
- **FM Approved**
- **cULus Listed to UL268, 7th edition**
- **California State Fire Marshal Listed**

## DESCRIPTION

The KS-PHD Combination Photoelectric Smoke and Heat Detector is an intelligent device that gathers analog information from multiple optical sensors, converting this data into digital signals. Utilizing dual optical wavelengths combined with multiple detection angles, the KS-PHD differentiates particles that are not representative of actual smoke. Data is digitally filtered to remove signal patterns that are typical of nuisance sources, reducing unwanted alarms. To make an alarm decision, the detector's on-board microprocessor measures and analyzes all optical sensor readings and compares this information to a preprogrammed setting.

Additionally, an intelligent fixed temperature/rate-of-rise heat sensor is embedded in the KS-PHD device. The heat sensor monitors the temperature of the air in its surroundings and the microprocessor analyzes the data to determine whether to initiate an alarm. The KS-PHD initiates an alarm based on either heat or smoke detection independently.

## ADDRESSING

KS-PHD detectors feature electronic addressing. No addressing switches are used.

## PROTOCOL

This product will operate only on a Kidde Fire Systems fire alarm-suppression control unit employing SmartOne communications protocol.

## STATUS LED

KS-PHD detectors use an LED to indicate the detector's condition. In normal, standby condition, a green LED flashes at a 9 second repetition rate. An alarm is indicated by a red flash at a 2.50 second repetition rate.

## REMOTE ALARM LED

An optional SIGA-LED Remote Indicator can be connected to the standard DS-SB base if the KS-PHD detector status LED is in a location where it cannot be easily viewed.



## INSTALLATION

KS-PHD detectors (with base) mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes, 1-1/2 inches (38 mm) deep.

## EASY TWIST HEAD

A KS-PHD detector head is installed onto its base by aligning arrow marks and gently twisting the head clockwise until secure. Removal is just as easy and is done by grasping the head and gently pressing down while turning counter-clockwise. Removal can be aided with the optional SIGA Removal Tool (P/N SIGA-RTA). This tool can be attached to a telescoping pole to avoid the use of ladders.

## ALARM SENSITIVITY & THRESHOLDS

The alarm sensitivity is the minimum obscuration level at which the detector initiates an alarm condition and can be specified via the control unit menus or the remote configuration software. The control unit to which the detectors are connected is capable of interrogating each detector to determine its sensitivity.




The KS-PHD detector has a fixed temperature Alarm threshold of 135 degrees F and an optional Pre-alarm threshold of 120 degrees F.

## DETECTOR BASES

The KS-PHD detector head attaches easily to these compatible bases. Detector bases have wiring terminals that are accessible from the “room-side” after mounting the base to the electrical box. A trim ring is supplied with the 4-inch base to help hide surface imperfections.

- **Model DS-SB Standard Base:** Connects the detector to the Signaling Line Circuit (SLC).
- **Model DS-RB Relay Base:** Connects the detector to the Signaling Line Circuit (SLC) and provides optional Relay functionality to the KS-PHD detector.

## ORDERING INFORMATION

KS-PHD	Intelligent Combination Photoelectric Smoke and Heat Detector, head only 
DS-SB	Detector Mounting Base, 4 in. diameter, with 6 in. trim ring, for 2-wire connection to SmartOne SLC 
DS-RB	Detector Mounting Base, 4 in. diameter, with relay option and 6 in. trim ring, for 2-wire connection to SmartOne SLC 
SM200-12PKG	Canned smoke for functional testing of smoke detectors, package of 12
SIGA-LED	Optional Remote Alarm LED
SIGA-VA	Detector Vacuum Attachment
SIGA-RTA	Detector Removal Tool Attachment

## TECHNICAL SPECIFICATIONS

Operating voltage	24 VDC (nominal)
Current Normal Operating Alarm	150 $\mu$ A 220 $\mu$ A
SLC Protocol	SmartOne
UL/cUL smoke sensitivity range	0.5 to 3.50 %/ft. (2.95 to 11.48%/m) obscuration (Open Area Use Only)
NOTE: Smoke sensitivity is selected at the control unit or with the remote configuration software. Default values are 2.0%/ft (Alarm) and 1.5%/ft (Pre-Alarm). Refer to the Installation, Operation and Maintenance Manual or the Configuration Software User Guide for your system.	
North American standards	UL 268 (7th edition), UL 268A, CAN/ULC-S529, FMAApprovals3210
Compliances: <ul style="list-style-type: none"> <li>• This device complies with Part 15, Class A of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</li> <li>• ICES-003, Class A</li> <li>• EN 55011, Class A</li> <li>• AS/NZS CISPR 11, Class A</li> </ul>	
Air velocity	0 to 4,000 ft./min (0 to 20.32 m/s)
Compatible bases	DS-SB (Standard), DS-RB (Relay)
Wall mounting: distance from ceiling	12 in. (305 mm) max.
Operating Environment Temperature Relative humidity	32 to 100°F (0 to 38°C) 0 to 93% non-condensing
Storage temperature	-4 to 140°F (-20 to 60°C)
Environmental compensation	Automatic
Color	White head and base
Construction	High impact engineering polymer
Mounting	Plug-in

**TECHNICAL SPECIFICATIONS - HEAT  
DETECTION**

UL and cUL fixed-temp alarm rating:	135°F (57.2°C) <b>Note that temperature alarm setpoint is not configurable.</b>
Rate-of-rise	15°F/min (8°C/min)
Alarm Point	
UL:	129 to 141°F (53.9 to 60.5°C)
cUL:	129 to 141°F (53.9 to 60.5°C)
FM:	130 to 140°F (54 to 60°C)

**COMPATIBLE CONTROL UNITS**

Fire Alarm Control Unit (FACU) Type	Current Product	Legacy Product
Single Loop	ARIES®-SLX	ARIES FenwalNET™ 6000 MICRO SLX PEGAsys™* FenwalNET 2000*
Multiple Loop	ARIES®-MLX	ARIES NETLink FenwalNET 8000-ML MICRO MLX PEGAsys* FenwalNET 2000*

\* FACUs running software revision 82.4 are compatibility-tested but not agency listed with the device(s) in this data sheet.

**INTEGRATION OF DETECTORS**

KS-PHD detectors can be mixed in any order with SmartOne legacy detectors on a Kidde Fire Systems intelligent control unit running SmartOne protocol.

**NOTES:**

1. Detectors are not polarity sensitive. Terminals 3 and 7 (SmartOne legacy detectors) or Terminals 2 and 4 (KS or DS Series detectors) can be reversed.
2. Detectors can be installed in any order.
3. SLC loop is not sensitive to the location of the control unit (can be left or right end of loop).
4. Four-wire loops will be wired as shown, bringing loose end of loop back to the control unit.
5. KS Series Detectors should be configured as DS Series Detectors in the control unit configuration.
6. KS-PHD detector is required to be configured as a “Photo Detector” in the control unit configuration.

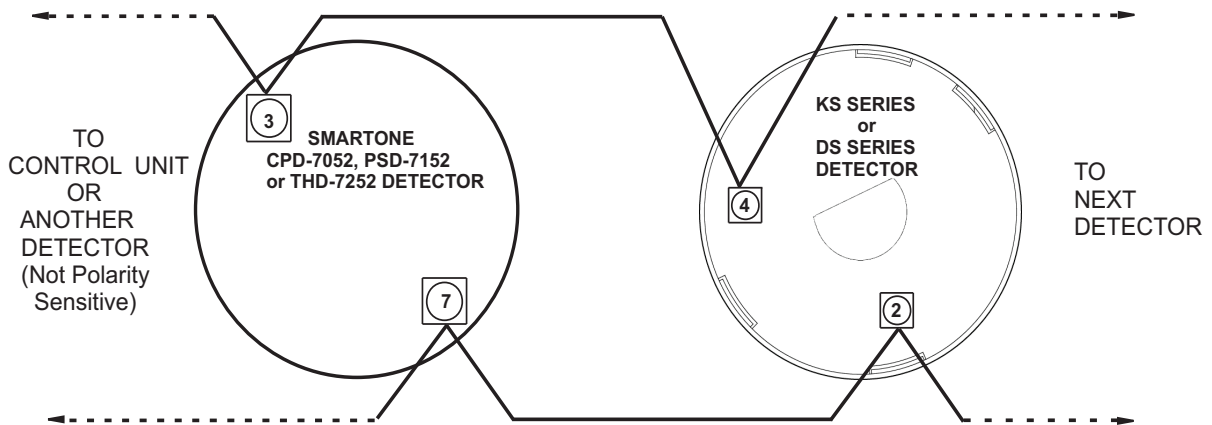
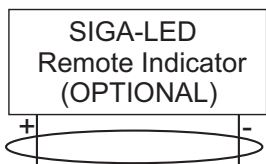


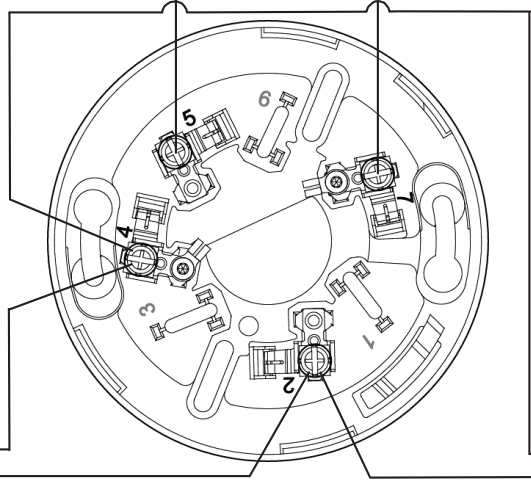
Figure 1: Combining Legacy Detectors with KS Series Detectors (Class B Wiring Style Shown)



NOTE: Maximum wiring resistance to SIGA-LED must not exceed 10 Ohms (per wire).

**TERMINAL DESIGNATIONS:**

Number	Description
1	Not used
2	SLC IN/OUT
3	Not used
4	SLC IN/OUT
5	Remote LED +
6	Not used
7	Remote LED -



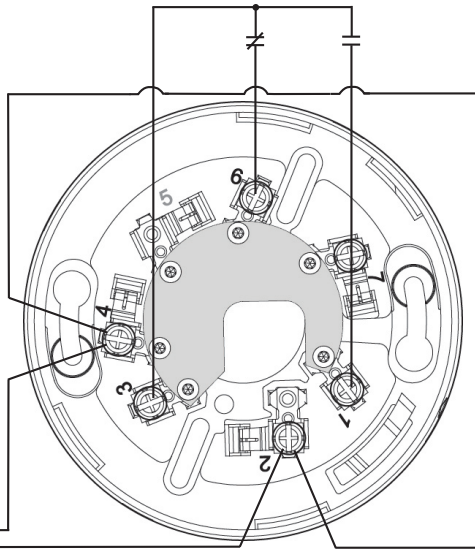
From control unit  
or  
From previous detector

To next detector

**DS-SB Standard Base**  
(Shown with Class B Wiring and Optional Remote LED)

**TERMINAL DESIGNATIONS:**

Number	Description
1	Normally Open
2	SLC IN/OUT
3	Common
4	SLC IN/OUT
5	Not used
6	Normally Closed
7	Not used



From control unit  
or  
From previous detector

To next detector

**DS-RB Standard Base**  
(Shown with Class B Wiring)

**EXPORT INFORMATION (USA)**

Jurisdiction: EAR  
US ECCN: EAR99

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