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Data Sheet
Fire Safety Products

Specialized Devices

Air-Duct Housings —> FDBZ Series

Models FDBZ492, FDBZ492-HR, FDBZ492-R and FDBZ492-PR (with FDBZ-WT and FDBZ-RTL)

ARCHITECT AND ENGINEER SPECIFICATIONS

- Four (4) models available
  - Addressable and conventional with and without relays
- Compatible with various Siemens – Fire Safety fire-alarm control panels (FACPs)
- Magnet test feature with the Model OP121 conventional detector
- Design for air-velocity range of 31 to 1,219 meters-per-minute (mpm)
- Robust, compatible conventional remote indicator test switch that incorporates tri-color light-emitting diode (LED)
- Clear housing cover with smoke test port on cover for quick identification of detector type
  - Removable with only four (4) captive-thumb screws (no tools required)
  - Includes a smoke / aerosol detector test port
- Optional NEMA 4X-reinforced, stainless-steel and watertight enclosure available, Model FDBZ-WT
- No tools required for cover removal, sampling and exhaust-tube installations
- *Trouble*-event activation upon front-cover removal
- A*larm* LED visible from front

Remote alarm indicator
(Model FDBZ492-RTL)

FDBZ-series of air-duct housings
(FDBZ492, FDBZ492-HR, FDBZ492-R and FDBZ492-RP)

Watertight housing
(Model FDBZ-WT)

- Self-contained model available with 'on-board' power supply for conventional detectors
- Expanded temperature range
- Relay models available
- ULUL268A Listed, ULCULC-S529 Listed; FM (#3010), CSFM (#3240-0067:0265) Approved

Product Overview

The Siemens — Fire Safety Model 'FDBZ'-series of air-duct-detector housings are designed to be used with the Siemens Model 'H'-series, 'FD'-series and the Model OP121 detectors. Designed for installation directly to heating, ventilating and air-conditioning (HVAC) duct systems, the Model 'FDBZ'-series complies with National Fire Protection Association Standard (NFPA) No.'s 72 and 90A, and is Underwriters' Laboratories Listed.

When equipped, the air-duct detector housing will signal the presence of smoke being carried through the duct system. Air-duct detectors are not intended to be substituted for open-area detection.

Notes: Most conventional time-control equipment guarantee only one (1) detector per zone when the detector's operated relay function is critical.
The connection of a remote lamp and a remote relay –per detector – is allowed.
Refer to the installation manual for the respective conventional fire system.

Notes – (cont.'d): With either the Desigo® series or FireFinder® XLS series of FACPs, up to 252-addressable detectors with relays per circuit may be used. The connection of an intelligent remote lamp (ILED) and a remote relay is allowed for each detector simultaneously.

Specifications

The Model 'FDBZ'-series of air-duct housings are uniquely designed to use with the photoelectric detector. Sensitivity of Models PE-11C and OP121 detectors can be verified for calibration via LED visual status or a Model RSAW-11, Model RSAC-11 or Model FDBZ-RTL multi-color remote lamp. A green flash indicates the detector has passed its self test. Amber indicates a *Trouble* condition, and red indicates an *Alarm* event.

Sensitivity range for Models HFP-11, FP-11, SFP-11, HFPO-11, SFPO-11, FDO421, FDOOT441 and FDOOTC441is is verified from the multi-color LED of the respective detector, or its sensitivity reading may be printed by command from the corresponding FACP to an optional printer.

Specifications — (continued)

The remote alarm indicator (Model FDBZ-RTL) allows for manual testing via a key-switch for the conventional detector as well as the conventional air-duct housing with relay. Model FDBZ-RTL, which mounts remotely from the conventional air-duct housing, allows for manual relay-output control. The duct-detector remote indicator key-switch also indicates the current state of the detector.

The watertight housing (Model FDBZ-WT), which allows the air-duct detector housing to be installed inside the separate NEMA 4X enclosure, is for installations for either an outdoor area or in environments where excessive moisture is prevalent.

Each detector unit employs a cross-sectional sampling principle of operation. Inlet sampling tubes are available in four (4) lengths (see: Sampling Tube Selection Table). Outlet sampling tubes are one (1) common length and draw. A continuous, cross-sectional sample of air moves through the duct. Stratification or skin affect phenomenon that occurs in the duct can prevent smoke (especially in large ducts) from reaching a spot-type detector.

In addition, the unique design of the sampling chamber insures uniform sensitivity in air velocities, ranging from a low of 31 mpm to as high as 1,219 mpm. Each housing comes with three (3) wiring entry ports:

- Two (2) 3/4" conduit knockouts
- One (1) 1/2" conduit opening

The inlet sampling tube length is determined by the width of the air duct being protected. The inlet tube — greater than and nearest to the duct width — should be used (see: Sampling Tube Selection Table). The inlet tube can then be trimmed at the job site to the exact width of the duct. The outlet sampling tube for all ducts — irrespective of width — has a fixed length of approximately 5.5 inches (14cm.), and is supplied with the air-duct housing.

Note: When the use of a remote relay is required, order Model FDBZ492-R for conventional systems; Model FDBZ492-HR for addressable systems. When required, a separate watertight enclosure (Model FDBZ-WT), which is designed to contain the air-duct housings is available.

(For full details, refer to installation instructions for the respective air-duct housing.)

Note: When a self-contained duct detector with power supply is required, order Model FDBZ492-PR.

(For full details, refer to installation instructions part number A6V10330327.)

Sampling Tube Selection Table

Duct Width	Sampling Tube (Model No.)
For duct widths 6" to 1'	ST-10
For duct widths 1' to 3'	ST-25
For duct widths 3' to 5' (requires support)	ST-50
For duct widths 5' to 10' (requires support)	ST-100

Maintenance of the detector is easily accomplished via the removal of the duct-housing sampling chamber cover. The detector, which plugs into the housing, is easily removed for cleaning or replacing by a trained technician.

All that is necessary for installation of the air-duct detector is the cutting of three (3) small holes for the Sampling Tube installation (template included), and the drilling of two (2) holes for mounting the air-duct housing. The unit is then easily mounted in place, and connection made to the existing wires or terminals — if optional accessories are utilized. No mechanical tools are required for removing the cover or connecting the sampling and exhaust tubes to an air-duct housing.

Models ST-50 and ST-100 require support. However, Model ST-100 is shipped in two (2) 5-ft. (152 cm.) pieces with a coupling for field assembly.

Technical Data

Operating Temperature Ranges:	0°C (+32°F) to 49°C (120°F)
Sampling Tube Pressure Range of Differences:	> 0.01 inches; < 1.2 inches of water column
Relative Humidity:	0 – 95%; non-condensing
Air Pressure / Altitude Range:	No effect / No limitations
Air-Duct Velocity:	100 – 4,000 ft. / min (0.51– 20m / sec)
Dimensions:	{H-x-W-x-D} ▪ Rectangular: 14.38" –x– 5" -x– 2.5" (37 cm. -x- 12.7 cm. -x- 6.36 cm.) ▪ Square: 7.75" –x– 9" –x– 2.5" (19.7 cm. -x- 22.9 cm. -x- 6.36 cm.)
Detector Weight:	1.8 Lbs. (0.82 Kg.)

Notes to Architect: When building codes regulate the location of detectors within ventilating systems, make sure the number and locations of detectors are in accordance with the code regulations.

For additional electrical specifications, please see the installation instructions of the corresponding air-duct housing.

Operation

Based on the monitoring results, the LED indicator flashes the following colors based on the following conditions:

Flash Color	Condition	Flash Interval (in seconds)
Green*:	Normal supervisory operation. Smoke sensitivity is within rated limits.	10
Yellow:	Detector is in *Trouble* condition, and needs either repair or replacement.	4
Red:	*Alarm* condition.	1
No Flash:	Detector is not powered.	— —

* LED can be turned OFF.
Please follow the corresponding description of the panel used.

Products included with the air-duct housing:

- (1) short-return (outlet) tube
- (1) stopper
- (2) #12 + 3/4" sheet-metal screws
- (1) mounting template

Note: Detector and sampling tube to be purchased separately. Minimum hardware required is: one (1) air-duct housing assembly; one (1) sampling tube and one (1) detector.

Details for Ordering

Model	Part Number	Description
FDBZ492	S54319-B22-A1	A two-wire addressable or conventional duct detector (without relays) designed for direct use on heating, ventilating and air-conditioning (HVAC) air-duct systems. When equipped, the air-duct detector housing will signal the presence of smoke being carried through the duct system. For use with the following Models: – HFP-11 – FDO421 – OP121 – SFP-11 – FDOOT441 – PE-11 – HFPO-11 – FDOOTC441 – PE-11C – SFPO-11 – FP-11
FDBZ492-HR	S54319-B23-A1	A two-wire addressable duct detector (with relays) designed for direct use to HVAC air-duct systems and works with the Remote Test Switch (FDBZ492-RTL). This part has a programmable relay base, and when equipped, the addressable air-duct detector housing will signal the presence of smoke being carried through the duct system. For use with the following Models: – FDO421 – FP-11 – SFP-11 – FDOOT441 – HFP-11 – SFPO-11 – FDOOTC441 – HFPO-11

Details for Ordering – (continued)

Model	Part Number	Description
FDBZ492-R	S54319-B24-A1	A two-wire conventional duct detector with relays designed for direct use on HVAC air-duct systems. This detector has a relay base, and when equipped with conventional air-duct housing, will signal the presence of smoke being carried through the duct system. For use with the following Models: – OP121 – PE-11 – PE-11C
FDBZ492-RP	S54319-B25-A1	A four-wire conventional duct detector with relays and a built-in power supply. Housing is designed for direct use to HVAC air-duct systems. It has a relay base with a built-in power source. When equipped with conventional air-duct housing, this duct detector will signal the presence of smoke being carried through the duct system. For use with the following Models: – OP121 – PE-11 – PE-11C
FDBZ492-RTL	S54319-S27-A1	Device is used for manual testing via a key-switch for duct-housing Models FDBZ492-R, FDBZ492-RP and FDBZ492-HR. Device mounts remotely from the conventional and addressable air-duct housing, allowing for manual relay-output control. The duct-detector remote key-switch also indicates the current state of the detector. For use with the following Models: – FDBZ492-R – FDBZ492-RP – FDBZ492-HR
FDBZ-WT	S54319-B26-A1	An optional, separate watertight NEMA 4X enclosure (Model FDBZ-WT) that provides added watertight protection for any of the Model FDBZ492-series duct housings. The duct housing fits into the separate 4X enclosure. This part allows the air-duct detector housing to be installed in the separate enclosure, and can be used in either an outdoor area or in environments where excessive moisture is prevalent. For use with the following Models: – FDBZ492 – FDBZ492-R – FDBZ492-HR – FDBZ492-RP
ST-10	500-649710	Sampling tube for Ducts 6" to 1'
ST-25	500-649711	Sampling tube for Ducts over 1' to 3'
ST-50	500-649712	Sampling tube for Ducts 3" to 5'
ST-100	500-649713	Sampling tube for Ducts 5' to 10'

Notice: This marketing data sheet is not intended to be used for system design or installation purposes. For the most up-to-date information, refer to each product's installation instructions.