

# D285DH Duct smoke head, 2-/4-wire, 12/24V

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- ▶ Commercial or residential applications
- ▶ Two-wire or four-wire application, depending on base
- ▶ Chamber Check rapid-flash LED Automatic Trouble Indication reports contaminated chamber
- ▶ Flashing LED power indicator
- ▶ Steady-On LED alarm indicator

The D285DH duct detector head detects the large smoke particles which typically result from wood, paper, and fabric combustion.

The detector is part of a two component system: the duct detector housing and the duct detector head. The housing is permanently attached on the duct. The interchangeable duct detector head quickly detaches for replacement and cleaning without affecting circuit wiring. The duct detector head attaches to the following duct detector housings:

- D340 Two-wire Duct Detector Housing (12 VDC or 24 VDC)
- D341 Four-wire Duct Detector Housing (24 VDC or 120 VAC)
- D342 Four-wire Duct Detector Housing (24 VDC or 220/240 VAC)

## Functions

### Detection chamber operation

The duct detector uses an infrared LED light source and a silicon photodiode to measure light in a chamber. In normal conditions the light is absorbed in the chamber. The presence of a significant number of particulates allows the light to reflect to the photodiode. After three consecutive measurements exceeding the basic level, the unit signals an alarm

condition. The detector can be reset from the panel, after an alarm condition is cleared, by interrupting power.

The detection chamber, designed for reliable smoke entry characteristics, is protected by a micro-fine insect screen. The screen reduces dust accumulation and insect penetration and minimizes nuisance alarms.

### Chamber Check Feature

To further reduce nuisance alarms, the detector head checks its calibration. This Chamber Check feature is automatic. If the head is out of calibration for >24 hours, the Trouble-Alarm LED flashes once per second. This is three times the normal rate.

### Testing

#### Internal diagnostic test

This head has a moisture-proof reed switch that reacts to an external magnet for testing. The magnet test simulates a 4% to 6% smoke obscuration, which places the detector in an alarm condition. This test results in specific LED and alarm circuit responses indicating the:

- Detector is within calibration standards
- Detector settings are outside sensitivity standards
- Detector is not operational

This test is especially useful in environmentally unstable or unclean areas.

### Sensitivity voltage test

This detector head has a socket that accepts the D1005 Test Cable. The D1005 connects to the detector head and allows a voltmeter to read the sensitivity of the device.

### LEDs

The detector has a built-in LED that flashes to indicate the device is powered. The LED latches on steady in an alarm condition.

## Certifications and approvals

Region	Regulatory compliance/quality marks	
USA	UL	UL 268A, Smoke Detectors for Duct Application
	CSFM	see www.boschsecurity.com (the Bosch website)
	MSFM	permit #2186
Canada	ULC	CAN/ULC-S529, Smoke Detectors for Fire Alarm Systems
Hong Kong	HKFSD	J-005/C/019

## Installation/configuration notes

### Installation

The duct detector head is part of a compound device. The duct detector housing installs on the duct and contains all the wiring. The duct detector head attaches to the base by aligning the head with the base and turning it clockwise. No tools are required for installation other than a screwdriver to tighten the optional tamper screw.

### Wiring

The terminal block on the duct housing accepts up to 12 AWG (ISO 4 mm<sup>2</sup>) wire.

## Parts included

Quantity	Component
1	Detector head with dust cover
1	Literature - Installation Manual, Technical Service Note on installation

## Technical specifications

### Electrical

RMS Ripple (maximum)	25% of DC input
Voltage (input)	Two-wire: 8.5 VDC to 33 VDC Four-wire: 10 VDC to 30 VDC

### Current

Alarm	Two-wire: depends on control panel which must limit the alarm current to 100 mA maximum Four-wire: depends on detector base, refer to pertinent base specifications
Standby	Two-wire: 0.08 mA at 12 VDC, 0.09 mA at 24 VDC Four-wire: 24 mA at 12 VDC or 24 VDC

### Environmental

Relative Humidity:	Up to 93%, non-condensing
Temperature (operating):	+32°F to +100°F (0°C to +38°C)
Radio Frequency Interference (RFI) Immunity:	No alarm or lockup on critical frequencies in the range from 26 MHz to 950 MHz at field strengths less than 50 V/m

### Mechanical

Color:	Bone white
Dimensions (diameter x D):	4 in. x 1.25 in. (10.2 cm x 3.2 cm)

## Ordering information

### D285DH Duct smoke head, 2-/4-wire, 12/24V

Detects the large smoke particles which typically result from wood, paper, and fabric combustion  
Order number **D285DH**

### Accessories

#### D340 Duct detector housing, 2-wire

Two-wire duct detector housing for the D285DH Duct smoke head. Use with compatible control panels.  
Order number **D340**

#### D341 Duct detector housing, 4-wire 24/120V

Four-wire duct detector housing that works with all 24 VAC/VDC or 120 VAC UL Listed four-wire control panels.  
Order number **D341**

#### D342 Duct detector housing 4-wire 24/220/240V

Four-wire duct detector housing that works with all 24 VDC or 24 VAC, 220 VAC, or 240 VAC UL Listed four-wire control panels.  
Order number **D342**

#### D1005 Test cable 3ft

Connects a digital voltmeter to the detector's calibration pin for verifying that the detector is within its calibration range  
Order number **D1005**

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