

4-Wire Air Duct Smoke Detector



A UTC Fire & Security Company

Models DH-60

F-70.05

FEATURES

- Approvals/Listing
 - UL 268A Listed File S1064
 - Factory Mutual Approved
 - CSFM Listed #3240-1076:121
 - NYC MEA Listed #134-95-E
 - City of Los Angeles Approved #RR8318
- 24/120/240 Vac or 24 Vdc Operation
- Compatible with Fenwal Advanced Smoke Detectors
- In-place Sensitivity Measurement (in % per foot obscuration)
- Remote Indication, Test and Reset Capabilities
- Easily Mounts to Round or Rectangular Ducts
- Wide Range of Duct Sizes and Air Velocities
- High Capacity Form C Alarm Relay Contacts
- Clear Lexan Cover for Easy Viewing of Smoke Detector Status and Cleanliness

DESCRIPTION

The Fenwal Series DH-60 Air Duct Smoke Detector is designed for detecting particles of combustion in air handling systems. The DH-60 Duct Detector housing accepts the Fenwal Advanced CPD-7054D Ionization and PSD-7157D Photoelectric Smoke Detector Heads. Upon detection of smoke levels at the set point of the detector, the DH-60 Duct Detector can control a variety of devices, such as HVAC fans and dampers to prevent the spread of smoke throughout the facility. High amperage relay contacts are provided for controlling such devices in the event of a fire. Supervisory contacts are also provided for signaling unit faults. A transparent Lexan cover over the detection chamber allows visual inspection of the duct detector's chamber and the internal smoke detector status. Sampling is accomplished by sampling tubes that extend into the HVAC duct.

The DH-60 Duct Detector can operate as a 24 Vac, 120 Vac or 240 Vac powered stand-alone device or as a 4-wire 24 Vdc powered device for use with Fire Alarm Control Panels. An integral normally energized trouble relay is used to supervise power and smoke detector head removal. Outputs provided can accommodate remote alarm and power indication, remote test and remote reset. Fenwal offers a range of remote accessories that operate in conjunction with the duct detectors. Figure 1 is a simplified parts breakdown of the DH-60 Air Duct Smoke Detector.



APPLICATION

The Fenwal Series DH-60 Duct Detectors are suited for use with HVAC systems in commercial, industrial and institutional fire alarm applications.

The DH-60 is easily mounted to both rectangular and round ducts from 8 inches (200 mm) to 12 feet (3.6 m) wide and is compatible with all ducts with air velocities between 500 and 4000 feet per minute (2.5 to 20 m/s). The Ionization and Photoelectric Smoke Detector heads listed above operate over this entire air velocity range.

SAMPLING TUBES

The operation of the DH-60 Duct Detector is based upon an air sampling principle. Two tubes extend into the HVAC duct to transport air from inside the duct into the duct detector sensing chamber and back out to the duct. If the sampled air contains a concentration of smoke greater than or equal to the alarm threshold of the internal smoke detector, the unit will alarm. The duct detector inlet supply sampling tube is selected according to the size of the HVAC duct. No exhaust tube is required. An exhaust tube is molded into the housing to simplify installation.

REMOTE INDICATORS/CONTROLS

A series of easily installed remote indicators are available to add versatility and flexibility to the Fenwal Series DH-60 Duct Detectors. These attractive and functional devices provide convenient status information along with remote Test/Reset capabilities. The remote indicators are helpful when the detector is out of view or located in relatively inaccessible locations. The remote indicators can

be used in both AC and DC applications. Figure 2 shows the faceplates of the RA 911 and RA 914 remote indicator controls.

FUNCTIONAL TESTING AND SENSITIVITY MEASUREMENT

The Fenwal DH-60 Duct Detectors should be tested upon installation and once a year thereafter as stated in NFPA 72. All alarm signal devices, releasing devices, and extinguishing systems, as applicable should be disengaged before the test is performed and re-engaged at the conclusion of testing.

The DH-60 Duct Detector may be functionally tested either by introducing smoke into the detector or activating the magnet test. Two separate magnet-locating slots are provided on the outside of the duct detector housing.

Further, as stated in NFPA 72, Detector sensitivity should be checked within one year of installation and every alternative year thereafter. Fenwal offers the Model DST-003 handheld wireless infrared sensitivity tester that allows the sensitivity of installed operating detectors to be measured from the floor level. For details, please refer Fenwal Document 06-236524-001.

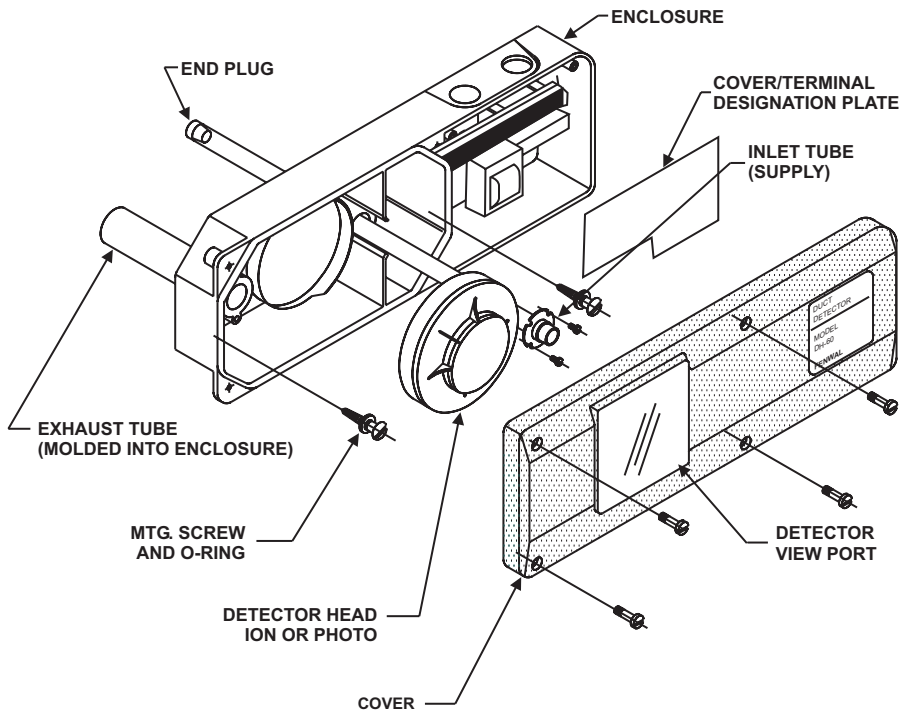


Figure 1. DH-60 Parts Breakdown

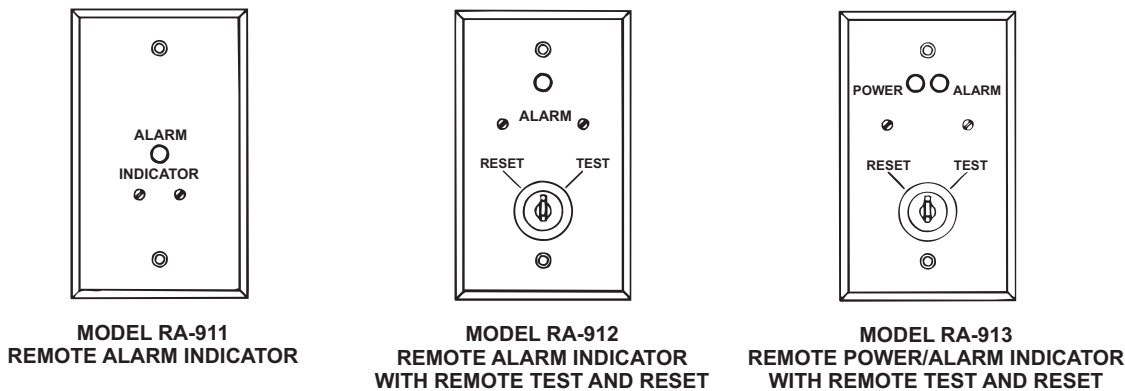


Figure 2. Remote Alarm Indicators

TECHNICAL SPECIFICATIONS

Tables 1 and 2 list the technical specifications of the DH-60 Duct Detector.

Table 1: DH-60 Input Voltage and Current Ratings

Power Source	Voltage Range	Standby Current No Accessories	Alarm Current No Accessories	Alarm Current Maximum Accessories
24 Vac	20.4 - 26.4	70 mA rms	160 mA rms	220 mA rms
120 Vac	120 - 132	30 mA rms	40 mA rms	50 mA rms
240 Vac	204 - 264	30 mA rms	26 mA rms	35 mA rms
24 Vdc	20 - 29	20 mA DC	60 mA DC	90 mA DC

Table 2: DH-60 Relay Contact Ratings

Contact Designation	Type of Contacts	Contact Rating
Auxiliary Alarm Contact	2 Form C	10 A @ 30 Vdc resistive
		10 A @ 277 Vdc resistive
		1/8 HP @ 120 Vac
		1/4 HP @ 240 Vac
Alarm Initiation Contact	1 Form A	2 A @ 30 Vac/Vdc resistive
Supervisory Contact	1 Form A (normally energized)	0.3 A @ 30 Vac/Vdc resistive

Table 3: Remote Indicator Ratings

Model	Description	Standby	Alarm
RA-911	Remote Alarm Indicator	0 mA	20 mA
RA-912	Remote Alarm Indicator with Remote Test and Reset	0 mA	20 mA
RA-913	Remote Power Alarm Indicator with Remote Test and Reset	0 mA	30 mA

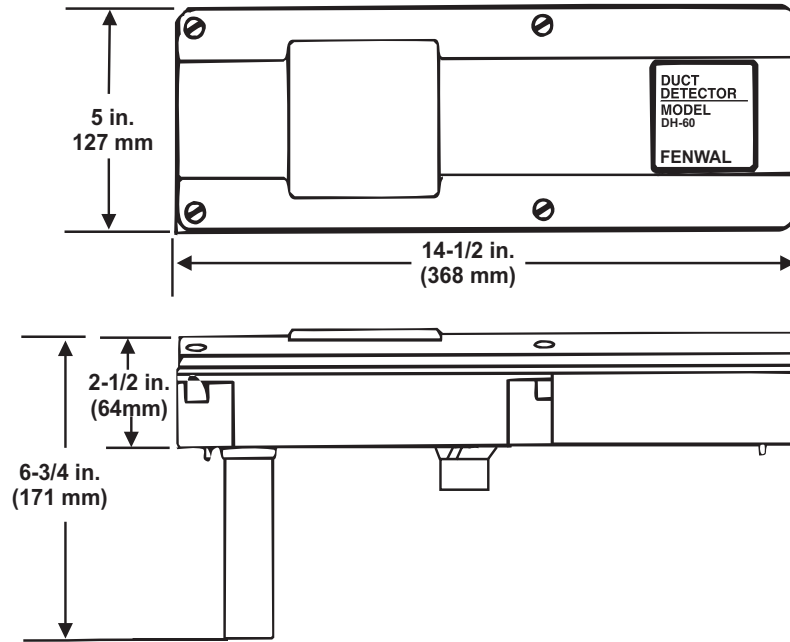


Figure 3. DH-60 Dimensions

Table 4: Ordering Information

Part Number	Model	Description
Duct Detector and Housings		
70-600000-000	DH-60	4-Wire Duct Housing less Detector with Integral Exhaust Tube
70-600000-157	DH-60-APD	DH-60 with <i>Advanced</i> Photoelectric Detector PSD-7157D
70-600000-054	DH-60-ACD	DH-60 with <i>Advanced</i> Ionization Detector CPD-7054D
Duct Detector Sampling Tubes		
06-129500-001		12 in. (305 mm) Long Air Sampling Tube
06-129500-002		24 in. (610 mm) Long Air Sampling Tube
06-129500-003		48 in. (1219 mm) Long Air Sampling Tube
06-129500-004		72 in. (1829 mm) Long Air Sampling Tube
06-129500-005		96 in. (2438 mm) Long Air Sampling Tube
06-129500-006		120 in. (3048 mm) Long Air Sampling Tube
06-129554-001		Optional Exhaust Tube Assembly
Duct Detector Accessories and Test Equipment		
06-117883-001		Test Magnet
29-116788-001		EOL Supervisory Relay
70-500000-003	DST-003	Sensitivity Tester for <i>Advanced</i> CPD-7054D and PSD-7157D Heads

Table 4: Ordering Information (Continued)

Part Number	Model	Description
Remote Indicators		
70-200000-911	RA-911	Remote Alarm Indicator
70-200000-912	RA-912	Remote Alarm Indicator with Test and Reset
70-200000-913	RA-913	Remote Power and Alarm Indicator with Test and Reset
Spare Parts		
06-118012-001		Key for RA-912 and RA913
06-129498-001		4-Wire DH-60 Duct Detector Circuit Board
06-235201-001	06-235201-001	DH-60 Manual
70-540000-002	CPD-7054D	<i>Advanced</i> Ionization Detector Head
71-570000-002	PSD-7157D	<i>Advanced</i> Photoelectric Detector Head

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