INSTALLATION INSTRUCTIONS: DH-100-A ANALOG ADDRESSABLE SMOKE DETECTOR

These are Installation Instructions (DWG.# HA-06-429) for the DH-100-A Duct Detector configured as follows:
*DH-100-A Duct Housing with the ALN-DH Analog Addressable Photoelectric Smoke Detector

**For use with Hochiki DCP (digital communication protocol). See control panel manual for compatibility information. DH-100-A shall be identified by the panel as a duct detector with sensitivity limits meeting table on page 2 of these instructions.*

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.Refer to NFPA 90A, 72, and 101 for more information. 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.

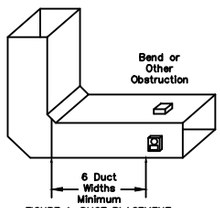

FIGURE 1. DUCT PLACEMENT

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.

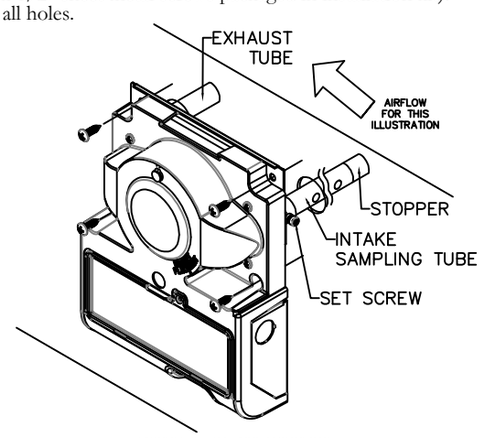

FIGURE 2. DH-100 MOUNTING

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 intake and exhaust tubes into connectors, align set screw to set screw hole in tubes and tighten firmly.

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.

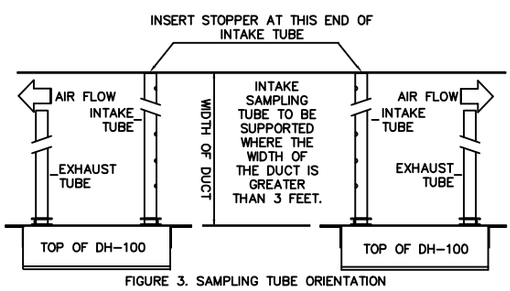

FIGURE 3. SAMPLING TUBE ORIENTATION

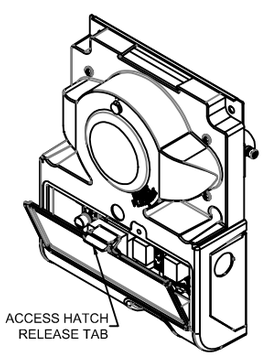

FIGURE 4A. DH-100 ACCESS HATCH COVER REMOVAL

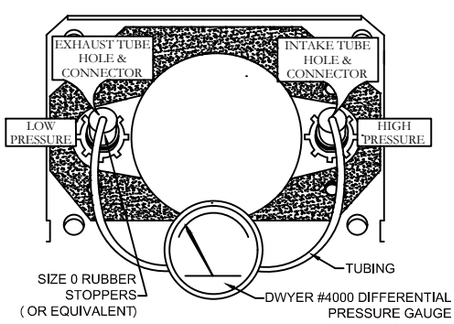

FIGURE 5. AIR SAMPLING VERIFICATION

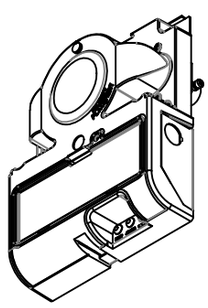
FIGURE 6. DH-100 COVER ATTACHMENT

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 (ALN-DH detector 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.

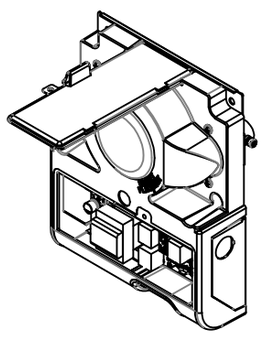
FIGURE 7. DH-100 ACCESS HATCH COVER TEMPORARY STORAGE

HOCHIKI AMERICA CORPORATION
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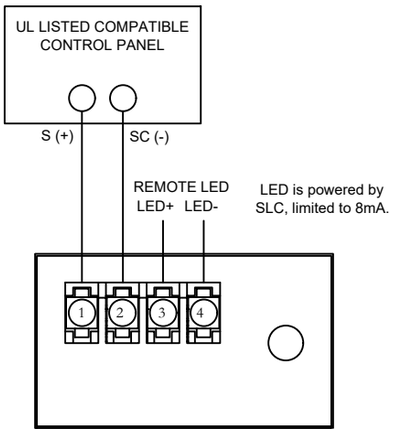
DH-100-A SPECIFICATIONS	
SLC Applied Voltage	Rated Range 25.3 – 39.5 VDC
SLC Current Consumption (Includes detector)	Alarm 30mA Max Normal Standby 450uA *Add 6.75mA per SLC loop for panel battery backup calculations.
Operating Temperature Range	0°C (32°F) ~ 38°C (100°F)
Storage Temperature Range	–30°C (–22°F) ~ 70°C (158°F)
Maximum Relative Humidity	93% RH non-condensing
Air Velocity	100–4,000 FPM
Sensitivity	0.70 – 3.74%/FT @ 100 FPM 0.70 – 3.38%/FT @ 300 FPM 0.70 – 3.39%/FT @ 1000 FPM 0.70 – 3.83%/FT @ 2000 FPM 0.70 – 4.00%/FT @ 3000 FPM 0.70 – 4.00%/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



IV. TESTING THE INSTALLATION

Smoke Port Testing:
Use with model 25s Aerosol Smoke cans.
The DH-100-A has a smoke port for the introduction of smoke or simulated smoke without cover removal by lifting the port tab. To test with aerosol smoke, remove the stock aerosol nozzle and replace with included nozzle. Push nozzle fully into the open smoke port and press can. The required amount of aerosol is dependent on the duct air velocity, see below for estimated activations:
100-1,000 FPM: 1s, 1 activation
1,000-2,000 FPM: 2s, 1 activation
2,000-3,000 FPM: 4s, 1 activation
3,000-4,000 FPM: 8s, 1 activation
The port must be closed after testing to avoid air leakage from the DH-100-A housing.

Standard Aerosol Testing:
Use with model 25s Aerosol Smoke cans.
Follow cover removal instructions on page 1 to expose detector head. Duct air flow from the sampling ports may affect aerosol smoke entry. Spray at detector in 1s bursts, plug sampling ports with size 0 stopper or equivalent as needed. When completed, remove any sampling port stopper, return cover and tighten captive screws.

Panel Calibration and Detector Head Maintenance:
The DH-100-A housing with ALN-DH detector head can be calibrated by a compatible U.L. Listed analog control panel. See the FACP Installation Instructions for specific directions, and Technical Bulletin TB-006 Sensor Health. The ALN-DH may be cleaned per ALN-V cleaning instructions. To access the detector head, follow cover removal instructions on page 1. The metal divider plate is removable from the detector head; the divider plate must be installed before reinstalling the DH-100-A cover, see Figure 9.

Unsupported Tests:
DH-100-A does not support a test switch feature.
DH-100-A does not support a magnetic test feature.

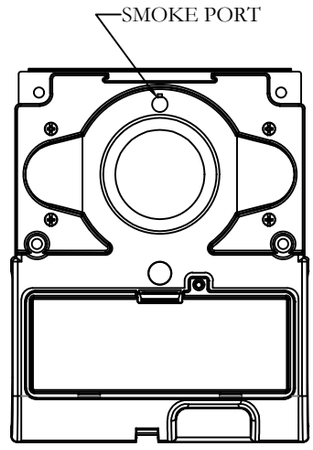


FIGURE 8. DH-100-A TEST LOCATIONS

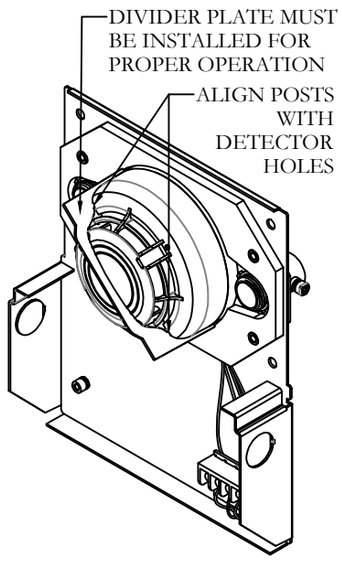


FIGURE 9. DH-100-A COVER REMOVED