D342 Family four-wire duct smoke detector housings

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The D342 Duct smoke housings mount on the ducts of heating, ventilation, and air conditioning (HVAC) systems. The detectors in the housings monitor the presence of smoke in the conditioned air. The housing works with all 24 V(AC or DC), 220 VAC, or 240 VAC UL Listed four-wire control panels.

The efficient housing design samples the air passing through a duct and detects potentially hazardous conditions. When smoke is detected, the detector sends an alarm signal to the control panel or HVAC control equipment. The control panel or HVAC control equipment initiates the necessary action to control air handling systems.

Functions

**Alarm/Trouble Indication**

A D344-RT Remote test/indicator plate, a D344-RL Remote indicator plate, or a DRA-5 Remote indicator plate can provide remote LED indication of alarm and trouble status. The red LED lights for an alarm. An open loop causes the yellow Trouble LED to light.

**Air Sampling**

Use the duct detector housings in air handling systems with ducts between 1 ft. (30.5 cm) and 10 ft. (3.05 m) wide and air velocities between 300 ft./min. and 4000 ft./min. (1.52 m/s to 20.3 m/s). Air is forced into the detector through an air sampling tube, tested, and returned to the duct through an exhaust tube (supplied).

Sampling tubes should extend across the width of the duct. Bosch Security Systems, Inc. offers sampling tubes in three different sizes. Combined or cut the tubes to make other lengths. Sampling tubes over 3 ft. (91.4 cm) must be supported at the end opposite the duct detector. Sampling tubes are provided with an end plug that must be installed in the open end.

**System Testing**

Place an external magnet on the detector housing or switch a signal from a remote test station to test the system (requires an external 24 V supply).

Reset the system by power shutdown or if a D344-RT is connected, use the key-operated switch.
Certifications and approvals

<table>
<thead>
<tr>
<th>Region</th>
<th>Regulatory compliance/quality marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>UL</td>
</tr>
<tr>
<td></td>
<td>UL 268A, Smoke Detectors for Duct Application</td>
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<td></td>
<td>CSFM</td>
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<td></td>
<td>see <a href="http://www.boschsecurity.com">www.boschsecurity.com</a> (the Bosch website)</td>
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<tr>
<td>Canada</td>
<td>ULC</td>
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<td></td>
<td>CAN/ULC-S529, Smoke Detectors for Fire Alarm Systems</td>
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<tr>
<td>Hong Kong</td>
<td>HKFSD</td>
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<td></td>
<td>J-500/C/030</td>
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</tbody>
</table>

Installation/configuration notes

Compatible Panels
The D342 Four-wire duct smoke housings are compatible with all 24 VDC or VAC, 220 VAC, or 240 VAC UL Listed control panels.

Remote Indicators
NFPA 72 requires detectors have remote alarm indicators where duct smoke detectors are installed:
- in concealed locations
- is more than 10 ft. (3 m) above the floor
- where the detector's alarm indicator is not visible to responding personnel

The optional D344-RT Remote test/indicator plate, D344-RL Remote indicator plate, or DRA-5 Remote indicator plate can satisfy this requirement.

Power Considerations
The detector housing provides one primary power source of 24 VDC, 24 VAC, 220 VAC, or 240 VAC. Do not connect a high-voltage AC source and a low-voltage AC/DC source to the same housing.

Technical specifications

Electrical

Voltage, operating 20 VDC to 29 VDC, 24 VAC, 220 VAC, or 240 VAC
RMS ripple, maximum 25 percent of DC input
Power-up time 22 sec maximum

Outputs
- **Alarm**
  - Form A Normally Open (NO and C) contacts 0.5 A at 24 VDC and 24 VAC, 0.1 A at 120 VAC
- **Auxiliary**
  - Two Form C Normally Open and Normally Closed (NO and C and NC) contacts 10 A at 24 VDC, 24 VAC, 120 VAC, or 240 VAC
- **Trouble**
  - Form “A” Normally Open (NO/C) contacts 0.5 A at 24 VDC, 24 VAC, 0.1 A at 120 VAC

Current Draw - Nominal Primary Voltage

<table>
<thead>
<tr>
<th>Condition</th>
<th>24 VDC</th>
<th>24 VAC</th>
<th>120 VAC</th>
<th>230 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>65 mA</td>
<td>200 mA</td>
<td>110 mA</td>
<td>30 mA</td>
</tr>
</tbody>
</table>

Current Draw - when connected to the D344-RL/D344-RT

<table>
<thead>
<tr>
<th>Condition</th>
<th>24 VDC</th>
<th>24 VAC</th>
<th>120 VAC</th>
<th>230 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>15 mA</td>
<td>85 mA</td>
<td>100 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>Standby</td>
<td>10 mA</td>
<td>0 mA</td>
<td>0 mA</td>
<td>0 mA</td>
</tr>
<tr>
<td>Trouble</td>
<td>10 mA</td>
<td>0 mA</td>
<td>0 mA</td>
<td>0 mA</td>
</tr>
<tr>
<td>Alarm and Remote Coil (ON)</td>
<td>150 mA</td>
<td>150 mA</td>
<td>25 mA</td>
<td>20 mA</td>
</tr>
</tbody>
</table>

Environmental

Relative humidity 0 to 95%, non-condensing
Temperature, operating +32°F to +120°F (0°C to +49°C)
*For UL Listed requirements, the operating temperature is +32°F to +100°F (0°C to +37.8°C)*

Mechanical

Package Dimensions (LxWxH) 19.6 in. x 7.6 in. x 8 in. (49.8 cm x 19.2 cm x 20.2 cm)
Product Dimensions (LxWxH) 15.5 in. x 4.25 in. x 6.5 in. (39.5 cm x 11 cm x 16.5 cm)
Material High-impact fire-retardant polymer plastic

Weight
- Gross 4.67 lb. (2.11 kg)
- Net 4.07 lb. (1.84 kg)

Ordering information

**D342 Duct detector housing 4-wire 24/220/240V**
Four-wire duct smoke detector housing that works with all 24 VDC or VAC, 220 VAC, or 240 VAC UL Listed four-wire control panels.
Order number **D342**

**D342P Duct detector kit, 4-wire 24/220/240V**
Kit comes with a D342 Four-wire Duct Smoke Detector Housing, a D285DH Photoelectric Duct Smoke Detector Head, and a D344-1.5 Sampling Tube.
Order number **D342P**
Accessories

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

D344-RL Remote indicator plate
Used with the D340 Series Duct Smoke Detector Housings
Order number D344-RL

D344-RT Remote test/indicator plate, 24V
Use with a D340/D341/D342 or D343 (legacy product) Duct smoke housing or D296/D297 Long-range beam smoke detector.
Order number D344-RT

D344-1.5 Sample tube, duct 1.5’/45.7cm
length 45.7 cm (1.5 ft)
Order number D344-1.5

D344-3 Sample tube, duct 3’/91.4cm
length 91.4 cm (3 ft)
Order number D344-3

D344-5 Sample tube, duct 5’/152cm
length 1.52 m (5 ft)
Order number D344-5

PAM-4 Relay module, form C, 10A 12/24V
One set of 10.0 A, Form C contacts that can be energized across a range from 9 VDC to 40 VDC
Order number PAM-4