

D7050DH



EN | Installation Instructions
Multiplex Photoelectric
Duct Smoke Detector



BOSCH

Notices

These instructions cover the installation of the D7050DH Multiplex Photoelectric Duct Smoke Detector on a D7024 or a DS9400M 24 VDC Fire Alarm Control Panel (FACP) with a D7039 or DS9431 Multiplex Expansion Module installed. The D7024 and DS9400M requires ROM version 2.0 or greater.

Install, test, and maintain the D7050DH according to these instructions, NFPA 72, local codes, and authority having jurisdiction (AHJ).



Follow the procedures in these instructions to avoid personal injury and damage to the equipment. Failure to follow these instructions can result in the D7050DH not operating properly. Bosch is not responsible for improperly installed, tested, or maintained devices.

The D7050DH complies with Part 15 of the Federal Communications Commission (FCC) Rules and with the RSS-210 of Industry and Science Canada. D7050DH operation is subject to the following two conditions:

1. It does not cause harmful interference.
2. It must accept any interference it receives, including interference that might cause undesirable operation.

1.0 Description

The D7050DH (*Figure 1*) is Underwriters Laboratories, Inc. (UL) Listed and requires a D343 Duct Detector Housing. Use this detector with the D7024 or a DS9400M that includes a D7039 or DS9431 Multiplex Expansion Module.

An LED indicator on the head flashes every 3 to 8 sec to ensure the D7050DH has power and the smoke sampling circuitry functions. This LED flashes at least once each second during an alarm confirming individual detector alarms. The D7050DH automatically resets after the alarm condition clears.

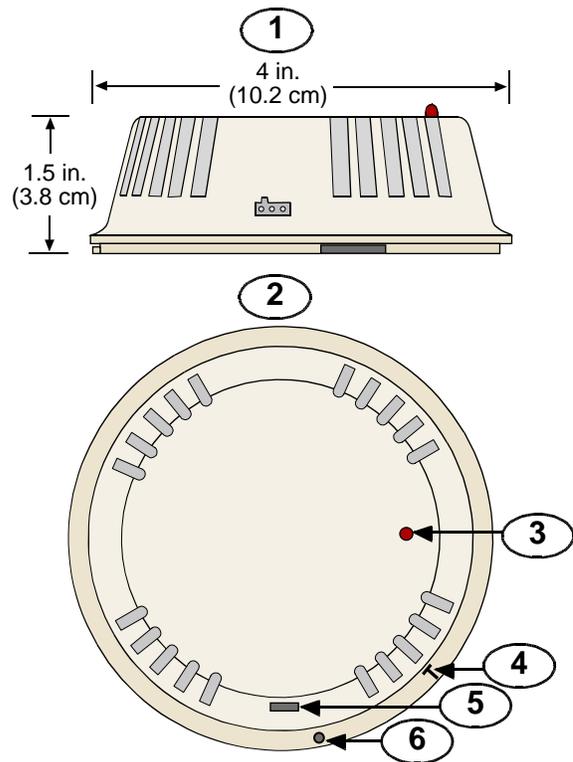
2.0 Installation

For installation details, refer to the *D7024 FACP Operation and Installation Guide* (P/N: 31499), the *D9400M Reference Guide* (P/N: 44578), the *D7039 Installation Guide* (P/N: 38685), or the *DS9431 Installation Instructions* (P/N: 41381).



Do not exceed the maximum line resistance of 50Ω.

Figure 1: D7050DH



- | | |
|--------------------|------------------------------|
| 1 - Side view | 4 - Magnetic test locator |
| 2 - Top view | 5 - Calibration voltage pins |
| 3 - Alarm/Test LED | 6 - Tamper screw hole |

Table 1: Maximum Wire Length Allowed for each Multiplex Bus

Wire Gauge	Maximum 50 Ω for each Bus Loop
18 AWG (1.02 mm)	3800 ft (1170 m)
16 AWG (1.29 mm)	5950 ft (1810 m)
14 AWG (1.63 mm)	5950 ft (1810 m)
12 AWG (2.05 mm)	5950 ft (1810 m)

Table 2: Maximum Number of Detectors Allowed for each Multiplex Bus

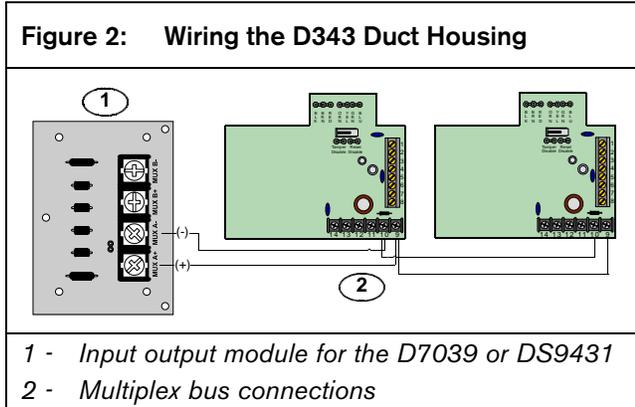
With Remote Test	40
With Remote LED	50
Without Annunciator	70



Do not use shielded cable.

3.0 Wiring the D343

You can wire the D343 in series as shown in *Figure 2*.

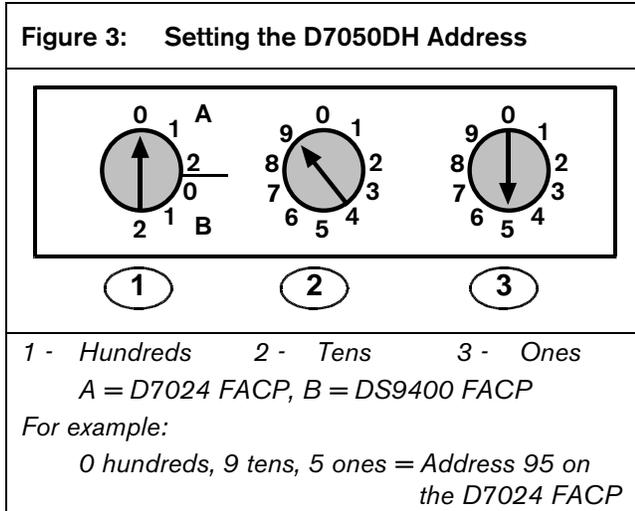


4.0 Setting the Address

Set the D7050DH address before connecting to the control panel and applying power. The address number is the same as the input point or zone number.

Set the D7050DH's address using a flat-blade screwdriver to position the rotary switches (*Figure 3*) located on the back. Note that the switches click when turned.

The valid address range is from 009 to 255. Refer to the *D7024 Operation and Installation Guide* (P/N: 31499) or the *DS9400M Reference Guide* (P/N: 44578) for additional address limitations.

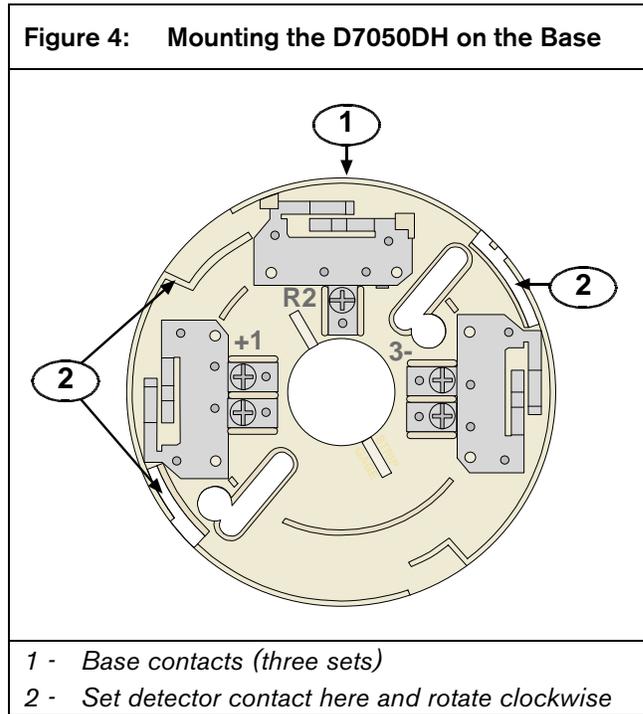


The A address range works on the D7039 Multiplex Expansion Module with the D7024 FACP. The B address range works on the DS9431 Multiplex Expansion Module with the DS9400M FACP.

Figure 3 shows the A address range set at 095, allowing the D7039 to work with the D7024 FACP.

5.0 Mounting

1. Remove the tamper screw located in the recess on the top of the dust cover.
2. Remove the dust cover.
3. Mount and wire the duct housing according to the *D343 Installation Instructions* (P/N: 48199).
4. Mount the D7050DH to the base by turning it clockwise until it clicks into place (*Figure 4*).



The detector is keyed. Do not force the detector onto the base.

6.0 Programming

For multiplex programming, refer to the *D7024 FACP Operation and Installation Guide* (P/N: 31499) or the *DS9400M Reference Guide* (P/N: 44578).

7.0 Testing

Test detection devices immediately after installation. Test the D7050DH according to NFPA Chapter 7-1.6.2 (1999) or more often as required by local code.

7.1 Operational Testing



Notify all concerned parties before and after completing maintenance on or testing the fire alarm system.

1. Apply power to the system and check for alarms.
2. If a D7050DH is in alarm, shut down the system.
3. Remove the D7050DH and recheck for proper wiring. If the problems persist, replace the affected D7050DH or exchange it with a known good detector. This determines if the problem is caused by the D7050DH.
4. When the system is free of alarms, check each D7050DH to ensure the red LED indicator on the head flashes. This confirms the detector is operating properly.
5. Test each D7050DH to ensure it causes a control panel alarm.
6. Alarm the D7050DH by doing one of the following:
 - a. Place a magnet horizontally against the recess in the duct cover, centering it over the “T” marked on the head to activate an internal reed switch.
 - b. Remove the duct cover and use a UL Listed aerosol smoke detector tester such as the Home Safeguard Industries’ 25S to simulate an alarm. Follow the instructions included in the aerosol smoke detector tester.
7. When a D7050DH alarms, the red LED indicator on the head flashes at least once per second. Clear the alarm by initiating a system reset before proceeding to the next detector.

7.2 Sensitivity Testing



Calibration is important in determining a detector’s continued operation. Depending on local regulations, calibration testing might be required more than once a year. According to NFPA72, perform a Calibration Test at installation and every other year thereafter. Perform a Functional Test monthly.

Test the D7050DH’s sensitivity to meet NFPA 72 requirements by conducting a Magnet Test (refer to *Section 7.3 Magnet Test*). You can also test sensitivity by measuring the calibration voltage pins with D1005 Test Cable, D344-RL, or D344-RT (refer to *Section 7.4 Voltage Measurement Test*). Calibration can be quickly determined by visually inspecting the D7050DH’s LED (refer to *Section 7.2.2 Visual Check*). These tests confirm whether or not the detector is within its factory marked calibration range.

7.2.1 Sensitivity Test

The control panel constantly monitors the D7050DH. If the detector exceeds the limits of the sensitivity thresholds, the control panel reports the detector in question and generates a fault condition.

7.2.2 Visual Check

The D7050DH includes the Chamber Check Automatic Trouble Indication that allows it to automatically show if its calibration is out of the factory-listed range. You can meet the NFPA guidelines for sensitivity testing by visually inspecting the D7050DH and checking the Alarm LED flash rate.

If the calibration is out of range during power up or longer than 24 h, the Alarm LED double flashes. This LED single flashes when the detector is operating normally.



Visually check all detectors before disconnecting the multiplex bus. Disconnecting the bus erases the calibration indication. If the detector was disconnected or the control panel lost power within the last 24 h, perform a Magnet Test or Voltage Measurement Test to confirm sensitivity.

7.3 Magnet Test



To perform the Magnet Test, the control panel must be in the Fire Walk Test Mode. If the control panel is not in this mode, it sends fire reports to the central station. Refer to your control panel's reference guide for Fire Walk Test information.

1. Hold a magnet horizontally against the recess in the D343 cover for approximately 10 sec.
2. Observe the LED. If the D7050DH is within the factory marked calibration range, it goes into alarm and the Alarm LED flashes at least once per second.
 - a. If the D7050DH is too sensitive, the Alarm LED flashes six times rapidly (once every 0.5 sec) and the detector goes into alarm.
 - b. If the D7050DH is not sensitive enough, the Alarm LED flashes four times slowly (once every 2 sec) and the detector goes into alarm.
3. If the D7050DH is not operating, it does not signal an alarm. Return the detector for repair.

7.4 Voltage Measurement Test

1. Plug a D1005 Test Cable (optional) into the calibration voltage pin.
2. Connect a digital voltmeter to the D1005.
3. Connect the voltmeter's negative terminal to the black wire on the D1005 and connect the positive terminal to the red wire. The white wire is not used.
4. If a D344-RL or D344-RT is installed, use the voltage monitor jacks as described below:
 - a. The voltage measured by the voltmeter is half the sensitivity (in %/ft obscuration) of the D7050DH.
 - b. Multiply the voltage by 2. The result must be within the factory-marked calibration range printed on the label located on the bottom of the D7050DH.
 - c. If the D7050DH is outside the factory-marked calibration range, remove it and clean it. Or replace it as described in *Section 7.1 Operational Testing*.
 - d. After cleaning, recheck the calibration voltage measurement. If the D7050DH is still outside of the factory-marked calibration range, return it for recalibration to:

National Repair Center
130 Perinton Parkway
Fairport, New York 14450

8.0 Maintenance

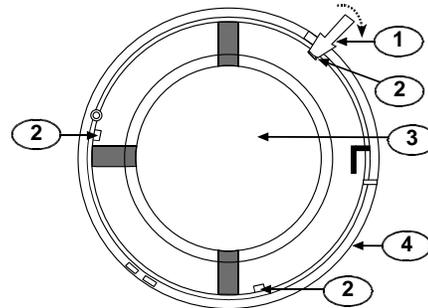


Notify all concerned parties before and after completing maintenance on or testing the fire alarm system.

Clean the detector and base at least once each year using a vacuum or clean dry compressed air. Pay particular attention to the screens. You might need to clean more often in dusty areas or areas of heavy insect concentration.

1. Remove the D343's cover.
2. Remove the D7050DH from the base and clean the base with a clean cloth and common window cleaner.
3. Remove the D7050DH's cover using a thin, flat-blade screwdriver to pry the chamber from the cover. Insert the screwdriver into the cover slots and pry off the cover (*Figure 5*).

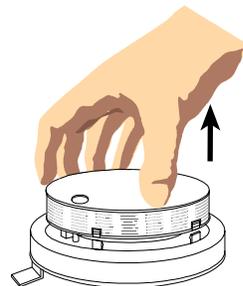
Figure 5: Removing the 7050DH Cover



- 1 - Flat blade screwdriver tip inserted into a cover slot
- 2 - Cover slots (3)
- 3 - Chamber
- 4 - Cover

4. Remove the cover of the detector chamber. Gently pull the chamber cover up and away from the chamber (*Figure 6*)

Figure 6: Removing the D7050 Chamber Cover



- With the chamber cover removed, clean te inside of the cover with a vacuum or clean dry compressed air.

	Do not clean the D7050DH components with water or any liquid cleaner.
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- Replace the chamber cover and ensure the hole for the LED is properly aligned over the LED. Place the cover parallel to the chamber and gently snap the locking tabs into place.
- Replace the D7050DH's cover, lining up the holes for the LED.
- Return the D7050DH to its base and replace the D343's cover.

	After cleaning, test the D7050DH for proper calibration. Refer to <i>Section 7.0 Testing</i> beginning on page 4.
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	Do not paint the D7050DH. Paint or other foreign matter covering the screens can stop or delay smoke from entering the detector.
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9.0 Specifications

Table 3: column width table

Standby Current	Refer to the <i>D343 Installation Instructions</i> (P/N: 48199), the <i>DS9400M Reference Guide</i> (P/N: 44578), and the <i>DS6431 Installation Instructions</i> (P/N: 41381)
Alarm Current	Refer to the <i>D343 Installation Instructions</i> (P/N: 48199), the <i>DS9400M Reference Guide</i> (P/N: 44578), and the <i>DS6431 Installation Instructions</i> (P/N: 41381)
Minimum Operating Voltage	8 VDC peak
Power-Up Time	22 sec (maximum)
Installation Temperature	+32°F to +100°F (0°C to +38°C)
Relative Humidity	0% to 93% (non-condensing)
Required Accessories	D343 Duct Housing and Sample Tube
Options	D344-RT Remote Test D344-RL Remote LED SMK-TM Test Magnet

Notes

Bosch Security Systems, Inc.
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