



Harrington Signal Inc.  
2519 4th Avenue, Moline, Illinois 61265  
P.O. Box 590, Moline, Illinois 61266-0590  
Phone: (800) 577-5758 Local: (309) 762-0731 Fax: (309) 762-8215  
Internet: www.harringtonfire.com



**Description**

The InnovairFlex D2 2-wire photo-electric 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 ft. 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 (-4°F to 158°F) and humidity (0 to 95% non-condensing) 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 3/4" 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 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.

**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 (-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
- A cover tamper feature to indicate a trouble condition for removed or improperly installed sensor cover
- Increased wiring space with a newly added 3/4" conduit knockout
- Improved LED status
- 24 VDC
- Backward compatibility with existing Innovair products including remote accessories

**Ordering Information, continued on last page**

Model Number	Part Number	Description
D2	D2	2-Wire Photoelectric Low-flow Duct Smoke Detector
2151	2151	2-Wire Conventional Photoelectric Sensor Head Replacement
DCOIL	DCOIL	2-Wire Remote Test Coil required with RTS451/RTS451KEY
DST1	DST1	Metal Sampling Tube Duct Width up to 1 ft (0.3 m)
DST1.5	DST1.5	Metal Sampling Tube Duct Widths 1 ft to 2 ft (0.3 to 0.6 m)
DST3	DST3	Metal Sampling Tube Duct Widths 2 ft to 4 ft (0.6 to 1.2 m)
DST5	DST5	Metal Sampling Tube Duct Widths 4 ft to 8 ft (1.2 to 2.4 m)
DST10	DST10	Metal Sampling Tube Duct Widths 8 ft to 12 ft (2.4 to 3.7 m)
ETX	ETX	Metal Exhaust Tube Duct Width 1 ft (0.3 m)
M02-04-00	M02-04-00	Test Magnet
P48-21-00	P48-21-00	End Cap for Metal Sampling Tubes
RA100Z	RA100Z	Remote Annunciator Alarm LED

### Physical Specifications

Size: (Rectangular Dimensions)	14.38 in (37 cm) Length; 5 in (12.7 cm) Width; 2.5 in (6.36 cm) Depth
(Square Dimensions)	7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth
Weight:	1.8 lbs. (0.82 kg)
Operating Temperature Range:	-4° to 158°F (-20°C to 70°C)
Storage Temperature Range:	-22° to 158°F (-30°C to 70°C)
Operating Humidity Range:	0% to 95% relative humidity non-condensing
Air Duct Velocity:	100 to 4000 ft/min (0.5 m/sec to 20.32 m/sec)

### Electrical Ratings

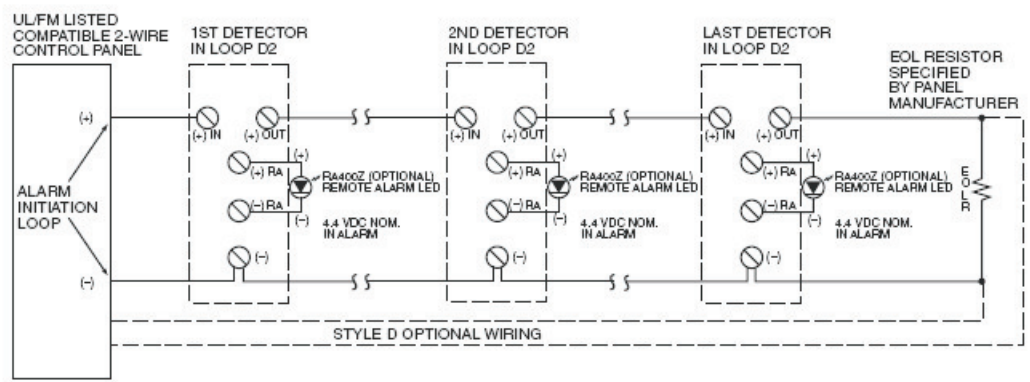
Power Supply Voltage:	8.5-35 VDC
Input Capacitance:	0.1 µF max
Reset Voltage:	2.5 VDC min
Reset Time: (with RTS451)	0.03 to 0.3 sec
Reset Time: (by power down)	0.3 sec max
Power Up Time:	35 sec max
Alarm Response Time:	15 sec
Sensitivity Test:	See detector label
Current Requirements: (Using No Accessories)	
Peak Standby Current:	120 µA
Max. Standby Current:	60 µA (average)
Max. Alarm Current:	130 mA

### Accessory Current Loads at 24 VDC

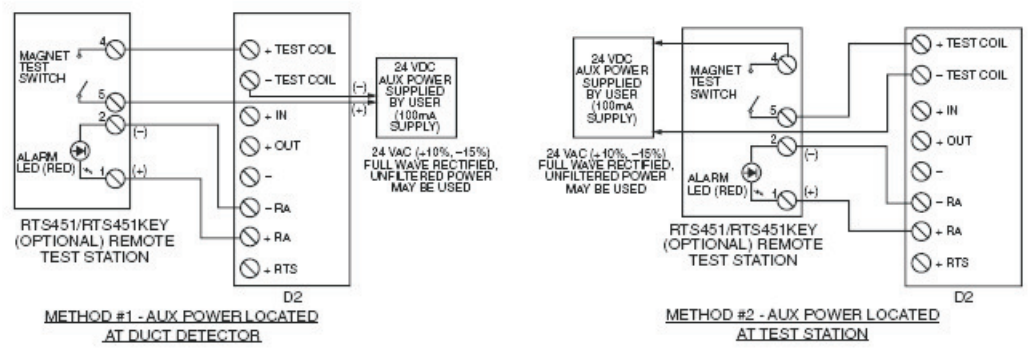
Device	Standby	Alarm
RA400Z	0 mA	12 mA Max
RTS451	0 mA	12 mA Max
RTS451KEY	12 mA	12 mA Max

### 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



**Important Notes:**

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.

**WARNING:** Duct smoke detectors have specific limitations.

**DUCT SMOKE DETECTORS ARE:**

**NOT** a substitute for an open area smoke detector,

**NOT** a substitute for an early warning detection, and

**NOT** a replacement for a building's regular fire detection system.

Refer to NFPA 72 and 90A for additional duct smoke detector application information.

**Architectural/Engineering Specifications**

The air duct smoke detector shall be a System Sensor InnovairFlex™ D2 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 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 remote test station. Terminal connections shall be of the strip and clamp method suitable for 12 - 18 AWG wiring.

Ordering Information Continued

Model Number	Part Number	Description
RTS451	RTS451	Remote Test Station
RTS451KEY	RTS451KEY	Remote Test Station with Key Lock

NOTICE: The information contained in this document is intended only as a summary and is subject to change without notice. The devices described in this document have specific instruction sheets which cover various technical, limitation and liability information. Copies of these instruction sheets and the General Product Warning and Limitations Document, which also contains important information are provided with the product and are available from Harrington Signal Inc. Fire Alarm. Information contained in these documents should be consulted before specifying or using the product. For further information or assistance concerning particular problems contact Harrington Signal Inc. Harrington Signal Inc. Fire Alarm reserves the right to change specifications without notice. Quality manufactured for Harrington Signal Inc by System Sensor.