Explosionproof Smoke Detector

Model 30-3013

Description

Model 30-3013 detectors are high performance smoke detectors built for use in hazardous locations. They are corrosion-resistant and feature a non-conducting aluminum alloy retaining ring that protects the detector sensor against the effects of explosions and other catastrophic events.

The retaining ring mounts securely to a companion junction box, which offers several common port configurations for conduit connection. Together, the ring and box provide a sturdy protective shell for the detector head.

The 30-3013's advanced optical detector performs effectively with slow-burning smoldering fires, as well as quickly rising flames. The sensor module is hot-swappable and intrinsically safe while powered. This allows maintenance work to be performed without having to declassify the protected area as a hazardous location.

An integrated Trouble relay ensures that the 30-3013 detector always performs as expected. On-board Alarm and Auxiliary relays integrate easily with EDWARDS fire systems, as well as auxiliary equipment such as dampers and door closers.

Standard Features

- High performance optical smoke detection
- Built-in 0-20 mA output for easy Distributed Control System (DCS) integration
- Self diagnostics for reliable operation
- Alarm, Auxiliary, and Trouble relays for annunciator and control panel connection
- On-board LED provides local annunciation
- Non-latching operation
- Convenient magnetic switch for manual testing
- FM Approved for smoke detection in Class I, Division 1 hazardous locations
- IECEx Zone approved
- IP44 ingress protection level suitable for onshore or offshore requirements

Application 1

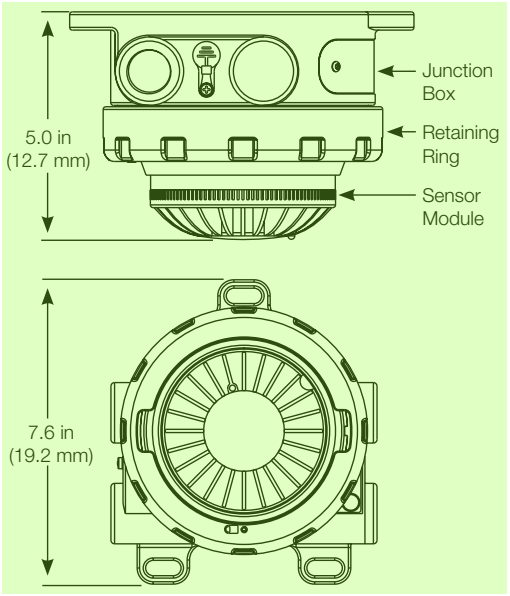
The 30-3013 Explosionproof Smoke Detector features a rugged design built to withstand environmental extremes. Its integrated milliamp outputs make it ideal for a wide range of industrial applications, while its agency approval ratings make it suitable for both on-shore and off-shore facilities. 2

Typical applications for the 30-3013 Explosionproof Smoke Detector include: 3

- Combustible storage facilities 4
- Munitions manufacturing
- Volatile chemical storage
- Chemical processing plants
- Petroleum refineries
- Turbine enclosures
- Battery rooms
- HVAC applications

Installation 5

All external wiring to the device is connected inside the integrated junction box. The 30-3013 has ports for up to four conduit entries. Each port accepts conduit with 3/4 inch NPT. 6



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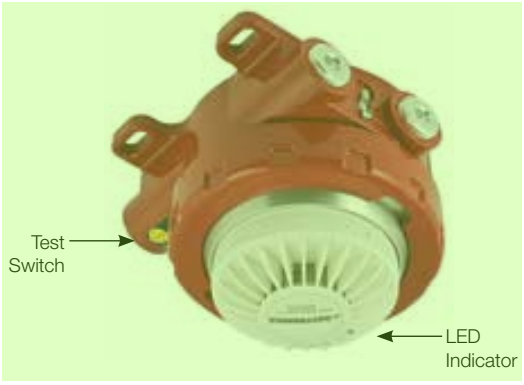
Operation 8

LED Indication 9

An LED located on the 30-3013 annunciates detector status. When operating normally, the LED flashes every four seconds. When the device is in alarm, it is steady on. 10

Non-latching operation 11

The detector will check the alarm status once every 10 seconds. When smoke falls below the alarm threshold, the alarm condition will clear within 10 seconds. 12



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Testing and Maintenance 14

Self Diagnostics 15

During normal operation, the detector performs a self-test function automatically in the background once per second. Detection is not interrupted during the test, and no indication is given if the test passed. If the test fails, a Critical Fault condition will occur. If sensitivity drift is found to be approaching critical levels, an Advisory Fault condition will occur. 16

Manual Testing 17

An on-board magnetic switch is used to initiate the Manual Self-Test. The LED will light when a magnet is detected at the switch. This test will immediately check the smoke chamber optics for sensitivity degradation. 18

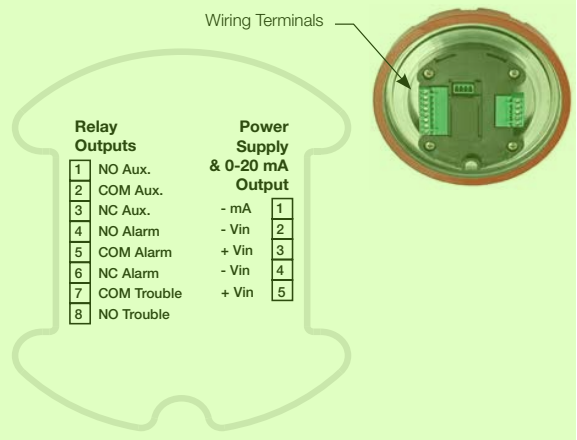
If there is a failure, the LED will shut off immediately after the one second test, and a Trouble condition will occur. If the test passes, an Alarm will be annunciated while the LED remains active. The alarm will clear after 10 seconds. 19

Wiring 1

Use proper temperature rated cabling type and diameter for input power as well as output signal wiring. Terminals accept 14 to 18 AWG shielded stranded copper wire. 2

The field wiring terminal connections are certified for a single wire in size from 0.2 to 2.5 mm^2 (or two conductors with the same cross section 0.2 to 0.75 mm^2). The screws must be tightened down with a torque 0.4 to 0.5 N•m. The metal housing must be electrically grounded. 3

A minimum of 12 Vdc must be present at the 30-3013 to ensure proper operation. The maximum cable length from power source to 30-3013 is 2,000 feet (610 m). When the 30-3013 Smoke Detector is mounted remotely using an STB termination box, maximum cable length from 30-3013 to STB is 500 feet (152 m). 4



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Specifications 6

Operating Voltage	12-30 Vdc (24 Vdc nominal)
Power Consumption	3.5 watts maximum (2.75 watts at 24 Vdc)
Smoke alarm relay	Form C, 5 amperes at 30 Vdc: normally open/normally closed contacts and normally deenergized operation.
Trouble relay	Form A, 5 amperes at 30 Vdc: normally open contacts and normally energized operation.
Auxiliary relay	Form C, 5 amperes at 30 Vdc: normally open/ normally closed contacts and normally de-energized operation.
Temperature Range	Operating: –20°C to +65°C (–4°F to +149°F) Storage: –55°C to +70°C (–67°F to +158°F)
Humidity Range	5 to 95% relative humidity.
Ingress Protection	IP44 (ceiling mount application only)
Current Output	0-20 mA (±0.3 mA) dc current, with maximum loop resistance of 300 ohms from 12-17.9 Vdc, 500 ohms from 18 to 19.9 Vdc, and 600 ohms.
Terminals	Rated for 14-18 AWG or 2.5-0.75 mm^2 wire.
Thread Options	3/4 inch NPT or M25
Enclosure Material	Detector: Polycarbonate/ABS Junction Box: Copper-free aluminum (painted)
FM Approvals	Class I Div 1 Groups B, C, D T4 Class I Div 2 Groups A, B, C, D T4 Class I Zone 1 AEX db ia IIC T4 Gb Tamb –20°C to +65°C IP44
IECEx Approvals	IECEx FMG15.0014X Ex db ia IIC T4 Gb Tamb –20°C to +65°C IP44

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Ordering Information 8

Model	Description	Shipping Weight
30-3013A1N12F	Explosionproof Smoke Detector	7.85 lbs (3.56 kg)

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