

# D350PL(A), D350RPL(A)

## Intelligent Low-Flow Photoelectric Duct Smoke Detectors



Addressable Devices

### General

Fire-Lite D350PL(A) and D350RPL(A) Intelligent Photoelectric Smoke Duct Detectors provide **low-flow** technology that enables duct smoke detection throughout a broad range of air-flow environments in HVAC applications. The low-flow technology can detect smoke at air speed velocities of 100 feet per minute (0.5 m/sec) or greater, while continuing the same reliable performance to 4,000 feet per minute (20.32 m/sec). The intelligent low-flow duct detectors sample air currents passing through a duct and gives dependable performance for shutdown of fans, blowers, and air conditioning systems, preventing the spread of toxic smoke and fire gases through the protected area.

D350PL(A) and D350RPL(A) are compatible with all Fire-Lite addressable panels. D350PL(A) and D350RPL(A) provide a remote alarm output for use with auxiliary devices, such as the RA400Z(A) remote LED annunciator, as well as remote test capability with the RTS451(A) or RTS451KEY(A) Remote Test Stations.

### Applications

Duct smoke detectors have specific limitations, they are:

- **NOT** a substitute for open area smoke detectors.
- **NOT** a substitute for early warning detection.
- **NOT** a replacement for a building's regular fire detection system.

Please call Fire-Lite for a copy of System Sensor's application guide, *Proper Use of Smoke Detectors in Duct Applications*, (A05-1004-00).

### Features

- Air velocity rating from 100 to 4,000 feet per minute (0.5 to 20.32 m/sec).
- Patented telescopic sampling tube.
- Easily accessible code wheels for addressing detector.
- Outside mounting tabs.
- Mounts to round or rectangular ducts from 1' to 12' (0.3 to 3.7 meters) wide.
- Transparent cover for convenient visual inspection.

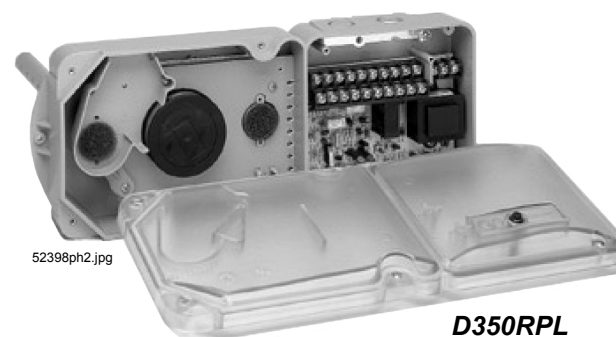
### Installation

Refer to installation manuals for control panel and duct detector for detailed information or to install equipment. Installation manuals for detectors: I56-1975-003R for D350PL(A), I56-1974-004R for D350RPL(A).

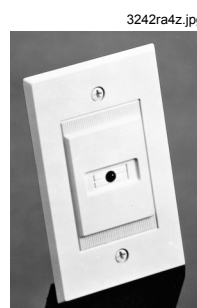
**Wiring:** For signal wiring (the wiring between detectors or from detectors to auxiliary devices), it is recommended that single conductor wire be no smaller than 18 AWG (0.821 mm<sup>2</sup>). The duct smoke detector terminals accommodate wire sizes up to 12 AWG (3.31 mm<sup>2</sup>). Flexible conduit is recommended for the last foot (30.48 cm) of conduit; solid conduit connections may be used if desired.



D350PL



D350RPL



RA400Z



RTS451



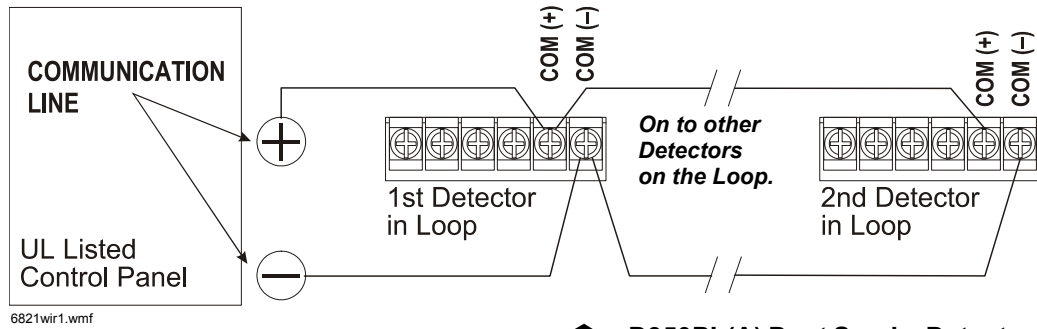
RTS451KEY

Smoke detectors and alarm system control panels have specifications for Signaling Line Circuit (SLC) wiring. Consult the control panel specifications for wiring requirements before wiring the detector loop. The D350PL(A) and D350RPL(A) detectors are designed for ease of wiring; their housing provides a terminal strip with clamping plates.

**LED Features:** If programmed with the system control panel, two LEDs on each duct smoke detector light to provide local visible indication.

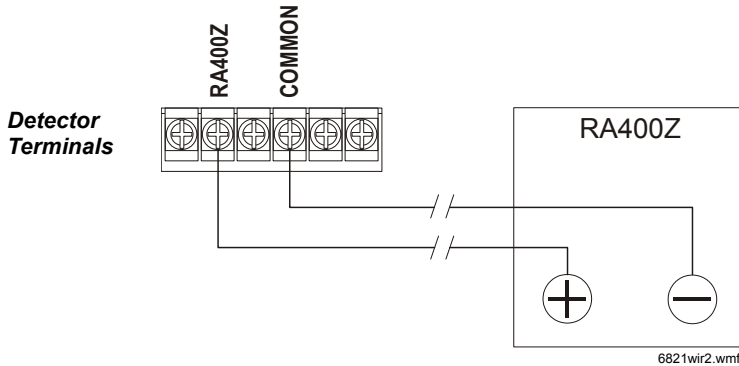
**Programming specifications/requirements for intelligent system control panels:** The number of devices that can have their LEDs programmed to illuminate is limited by the features of the panel and the individual devices. The actual number of devices is determined by the control panel and its ability to supply LED current. Refer to the control panel installation manual for details.

## Wiring Diagrams for D350PL(A)



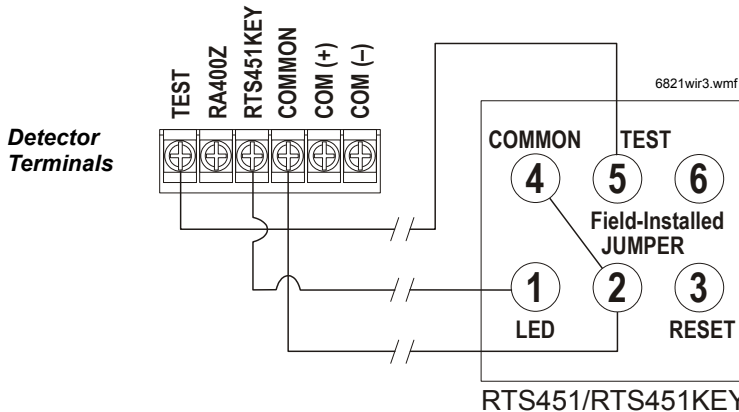
6821wir1.wmf

**D350PL(A) Duct Smoke Detector using a UL or ULC Listed control panel.**



6821wir2.wmf

**D350PL(A) Duct Smoke Detector with an optional RA400Z(A).**



6821wir3.wmf

**D350PL(A) Duct Smoke Detector with RTS451(A)/RTS451KEY(A).**

**NOTE:** For RTS451(A), Terminal 3 is not used. RTS451(A) does not have a Terminal 6. For RTS451KEY(A), Terminals 3 and 6 are not used.

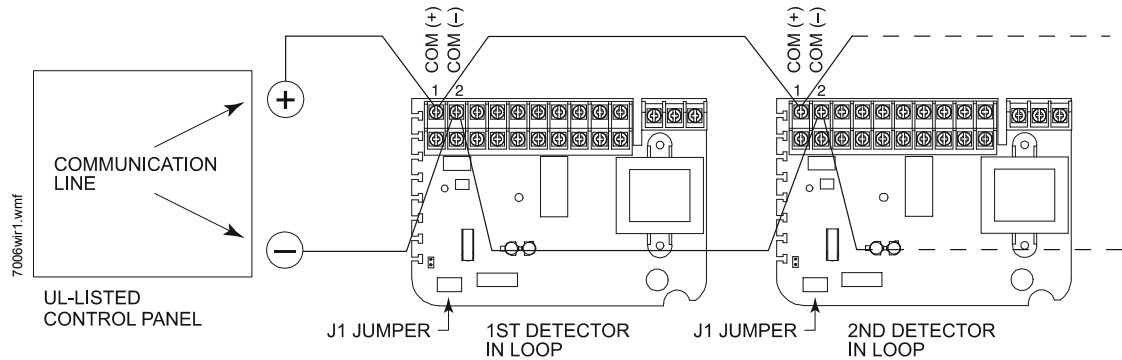
### Inlet Tube Selection

Outside Duct Width	Inlet Tube*
Up to 2 feet (0.6096 m)	ST-1.5(A)
2 to 4 feet (0.6096 to 1.2192 m)	ST-3(A)
4 to 8 feet (1.2192 to 2.4384 m)	ST-5(A)
8 to 12 feet (2.4384 to 3.6576 m)	ST-10(A)

\*Inlet tube is required and must be purchased separately. Order One inlet tube for each duct smoke detector ordered.

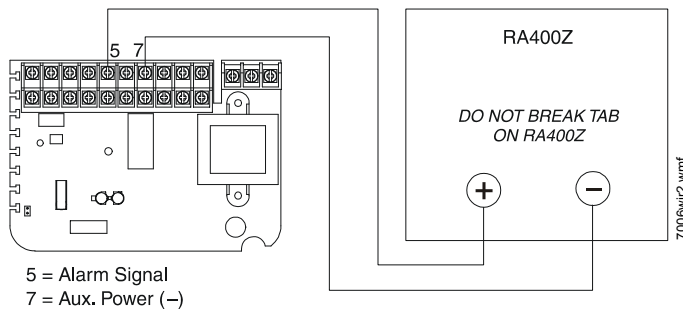
## Wiring Diagrams for D350RPL(A)

### D350RPL(A) Duct Smoke Detector using a UL-Listed control panel:

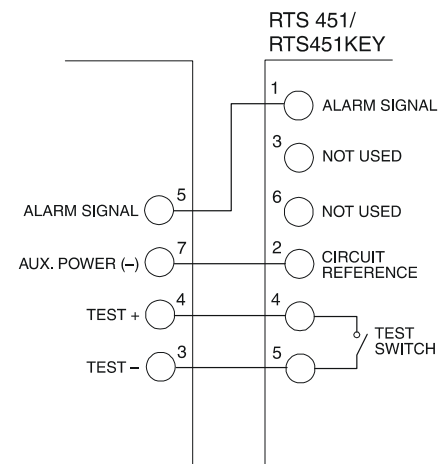


**NOTE: 1) Jumper J1 shunt must be installed for 2-W applications. J1 shunt must be removed for power PCB supervision. Note that removal of shunt without adding external power will prevent communications to the panel over the SLC. 2) External power of 24 V AC/DC or 120/220 VAC must be connected in order to power all remote horn or strobe accessories.**

### D350RPL(A) Duct Smoke Detector with an optional RA400Z(A):



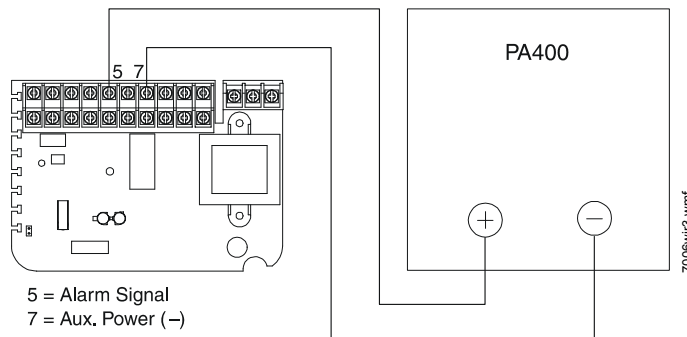
### D350RPL(A) Duct Smoke Detector with RTS451(A)/RTS451KEY(A):



FOR RTS451, TERMINAL 3 IS NOT USED.  
(RTS451 DOES NOT HAVE A TERMINAL 6.)  
FOR RTS451KEY, TERMINALS 3 AND 6 ARE NOT USED.

7006wir4.wmf

### D350RPL(A) Duct Smoke Detector with an optional PA400:



## Product Line Information

**NOTE:** "A" model suffix is for Canadian models.

**D350PL:** Addressable low-flow duct detector housing with photoelectric smoke detector.

**D350PLA:** Same as above with ULC listing.

**D350RPL:** Addressable low-flow duct detector housing with photoelectric smoke detector with DPDT relay.

**D350RPLA:** Same as above with ULC listing.

**A5053FL:** Replacement photoelectric sensor board.

**A5067:** Replacement power board (without relay).

**A5060:** Replacement power board (with relay).

**ST-1.5(A):** Metal sampling tube, duct widths 1' to 2' (see *Inlet Tube Selection table on page 2 for metric lengths*).

**ST-3(A):** Metal sampling tube, duct widths 2' to 4'.

**ST-5(A):** Metal sampling tube, duct widths 4' to 8'.

**ST-10(A):** Metal sampling tube, duct widths 8' to 12'.

**RA400Z(A):** Remote annunciator alarm LED.

**RTS451(A):** Remote test station. Mounts in single-gang box. Includes red alarm LED and magnet test switch.

**RTS451KEY(A):** Key-activated remote test station.

**F36-09-11:** Replacement filters.

**M02-04-00:** Test magnet.

**M02-09-00:** Test magnet with telescoping handle.

**S08-39-01:** Replacement photo insect screen.

**P48-61-00:** Replacement end cap for plastic sampling tube.

**P48-21-00:** Replacement end cap for metal sampling tube.

**T80-71-00:** Replacement plastic sampling tube.

## Specifications

### FOR D350PL(A)

**Operating voltage range:** 15 to 30 VDC.

**Standby current:** 300  $\mu$ A @ 24 VDC (one communication every 5 seconds with LED blink enabled).

**Operating temperature range:** 32° to 131°F (0° to 55°C).

**Operating humidity range:** 10% to 93% relative humidity (non-condensing).

**Storage temperature range:** -22°F to +158°F (-30°C to +70°C).

**Duct air velocity:** 100 to 4,000 feet/min (0.5 to 20.32 m/s).

**Shipping weight:** 3.35 lbs. (1.5 kg).

**Dimensions:** 14.75" (37 cm) length x 5.50" (14 cm) width x 2.75" (7 cm) deep.

**D350PL(A) accessory current loads @ 24 VDC:** **RA400Z(A):** 0 mA standby, 10 mA maximum in alarm. **RTS451(A) and RTS451KEY(A):** 0 mA standby, 7.5 mA maximum in alarm.

### FOR D350RPL(A)

**Operating voltage range:** 20 to 30 VDC, 24 VAC/VDC, 120/240 VAC auxiliary power (requires a separate auxiliary source).

**Standby current:** 300  $\mu$ A @ 24 VDC (one communication every 5 seconds with LED blink enabled).

**Operating temperature range:** 32° to 131°F (0° to 55°C).

**Operating humidity range:** 10% to 93% relative humidity (non-condensing).

**Storage temperature range:** -22°F to +158°F (-30°C to +70°C).

**Duct air velocity:** 100 to 4,000 feet/min (0.5 to 20.32 m/s).

**Shipping weight:** 3.90 lbs. (1.8 kg).

**Dimensions:** 14.75" (37 cm) length x 5.50" (14 cm) width x 2.75" (7 cm) deep.

## D350RPL(A) CONTACT RATINGS

**Alarm auxiliary contacts (DPDT):** 10 A @ 30 VDC; 10 A @ 277 VAC (0.75 power factor); 240 VA @ 249 VAC (0.4 power factor); 1/8 HP @ 120 VAC; 1/4 HP @ 240 VAC.

**Minimum switching current for auxiliary contact** must be 100 mA DC minimum @ 5 VDC.

**Supervisory contact (SPST):** 2.0 A @ 30 VDC (resistive).

**D350RPL(A) accessory current loads @ 24 VDC:** **PA400:** refer to PA400 data sheet DF-50727. **RA400Z(A):** 0 mA standby, 12 mA maximum in alarm. **RTS451(A) and RTS451KEY(A):** 0 mA standby, 10 mA maximum in alarm.

## D350RPL(A) CURRENT REQUIREMENTS (USING NO ACCESSORIES)

**20 – 30 VDC power supply voltage:** 26 mA maximum standby current; 87 mA maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

**24 VAC, 50/60 Hz power supply voltage:** 65 mA RMS maximum standby current; 182 mA RMS maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

**120 VAC, 50/60 Hz power supply voltage:** 44 mA RMS maximum standby current; 52 mA RMS maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

**220/240 VAC, 50/60 Hz power supply voltage:** 25 mA RMS maximum standby current; 30 mA RMS maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

## Agency Listings and Approvals

The listings and approvals below apply to D350PL(A) and D350RPL(A) Intelligent Low-Flow Photoelectric Smoke Duct Detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL** Listed: file S1059 (*D350PL, D350RPL*).
- **ULC** Listed: file CS6963 (*D350PLA, D350RPLA*).
- **CSFM** approved: file 3240-0075:196.
- **FM** approved.
- **MEA** approved: file 320-02-E2 (*D350RPL*).
- **Maryland State Fire Marshal** approved: Permit #2144.

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All specifications are subject to change without notice.

For more information, contact Fire-Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.  
[www.firelite.com](http://www.firelite.com)