

## 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 (-4°F to 158°F) 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 3/4 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 (-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 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 RTS151KEY(A) remote test station. Terminal connections shall be of the strip and clamp method suitable for 12–18 AWG wiring.



**CATALOG NUMBER 5176**

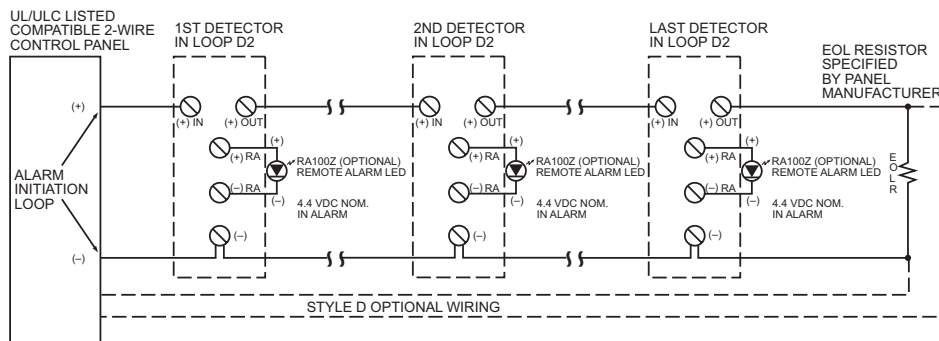
NOT TO BE USED FOR INSTALLATION PURPOSES.

| Physical Specifications           |  |            |
|-----------------------------------|--|------------|
| <b>Size: (Rectangular)</b>        | 14.38 in (37 cm) Length; 5 in (12.7 cm) Width; 2.5 in (6.36 cm) Depth  |            |
| <b>Size: (Square)</b>             | 7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth |            |
| <b>Weight:</b>                    | 1.8 lb (0.82 kg)   |            |
| <b>Operating Temp. Range:</b>     | -4°F to 158°F (-20°C to 70°C)  |            |
| <b>Storage Temp. Range:</b>       | -22°F to 158°F (-30° to 70°C)  |            |
| <b>Operating Humidity Range:</b>  | 0% to 95% relative humidity non-condensing                             |            |
| <b>Air Duct Velocity:</b>         | 100 to 4000 ft/min (0.5 to 20.32 m/sec)                                |            |
| Accessory Current Loads at 24 VDC |  |            |
| Device                            | Standby  | Alarm      |
| RA100ZA                           | 0 mA   | 12 mA Max. |
| RTS151                            | 0 mA   | 12 mA Max. |
| RTS151KEY                         | 12 mA  | 12 mA Max. |

| Electrical Ratings                           |                               |
|--|-------------------------------|
| <b>Power supply voltage:</b>                 | 8.5-35 VDC                    |
| <b>Input capacitance:</b>                    | 0.1 µF max.                   |
| <b>Reset voltage:</b>                        | 2.5 VDC min.                  |
| <b>Reset time: (with RTS151):</b>            | 0.03 to 0.3 sec.              |
| <b>Reset time:</b>                           | (by power down) 0.3 sec. max. |
| <b>Power up time:</b>                        | 35 sec. max.                  |
| <b>Alarm response time:</b>                  | 15 sec.                       |
| <b>Sensitivity Test:</b>                     | See detector label            |
| Current Requirements: (Using No Accessories) |                               |
| <b>Peak standby current:</b>                 | 120µA                         |
| <b>Max. standby current:</b>                 | 60 µA (average)               |
| <b>Max. alarm current:</b>                   | 130 mA                        |

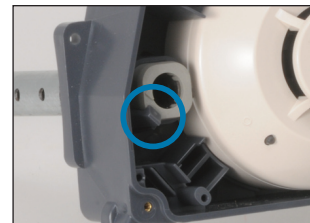
## Wiring for 2-wire Duct Smoke Detector

System wiring diagram for 2-wire duct smoke detectors (powered from initiating device circuit):

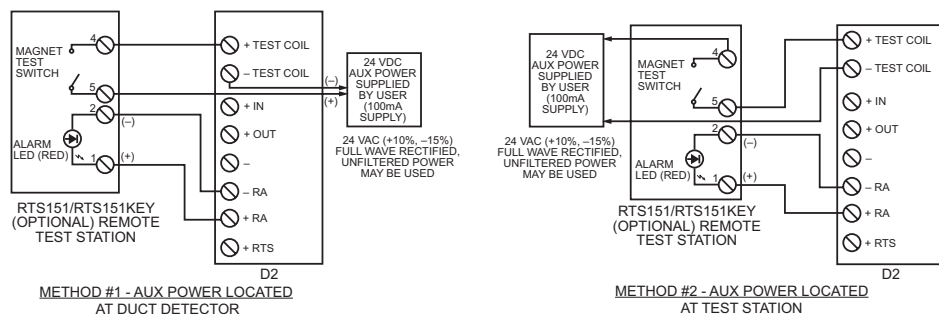


## Installing the InnovairFlex Sampling Tube

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.



## Wiring diagram for 2-wire duct smoke detector to RTS151/RTS151KEY Remote Test Station



### Important Note

The use of either RTS151 or RTS151KEY requires the installation of an accessory coil, DCOIL, sold separately. Please refer to the D2 installation manual for more information

## Ordering Information

| Model       | Description  |                                       |  |
|-------------|--|---------------------------------------|--|
| D2*         | 2-wire photoelectric low-flow duct smoke detector            |                                       |  |
| Accessories |  |                                       |  |
| 2151*       | 2-wire conventional photoelectric sensor head                | ETX                                   | Metal exhaust tube duct width 1ft (0.3m)               |
| DST1        | Metal sampling tube duct width up to 1ft (0.3m)              | DCOIL                                 | 2-wire remote test coil required with RTS151/RTS151KEY |
| DST1.5      | Metal sampling tube duct widths 1 ft to 2 ft (0.3 to 0.6 m)  | RA100Z*                               | Remote annunciator alarm LED                           |
| DST3        | Metal sampling tube duct widths 2 ft to 4 ft (0.6 to 1.2 m)  | RTS151                                | Remote test station                                    |
| DST5        | Metal sampling tube duct widths 4 ft to 8 ft (1.2 to 2.4 m)  | RTS151KEY*                            | Remote test station with key lock                      |
| DST10       | Metal sampling tube duct widths 8 ft to 12 ft (2.4 to 3.7 m) | * Add suffix "A" for Canadian models. |  |

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