

D282A/D283A Photoelectric Smoke Detector Heads

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- ▶ 24 VDC input
- ▶ Mounts on low-profile base
- ▶ Easy head removal for cleaning and servicing
- ▶ Two-wire and four-wire base options
- ▶ Flashing Power-On LED

The D282A and D283A detectors detect the large smoke particles which typically result from wood, paper, and fabric combustion. The D283A is a smoke detector that also has a +135°F (+57°C) fixed temperature heat sensor. Use in areas where the ambient temperature does not exceed +100°F (+38°C). These detectors are compatible with 24 VDC circuits.

These detectors have two components: the detector base and the detector head. The base is permanently attached and wired to a back box. The interchangeable heads quickly detach for replacement and cleaning without affecting circuit wiring.

Functions

Detection chamber operation

The D282A and D283A Smoke Detectors use an infrared (IR) LED light source and a silicon photodiode to measure light in a chamber. In normal conditions the light is absorbed in the chamber. The presence of a significant number of particulates reflects the light to the photodiode. After two consecutive measurements exceeding the basic level, the unit

signals an alarm condition. The detector can be reset from the control panel, after an alarm condition clears, by interrupting power.

The detection chamber, designed for reliable smoke entry characteristics, is protected by a micro-fine insect screen to reduce dust accumulation and insect penetration and minimize nuisance alarms.

Internal diagnostic test

These heads have moisture-proof reed switches that react to an external magnet for testing. The magnet test simulates a 4% to 6% smoke obscuration that places the detector in an alarm condition. This test results in specific LED and alarm circuit responses indicating the:

- detector is within calibration standards
- detector settings are outside sensitivity standards
- detector is not operational

This test is especially useful in environmentally unstable or unclean areas.

LEDs

The D282A and D283A have two built-in bicolor LEDs that flash once every 3 sec:

- Green indicates the device is within calibration standards
- Red indicates the detector is outside its sensitivity limits

The LEDs latch on steady red in an alarm condition.

Certifications and approvals

Region	Certification	
USA	UL	UROC: Smoke - Automatic Fire Detectors (UL268 and A)
	CSFM	see our website
Hong Kong	HKFSD	J-005/C/026

Installation/configuration notes



Notice

Smoke detectors are intended for detection circuits that protect people. Heat detectors are appropriate for circuits that protect property.

Compatibility Information

24 VDC Bases	D250A ¹ Two-wire Detector Base
	D280A Two-Wire Detector Base
	D290 Four-Wire Detector Base
	D291M Master Addressable Detector Base
	D291S Addressable Detector Base
Bosch Fire Alarm Control Panels	D7022 Conventional FACP
	D7024 Conventional FACP
	D7024-EXP Conventional FACP for export

¹ The D282A or D283A can be used in the D250A base with the Bosch control panels listed here. The combination of a D282A or a D283A 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.

Mounting Considerations

The D282A Smoke Detector Head and D283A Smoke and Heat Detector Head are parts of a compound device. The detector base installs over a standard four-inch back box and contains all the wiring. The detector head attaches to the base by aligning the head with the base and turning it clockwise. No tools are required for installation other than the hex key used to tighten the tamper screw.

Wiring Considerations

Refer to the installation instructions for the specific base for detailed wiring requirements.

Parts included

Quant.	Component
1	Detector head
1	Dust cover

Technical specifications

Environmental Considerations

Relative Humidity:	Up to 93%, non-condensing
Temperature (operating):	+32°F to +100°F (0°C to +38°C)

Mechanical Properties

Color:	Bone white
Material:	PC/ABS blend (polycarbonate/polyacrylonitrile butadiene styrene)

Power Requirements

Current (alarm):	Depends on detector base; refer to pertinent base specifications
Current (start-up):	0.16 mA maximum at 24 VDC
Current (supervisory):	0.045 mA at 24 VDC
Voltage (input):	24 VDC nominal; Two-wire: 15 VDC to 33 VDC Four-wire: 17.7 VDC to 33 VDC

Ordering information

D282A 24 VDC Smoke Detector Head

Photoelectric smoke detector head; requires base. Order number **D282A**

D283A 24 VDC Smoke/Heat Detector Head

Photoelectric smoke detector head with a +135°F (+57°C) fixed temperature heat sensor; requires base. Order number **D283A**

Accessories

D294 Power Supervision Module

Line supervision device for detection circuits. Order number **D294**

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