



**SILENT  
KNIGHT**

by Honeywell

## SD505-ADHR Duct Detector Housing With Relay Module & SD505-DTS Installation Instructions

The following are instructions on how to install the SD505-ADHR & SD505-DTS to a Silent Knight Addressable control panel.

### SD505-ADHR Installation

The SD505-ADHR is a duct detector housing with a built-in relay module that is used to control a fan motor to stop air flow in a fire alarm situation.

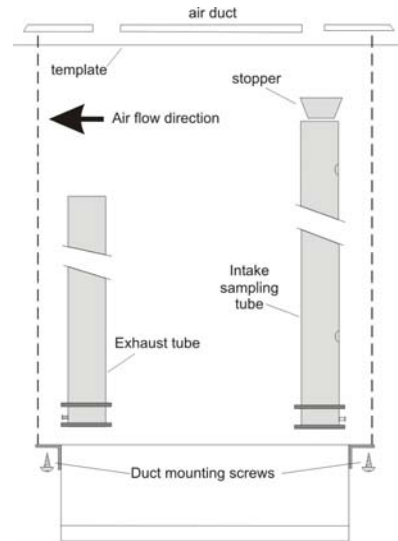
### Specifications

Specification Parameter		Rating	
Alarm Relay Contact Rating:		10 A @ 120/240 VAC	
Trouble Relay Contact Rating:		2.5 A @ 30VDC	
Operating Voltage:	SLC Loop:	32 VDC	
	Aux. Pwr. Input:	120/240 VAC, 24 VDC/VAC	
Aux. Input Power Current:	24 VDC	Standby:	35 mA
		Alarm:	75 mA
	24 VAC	Standby:	50 mA
		Alarm:	90 mA
	120 VAC	Standby:	10 mA
		Alarm:	20 mA
	240 VAC	Standby:	5 mA
		Alarm:	10 mA
SLC Current for Battery Calculations	Alarm:	.018 mA	
	Standby:	.018 mA	
Max. SLC Loop Resistance:		50Ω	
Operating Temperature:		32° to 120° F (0° to 49° C)	
Humidity:		10-85% RH	
		<b>SD505-APS</b>	<b>SD505-AIS</b>
Air Velocity:		500-4000 fpm	300-4000 fpm
Sensitivity:		0.85 to 1.15% per foot	0.5 to 0.81% per foot

## Mounting Instructions

Follow these steps to mount the SD505-ADHR:

1. Remove paper backing from mounting template (packaged in installation kit) and affix to duct at installation location.
2. Using the template as a guide, drill the four mounting holes (3/32" diameter) for duct detector mounting screws provided (4 # 12 x 1/2" sheet metal screws).
3. Use template as guide to drill or punch holes for the sampling tubes in the air ducts (1-3/8" diameter).

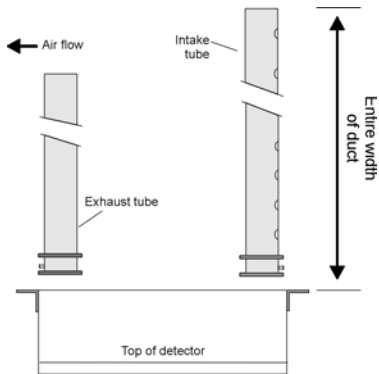


4. Clean all holes.

### Sampling Tube Assembly

The sampling tubes can be ordered in standard lengths and cut per requirements. See chart below for available standard sizes. The intake sampling tube is a piece of steel piping with a series of holes drilled the entire length of the tube. The tube should be cut to a size that allows it to extend the entire width of the duct.

The holes must be facing into the air flow (see Figure 1). The exhaust tube is a piece of steel piping measuring 7 inches.



**Figure 1: Sampling Tube Orientation**

5. Cut intake sampling tube to the desired length.
6. Firmly insert the provided stopper into the end of the intake sampling tube.

Standard Lengths for Intake Sampling Tubes	
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'

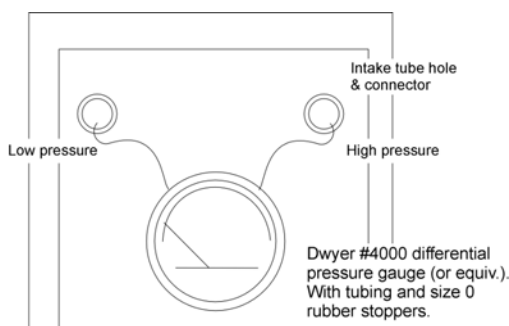
7. Mount the detector by placing the detector/sampling tube assembly into position and secure to duct housing using mounting screws.

### Verify Air Flow and Direction

8. Verify that air velocity is appropriate for the type of smoke detector you are using by checking specifications of installation and, if necessary, by using air velocity meter (Alnor Model 6,000P or equivalent). See Figure 1.

### Air Sampling Verification

9. Verify proper air sampling by using a differential pressure gauge (Dwyer Model 4000 or equivalent). See Figure 2 for connections.

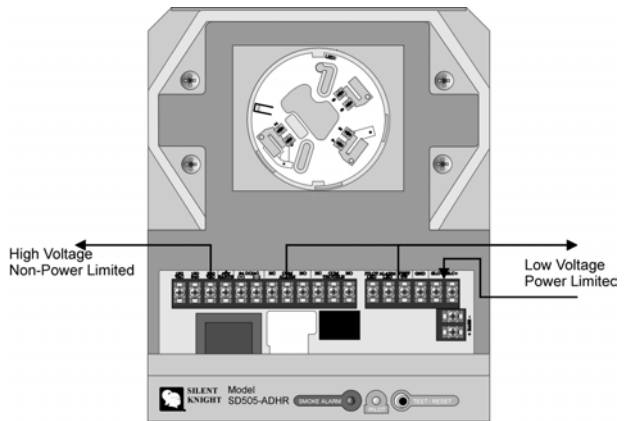


**Figure 2: Air Sampling Verification**

The pressure differential between the input sampling tube and exhaust tube should be greater than 0.01" and less than 1.2" of water.

## Wiring Instructions

This section contains information on how to connect the SD505-ADHR to a power source, to a fan motor, and to a SD505-DTS remote test station. Wiring must conform to applicable local codes, ordinances, and regulations covering this type of device. Refer to NFPA 90A and NFPA 72E for additional information on duct smoke detector operation and installation.



**Figure 3: Wire Routing Example**

**Important!** 1/4" spacing must be maintained between High and Low voltage circuits; as well as between power limited and non-power limited circuits.

## Power Connections

The SD505-ADHR can be powered from a 120 VAC, 240 VAC, or 24 VDC/VAC power source.

**Note:** Only one power source can be used to power the SD505-ADHR.

Figure 4 illustrates how to connect the various types of power sources to the SD505-ADHR.

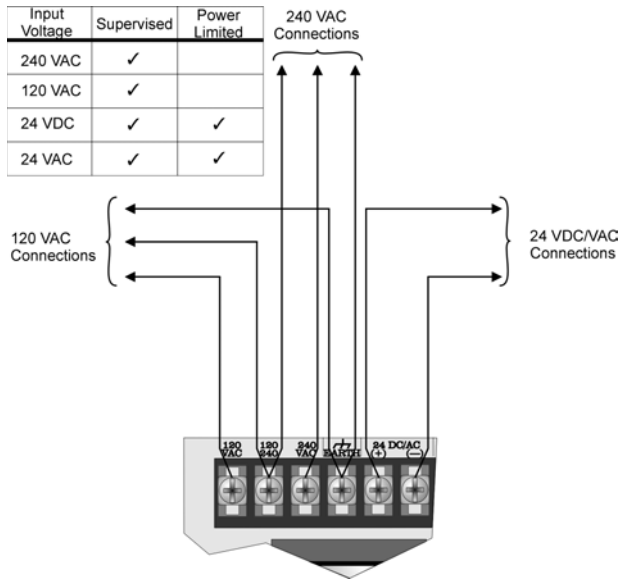


Figure 4: Power Source Connections

## FACP Connections

Follow these steps to properly connect the SD505-ADHR to the FACP:

1. Turn power off and leave the detector head off.
2. Wire the SD505-ADHR as show in Figure 5 or Figure 6.

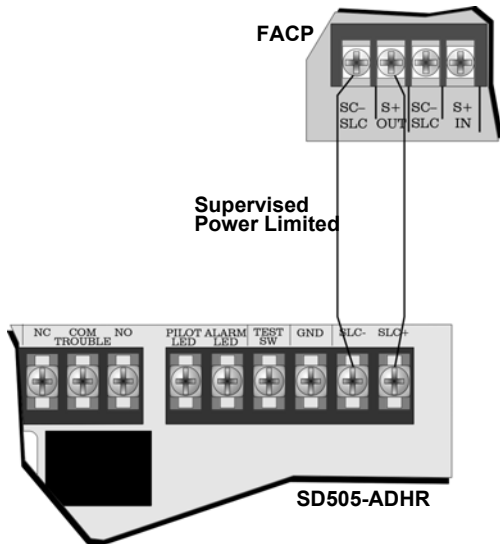


Figure 5: Class B (Style 4)

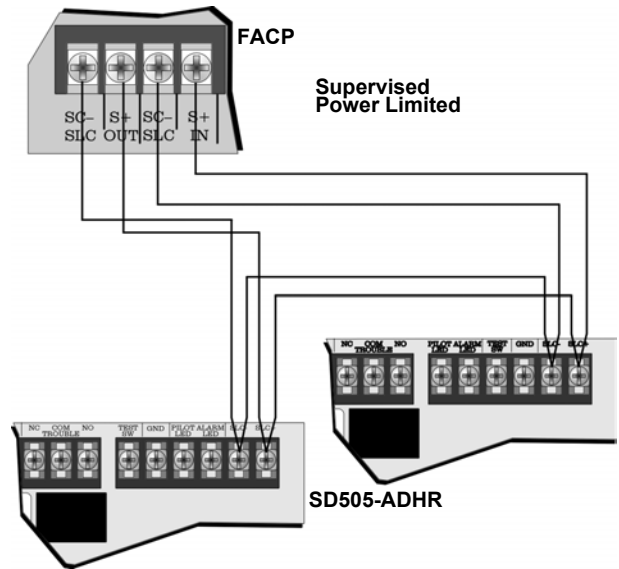


Figure 6: Class A (Style 6)

## Alarm Relay

The Alarm relay can be used to shut off a fan motor of a HVAC system to prevent the transfer of smoke. See Figure 7.

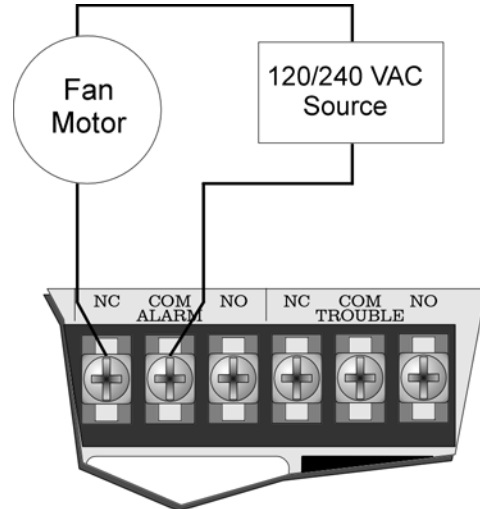


Figure 7: Fan Motor Shut-off Block Diagram

## Trouble Relay

The trouble relay is a form C relay that activates if the input power is lost.

## SD505-DTS Installation

The SD505-DTS is an optional remote test switch station that connects to the SD505-ADHR. The SD505-DTS also provides visual access to the SD505-ADHR in installations where the SD505-ADHR cannot physically be seen.

### SD505-DTS Wiring

Wire the SD505-DTS to the SD505-ADHR as shown in Figure 8.

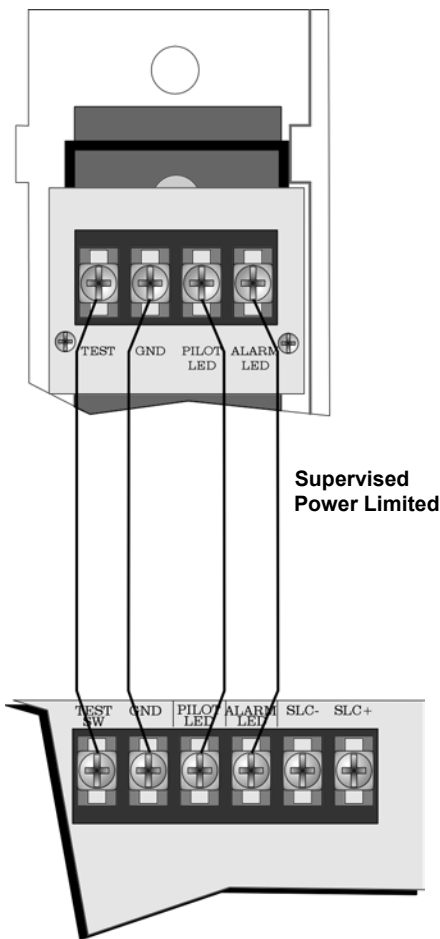


Figure 8: SD505-DTS Wiring Connections

### Mounting The SD505-DTS

The SD505-DTS mounts into a single gang electrical switch box. See Figure 9.

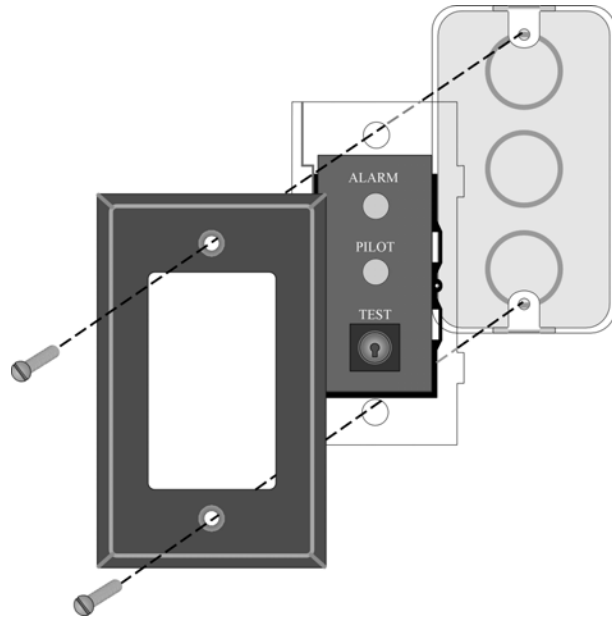


Figure 9: SD505-DTS Mounting and Assembly

### SD505-DTS Specifications

Parameter		Rating
Current Draw	Standby:	6 mA
	Alarm:	6 mA
Dimensions (including red trim plate):		4-3/4" H x 3" W x 1-3/4" D 12.07 cm x 7.62 cm x 4.45 cm
Operating Temperature:		32° F to 120° F (0° C to 49° C)
Operating Voltage:		10 VDC



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