FAP-440 Dual Ray Detectors

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Invented for life

- ▶ Dual Ray Technology provides better particle size differentiation resulting in fewer false alarms
- ▶ Smoke threshold is adjustable and automatically compensated
- ▶ Rotary switch addressing
- ▶ Flexible work modes determined by the control panel
- ▶ Selectable base locking mechanism prevents malicious removal of the detector

The FAP-440 Dual Ray Detectors are open-area smoke detectors of which some models are enhanced with heat or heat and CO sensors. These detectors work with the FPA-1000 Analog Addressable Fire Panels. Use the detector with the FAA-440 bases to provide general life safety and property protection.

Functions

Address Range
The FAP-440 Dual Ray Detectors have a valid address range from 1 to 254 which is set by rotary switches on the back of the detector.

Indicator LED
The detector head has a multi-color LED to indicate status. To verify power to the detector and functioning communication of the analog addressable loop, the LED indicator flashes green when operating normally (polling). Through panel parameter setting, it is possible to turn on or off operation of the polling indicator. In the event of an alarm condition, the detector LED will always show a steady red light.

Modular Construction
The FAP-440 Dual Ray Detectors are part of a two-piece modular design for detector assemblies. An FAP-440 Dual Ray Detector attaches to an FAA-440

Series Analog Base. The base's security locking tab prevents any unauthorized detector removal from the base.

Advanced technology for false alarm reduction
Dual ray technology: The detector contains two emitters operating at different wavelengths. The different wavelengths enable better differentiation of particle sizes to distinguish smoke particles from other particles that may be present. This results in fewer false alarms due to dust, water vapor, or cigarette smoke.
Multi-sensor detector: The multi-sensor detector contains a photoelectric smoke sensor and a heat sensor. Either sensor can detect a fire and activate an alarm signal. The smoke threshold is adjustable (see Sensitivity Calibration and Compensation below) while the heat sensor's threshold is set at 135°F.
Multi-criteria detector: The multi-criteria detector also contains smoke and heat sensors that work independently of each other, but in conjunction with the CO sensor. In this model, an alarm signal will be activated by either one or both of the sensors only if the CO level is also exceeded.

i **Notice**

Carbon monoxide sensors:

Detectors that contain carbon monoxide (CO) sensors must not be used as stand-alone CO detectors. The CO sensor is supplied to confirm the presence of CO as a by-product of combustion thereby reducing false alarms, but not to confirm the presence of CO as a hazardous gas.

Programming

Local programming is carried out at the panel keypad or by computer through a Web browser. Remote programming is carried out through a Web browser.

Sensitivity Calibration and Compensation

The sensitivity of the smoke sensor is programmable with 12 levels from which to choose. Throughout its normal life cycle, the smoke detector monitors itself against its factory calibrated level and periodically compensates itself to keep the sensitivity at its programmed level. When the detector is excessively contaminated, this condition will be annunciated at the control panel.

Certifications and approvals

Region	Certification	
USA	UL	UROX Smoke-automatic Fire Detectors (ANSI/UL 268)
	CSFM	see our website

Installation/configuration notes

Compatible Products

The following products are compatible with the FAP-440 Dual Ray Detectors:

Category	Product ID	Product Description
Fire Panels	FPA-1000 Series	Analog Addressable Fire Panels
Fire Panel Accessories	FPE-1000-SLC	Signaling Line Circuit Plug-in Module
Detector Bases	FAA-440-B4	4-inch Analog Standard Base
	FAA-440-B6	6-inch Analog Standard Base
	FAA-440-B4-ISO	4-inch Analog Isolator Base
	FAA-440-B6-ISO	6-inch Analog Isolator Base

Mounting Considerations

Detectors are typically mounted on the ceiling. However, if detectors are mounted on a wall, they must be at least 4 in. (10.2 cm), but no more than 12 in. (30.5 cm), below the ceiling. When other devices containing magnets or producing magnetic fields (for example, loudspeakers) are present in the area, the base must be at least 1 ft (30 cm) from these devices to prevent unwanted activation of the test switch.

For UL Listing requirements, the spacing between smoke detectors should be no more than 30 ft (9.14 m).

Wiring Considerations

The control panel communicates to the detectors via the analog addressable loop, which allows the use of standard non-twisted, non-shielded wiring for the SLCs.

The following wire gauges were tested and approved:

Wire Gauge	Maximum length
18 AWG (ISO 0.75 mm^2)	4000 ft (1200 m)
16 AWG (ISO 1.5 mm^2)	6225 ft (1900 m)
14 AWG (ISO 2.5 mm^2)	7200 ft (2200 m)
12 AWG (ISO 4 mm^2)	9850 ft (3000 m)

Remote Indicator

If a remote indicator is used in the circuit, it must be no more than 10 ft (3 m) from the base.

Parts included

Quant.	Component
1	FAP-440-D/-DT/-DTC Dual Ray Detector
1	Dust cover

Technical specifications

Electrical

Maximum current consumption at 77°F (25°C) and 39 V bus voltage	
• Standby	0.17 mA
• Alarm	5 mA
• When polled	22 mA ± 20%
Operating voltage (SLC loop):	24 V DC to 41 V DC
Maximum allowable line resistance:	50 Ω

Environmental

Protection category:	IP 42
Relative Humidity:	< 95% (non-condensing)
• Installation temperature:	+32°F to +100°F (0°C to +38°C)
Storage temperatures	
• With CO sensor:	+14°F to +122°F (-10°C to +50°C)
• Without CO sensor:	-13°F to +176°F (-25°C to +80°C)

Mechanical

Dimensions	
• Detector:	4.4 in. x 2.0 in. (11.2 cm x 5.1 cm)
• Detector in 4-inch base:	5.0 in. x 2.5 in. (12.7 cm x 6.4 cm)
• Detector in 6-inch base:	7.0 in. x 2.5 in. (17.8 cm x 6.4 cm)
Housing Material:	CYCOLOY/ABS

Sensor

Airflow:	4000 ft/min (20 m/s) maximum

Sensitivities	
• Smoke sensor:	1.25%/ft to 3.5%/ft (4.1%/m to 11.48%/m)
• Heat sensor:	+135ºF (+57ºC) + RoR

Trademarks
All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Ordering information

FAP-440-D Analog Dual-Photoelectric Detector
Order number **FAP-440-D**

FAP-440-DT Analog Multisensor Detector Dual-Photo/ Heat
Order number **FAP-440-DT**

FAP-440-DTC Analog Multicriteria Detector Dual-Photo/ Heat/CO
Order number **FAP-440-DTC**