

# DS-PS Addressable SmartOne Protocol Photoelectric Smoke Detector



Effective: January 2017

K-76-101

FOR KIDDE FIRE SYSTEMS INTELLIGENT CONTROL UNITS

## FEATURES

- *Optical smoke sensing technology*
- *Field-replaceable smoke chamber*
- *Works with SmartOne® communication protocol*
- *Compatible with Kidde, Fenwal and Chemetron branded intelligent control units*
- *Operates in conjunction with SmartOne CPD-7052, PSD-7152 and THD-7252 legacy detectors*
- *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*
- *Advanced data analysis reduces chance of nuisance alarms*
- *Two-color (green/red) LED*
- *Suitable for raised floor and plenum applications*
- *FM Approved*
- *cULus Listed*
- *California State Fire Marshal Listed*

## DESCRIPTION

The DS-PS Photoelectric Smoke Detector is an intelligent device that uses an optical photoelectric sensing chamber to detect smoke. The detector's built-in microprocessor measures and analyzes sensor readings, making comparisons to historical data and filtering signal patterns that are not typical of fires to prevent unwanted alarms. The practical design of the DS-PS increases efficiency, saves installation time, cuts costs and extends life safety and property protection capabilities.

The DS-PS detects extremely small particles of combustion and triggers an alarm at the first sign of smoke. With its high-performance forward scattering reflective response technology, the photoelectric smoke sensor responds quickly and reliably to a wide range of fire types, especially slow burning fires fueled by combustibles typically found in modern multi-use buildings.

## ADDRESSING

DS-PS detectors feature electronic addressing. No addressing switches are used.

## LEDS

DS-PS detectors use an LED to indicate the detector's condition. In normal condition, a flashing green LED indicates that the control unit is performing background supervision and a flashing red LED indicates an alarm condition.

## LED PULSE MODES

- Normal, Standby: (green) flash at 9-second repetition rate
- Alarm: (red) flash at 2.5-second repetition rate



## INSTALLATION

A DS-PS detector mounts 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.

## LOCKING FEATURE

The compatible detector bases include an optional locking feature that prevents removal of the detector without use of a tool. To eliminate this feature, prior to placing the detector in a difficult-to-reach location, break and remove the plastic lever arm from the base.

## SENSITIVITY

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 table below lists the acceptable smoke sensitivity ranges for open air and in-duct detection:

Model	Detection elements	Factory-assigned sensitivity	Adjustable alarm point setting
DS-PS	Photoelectric (open air)	2.0% obscuration/ft.	0.9 to 3.5% obscuration/ft.
DS-PS	Photoelectric (in-duct)	2.0% obscuration/ft.	0.9 to 2.0% obscuration/ft.

## DETECTOR BASES

The DS-PS 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 DS-PS detector.

## ACCESSORIES

- **SIGA-DMP Detector Mounting Plate:** The SIGA-DMP Duct Detector Mounting Plate is a 7 in. (178 mm) square mounting plate with a 4 in. (100 mm) square electrical box used to directly mount a DS-PS smoke detector inside an air duct. The SIGA-DMP includes screws for mounting the detector base and a rubber gasket that forms an airtight seal between the mounting plate and the air duct wall.
- **2-SPRC1 Replacement Smoke Chamber:** If cleaning of the DS-PS detector is unsuccessful, replacement of the smoke chamber may be necessary.
- **70-600000-100 Hand-Held Programmer:** The SmartOne Hand-Held Programmer (with DS Series Programming Adapter) can be purchased separately to conveniently set the DS-PS electronic address in this manner. The control unit software can alternatively be used to set detector address.
- **SM200-12PKG Canned Smoke:** A package of 12 canned smoke aerosol cans is available for purchase for routine testing of the DS-PS detector.

## PROTOCOL

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

## TECHNICAL SPECIFICATIONS

Operating voltage	24 VDC (nominal)
Current Normal Operating Alarm	150 $\mu$ A 220 $\mu$ A
Air velocity-Open Area UL/cUL: FM: Air velocity-In Duct [1] UL/cUL:	0 to 4,000 ft./min (0 to 20.32 m/s) 0 to 300 ft./min (0 to 1.52 m/s) 0 to 4,000 ft./min (0 to 20.32 m/s)
Wall mounting: distance from ceiling	12 in. (305 mm) max.
Compatible bases	DS-SB (Standard), DS-RB (Relay)
Operating Environment Temperature Relative humidity	32 to 120°F (0 to 49°C) 0 to 93% RH, non-condensing
Storage temperature	-4 to 140°F (-20 to 60°C)
SLC Protocol	SmartOne
Environmental compensation	Automatic
Color	White head and base
Construction	High impact engineering polymer
Mounting	Plug-in
Shipping weight	0.44 lb. (164 g)
[1] For duct installation, use a SIGA-DMP duct mounting plate.	

## ORDERING INFORMATION

DS-PS	Intelligent Photoelectric Smoke 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

SIGA-DMP	Duct mounting plate for DS-PS detector
2-SPRC1	Replacement smoke chamber for DS-PS
70-600000-100	SmartOne Hand-Held Programmer and accessories with DS Series Detector Programming Adapter
70-600000-110	DS Series Detector Programming Adapter
SM200-12PKG	Canned smoke for functional testing of smoke detectors

## REGULATORY INFORMATION

North American standards	CAN/ULC-S529-09, UL 268, UL 268A, FM Approvals 3230
UL/cUL smoke sensitivity range	0.9 to 3.50 %/ft. (2.95 to 11.48%/m) obscuration (Open Area Use) 0.9 to 2.0 %/ft. (2.95 to 6.56%/m) obscuration (In-Duct Use)  NOTE: Detector sensitivity is selected at control unit or with remote configuration software. Default is 2.0%/ft (Alarm), 1.5%/ft (PreAlarm)
FCC compliance	This device complies with part 15 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.
Industry Canada compliance	This Class A digital apparatus complies with Canadian ICES-003.

## INTEGRATION OF DETECTORS

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

## COMPATIBLE CONTROL UNITS

Kidde	ARIES NETLink
Kidde	ARIES
Kidde	PEGAsys *
Fenwal	FenwalNET 8000-ML
Fenwal	FenwalNET 6000
Fenwal	FenwalNET 2000 *
Chemetron	MICRO MLX
Chemetron	MICRO SLX

\* DS Series detectors are compatible with FenwalNET 2000 and PEGAsys control units running software version 82.4. Note that FenwalNET 2000 and PEGAsys control units are no longer UL Listed or FM Approved. DS Series detectors have not been compatibility-tested on legacy control units older than FenwalNET 2000 and PEGAsys.

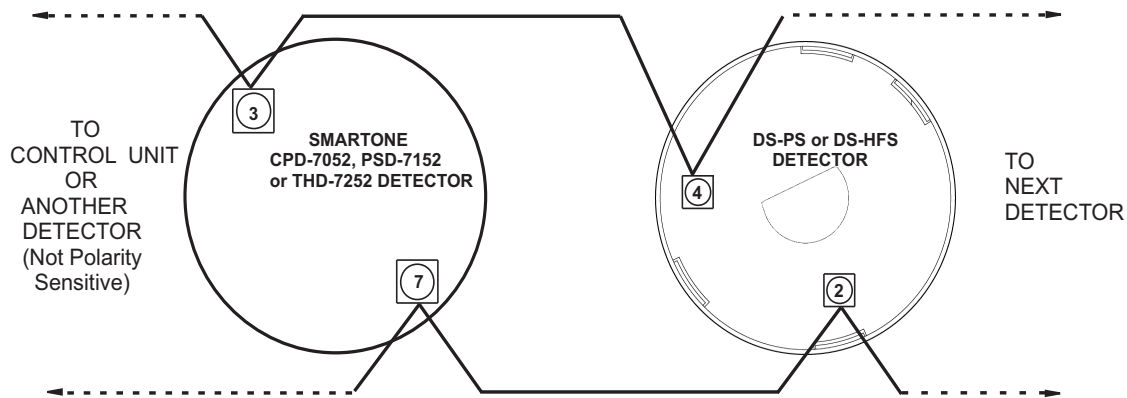


Figure 1: Combining Legacy Detectors with DS Series Detectors (Class B, Style 4 Wiring Style Shown)

### NOTES:

- Detectors are not polarity sensitive. Terminals 3 and 7 (SmartOne) or Terminals 2 and 4 (DS Series) can be reversed.
- SmartOne and DS Series detectors can be installed in any order.
- SLC loop is not sensitive to the location of the control unit (can be left or right end of loop).
- Four-wire loops will be wired as above, bringing loose end of loop back to the control unit.

### SOFTWARE NOTE:

**The DS-PS detector does NOT support configurable alarm settings below 0.9%/ft.** If a DS-PS is configured with a threshold below 0.9%/ft. for Alarm or 0.7%/ft. for Pre-Alarm, the detector will operate at the lowest allowable setting. If the control unit is running software version 1.2.11 (for Single Loop panel) or software version 2.1.2 (for Multi-Loop panel) or later, the message 'INVALID THRESHOLD' will be reported on the Keypad/Display. However, if the control unit is running an older version of software, no message will be reported.

**TERMINAL DESIGNATIONS:**

Number	Description
1	Not used
2	SLC IN/OUT
3	Not used
4	SLC IN/OUT
5	Not used
6	Not used
7	Not used



DS-SB Standard Base - Class B, Style 4 Wiring Shown

**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



DS-RB Relay Base - Class B, Style 4 Wiring Shown

**EXPORT INFORMATION (USA)**

Jurisdiction: EAR

US ECCN: EAR99

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