

Description

The Harding Series 21 analog addressable photoelectric detector (DET2104) operates seamlessly with Harding network fire controls. The DET2104 is managed and controlled by the addressable loop module (ALM3-IP).

The DET2104 is physically distinguished from the Series 21 Ionization detector (DET2102) by the clear colored LED. The LED lights steady when in an alarm condition and flashes briefly when polled by the ALM3-IP.

Operation

The DET2104 constantly monitors its sensing chamber and its internal electronics utilizing a patented smoke chamber and infrared smoke sensing design.

An infrared light emitting diode with its collimator is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight blocking filter. The IR LED emits a burst of collimated light every second. In clear air the photo-diode receives no light directly from the IR LED because of the angular arrangement and the chamber baffles. When smoke enters the chamber, it scatters light from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed to provide an analog value for transmission when the detector is interrogated by the ALM3-IP.

When interrogated, the DET2104 will transmit its data to the ALM3-IP. The ALM3-IP will evaluate the data received and determine if an Alarm, Pre-Alarm, or Supervisory event is present. If any off-normal condition exists, the ALM3-IP will put the changed state of the DET2104 on the IP network for pre-programmed event outputs.

The DET2104's drift compensation is managed by the ALM3-IP. The ALM3-IP monitors the average ambient analog count being returned from each Series 21 smoke detector connected to the system. Due to the accumulation of dirt and dust over time, the average ambient analog count for each detector will climb. The ALM3-IP will adjust the specific detector's alarm threshold proportionately to compensate for the rise in the average ambient count. This keeps the detectors sensing window open to the factory set tolerances established when new.

When the detector can no longer be compensated the ALM3-IP will put a 'dirty detector' signal on the fire control network to alert maintenance personnel to replace or clean the affected detector before a false alarm condition can be generated.



Features

- Sleek, non-fading white polycarbonate enclosure
- Zero insertion force base
- Drift compensation to keep sensing window open and nuisance alarms eliminated
- Patented programming card eliminates addressing errors during system installation and maintenance
- Alarm flag sends signal to system even when device is not being interrogated
- Wide variety of addressable input/output devices
- Relay and synchronized temporal sounder bases
- Line isolators and isolator bases also available
- RoHS Compliant

Listing

UL File: (S36048)

Engineer Specification

The contractor shall furnish and install, where indicated on the plans, addressable photoelectric smoke detectors with one of the several addressable mounting base options available. The detector base will contain the patented programming card which will permit the free interchange of sensor heads without requiring additional programming of the detector head or attached base. The intelligent detector shall be capable of generating an alarm flag and report its address when the pre-set UL thresholds are exceeded. The detector shall flash its LED intermittently when polled and shall latch when the unit goes into Alarm. The detector shall be capable of reporting its average ambient analog count to the fire control network in order to facilitate drift compensation adjustments necessitated by the accumulation of dirt over time in order to keep the detector sensing evaluation window at factory set tolerances in accordance with UL allowances. The combination of the detector head and twist lock mounting base shall be UL listed and UL listed as compatible with Harding network fire controls. The detector base shall be installed without regard to wire polarity. The photoelectric detector shall be the Harding part number DET2104

Technical Data

.Operating Voltage: 17-28VDC

Standby Current: 340uA avg. / 600uA peak

Alarm LED Current: 1.34mA

Remote Alarm Output: 4mA max

Temperature range: -4°F to 140°F(-20°C to 60°C)

Relative Humidity (non-condensing):0%-95%

Clean-air Analog Value: 25 +4/-0

Alarm Level Analog Value: 55

Wire Supply: Two-wire supply, polarity insensitive

Recommended Spacing:

Meets the 30 ft. (9.1m) spacing guidelines in NFPA 72 Chapter 2, however, this spacing is based on ideal conditions and should be used as a layout guide only

Ordering Information

Part Number	Data Sheet	Description
DET2104	DS-2104	S21 Photoelectric Smoke Detector
BAS2004	DS-2310	S20 6" E-Z Fit Base
38531-771		Additional XPERT programming card
45682-127		126 Pre-Programmed XPERT cards

Related Data Sheets

Series 22 Detectors: PHOTO (DET2204), DS-DET2204; HEAT (DET2201),DS-DET2201; MULTI (DET2205), DS-DET2205;

Series 21 Detectors: HEAT (DET2101), DS2101; MULTI (DET2105), DS2105;

Series 21 I/O Devices: Switch Monitors (IOM2101,IOM2104, IOM2105, IOM2108, IOM2109), DS-IOM2810; Input/Output (IOM 2102, IOM2106, IOM2110), DS-IOM2812; Sounder Control (IOM2107), DS-IOM2814, Dual Priority Switch Monitor (IOM2103), DS-IOM2816; Relay Output Module (IOM2111), DS-IOM2818; Addressable Base Options: All Bases, DS-DET2310;

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9564 Yellowhead Trail NW Tel 780.462.7100
Edmonton, AB T5G OW4 Fax 780.450.8396
sales@harding-tech.com www.harding-tech.com



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