D285DH Photoelectric Duct Smoke Detector Head (12 VDC or 24 VDC)

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Invented for life

- 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 (IR) 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 to reduce dust accumulation and insect penetration and minimize 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 a period exceeding 24 hours, the Trouble-Alarm LED flashes once per second, 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	Certification	
USA	UL	UROX: Smoke - Automatic Fire Detectors (UL268 and A)
	CSFM	see our website
	MSFM	permit #2186
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^2) wire.

Parts included

Quantity	Component
1	Detector head with dust cover
1	Lit pack – 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 setup 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

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Order number **D285DH**

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