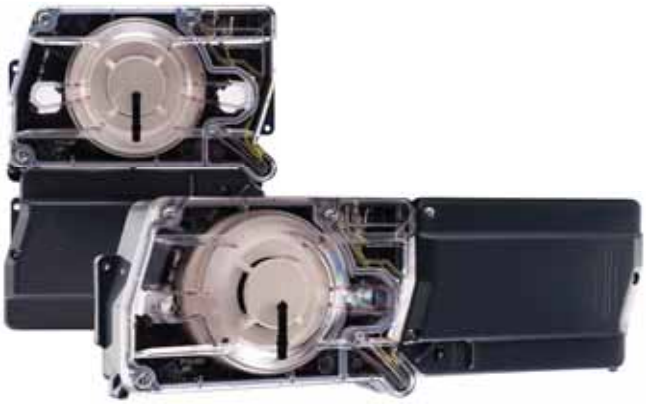
DUCTSD
Duct Smoke Detector



The System Sensor DUCTSD Series duct smoke detectors with a cover integrated smoke test port and flexible configurations provides efficient installation and maintenance.

Features

- 4-Wire Photoelectric, integrated low-flow technology
- Air velocity rating from 100 ft/min to 4,000 ft/min (0.5 m/s to 20.32 m/sec)
- Versatile mounting options: square or rectangular configuration
- Cover integrated smoke test port
- Plug-in sensor offers the latest sensor technology
- Broad ranges for operating temperature (–4°F to 158°F) and humidity (0% to 95% non-condensing)
- Patented sampling tube installs from front or back of the detector with no tools required
- Increased wiring space with an added ¾-inch conduit knockout
- One easy-access Test/Reset button
- Patented interconnect feature for multi-fan shutdown
- High contrast terminal designations and wiring diagram label make wiring easy
- Built-in short circuit protection from operator wiring errors
- Two DPDT Form-C relay contacts
- 24 VAC/DC or 120 VAC
- Compatible with existing System Sennsor duct smoke products, including remote accessories RTS151 and RTS151KEY

Agency Listings

UL LISTED S911

FM APPROVED 3055518

3242-1653-0241

The DUCTSD 4-wire photoelectric duct smoke detector features a pivoting housing that fits both square and rectangular footprints and mounts to round or rectangular ductwork. This unit senses smoke in the most challenging conditions, operating in airflow speeds of 100 to 4,000 feet per minute, temperatures of –4°F to 158°F, and a humidity range of 0 to 95 percent (non-condensing). A plug-in sensor head offers simple installation and maintenance. The cover integrated smoke test port enables easy testing and maintenance.

The housing provides ample wiring space, a ¾-inch conduit knockout, and built-in short circuit protection to prevent damage to sensitive components during installation. High contrast terminal designations and a convenient wiring diagram label located on the inside of the power side housing cover make wiring easy. As many as 30 DUCTSD detectors can be interconnected. When one unit senses smoke, all interconnected detectors will switch their relays; only the detector sensing smoke will go into alarm, thus pinpointing the fire source.

An easy-access Test/Reset button and smoke test port makes it possible to test the unit with the cover on. The power board has an LED that can be used to indicate the status of the connected sensors, and a quick reference imprinted on the cover explains the LED status indications (Standby, Maintenance, Trouble, and Alarm). The DUCTSD smoke detector can be customized to meet local codes and specifications without additional wiring. The DUCTSD product line is compatible with previous System Sensor models, including remote test accessories RTS151 and RTS151KEY.

WARNING: Duct smoke detectors are **NOT** a substitute for open area smoke detectors; **NOT** a substitute for early warning detection; **NOT** a replacement for a building's regular fire detection system. Refer to NFPA 72 and 90A for additional information.

DUCTSD Duct Smoke Detector Specifications

Architectural/Engineering Specifications
The air duct smoke detector shall be a System Sensor DUCTSD photoelectric duct smoke detector. The detector housing shall be UL listed per UL 268A specifically for use in air handling systems. The flexible housing of the duct smoke detector fits multiple footprints from square to rectangular. The detector shall operate at air velocities of 100 feet per minute to 4000 feet per minute (0.5 to 20.32 meters/second). The unit shall be capable of controlling up to 30 air handling systems when interconnected with other detectors. The detector shall be capable of providing a trouble signal in the event that the front cover is removed. It shall be capable of local testing via magnetic switch, test button on the cover, cover integrated smoke test port or remote testing using the RTS151 or RTS151KEY Remote Test Station. Terminal connections shall be of the strip and clamp method suitable for 12–18 AWG wiring.

Physical Specifications	
Size: (Rectangular Dimensions) **(Square Dimensions)**	14.38 in (37 cm) Length; 5 in (12.74 cm) Width; 2.5 in (6.36 cm) Depth 7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth
Weight:	2.5 lbs (1.14 kg)
Operating Temperature Range:	–4° to 158°F (–20° to 70°C)
Storage Temperature Range:	–22° to 158°F (–30° to 70°C)
Operating Humidity Range:	0% to 95% relative humidity non-condensing
Air Duct Velocity:	100 to 4000 ft/min (0.5 to 20.32 m/sec)

Electrical Ratings			
Power supply voltage:	20–29 VDC	24 VAC 50–60 Hz	120 VAC 50–60 Hz
Input capacitance:	270 µF max.	270 µF max.	N/A
Reset voltage:	3.0 VDC min.	2.0 VAC min.	10 VAC min.
Reset time: (with RTS151)	.03 to 0.3 sec.	.03 to 0.3 sec.	.03 to 0.3 sec.
Reset time: (by power down)	0.6 sec. max.	0.6 sec. max.	0.6 sec. max.
Power up time:	35 sec. max.	35 sec. max.	35 sec. max.
Alarm response time:	15 sec.	15 sec.	15 sec.
Sensitivity Test:	See detector label	See detector label	See detector label
Current Requirements: (Using No Accessories)			
Max. standby current:	21 mA @ 24VDC	65 mA RMS @ 24VAC 60Hz	20 mA RMS @ 120VAC 60Hz
Max. alarm current:	65 mA @ 24VDC	135 mA RMS @ 24VAC 60Hz	35 mA RMS @ 120VAC 60Hz

Contact Ratings	
Alarm initiation contacts: (SPST)	2.0A @ 30 VDC (resistive)
Alarm auxiliary contacts: (DPDT)	10A @ 30 VDC (resistive); 10A @ 250 VAC (resistive); ½ HP @ 240 VAC ; ¼ HP @ 120 VAC
Note: Alarm auxiliary contacts shall not be connected to initiating circuits of control panels. Use the alarm initiation contact for this purpose.	
Supervisory contacts: (SPDT)	2.0A @ 30 VDC (resistive); 2.0A @ 125 VAC (resistive)

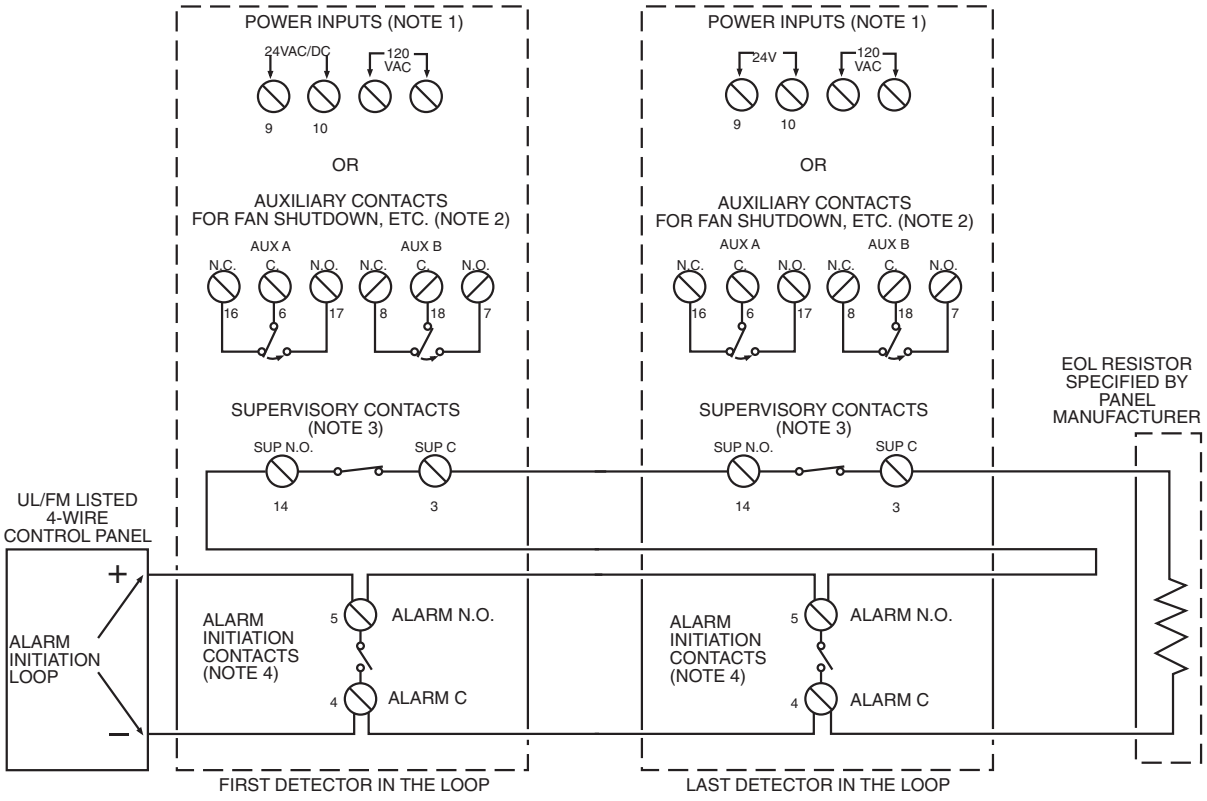
Accessory Current Loads at 24 VDC			
Device	**Standby**	**Trouble**	**Alarm**
APA151	12.5 mA	n/a	30 mA Max.
MHR/MHW	0 mA	n/a	29 mA Max.
RA100Z	0 mA	n/a	12 mA Max.
RTS151/RTS151KEY	0 mA/12 mA	n/a	12 mA Max.

Note: Any combination of accessories may be used such that the given accessory loads are: 110 mA or less at the Aux output, and 50 mA or less at the Alarm output

Installing the DUCTSD Sampling Tube

The DUCTSD sampling tube may be installed from the front or back of the detector. The tube locks securely into place and can be removed by releasing the front or rear locking tab (front locking tab shown below right).

Wiring for 4-wire Duct Smoke Detector and Accessories



NOTE 1: 24V Power Inputs accept 24VDC of either polarity or 24VAC 50-60Hz. 120VAC Power Inputs accept only 120VAC 50-60Hz. Connect power source to appropriate terminals of each detector. See specifications for additional power supply information.

NOTE 2: Auxiliary contacts shown in standby position. Contacts switch during alarm as indicated by arrows. Auxiliary contacts are not to be used for connection to the control panel. See specifications for contact ratings.

*Please refer to the corresponding installation manual for accessory wiring diagrams.

NOTE 3: Supervisory contacts shown in standby position. Open contacts indicate a trouble condition to the panel. See specifications for contact ratings.

NOTE 4: Alarm Initiation contacts shown in standby position. Closed contacts indicate an alarm condition to the panel. See specifications for contact ratings.

Important Interconnect Notes

- When using the interconnect feature, all interconnected units must be powered using the same independent supply.
- Polarity must be maintained throughout the interconnect wiring. Connect the INT+ terminal on unit 1 to the INT+ terminal on unit 2 and so on. Similarly, connect the INT/AUX– terminal on unit 1.
- Up to 30 DUCTSD units may be interconnected.

* NOTE: Alarm can be reset only at the initiating device and not at the devices interconnected.

Accessories

System Sensor provides system flexibility with a variety of accessories, including two remote test stations and several different means of visible and audible system annunciation. As with our duct smoke detectors, all duct smoke detector accessories are UL listed.

RTS151 UL S4011

RTS151KEY UL S2522

APA151 UL S4011

RA100Z UL S2522

MHW UL S4011

MHR UL S4011

Ordering Information

Part No.	Description		
DUCTSD	4-wire photoelectric low-flow duct smoke detector		
Accessories			
2D51	4-wire conventional photoelectric sensor head	M02-04-00	Test magnet
DST1	Metal sampling tube duct width up to 1ft (0.3m)	MHR	Mini Horn, Red
DST1.5	Metal sampling tube duct widths 1 ft to 2 ft (0.3 to 0.6 m)	MHW	Mini Horn, White
DST3	Metal sampling tube duct widths 2 ft to 4 ft (0.6 to 1.2 m)	P48-21-00	End cap for metal sampling tubes
DST5	Metal sampling tube duct widths 4 ft to 8 ft (1.2 to 2.4 m)	RA100Z	Remote annunciator alarm LED
DST10	Metal sampling tube duct widths 8 ft to 12 ft (2.4 to 3.7 m)	RTS151	Remote test station
APA151	Remote annunciator with piezo alarm	RTS151KEY	Remote test station with key lock
ETX	Metal exhaust tube duct width 1ft (0.3m)		

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