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### Description

The InnovairFlex D41 20W watertight 4-wire photoelectric duct smoke detector is UL listed as a watertight enclosure providing protection against falling dirt, rain, windblown dust, splashing and hose directed water. D41 20W duct smoke detector features a pivoting housing that fits various applications; both square and rectangular footprints mount to round or rectangular duct work.

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% (non condensing). A plug-in sensor head offers superior false alarm immunity. These features, plus a NEMA 4 rating, allow operators to mount the detector to rooftop HVAC equipment or use the detector in other harsh environments.

The new design provides the same form, fit, and wiring terminations as the standard InnovairFlex unit. Superior test and operational features added to the standard

model are also available in this watertight unit. As the only watertight duct smoke detector on the market, D41 20W provides unsurpassed environmental protection while simplifying installation, testing, and maintenance.

This InnovairFlex duct smoke detector can be customized to meet local codes and specifications without additional wiring. The new InnovairFlex product line is compatible with all previous Innovair models, including remote test accessories.

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

### Features

- NEMA Type 4 UL listed for non-hazardous indoor & outdoor applications
- UV Resistant, UL listed housing & cover material



- 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
- Plug-in sensor offers superb false alarm immunity and 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 a newly added 3/4" conduit knockout
- One easy-access Test/Reset button and improved LED status
- Patented interconnect feature for multi-fan shutdown

### Ordering Information, continues on back page

Model Number	Part Number	Description
D41 20W	D41 20W	Watertight 4-wire Photoelectric Low-flow Duct Smoke Detector
2D51	2D51	4-wire Conventional Photoelectric Sensor Head Replacement
DST1	DST1	Metal Sampling Tube Duct width up to 1 ft (0.3m)
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)
APA151	APA151	Remote Annunciator with Piezo Alarm
ETX	ETX	Metal Exhaust Tube Duct width 1 ft (0.3 m)
M02-04-00	M02-04-00	Test Magnet
MHR	MHR	Min Horn, Red
MHW	MHW	Mini Horn, White

### Features Continued

- New high contrast terminal designations
- Built-in short circuit protection from operator wiring errors
- Field selectable settings for configuring the detector
- Two DPDT Form-C relay contacts
- 24 VAC/DC or 120VAC
- Backward compatibility with existing Innovair products, including remote accessories

### 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:	2.5 lbs. (1.14 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 20.3 m/sec)
NEMA Enclosure Rating:	Type 4 - Watertight Indoor/Outdoor

### 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 RTS451)	.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 @ 24 VDC	65 mA RMS @ 24 VAC 60 Hz	20 mA RMS @ 120 VAC 60 Hz
Max. Alarm Current:	65 mA @ 24 VDC	135 mA RMS @ 24 VAC 60 Hz	35 mA RMS @ 120 VAC 60 Hz

### Contact Ratings

Alarm Initiation Contacts: (SPST)	2.0A @ 30 VDC (resistive)
Alarm Auxiliary Contacts: (DPDT)	10A @ 30 VDC; 10A @ 250 VAC; 1/2 HP @ 240VAC; 1/4 HP @ 120VAC
<b>Note:</b> 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

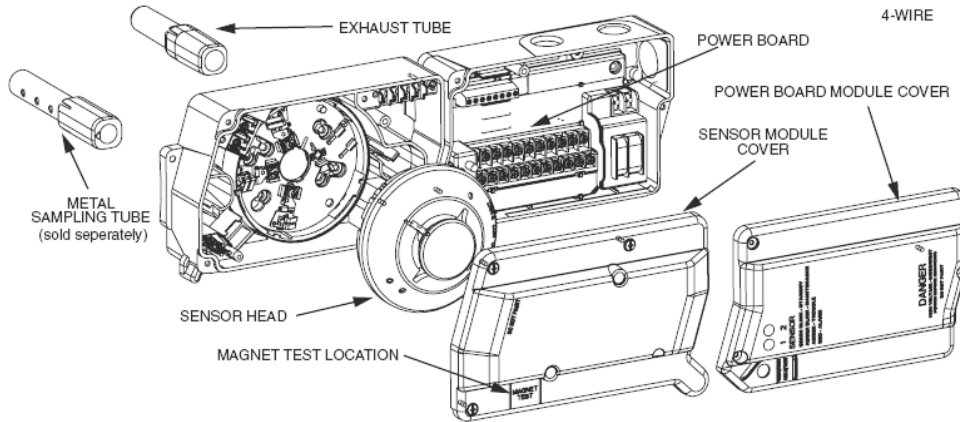
Device	Standby	Trouble	Alarm
APA451	12.5 mA	N/A	30 mA Max
MHR/MHW	0 mA	N/A	29 mA Max
RA400Z	0 mA	N/A	12 mA Max
RTS451	0 mA	N/A	12 mA Max
RTS451KEY	12 mA	N/A	12 mA Max
RTS2-AOS	3.0mA max	16 mA Max	with Strobe: 55 mA max; without strobe 30 mA max

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

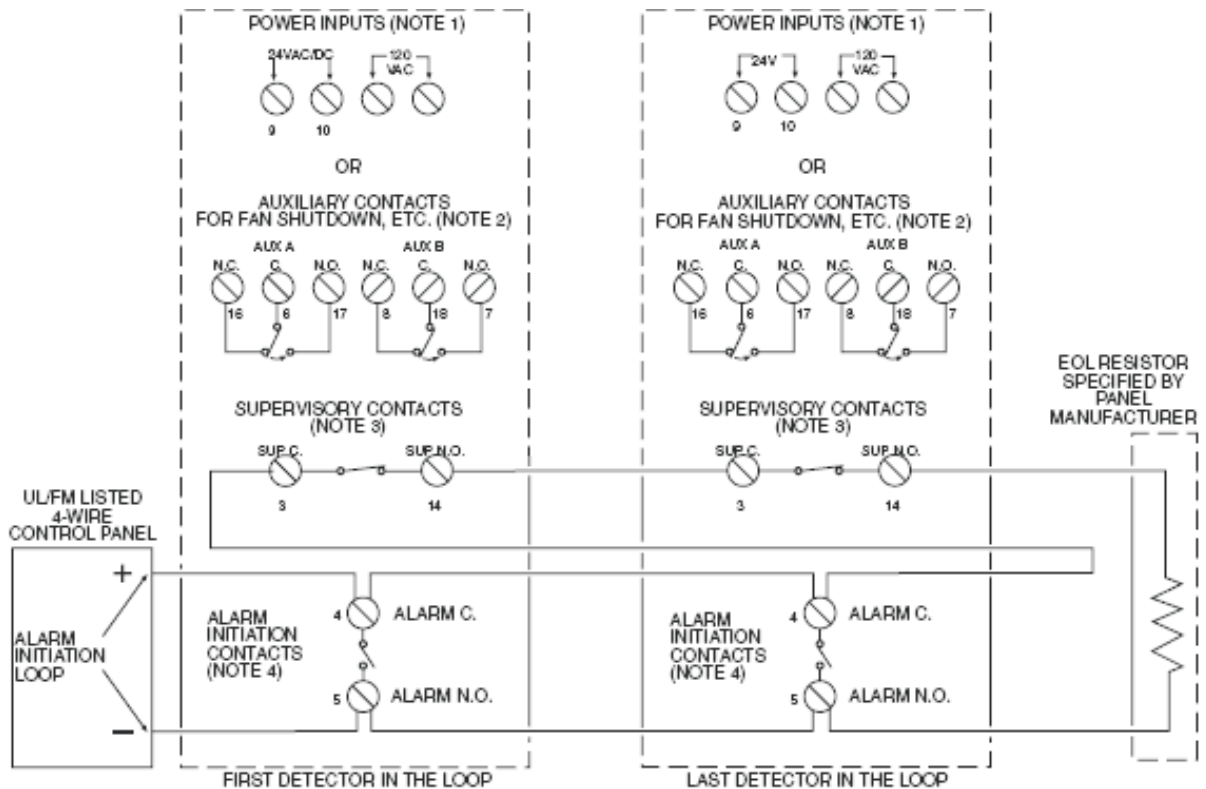
### Architectural & Engineering Specifications

The air duct smoke detector shall be a System Sensor InnovairFlex D4120W Watertight NEMA4 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 50 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, or remote testing using the SSK451 Multi-Signaling Accessory or the RTS451KEY Remote Test Station. Terminal connections shall be of the strip and clamp method suitable for 12 - 18 AWG wiring.

**EXPLODED VIEW OF DUCT SMOKE DETECTOR COMPONENTS:**



**Wiring for Watertight 4-wire Duct Smoke Detector**



NOTE 1: 24V Power Inputs accept a non-polarized 24VDC 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.

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.

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

### 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 their duct smoke detectors, all duct smoke detector accessories are UL listed.



RTS151 UL S4011



RTS151KEY UL S2522



APA151 UL S4011



RTS2-AOS UL S2522



RA100Z UL S2522



MHW UL S4011



MHR UL S4011



AOS

### 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 to the INT/AUX- terminal on unit 2 and so on.
- Up to 50 D4120W units may be interconnected.
- Up to 10 DH100ACDC units may be interconnected. Please note that each of the 9 DH100ACDC units interconnected may be replaced by three D4120W units. Therefore, when using the interconnect feature a single DH100ACDC can drive either 9DH100ACDCs or 27 D4120W units.
- NOTE: Alarm can be reset only at the initiating device and not at the devices interconnected.

### Ordering Information Continued

Model Number	Part Number	Description
P48-21-00	P48-21-00	End Cap for Metal Sampling Tubes
RA400Z	RA400Z	Remote Annunciator Alarm LED
RTS151	RTS151	Remote Test Station with Magnet
RTS151KEY	RTS151KEY	Remote Test Station with Key Lock
RTS2-AOS	RTS2-AOS	Multi-Signaling Accessory
DH400-OE-1	DH400-OE-1	Weatherproof Enclosure

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.