Description

The InnovairFlex D2 2-wire photoelectric duct smoke detector features a pivoting housing that fits various applications: both square and rectangular footprints mount to round or rectangular duct work.

This new duct smoke detector senses airflow speeds ranging from 100 to 4,000 feet per minute with proven System Sensor precision. The enhancements built into this model improve false alarm immunity (with plug-in sensor head); broaden operating temperature (-4ºF to 158ºF) and humidity (0 to 95 percent noncondensing) ranges; while simplifying installation and maintenance. These advance features can detect smoke even in the harshest duct applications.

The new design provides more wiring space with an added ¾ inch conduit knockout. Numbers and labels for terminal designations are consistent with previous Innovair models. The new sampling tube can be clicked into position with one smooth motion from either the front or the back of the detector.

The InnovairFlex D2 duct smoke detector has signals to indicate trouble and maintenance conditions. Additionally, a cover tamper feature is incorporated to indicate a trouble condition for removed or improperly installed sensor cover. An improved cover design, with an integrated the low-flow feature, isolates the sensor head from the low-flow technology for simple maintenance.

The InnovairFlex series is designed for greater flexibility and reliable smoke detection to simplify installation and maintenance. The new InnovairFlex product line is backward compatible to existing Innovair models, including remote test accessories.

WARNING: Duct smoke detectors have specific limitations.

DUCT SMOKE DETECTORS ARE:
NOT a substitute for an open area smoke detector,
NOT a substitute for early warning detection, and
NOT a replacement for a building's regular fire detection system. Refer to NFPA 72, 90A and CAN/ULC S524 for additional duct smoke detector application information.

Features

- 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 in square or rectangular configuration with modular construction
- Plug-in sensor
- Superb false alarm immunity with the latest sensor technology
- Broader ranges for operating temperature (-4ºF to 158ºF) and humidity (0% to 95% non-condensing)
- Patented sampling tube installs from front or back of the detector with no tools required
- A cover tamper feature to indicate a trouble condition for removed or improperly installed sensor cover
- Increased wiring space with a newly added ¾ inch conduit knockout
- Improved LED status
- 24 VDC
- Backward compatibility with existing Innovair products, including remote accessories

Architectural/Engineering Specifications

The air duct smoke detector shall be a System Sensor InnovairFlex™ D2(A) Photoelectric Duct Smoke Detector. The detector housing shall be UL listed per UL 268A or ULC listed specifically for use in air handling systems. The flexible housing of the duct smoke detector fits both square and rectangular footprints. The detector shall operate at air velocities of 100 ft/min to 4000 ft/min (0.5 m/sec to 20.32 m/sec). The unit shall be capable of providing a trouble signal in the event that the sensor cover is removed or improperly installed. It shall be capable of local testing via magnetic switch or remote testing using the RTS451KEY(A) remote test station. Terminal connections shall be of the strip and clamp method suitable for 12–18 AWG wiring.

CATALOG NUMBER 5176

Physical Specifications

Physical Specifications	
Size: (Rectangular)	14.38 in (37 cm) Length; 5 in (12.7 cm) Width; 2.5 in (6.36 cm) Depth
Size: (Square)	7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth
Weight:	1.8 lb (0.82 kg)
Operating Temp. Range:	-4°F to 158°F (-20°C to 70°C)
Storage Temp. Range:	−22°F 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)

Accessory Current Loads at 24 VDC

Device	Standby	Alarm
RA400ZA	0 mA	12 mA Max.
RTS451	0 mA	12 mA Max.
RTS451KEY-A	12 mA	12 mA Max.

Electrical Ratings

Electrical Ratings	
Power supply voltage:	8.5-35 VDC
Input capacitance:	0.1 µF max.
Reset voltage:	2.5 VDC min.
Reset time: (with RTS451):	0.03 to 0.3 sec.
Reset time:	(by power down) 0.3 sec. max.
Power up time:	35 sec. max.
Alarm response time:	15 sec.
Sensitivity Test:	See detector label
Current Requirements: (Using No Accessories)	
Peak standby current:	120µA
Max. standby current:	60 µA (average)
Max. alarm current:	130 mA

Wiring for 2-wire Duct Smoke Detector

System wiring diagram for 2-wire duct smoke detectors (powered from initiating device circuit):
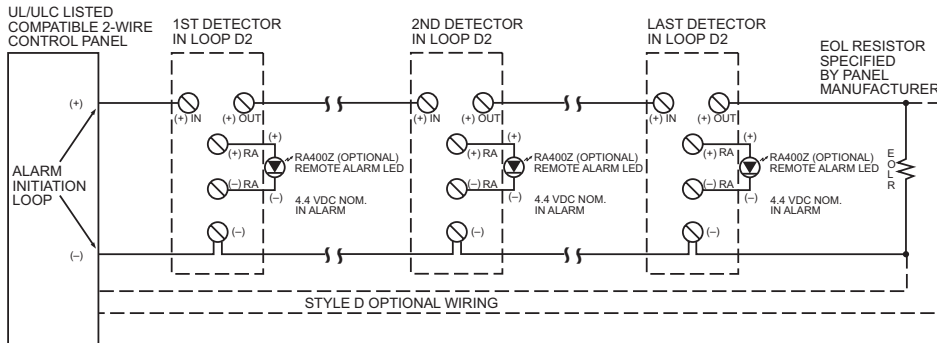
Wiring diagram for 2-wire duct smoke detector to RTS451/RTS451KEY Remote Test Station

METHOD #1 - AUX POWER LOCATED AT DUCT DETECTOR

METHOD #2 - AUX POWER LOCATED AT TEST STATION
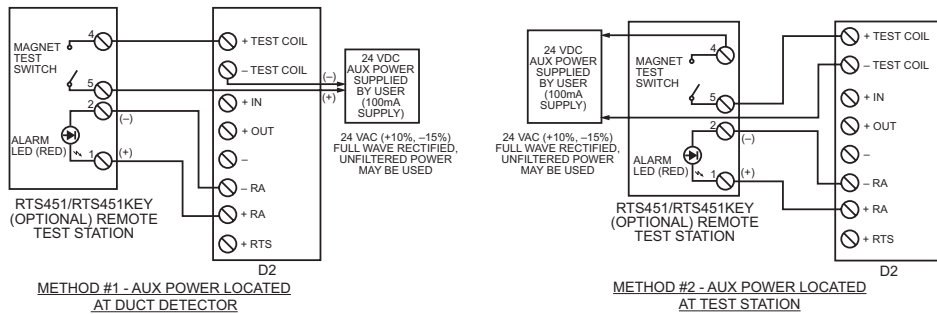
Important Note
The use of either RTS451 or RTS451KEY requires the installation of an accessory coil, DCOIL, sold separately.
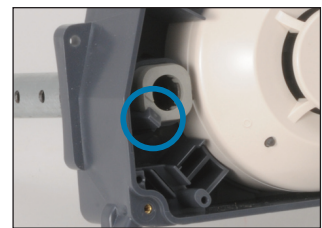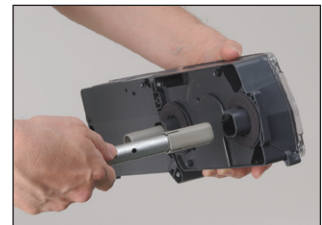Please refer to the D2 installation manual for more information

Installing the InnovairFlex Sampling Tube

The InnovairFlex 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.

Ordering Information

Model	Description		
D2*	2-wire photoelectric low-flow duct smoke detector		
Accessories			
2151*	2-wire conventional photoelectric sensor head	DCOIL	2-wire remote test coil required with RTS451/RTS451KEY
DST3	Metal sampling tube duct widths 2 ft to 4 ft (0.6 to 1.2 m)	RA400Z*	Remote annunciator alarm LED
DST5	Metal sampling tube duct widths 4 ft to 8 ft (1.2 to 2.4 m)	RTS451	Remote test station
DST10	Metal sampling tube duct widths 8 ft to 12 ft (2.4 to 3.7 m)	RTS451KEY*	Remote test station with key lock
ETX	Metal exhaust tube duct width 1ft (0.3m)	*Add suffix "A" for Canadian models.*	

NOT TO BE USED FOR INSTALLATION PURPOSES.