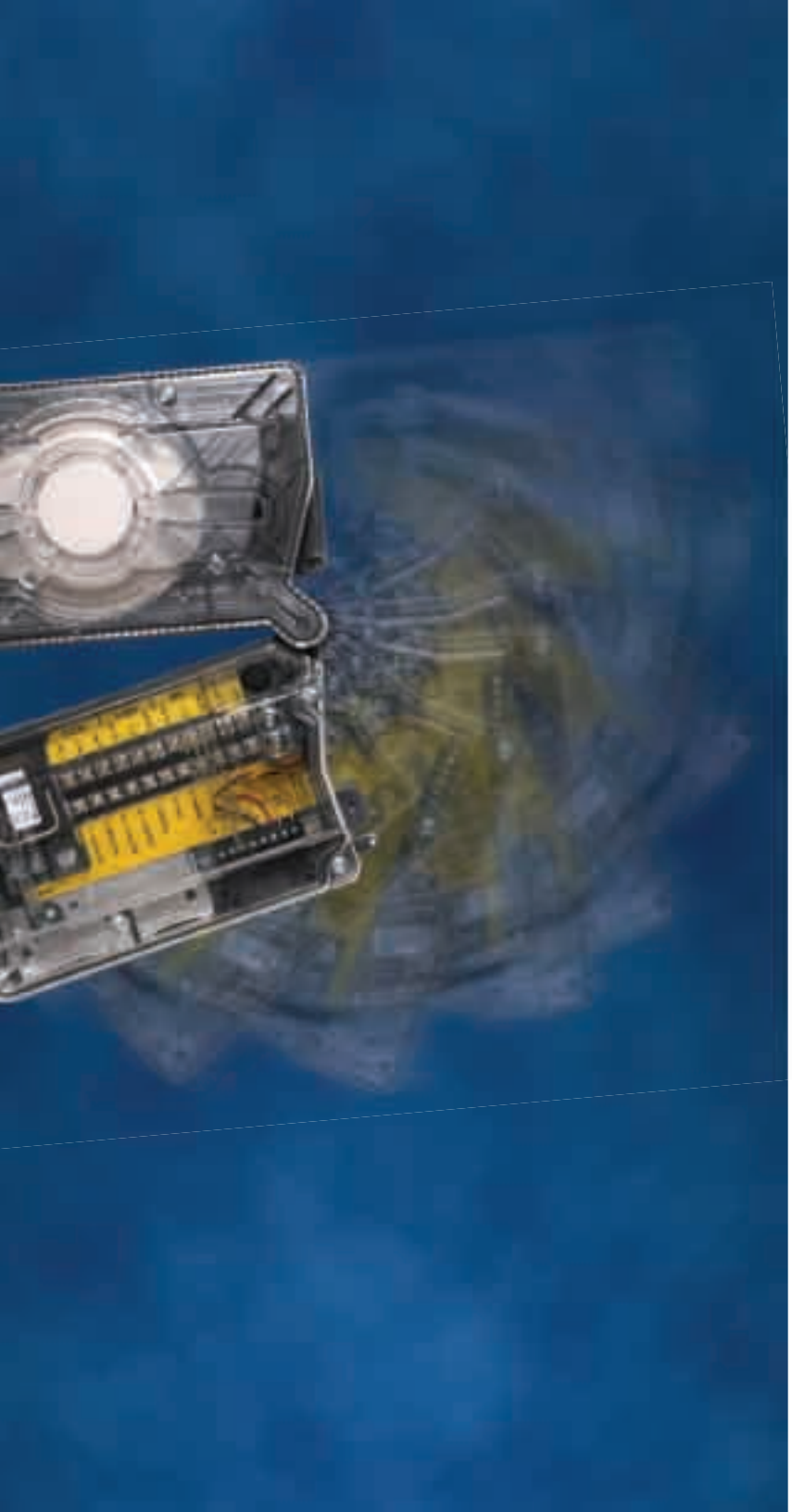
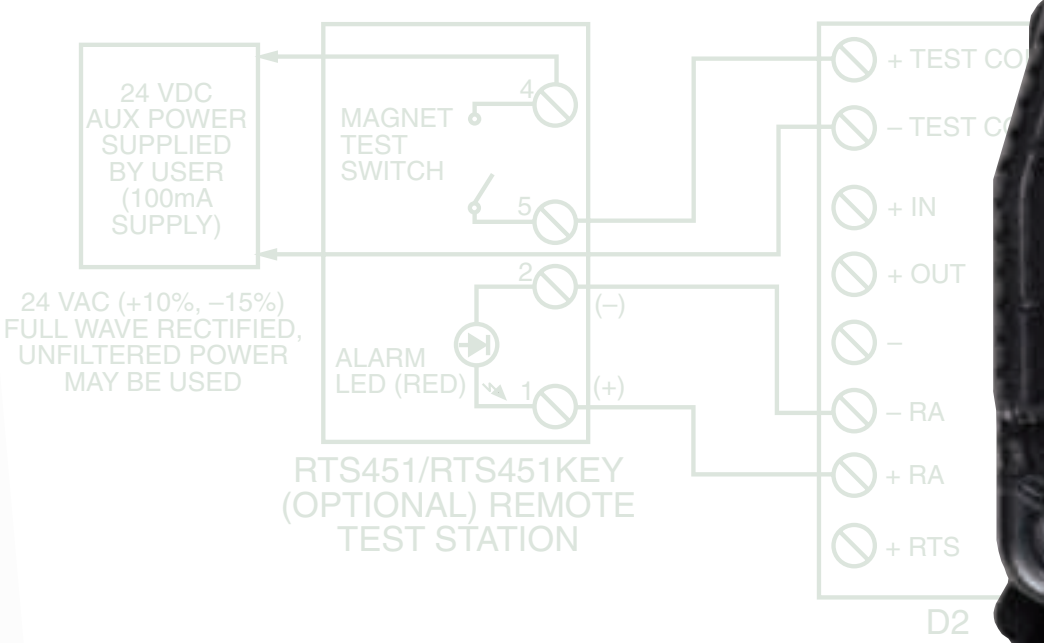
Innovair flex™

Reshaping Duct Smoke Detection




24 VDC
AUX POWER
SUPPLIED
BY USER
(100mA
SUPPLY)
24 VAC (+10%, –15%)
FULL WAVE RECTIFIED,
UNFILTERED POWER
MAY BE USED
MAGNET
TEST
SWITCH
4
5
2
(–)
ALARM
LED (RED)
1
(+)
RTS451/RTS451KEY
(OPTIONAL) REMOTE
TEST STATION
+ TEST CO
– TEST C
+ IN
+ OUT
–
– RA
+ RA
+ RTS
D2

When System Sensor introduced the Innovair line of duct smoke detectors and accessories, it was revolutionary. Mechanical contractors and fire systems installers like you discovered its tremendous ease of use and reliability. Before long, the Innovair line rose to the top of the industry.

Over the years, you have provided us with invaluable advice on how we could make our great products even better. You told us you needed a product that was flexible enough to work in any installation and to meet any code requirement. You wanted a duct smoke detector that's easy to install, easy to test, and easy to maintain.

Now, System Sensor is proud to bring you InnovairFlex,™ a quantum leap forward in duct smoke detection. InnovairFlex is a true collaboration: your expertise in the field plus our expertise in life safety design and manufacture.

This brochure will introduce you to all the features and benefits of these extraordinary new products. All the important details are presented right here. We also invite you to visit systemsensor.com/flex to watch video of InnovairFlex products in action.

Before you dive in and explore all that InnovairFlex has to offer, we wanted to take a moment to thank you for your contribution. Without the tireless effort of our partners in the field, advances like those you are about to discover would not be possible.

Innovair flex™

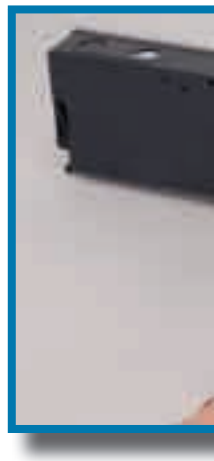
Reshaping Duct Smoke Detection

Greater Flexibility

- 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
- Broader ranges for operating temperature (–4°F to 158°F) and humidity (0% to 95% non-condensing)

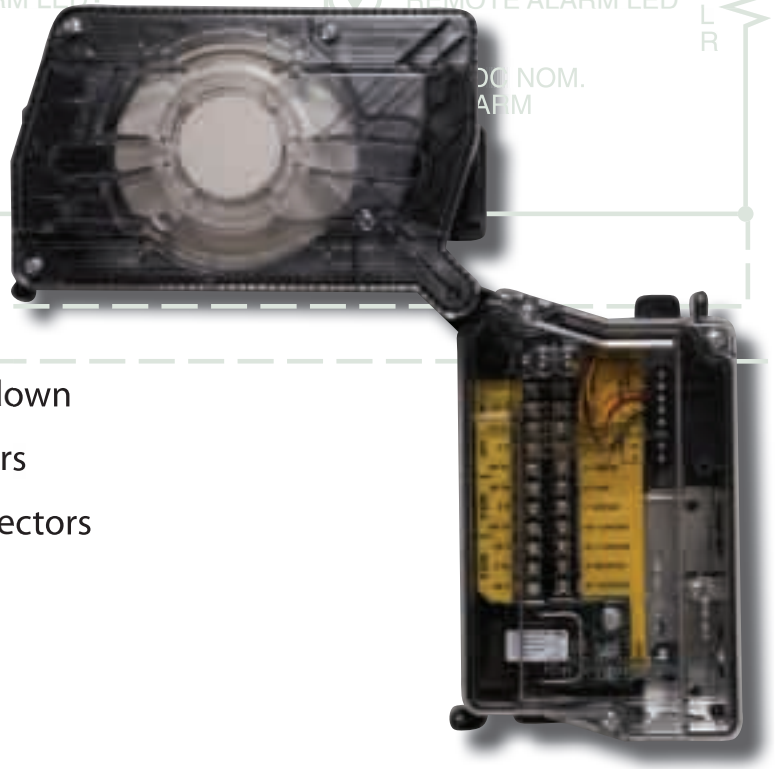
Easy Installation

- Increased wiring space with a newly added ¾-inch conduit knockout
- New high contrast terminal designations
- No tools needed for installing patented sampling tube from either front or back of the detector



Superior Features

- Photoelectric plug-in sensor
- Integrated low-flow technology
- Superb false alarm immunity with the latest sensor technology
- One easy-access "Test/Reset" button (for conventional 4-wire models)
- Patented interconnectability for multi-fan shutdown
- Built-in short circuit protection from wiring errors
- Field-selectable settings for configuring the detectors



Seamless Transition

- Backward compatibility with existing Innovair products, including remote accessories
- Easy and quick mounting to round or rectangular ducts of 1 ft to 12 ft (0.3 m to 3.7 m) wide

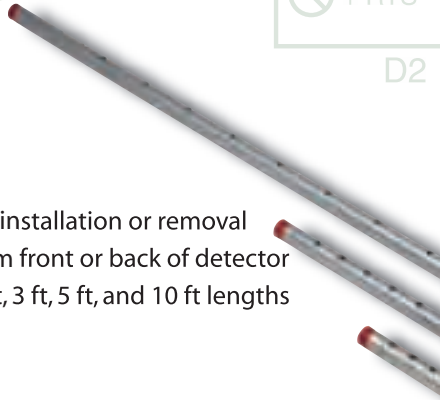
D4120 4-wire conventional photoelectric low-flow duct smoke detector

- 24 VAC/DC,120 VAC
- 2:1 sensor-to-power capability for allowing a power board to monitor both supply and return side detectors

D4S Sensor Component

DST Sampling Tube

- No tools needed for installation or removal
- Installs/removes from front or back of detector
- Available in 1 ft, 1.5ft, 3 ft, 5 ft, and 10 ft lengths



D4120W 4-wire conventional photoelectric watertight low-flow duct smoke detector

- 24VAC/DC, 120VAC
- NEMA Type 4 UL listed for non-hazardous indoor and outdoor applications
- UV Resistant, UL listed housing and cover material

D4P120 Power Board Component

• Wide operating temperature range: -40˚F to 158˚F (-40˚C to 70˚C)

D2 2-wire conventional photoelectric low-flow duct smoke detector

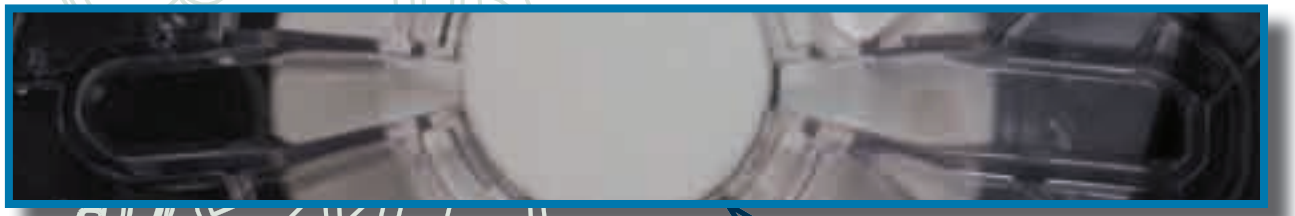
• A cover tamper feature to provide a trouble signal for removed or improperly installed sensor cover

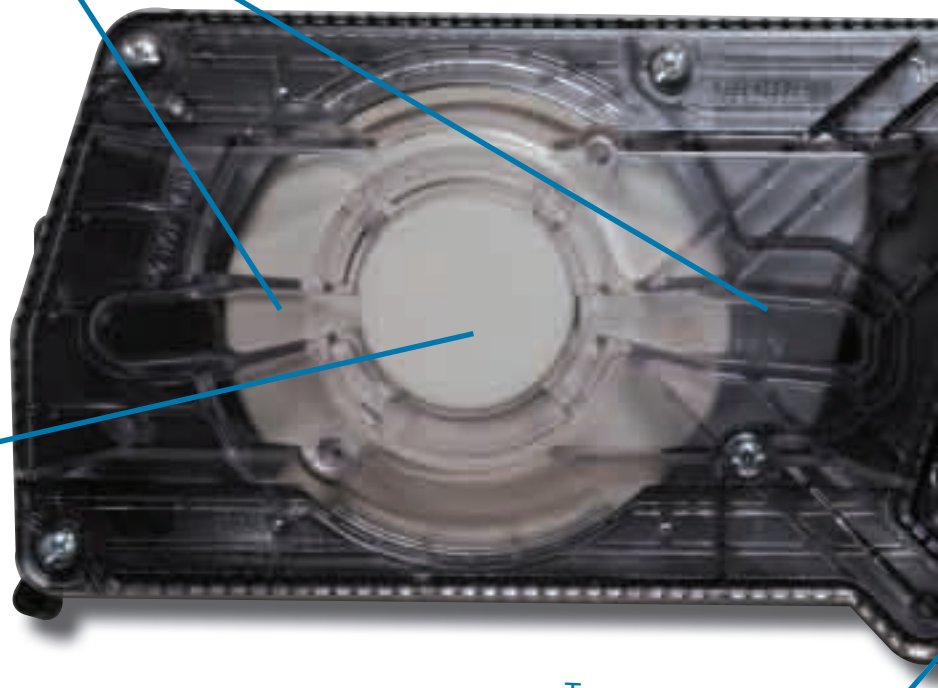
• 24 VDC

DNR/DNRW Intelligent non-relay photoelectric low-flow duct smoke detector

- A cover tamper feature to provide a trouble signal for removed or improperly installed sensor cover
- Available space within housing to accommodate mounting of relay module
- Easily accessible code wheels on sensor head (sold separately)
- NEMA Type 4 UL listed for non-hazardous indoor and outdoor applications (DNRW only)
- UV Resistant, UL listed housing and cover material (DNRW only)

Integrated Low-Flow Technology





Photoelectric Plug-In Sensor Head

One Easy-Access Test/Reset Button

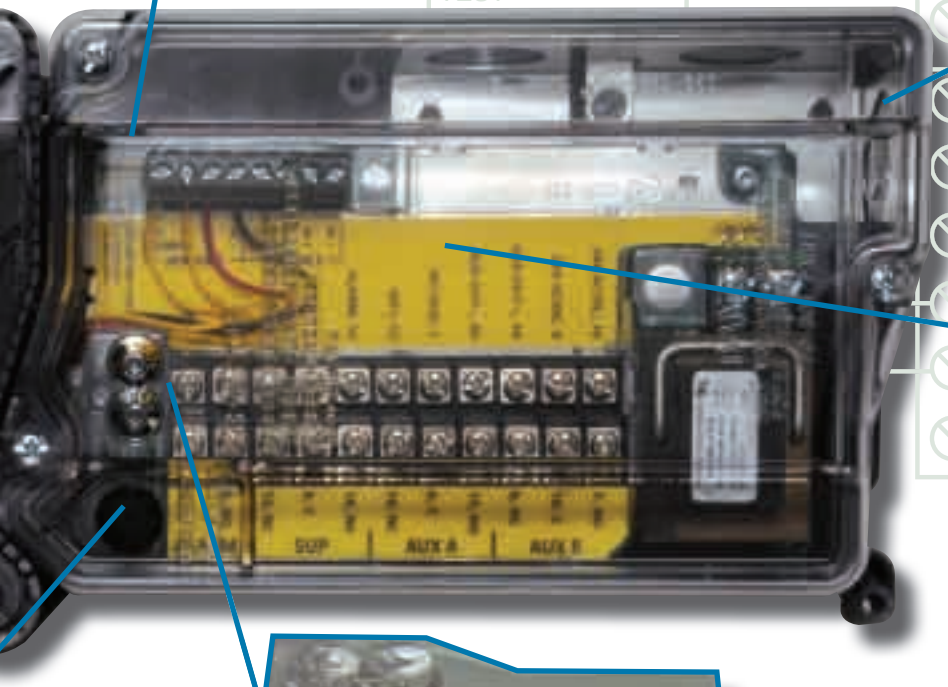
Three field-selectable settings for configuration

- Cover tamper delay option
- Number of sensors to control
- Shut down on trouble option

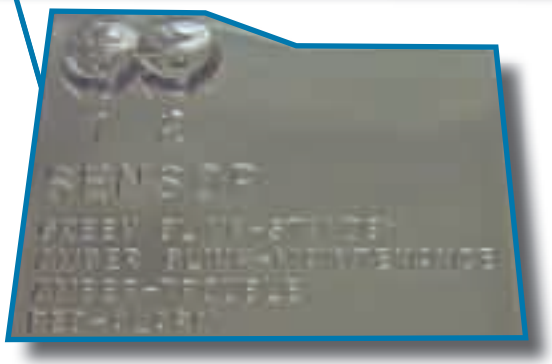
¾" Conduit Knock-Out

½" Conduit Opening

½" Conduit Knock-Out



Increased wiring space and high contrast terminal designations



LED status designation on the transparent cover

D4120, D4P120 & D4S Duct Smoke Detectors

Physical Specifications			
D4120 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		
D4S/D4P120 Size:	7.75 in (19.7cm) Length; 5 in (12.7 cm) Width; 2.5 in (6.35 cm) Depth		
D4120 Weight:	2.5 lbs (1.14 kg)		
D4120 & D4S			
Operating Temperature Range:	–4° to 158°F (–20° to 70°C)		
Storage Temperature Range:	–22° to 158°F (–30° to 70°C)		
D4P120			
Operating Temperature Range:	–40° to 158°F (–40° to 70°C)		
Storage Temperature Range:	–40° to 158°F (–40° to 70°C)		
Operating Humidity Range:	0% to 95% relative humidity non-condensing		
Air Duct Velocity:	100 ft/min to 4000 ft/min (.5 m/sec 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 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@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); ¼ HP @120 VAC ; ½ HP @240 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)		

D2 Duct Smoke Detector

Physical Specifications			
Size: (Rectangular Dimensions) (Square Dimensions)	14.38 in (37 cm) Length X 5 in (12.7 cm) Width X 2.5 in (6.36 cm) Depth 7.75 in (19.7 cm) Length X 9 in (22.9 cm) Width X 2.5 in (6.35 cm) Depth		
Weight:	1.8 lb (0.82 kg)		
Operating Temperature Range:	–4° to 158°F (–20°C 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:	8.5-35 VDC	Alarm response time:	15 sec.
Input capacitance:	0.1 µF max.	Sensitivity Test:	See detector label
Reset voltage:	2.5 VDC min.	Current Requirements (Using No Accessories)	
Reset time (with RTS451):	0.03 to 0.3 sec.	Peak standby current	120 µA
Reset time (by power down):	0.3 sec. max.	Max. standby current	60 µA (average)
Power up time:	35 sec. max.	Max. alarm current	130 mA

D4120W Watertight Duct Smoke Detector

Physical Specifications			
Size: (Rectangular Dimensions) (Square Dimensions)	14.38 in (37 cm) Length; 5 in (12.7 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)		
Environmental Rating:	NEMA4		
Operating Temperature Range:	–4° to 158°F (–20° to 70°C)		
Operating Humidity Range:	0% to 95% relative humidity non-condensing		
Air Duct Velocity:	100 ft/min to 4000 ft/min (.5 m/sec to 20.3 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 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 (resistive); 10A @ 250 VAC (resistive); ½ HP@240VAC; ¼ HP@120VAC		
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)		

DNR/DNRW Duct Smoke Detector

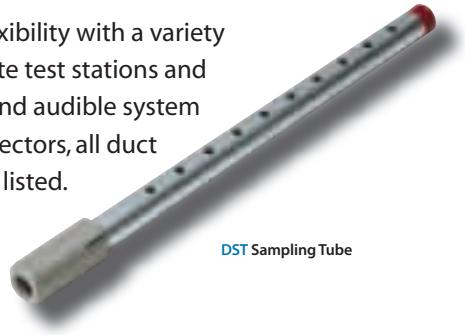
Physical Specifications	
Size: (Rectangular Dimensions) (Square Dimensions)	14.38 in (37 cm) Length; 5. in (12.7 cm) Width; 2.5 in (6.36 cm) Depth 7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth
Weight:	1.6 lb (0.73 kg)
Environmental Rating:	NEMA4 (DNRW only)
Operating Temperature 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 to 20.32 m/s)

NOTE: See detector head installation manual for electrical specifications

Accessories	
D4S	4-wire photoelectric sensor component only
D4P120	4-wire photoelectric power board component only, 24 VAC/DC, 120 VAC
2151	2-wire conventional photoelectric sensor head
2D51	4-wire conventional photoelectric sensor head
DST1	Metal sampling tube duct width up to 1ft (0.3m)
DST1.5	Metal sampling tube duct widths 1 ft to 2 ft (0.3 to 0.6 m)
DST3	Metal sampling tube duct widths 2 ft to 4 ft (0.6 to 1.2 m)
DST5	Metal sampling tube duct widths 4 ft to 8 ft (1.2 to 2.4 m)
DST10	Metal sampling tube duct widths 8 ft to 12 ft (2.4 to 3.7 m)
APA151	Remote annunciator with piezo alarm
DCOIL	2-wire Remote Test Coil (use with RTS451 / RTS451KEY)
DH400OE-1	Weatherproof enclosure
ETX	Metal exhaust tube duct width 1ft (0.3m)
M02-04-00	Test magnet
MHR	Mini Horn, Red
MHW	Mini Horn, White
P48-21-00	End cap for metal sampling tubes
PS12/24SLENSC	Ceiling-mount "SMOKE" lens
PS12/24SLENSW	Wall-mount "SMOKE" lens
PS24LO	Mini-Alert add-on strobe (red)
PS24LOW	Mini-Alert add-on strobe (white)
RA400Z	Remote annunciator alarm LED
RTS451	Remote test station
RTS451KEY	Remote test station with key lock
SSK451	Multi-signaling accessory

The InnovairFlex product line offers the same testing and inspection features to meet any code with existing Innovair 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 detectors, all duct smoke detector accessories are UL listed.



DST Sampling Tube

Accessories

RTS451 UL S2522

RTS451KEY UL S2522

RA400Z UL S2522

MHW UL S4011

APA151 UL S4011

MHR UL S4011

SSK451 UL S2522

SSK451 with PS24LOW strobe and PS12/24 LENSW lens

The Power Behind The Products

System Sensor was founded in 1984 and today is the largest manufacturer of fire detection and notification appliances in the world.

More than 1,900 System Sensor associates collaborate worldwide to build quality products for conventional detection, intelligent detection, audible and visible (AV) notification, heating, ventilation, air conditioning (HVAC) monitoring, and sprinkler systems monitoring. We attribute the demand for our products to our high production standards and strong communication with our customers. Every day we aim to develop advanced ideas that deliver advanced solutions for our customers.

For more information, please call 800-SENSOR2 for a free E•DOCS CD-ROM, a comprehensive resource of technical information, or visit our website at systemsensor.com.

You will find updated agency listing information at systemsensor.com.

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