II. MOUNTING THE DETECTOR

A. DUCT PREPARATION
1. Remove paper backing from mounting template AP 121 (packaged in installation kit) and affix to duct at desired location.
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 300 to 4000 feet per minute. Verify this by checking specifications of installation and if necessary, use an Alnor Model 6000P velocity meter (or equivalent) to check the air velocity. 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.

D. MOUNT SAMPLING TUBES (See Figure 2)
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.

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 1/2" sheet metal screws, packaged in installation kit) to secure the housing to the air duct.

F. VERIFY AIR SAMPLING (See Figure 3)
To verify proper sampling of air, use a Dwyer Model 4000 differential pressure gauge (or equivalent). See Figure 3 for gauge connections. 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.

Specifications subject to change without notice. © September 2014
1. With power source de-energized and the smoke detector not installed, wire all connections per engineering drawings. Refer to the applicable figures below depending on your duct housing model number.

2. With all wiring in place, install the detector head.

3. Energize the duct detector.

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**

1. With power source de-energized and the smoke detector not installed, wire all connections per engineering drawings. Refer to the applicable figures below depending on your duct housing model number.
2. With all wiring in place, install the detector head.
3. Energize the duct detector.

**C. WIRING DIAGRAMS**

**SD505-DUCT WIRING DIAGRAM**

The SD505-DUCT is not a self-contained sensor. This product is compatible only with fire alarm control panels that utilize Silent Knight’s Digital Communications Protocol.

**SD505-DUCTR WIRING DIAGRAM**

S (+)  
SC (-)  

**ANALOG SENSOR**  

STANDBY and ALARM current should be 0.55mA

**FAN SHUTDOWN EXAMPLE**

**SPECIFICATIONS**

<table>
<thead>
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<th>SD505-DUCTR</th>
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<td>Alarm Relay Contact Rating</td>
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<td>SLC Input Current</td>
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**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**

1. With power source de-energized and the smoke detector not installed, wire all connections per engineering drawings. Refer to the applicable figures below depending on your duct housing model number.
2. With all wiring in place, install the detector head.
3. Energize the duct detector.

**C. WIRING DIAGRAMS**

**SD505-DUCT WIRING DIAGRAM**

The SD505-DUCT is not a self-contained sensor. This product is compatible only with fire alarm control panels that utilize Silent Knight’s Digital Communications Protocol.

**SD505-DUCTR WIRING DIAGRAM**

S (+)  
SC (-)  

**ANALOG SENSOR**  

STANDBY and ALARM current should be 0.55mA

**FAN SHUTDOWN EXAMPLE**

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WIRING CONNECTIONS

Class A (Style 6) Wiring

Class B (Style 4) Wiring

*SILENT KNIGHT DETECTORS ARE INTENDED FOR USE WITH AIR DUCT VELOCITIES FROM 300 TO 4000 FEET PER MINUTE. VERIFY THIS BY CHECKING THE SPECIFICATIONS OF HVAC INSTALLATION AND IF NECESSARY, USE AN ALNOR MODEL 6000P VELOCITY METER OR EQUIVALENT TO CHECK AIR VELOCITY.

*PRESSURE DIFFERENTIAL MEASUREMENTS SHOULD BE MADE USING A DWYER PRESSURE GAGE (CATALOG #2003 - 3" WATER FULL SCALE) TO INSURE AIR FLOW IN THIS CHAMBER. THE PRESSURE DIFFERENTIAL BETWEEN INPUT AND EXHAUST TUBE SHOULD BE BETWEEN 0.01 AND 1.2 INCHES OF WATER.

*DO NOT INSTALL WHERE AMBIENT TEMPERATURE EXCEEDS 100 °F (38 °C).

FOR TERMINALS 3, 4, 5, 6, 7, 8 DO NOT USE LOOPED WIRE UNDER TERMINALS. BREAK WIRE RUN TO PROVIDE SUPERVISION OF CONNECTION.

CAUTION: 24 VDC

(+)

(-) NC

COM

NO NC

COM NO

ALARM TROUBLE

TEST GND PILOT ALARM SLC-

SLC+

SW LED LED LED

EBY 2127H1

MADE IN INDONESIA

Specifications subject to change without notice.