

# D281A Ionization Smoke Detector

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The D281A Ionization Smoke Detector is UL Listed. It detects smoke particles while tolerating conditions of extreme humidity, temperature, vibration, and electromagnetic interference. Use the D281A Detector in applications such as plenum areas or raised compartments beneath floors.

## System overview

The D281A Ionization Smoke Detector uses current flowing in the ionized chamber to measure smoke particle levels. When the difference in current between the two chambers exceeds the alarm threshold, the D281A Detector signals an alarm.

## Functions

### Dual Chamber Design

The D281A Detector has an inner chamber and an outer chamber. The inner chamber is sealed and provides a controlled current measurement. The outer chamber has a screen that filters out dust and deters insects while still allowing smoke particles to enter. An increase in smoke particles causes a decrease in current. The current measurement in the outer chamber fluctuates according to the volume of smoke particles.

- ▶ Removable, non-polarized, 24 VDC head is easy to install, clean, and service
- ▶ Compatible with assorted low-profile, tamper-resistant, two-wire and four-wire bases
- ▶ Dual chamber design

### Magnet and Reed Switch Test

The D281A Detector has a moisture-resistant reed switch. Applying a magnet to the detector causes the contacts in the reed switch to pull together, complete the electrical circuit, and result in an alarm. The magnet and reed switch test simulates a four to six percent smoke concentration. The test is useful for testing detectors located in environmentally unstable or clean areas.

### Indicators

The detector has two light emitting diodes (LEDs).

- Flashing green light: power is applied
- Steady red light: alarm signal

## Certifications and approvals

Region	Certification	
USA	UL	UROX_S4992 - Smoke-Automatic Fire Detectors
	CSFM	7271-1615-0120
Hong Kong	HKFSD	HKFSD D281A D282A D283A D265AW D282A-DH

## Installation/configuration notes

### Compatibility Information

24 VDC Bases	D250A <sup>1</sup> Two-wire Detector Base D280A Two-Wire Detector Base D290 Four-Wire Detector Base D291M Master Addressable Detector Base D291S Addressable Detector Base
Bosch	D9124 Addressable FACP
Fire Alarm	D7024 Conventional FACP
Control Panels	D7022 Conventional FACP

<sup>1</sup> The D281A can be used in the D250A base with the Bosch control panels listed here. The combination of a D281A in a D250A base can be used in a slave circuit to a D291M base and is UL compatibility listed with the POPIT bus control panels.

### Installation

The detector base contains the wiring. Attach and wire the base on a back box. To attach the head, align the detector head with the base and turn clockwise. Turn the detector head counterclockwise to detach it for service or cleaning. Detaching the head does not affect the wiring. Use a hex key to tighten the tamper screw. Install, test, and maintain the detector according to the NFPA 72, local codes, and the authority having jurisdiction. Failure to follow these procedures might result in failure of the detector to initiate an alarm condition.

## Parts included

Quant.	Component
1	Ionization smoke detector
1	Hardware pack
1	Literature pack

## Technical specifications

### Environmental Considerations

Relative Humidity:	95% maximum
Temperature (ambient):	+32°F to +120°F (0°C to +49°C)

### Mechanical Properties

Color:	White
Height:	1.5 in. (3.8 cm)
<b>Diameter:</b>	
Base:	6 in. (15.2 cm)
Head:	4 in. (10.2 cm)

## Power Requirements

### Current

Alarm:	0.15 A maximum at 24 VDC
Standby:	0.04 mA
Surge:	0.2 mA

### Voltage

Working (two-wire):	15 VDC to 33 VDC
Rated (four-wire):	17.7 VDC to 30 VDC

## Ordering information

### D281A Ionization Smoke Detector

Detects smoke particles while tolerating conditions of extreme humidity, temperature, vibration, and electromagnetic interference

Order number **D281A**

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