INSTALLATION INSTRUCTIONS: DH-101-A ADDRESSABLE DUCT DETECTOR

These are Installation Instructions (DWG.# HA-06-485) for the DH-101-A Duct Detector configured as follows:
*DH-101-A Duct Detector with the ALO-V Addressable Multi-Criteria Smoke Detector

**For use with Hochiki DCP (digital communication protocol). See control panel manual for compatibility information.*

I. LOCATION REQUIREMENTS

To prevent false alarms the detectors should not be mounted in areas of extreme high or low temperatures, in areas where high humidity exist, or in areas where duct air may contain gases or excess dust. The duct detector should, when possible, be located a minimum of six duct widths downstream from a source of turbulence (bends, inlets, or deflection plates). At these locations, air flow is less turbulent and the air/smoke mixture should be more homogenous. Install in accordance with the NFPA 72, and NFPA 90A. See Figure 1.

Exception: Where it is physically impossible to locate the duct detector accordingly, the duct detector can be positioned closer than six duct widths, but as far as possible from inlets, bends, or deflection plates.

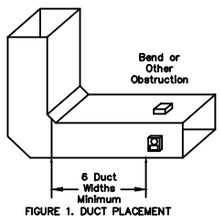


FIGURE 1. DUCT PLACEMENT

II. MOUNTING THE DETECTOR

A. DUCT PREPARATION

1. Remove paper backing from mounting template (packaged in installation kit) and affix to duct at desired location on the side or top of duct.
2. Using template as a guide, drill 4 mounting holes (3/32" diameter) for duct mounting screws (4 #12 x 1/2" sheet metal screws packaged in installation kit). Drill or punch holes for sampling tubes in air ducts (1-3/8" diameter), using template as a guide. Clean all holes.

B. VERIFY AIR FLOW AND DIRECTION

The Duct Detectors are designed for use in ducts where the air velocities are from 100 to 4000 feet per minute. See Figure 2 for sampling tube orientation to air flow direction.

C. SAMPLING TUBE ASSEMBLY (See Figure 2)

The sampling tubes may be ordered to a desired length or ordered in one of 3 standard lengths and cut per requirements. The intake sampling tube consists of a piece of steel piping with a series of holes drilled the entire length of the tube and should extend the entire width of the duct. The holes must be facing into the air flow (see Figure 2). The exhaust tube consists of a piece of steel piping approximately 7-1/2" long.

INTAKE SAMPLING TUBES STANDARD LENGTHS:

STS-2.5	For duct widths of 1.0' to 2.5'
STS-5.0	For duct widths of 2.5' to 5.0'
STS-10.0	For duct widths of 5.0' to 10.0'

1. Cut the intake sampling tube to the desired length.
2. Firmly insert the stopper (packaged in installation kit) in the end of the INTAKE sampling tube.

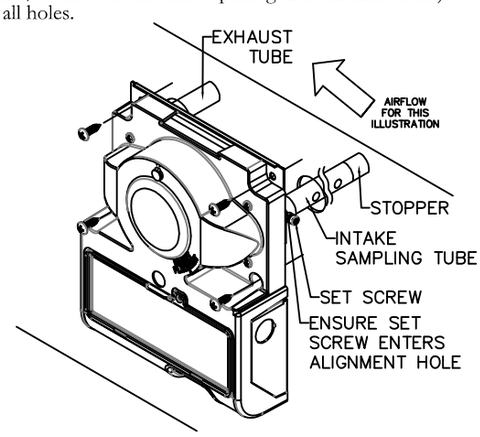


FIGURE 2. DH-101 MOUNTING

D. MOUNT SAMPLING TUBES (See Figure 2)

1. Sampling tube connectors are equipped with set screws, which allow the tubes to be mounted only in directions shown in Figure 2. Establish proper orientation considering airflow direction.
2. Insert exhaust tube into connector and tighten set screw. Insert intake tube into connector, align set screw with alignment hole and tighten set screw. The intake tube will allow a small amount of movement.

E. MOUNT THE DUCT HOUSING (See Figure 1B & 2)

Move duct housing/sampling tube assembly to desired location. Use 4 mounting screws (4 #12 x 3/4") sheet metal screws, packaged in installation kit) to secure the housing to the air duct.

F. COVER REMOVAL (See Figure 1B & 2)

Remove the access hatch cover by removing tamper screw if installed, and depressing the tab. Unscrew the 4 screws on the top of the duct housing, screws are captive in the housing.

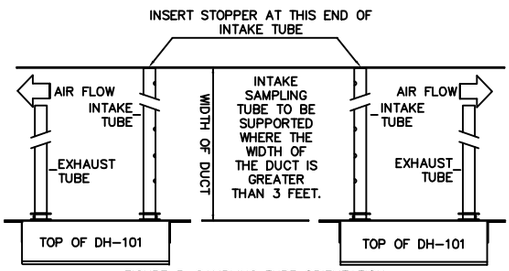


FIGURE 3. SAMPLING TUBE ORIENTATION

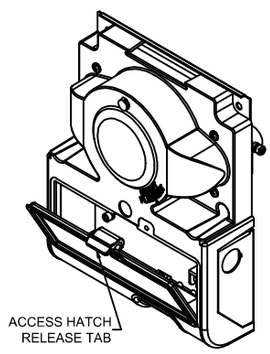


FIGURE 4A. DH-101 ACCESS HATCH COVER REMOVAL

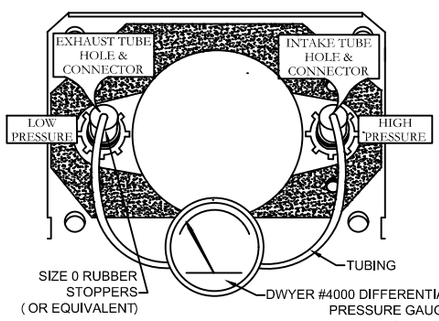


FIGURE 5. AIR SAMPLING VERIFICATION

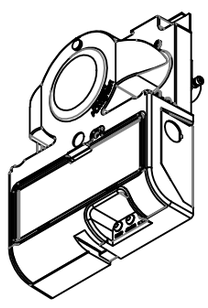


FIGURE 6. DH-101 COVER ATTACHMENT

G. VERIFY AIR SAMPLING (See Figure 3)

To verify proper sampling of air, use a Dwyer Model 4000 differential pressure gauge (or equivalent). See Figure 5 for gauge connections (detector head not shown). The pressure differential between input sampling tube and exhaust tube should be greater than 0.01" of water and less than 1.2" of water. Return cover and tighten captive screws.

III. ELECTRICAL INSTALLATION

A. GENERAL INFORMATION

Wiring must conform to applicable local codes, ordinances and regulations covering these types of devices. Wire the detectors according to the engineering drawings for the particular job requirements. These detectors are not intended for open area protection, nor should they be used for open air protection. Refer to NFPA 90A and NFPA 72 for general and additional information on Duct Smoke Detectors concerning operation and installation. Terminals are suitable for up to #14 gauge wire.

B. DETECTOR WIRING

With power source de-energized, wire all connections per instructions on page 2. The wiring access hatch cover can be stored at the top of the unit. Return cover before restoring power.

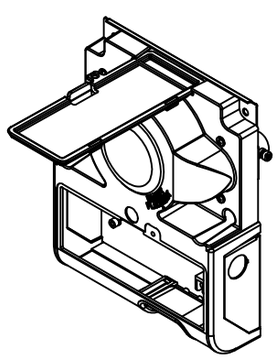
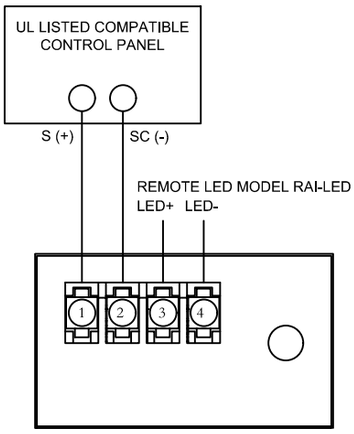


FIGURE 7. DH-101 ACCESS HATCH COVER TEMPORARY STORAGE

HOCHIKI AMERICA CORPORATION
7051 Village Drive Suite 100 * Buena Park, CA 90621-2268
Phone: 714-522-2246 * Fax: 714-522-2268
Technical Support: 714-670-3229 or technicalsupport@hochiki.com

DH-101-A SPECIFICATIONS	
SLC Applied Voltage	Rated Range 17.0 – 41.0 VDC
SLC Current Consumption (Includes detector)	Alarm 8.5mA Max Normal Standby 340uA *Add 6.75mA per SLC loop for panel battery backup calculations.
Operating Temperature Range	0°C (32°F) ~ 38°C (100°F)
Storage Temperature Range	-30°C (-22°F) ~ 70°C (158°F)
Maximum Relative Humidity	93% RH non-condensing
Air Velocity	100-4,000 FPM
Sensitivity	1.40 – 3.30%/FT @ 100 FPM 1.40 – 3.30%/FT @ 300 FPM 1.40 – 3.30%/FT @ 500 FPM 1.40 – 3.30%/FT @ 1000 FPM 1.40 – 3.30%/FT @ 2000 FPM 1.40 – 3.30%/FT @ 3000 FPM 1.40 – 3.30%/FT @ 4000 FPM
Environment	Indoor dry use only, Duct Side or Top
Dimensions	7.5"W X 9.5"H X 2.5"D
Weight	Approximately 3.0lb

C. TERMINAL BOARD WIRING



Programming the Detector Address:
The ALO-V multi-criteria smoke detector's address can be programmed by model AP7 programmer. To program the ALO-V directly, remove the head from the DH-101-A housing base and refer to instructions HA-06-452 for AP7 programmer operation.
To program using the DH-101-A wiring terminals, SLC wiring must be disconnected.
Connect the AP7 red alligator clip to the S(+) terminal and the black alligator clip to the SC(-) terminal. Refer to instructions HA-06-452 for AP7 programmer operation.

IV. TESTING THE INSTALLATION

Panel Calibration and Detector Head Maintenance:
The DH-101-A housing with ALO-V multi-criteria smoke detector can be calibrated by a compatible U.L. Listed analog control panel. See the FACP Installation Instructions and ALO-V instructions HA-06-060 for specific directions. A trouble indication at the panel will occur automatically for sensitivity outside of the listed limits.
To access the detector head for cleaning, follow the cover removal instructions on page 1 of this instruction. To clean the ALO-V, use dry compressed air to remove dust from the detector, or return to Hochiki America for service. Do not disassemble the detector head as this may result in the failure of the detector to initiate an alarm condition or initiation of a false alarm condition.

Smoke Test:
To test the sampling tube and detector for smoke entry, a hole should be made in the duct 12" to 24" upstream from the sampling tube. Ensure the detector is in test mode to minimize required spray time, see compatible FACP literature. Test with Smoke Centurion aerosol by spraying into the ductwork hole for 4s @100-2000FPM, 5s @ 2000-4000FPM, wait 20s between sprays. Seal the hole with a plate, duct tape, or equivalent method when not in use.

Unsupported Tests:
DH-101-A does not support a test switch feature.
DH-101-A does not support a magnetic test feature.

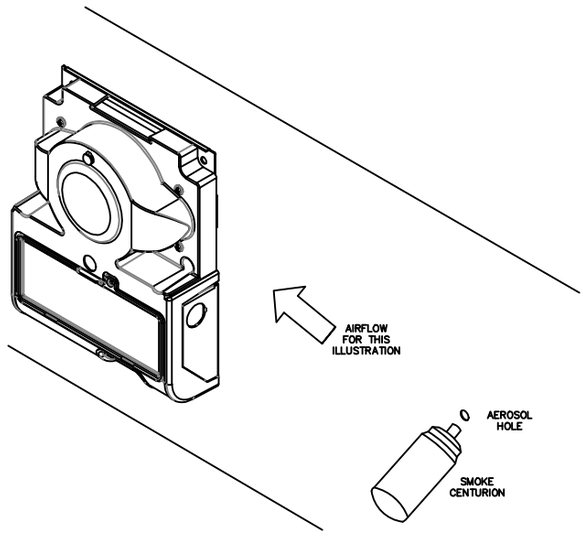


FIGURE 8. DH-101-A TESTING