Fire Alarm Systems | D285DH Duct smoke head, 2-/4-wire, 12/24V

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

www.boschsecurity.com

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**

<table>
<thead>
<tr>
<th>Region</th>
<th>Regulatory compliance/quality marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>UL - UL 268A, Smoke Detectors for Duct Application</td>
</tr>
<tr>
<td></td>
<td>CSFM - see <a href="http://www.boschsecurity.com">www.boschsecurity.com</a> (the Bosch website)</td>
</tr>
<tr>
<td></td>
<td>MSFM - permit #2186</td>
</tr>
<tr>
<td>Canada</td>
<td>ULC - CAN/ULC-S529, Smoke Detectors for Fire Alarm Systems</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>HKFSD - J-005/C/019</td>
</tr>
</tbody>
</table>

**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 mm²) wire.

**Parts included**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detector head with dust cover</td>
</tr>
<tr>
<td>1</td>
<td>Literature - Installation Manual, Technical Service Note on Installation</td>
</tr>
</tbody>
</table>

**Technical specifications**

**Electrical**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS Ripple (maximum)</td>
<td>25% of DC input</td>
</tr>
<tr>
<td>Voltage (input)</td>
<td>Two-wire: 8.5 VDC to 33 VDC</td>
</tr>
<tr>
<td></td>
<td>Four-wire: 10 VDC to 30 VDC</td>
</tr>
</tbody>
</table>

**Alarm**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-wire</td>
<td>depends on control panel which must limit the alarm current to 100 mA maximum</td>
</tr>
<tr>
<td>Four-wire</td>
<td>depends on detector base, refer to pertinent base specifications</td>
</tr>
</tbody>
</table>

**Standby**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-wire</td>
<td>0.08 mA at 12 VDC, 0.09 mA at 24 VDC</td>
</tr>
<tr>
<td>Four-wire</td>
<td>24 mA at 12 VDC or 24 VDC</td>
</tr>
</tbody>
</table>

**Environmental**

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

**Mechanical**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Bone white</td>
</tr>
<tr>
<td>Dimensions (diameter x D):</td>
<td>4 in. x 1.25 in. (10.2 cm x 3.2 cm)</td>
</tr>
</tbody>
</table>

**Ordering information**

**D285DH Duct smoke head, 2-/4-wire, 12/24V**
Detected 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
Represented by:

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: +31 40 2577 284
eMEA.securitysystems@bosch.com
eMEA.boschsecurity.com

Germany:
Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany
www.boschsecurity.com

North America:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York 14450, USA
Phone: +1 860 289 0096
Fax: +1 586 223 9180
onlinehelp@us.bosch.com
www.boschsecurity.us

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

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