The System Sensor Innovair™ DH100ACDCLP is a 4-wire photoelectric air duct smoke detector capable of sensing smoke in air velocities from 100 to 4,000 feet per minute (0.5 to 20.32 m/sec). This Innovair features Low-Flow technology that enables duct smoke detection throughout a broad range of airflow environments. Many difficult to solve HVAC applications occur in low airflow duct applications where reliable smoke detection is critical. Innovair with Low-Flow technology can detect smoke at air speed velocities of 100 feet per minute or greater, while continuing the same reliable performance to 4,000 feet per minute.

The two available form C relay contacts provide reliable performance for the management of fans, blowers and air conditioning systems. These HVAC devices can be configured to prevent the spread of toxic smoke and fire gasses through a protected area.

The Innovair family is designed for simplified installation and easy maintenance. The modular construction allows for easy cleaning and uncomplicated field replacement of the UL recognized power and sensor boards. The patented cover missing feature insures the cover is securely tightened following routine cleaning and maintenance. The patented interconnectability feature allows multiple Innovairs to communicate with each other. In the event smoke is detected, the Innovair will signal the remaining interconnected detectors to initiate their relays for smoke control.

**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 and 90A for additional information about the proper application of duct smoke detectors.
The air duct smoke detector shall be a System Sensor Model DH100ACDCCLP Series Duct Smoke Detector. The detector housing shall be UL listed per UL 268A specifically for use in air handling systems. The detector shall operate at air velocities of 100 feet per minute to 4000 feet per minute (0.5 to 20.32 m/sec.). The unit shall be capable of controlling up to ten (10) 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 or remote testing using the SSK451 Multi-Signaling Accessory or the RTS451KEY Remote Test Station. The unit shall be reset by local reset button or remote test station. The duct smoke detector housing shall incorporate an airtight smoke chamber in compliance with UL 268A, Standard for Smoke Detectors for Duct Applications. The housing shall be capable of mounting to either rectangular or round ducts without adapter brackets. An integral filter system shall be included to reduce dust and residue effects on detector and housing, thereby reducing maintenance and servicing. Sampling tubes shall either be telescoping or be easily installed by passing through the duct housing after the housing is mounted to the duct. The unit shall provide a spacial separation of no less than \( \frac{3}{4} \) in. (6.4 mm) and/or a physical barrier between the high and low voltage terminals. The enclosure shall meet all applicable NEC and NFPA standards regarding electrical junction boxes. Terminal connections shall be of the strip and clamp method suitable for 12–18 AWG wiring.

### Architectural/Engineering Specifications

The air duct smoke detector shall be a System Sensor Model DH100ACDCCLP Series Duct Smoke Detector. The detector housing shall be UL listed per UL 268A specifically for use in air handling systems. The detector shall operate at air velocities of 100 feet per minute to 4000 feet per minute (0.5 to 20.32 m/sec.). The unit shall be capable of controlling up to ten (10) 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 or remote testing using the SSK451 Multi-Signaling Accessory or the RTS451KEY Remote Test Station. The unit shall be reset by local reset button or remote test station. The duct smoke detector housing shall incorporate an airtight smoke chamber in compliance with UL 268A, Standard for Smoke Detectors for Duct Applications. The housing shall be capable of mounting to either rectangular or round ducts without adapter brackets. An integral filter system shall be included to reduce dust and residue effects on detector and housing, thereby reducing maintenance and servicing. Sampling tubes shall either be telescoping or be easily installed by passing through the duct housing after the housing is mounted to the duct. The unit shall provide a spacial separation of no less than \( \frac{3}{4} \) in. (6.4 mm) and/or a physical barrier between the high and low voltage terminals. The enclosure shall meet all applicable NEC and NFPA standards regarding electrical junction boxes. Terminal connections shall be of the strip and clamp method suitable for 12–18 AWG wiring.

### System wiring diagram for 4-wire duct smoke detectors

#### Wiring Guide

- **Power Inputs:**
  - 120 VAC 50-60 Hz, or 220/240 VAC 50-60 Hz
  - Power inputs accept 24 VDC, 24 VAC, 120 VAC 50-60 Hz, or 220-240 VAC 50-60 Hz
  - Connect power source to appropriate terminals of each detector.

- **Aux. Contact Ratings:**
  - 10A @ 250 VAC
  - 100mA minimum @ 5 VDC
  - Not intended for connection to control panels.

- **Trouble Contact Rating:**
  - 2.0 A @ 30 VDC resistive

#### Specifications

- **Size:**
  - 14¼" (37 cm.) Length
  - 5¾" (14 cm.) Width
  - 2¾" (7 cm.) Depth

- **Shipping Weight:**
  - 3½ lbs. (1.7 kg.)

- **Operating Temperature Range:**
  - 32° to 131°F (0° to 55°C)

- **Storage Temperature Range:**
  - -22° to +158°F (−30° to +70°C)

- **Operating Humidity Range:**
  - 10% to 93% relative humidity non-condensing

- **Air Duct Velocity:**
  - 100 to 4000 ft./min. (0.5 to 20.32 m/sec.)
### Electrical Ratings – DH100ACDCLP (Includes Detector)

- **Power supply voltage:** 20-29 VDC, 24 VAC 50-60 Hz, 120 VAC 50-60 Hz, 220/240 VAC 50-60 Hz
- **Input capacitance:** 270 µF max.
- **Reset voltage:** 3.0 VDC min., 2.0 VAC min., 10 VAC min., 20 VAC min.
- **Reset time (with RTS451):** 0.03 to 0.3 sec.
- **Reset time (by power down):** 0.03 to 0.3 sec.
- **Power up time:** 0.03 to 0.3 sec.
- **Alarm response time:** 2 to 17 sec.
- **Reset voltage (with RTS451):** 3.0 VDC min., 2.0 VAC min., 10 VAC min., 20 VAC min.
- **Reset time (by power down):** 0.03 to 0.3 sec.
- **Power up time:** 0.03 to 0.3 sec.
- **Alarm response time:** 2 to 17 sec.

#### Power Supply Voltage

- 20 - 29 VDC
- 24 VAC 50 - 60 Hz
- 120 VAC 50 - 60 Hz
- 220/240 VAC 50 - 60 Hz

#### Current Requirements (Using No Accessories)

- **Max. standby current:** 15 mA
- **Max. alarm current:** 70 mA

#### Contact Ratings

- **Alarm initiation contacts (SPST):** 2.0A @ 30 VAC/DC (0.6 power factor)
- **Alarm auxiliary contacts (DPDT):** 10A @ 30 VDC, 10A @ 250 VAC

#### Sensitivity Test

- See detector label

### Wiring Diagrams for Optional Accessories

- **APA451**
- **PA400**
- **RA400Z**
- **RTS451/RTS451KEY**
- **SSK451**

#### Important Interconnect Notes

- When using the interconnect feature, all interconnected units must be powered with the same, independent supply.
- Polarity must be maintained throughout the interconnect wiring. Connect terminal 12 on unit 1 to terminal 12 on unit 2 and so on. Similarly, connect terminal 1 on unit 1 to terminal 1 on unit 2 and so on.

### Wiring Diagrams for Interconnect Feature

- **DH100ACDCLP to APA451**
- **DH100ACDCLP to RTS451/RTS451KEY and interconnect feature**

### Coil Note:

Please note that the magnetic coil supplied with the RTS451/RTS451KEY is not required when these accessories are used with the DH100 detectors. The functionality of the magnetic coil has been designed into the circuitry of the Innovair duct smoke detectors.
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.

Accessories

System Sensor Sales and Service

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