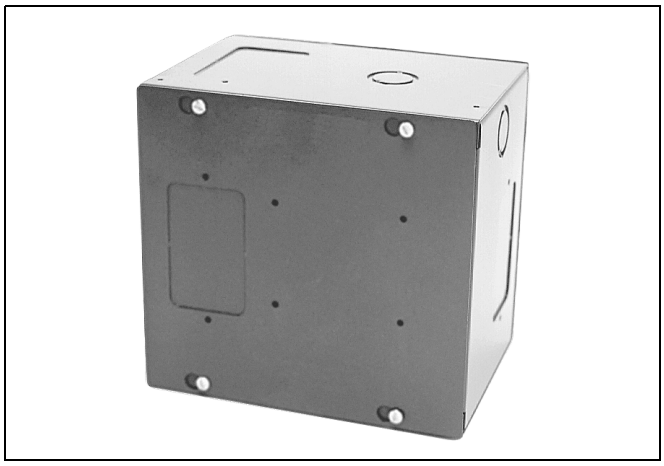
Honeywell

Intelligent Duct Smoke Detector Housing

SIGA-DH

Excel Life Safety SYSTEM

SPECIFICATION DATA



FEATURES

- **Suitable for high air velocity duct applications.**
- **Uses standard XLS Intelligent Smoke Detectors.**
- **Uses standard, relay, or isolator detector mounting base.**
- **Install in ducts up to 10 feet (3m) wide.**
- **Remote LED and test station accessories.**
- **Designed and manufactured per ISO 9001 Standards.**

APPLICATION

The Excel Life Safety (XLS) SIGA-DH Duct Smoke Detector Housing is specifically engineered to exploit all the capabilities of XLS intelligent photoelectric and multisensor smoke detectors. XLS intelligent smoke detectors gather analog information from their sensing element(s) and converts it into digital signals. The onboard microprocessor in the detector measures and analyzes these signals. It compares them to historical readings, time patterns, and known characteristics to make an alarm decision. Digital filters and complex algorithms are applied for optimum detector accuracy.

The large access door on the SIGA-DH is completely removable to facilitate fast detector installation and field wiring connections. Five 1-gang knockouts on the duct detector housing provide convenient locations for mounting XLS intelligent modules.

The SIGA-DH Duct Housing comes with a 6 in. (150 mm) exhaust tube. Air sampling tubes are available in lengths from 8 in. (200 mm) to 10 ft (3048 mm) and must be ordered separately. Compatible smoke detectors, mounting bases and accessories are listed in the Ordering Information section. Refer to the individual device literature for more detail.

Intelligent Duct Smoke Detectors

Compatible Signature Series detectors include the XLS-IPHS 4D Multisensor Smoke Detector with three integrated sensing technologies. It combines ionization, photoelectric and heat sensors and processes and analyzes information from each sensor separately using dynamic filters. The XLS-PHS 3D Multisensor Detector and the XLS-PS Photoelectric Detector are also compatible. The installer selects the alarm sensitivity level from the detector's wide 0.67 to 3.7% sensitivity range window. Five settings are available from within the range.

Environmental Compensation

Detection sensitivity for Signature Series detectors is virtually independent of their installed environment and condition of the detector. Each sensing element adapts to long-term changes caused by dirt, humidity, and aging. Every 8.6 minutes the detectors adjust and update the sensitivity (% obscuration) ambient baseline of the smoke sensing element. Every 68 minutes this information is written to permanent memory.

The alarm sensitivity setting selected by the installer floats up or down to remain constant relative to the changing baseline. This is called environmental compensation.

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Identification of Dirty or Defective Detectors

Each detector automatically identifies when it is polluted and causes a *dirty detector* message. The detector sensitivity measurement can also be transmitted to the loop controller. This measurement satisfies NFPA sensitivity measurement requirements. The internal components are self-supervised. Up to 32 trouble codes are generated and can be displayed for diagnostics.

Non-Volatile Memory

Signature Series smoke detectors permanently store a serial number, type of device and job number. Automatic information updates include hours of operation, last maintenance date, number of alarms and troubles, and time and date of last alarm. In the unlikely event that an unwanted alarm does take place, the history file can be called up to help isolate the problem and prevent it from happening again.

Electronic Addressing and Device Mapping

The Signature loop controller automatically addresses each detector to save valuable time during system commissioning. If desired, the detectors can be custom addressed using the Signature Series Data Entry Program.

The wired circuits between each device can be examined using the data entry program along with the self-mapping feature built into all Signature Series devices. Graphic support, layout, and as-built drawing information showing wire branches (T-taps), device types and their address are stored on disk for printing hard copy. The preparation of as-built drawings is fast and efficient.

Device mapping also allows the Signature loop controller to discover unexpected additional device addresses, missing device addresses and changes to the wiring in the data loop.

Stand-Alone Operation

On-board intelligence permits Signature devices to operate in stand-alone mode. Should loop controller CPU communications fail for more than four seconds, all devices on that circuit (loop) go into stand-alone mode. The loop acts like a conventional alarm receiving circuit. Each detector on the loop continues to collect and analyze information from its surroundings. The detector alarms if the preset smoke obscuration level is reached and causes a loop alarm. If the detector is mounted to a relay base, the relay operates. Similarly, if it is mounted to an audible base, the on-board horn sounds.

Quality and Reliability

Honeywell detectors are designed and manufactured in North America to ISO 9001 standards. All electronics utilize surface mount technology (SMT) for smaller size and greater immunity to RF noise. A conformal coating is used for corrosion resistance and all critical contacts are gold plated.

SPECIFICATIONS

Intelligent Duct Smoke Detector Housing

Model:

SIGA-DH Intelligent Duct Smoke Detector Housing with 6 in. (150 mm) exhaust tube, gaskets, self-adhesive drilling template for mounting duct housing and detailed installation instruction sheet.

NOTE: SIGA-DH duct housing is not weatherproof or dust tight.

Dimensions: 7-3/8 in. (188 mm) wide x 7 in. (178 mm) high x 5 in. (127 mm) deep.

Material and Finish: 16-gauge cold, rolled steel with red, baked enamel.

Conduit Knockouts: Combination 1/2 in. and 3/4 in. knockouts.

Shipping Weight: 6.5 lb (3 kg).

Standards: International ISO 9001 Standards.

Approvals: UL, ULC, MEA, CSFM.

Accessories:

Air Sampling Inlet Tubes: Available in lengths from 8 in. (200 mm) to 10 ft (3m). Must be ordered separately:

6261-001, 8 in. (200 mm).
6261-002, 24 in. (600 mm).
6261-003, 42 in. (1060 mm).
6261-006, 78 in. (1980 mm).
6261-010, 120 in. (3048 mm).

Detector Mounting Bases: One detector mounting base must be ordered for each duct smoke housing. Removing a detector from its base (except isolator base) does not affect other devices operating on the same data loop. Available bases follow.

SIGA-SB Standard Base: Supports the SIGA-LED Alarm LED.

SIGA-RB Relay Base: This base includes a relay. Normally open or closed operation is selected during installation. The dry contact is rated for 1A at 30 Vdc (pilot duty). The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel. The Relay Base does not support the SIGA-LED Remote LED. Relay bases are not affected or activated by the SIGA-DTS Duct Test Station.

SIGA-IB Isolator Base: This base includes a built-in line fault isolator. A detector must be installed to operate the fault isolator. The integral isolator relay is controlled by the detector or the loop controller. One loop can support a maximum of 96 Isolator Base. The Isolator Base does not support the SIGA-LED Alarm LED.

SIGA-LED Alarm LED Indicator: The SIGA-LED Alarm indicator is only suitable for use with the SIGA-SB detector base. A maximum of one can be operated for each detector. It features a red LED on a one-gang plastic plate and can be installed remotely or directly on the SIGA-DH Duct Housing.

6263-SG Air Velocity Test Kit: Interfaces to the SIGA-DH Duct Housing and is used to test or confirm the air velocity in HVAC ducts where the duct housing is installed.

Intelligent Duct Smoke Detectors

Models:
XLS-PS Intelligent Photoelectric Smoke Detector (with photoelectric sensing element using light scattering principle).
XLS-PHS Intelligent 3D Multisensor Smoke Detector (with photoelectric and heat sensing elements using light scattering principle).
XLS-IPHS Intelligent 4D Multisensor Smoke Detector (with ionization, unipolar, photoelectric, and heat sensing elements using light scattering principle).

Air Velocity Range:
XLS-PS and XLS-PHS Detectors: 300 to 4000 ft/min. (1.5 to 20.3 m/sec).
XLS-IPHS Detector: 300 to 1000 ft/min. (1.5 to 5.0 m/sec).

Electrical Ratings: Refer to individual detector literature.

Temperature Ratings:
Operating:
XLS-PS: 32°F to 120°F (0°C to 49°C).
XLS-PHS; XLS-IPHS: 32°F to 100°F (0°C to 38°C).
Storage: -4°F to 140°F (-20°C to 60°C).
Heat:
XLS-PHS: 135°F (57°C) fixed.
XLS-IPHS: Operation 32°F to 100°F (0°C to 38°C). Alarms at 65°F (35°C), change in ambient temperature.

Humidity Ratings: 0 to 93%, RH, non-condensing.

UL/ULC Sensitivity Range:
XLS-PS and XLS-PHS: 0.67% to 3.77% obscuration/ft (305 mm).
XLS-IPHS: 0.67% to 3.70% obscuration/ft (305 mm).

User Selected Alarm Sensitivity Settings: Least Sensitive: 3.5%; Less Sensitive: 3.0%; Normal 2.5%; More Sensitive: 2.0%; Most Sensitive 1.0%.

Pre-alarm Sensitivity: 5% increments allowing up to 20 pre-alarm settings.

Compatible Mounting Bases: SIGA-SB Standard Base, SIGA-RB Relay Base, SIGA-IB Isolator Base.

Compatible Remote LED: SIGA-LED (LED flashes when in alarm).

Controller Compatibility: Signature Loop Controller.

Addressing Restrictions: One input device address.

SIGA-DTS Duct Test Station

Model: SIGA-DTS Duct Test Station: Uses a key switch along with an integral intelligent input module mounted on a two-gang plastic plate. Supplied with two keys and a red alarm LED. When the key is turned to the TEST position, the LED lights and the integral module remotely inputs a duct detector rest alarm. Actions and sequences programmed at the control panel to activate dampers and other smoke control measures can be easily tested. Detector relay bases are not affected or activated. Resetting the control panel clears the test and returns the system to normal. The key cannot be removed when in the TEST position.

Electrical Ratings:
Operating Current: Standby = 250 µA; Activated = 400 µA.
Operating Voltage: 15.2 Vdc to 19.95 Vdc (19 Vdc nominal).

Temperature Ratings: 32°F to 120°F (0°C to 49°C).

Onboard LED Operation: Red LED flashes when in alarm or test state.

Addressing Restrictions: Uses one module address.

Mounting: North American electric box: 2 in. deep 2-gang or 4-in. square; European electric box 100 mm square.

Replacement Key: Part No. P-037449.

Finish: White high impact engineered plastic 2-gang front plate.

INSTALLATION

Location

The SIGA-DH Duct Smoke Detector Housing requires a clear, flat, accessible duct area on the duct of at least 7-3/8 in. (188 mm) wide by 7 in. (175 mm) high. The duct housing must be installed on ducts at least 8 in. (200 mm) wide. See Fig. 1. To avoid stratification effects, install the detector housing a minimum of six duct widths beyond any bends in the duct. Duct smoke detectors are usually installed on the supply duct after the air filters, or in the return air stream before outdoor air is added.

Air velocity in the duct maintains the air flow that enters the detector housing through perforations in the air sampling inlet tube and discharges through the exhaust (outlet) tube. The air sampling inlet tube length must span the entire width of the air duct. Air sampling tubes longer than 3 ft (914 mm) must be supported at both ends.

Mounting

Before installing the duct detector housing, verify that duct air velocity is within the limits of the smoke detector. Also verify that duct relative humidity is within 0-93%, non-condensing.

Always install duct smoke detectors in accordance with the latest recognized editions of local and national fire alarm codes. Install the duct detector housing with the INLET air sampling tube upstream of the exhaust tube. See Fig. 2.

The duct smoke detector continually samples air flow in a HVAC duct and initiates an alarm condition when the quantity (percent obscuration) of combustion particles in the air sample exceeds the detector sensitivity setting.

⚠ CAUTION

Possible Personal Injury Hazard.
This device does not sound or send an alarm without electrical power.

Since fires frequently cause power interruption, discuss further safeguards with your fire protection specialist.

Smoke detectors are not designed to detect toxic gases which can build up to hazardous levels in some fires.

Duct smoke detectors are not a substitute for an open area smoke detector or for early warning detection.

Duct smoke detectors are not a replacement for a building's regular fire detection system.

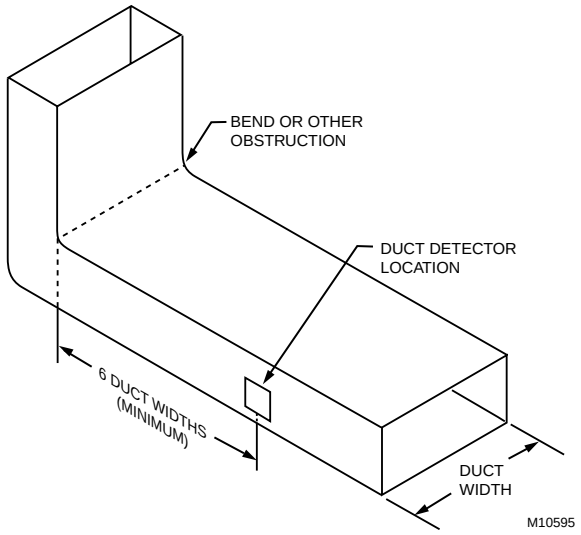

Fig. 1. Duct Smoke Detector housing location.

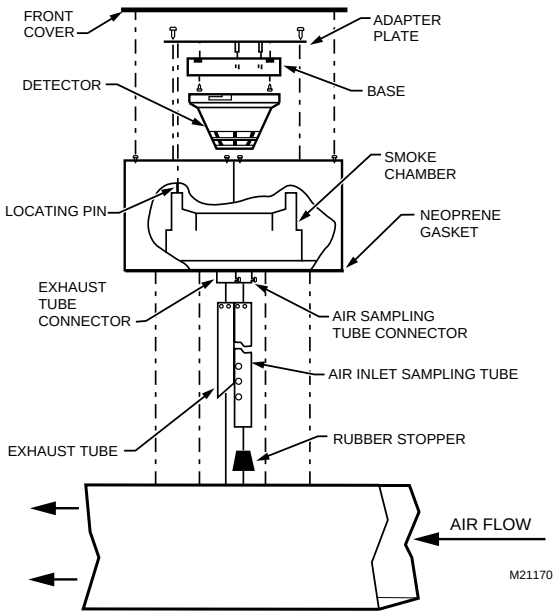

Fig. 2. Mount, install Duct Smoke Detector housing.

ORDERING INFORMATION

Catalog Number	Description	Shipping Weight lb (kg)
SIGA-DH	Duct Detector Housing	6.5 (3)
6261-001	8-in. (203 mm) Air Sampling Inlet Tube	.25 (.1)
6261-002	24-in. (610 mm) Air Sampling Inlet Tube	.5 (.2)
6261-003	42-in. (1067 mm) Air Sampling Inlet Tube	1.6 (.8)
6261-006	78-in. (1981 mm) Air Sampling Inlet Tube	2.2 (1)
6261-010	120-in. (3048 mm) Air Sampling Inlet Tube	4.4 (2)
XLS-IPHS	4D Multisensor Detector	.5 (.23)
XLS-PHS	3D Multisensor Detector	
XLS-PS	Photoelectric Detector	
SIGA-SB	Standard Base	.2 (.09)
SIGA-RB	Relay Base	
SIGA-IB	Isolator Base	
SIGA-LED	Alarm LED Indicator	
SIGA-DTS	Duct Test Station	.4 (.18)
6263-SG	Duct Air Velocity Test Kit	—

Honeywell

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