FIRE WATCH
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Fire Watch

Multi-Criteria Detector (Smoke + Heat)

Product Overview

Product	FW Multi-Criteria Detector (Smoke + Heat)
Part No.	FW5050-350

Product Information

The Fire Watch Multi-Criteria Detector (Smoke + Heat) uses new photoelectric sensing technology, Purelight®, to detect smoke particles entering the chamber. It reduces the possibility of false alarms while increasing the reliability of detecting a real fire.

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- Internal drift compensation
- Easy installation
- Compatible with XP95 systems
- XPERT card addressing
- Built-in self-test
- Dual heat sensors
- Purelight® optical technology provides enhanced smoke detection and false-alarm management

Technical Data

CAUTION: the Fire Watch Multi-Criteria Detector, part # FW5050-350, can only be used on systems operating with FW protocol.

All specifications are subject to change without notice. Specifications are typical at 24 VDC, 73°F, and 50% RH unless otherwise stated.

Detection Principle:
Smoke - Light-scattering
Heat - Thermistor
Sensor configuration:
Smoke - Chamber with surface-mount IR emitter and prism. Solid-state integrated PD and amplifier.
Heat – Dual exposed heat-sensing elements
Digital communications protocol: *FW* Protocol
Supply wiring: Two-wire supply, polarity insensitive
Sampling frequency: One time per second
Sensitivity: 1.2 – 2.1 %/ft.
Supply Voltage (Vmin – Vmax): 17 – 28 VDC
Modulation voltage: 5 – 9V, peak to peak
Supervisory current: 340 µA
Switch-on surge current: 1.0 mA
Alarm LED current, ON: 4.0 mA
Additional remote LED current: 5 mA maximum
Status indicator: Alarm (Red)
Operating Temperature: 32 - 131°F (0 - 55°C)
Humidity: 0 to 95% RH (no condensation or icing)
Air velocity: 0 – 300 fpm
IP rating: IP 44

Effect of atmospheric pressure: None
Weight: 2.93 oz. (83 g)
Dimensions:
4” (100mm) diameter x 1.50” (38mm) high

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Electrical Description

The FW Multi-Criteria Detector is designed to be connected to a two-wire SLC loop that provides both data and 17 - 28 VDC power. The detector is connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator may be connected between the +R and -R terminals. A ground connection terminal is also provided.

Operation

The low profile design of the FW Multi-Criteria Detector is sleek and evolutionary, with a 360° LED indicator which illuminates red when in alarm.

At the heart of the photoelectric smoke sensor is Purelight® Sensing Technology which incorporates:

- Cone technology combined with a high-intensity infrared LED to provide stability and accurate sensitivity to smoke.
- A sophisticated dynamic algorithm, providing transient rejection and compensation for drift while maintaining accurate sensitivity.

Signals from the photoelectric smoke chamber and temperature sensors are independent and represent the smoke level and air temperature respectively in the vicinity of the detector; the detector micro-controller processes both signals. The temperature signal processing extracts only rate-of-rise information for use in-combination with the smoke signal.

The optical sensor will trigger an alarm at 1.2 %/ft. and the heat sensor at 69.8 ºF (21 ºC) rise. The minimum time to alarm is ten seconds.

The detector will not respond to slow increases in temperature, but a large, sudden change can cause an alarm without the presence of smoke.

The detector will respond to smoke or heat, or a combination of both.

System Compatibility

The FW detector has been designed to operate with FW XPERT bases, control panels, and SLC loops. Note that the eighth bit of the address on the XPERT card will be ignored.

The detector will compensate for drift internally but does not report drift values to the fire alarm control panel. When the internal drift compensation limit is reached, the FW control panel will indicate a fault along with the address of the detector.

Maintenance and Service

Maintenance shall be performed in accordance with all applicable codes and standards. The exterior of the detector may be cleaned using a soft damp cloth.

Compatible Bases

Part Number	Product Name
FW5000-210	FW Base ’ 4” diameter
FW5000-230	FW Base ’ ç” diameter

Other FW Detector Models

Part Number	Product Name
FW5050-250	FW Smoke Detector
FW5500-450	FW Heat Detector

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Technical Data—Fire Watch Detectors

Detector Model Number	FW5050-250	FW5050-350	FW5050-450
Detector Type	Smoke Detector	Multi-Criteria Detector (Smoke + Heat)	Heat Detector
UL Listed Voltage	17—28 VDC	17—28 VDC	17—28 VDC
Modulation Voltage (V Peak to Peak)	5—9 Volts	5—9 Volts	5—9 Volts
Maximum Alarm Current LED On	4 mA	4 mA	2.5 mA
Surge Current	1 mA	1mA	1mA
Supervisory Current	340 µA	500 µA	250 µA
Additional Remote LED Current	5 mA	5 mA	5 mA
Heat Sensitivity Rating	n/a	Rate of Rise (RoR) 20°F/min (11°C/min)	n/a
Sensitivity	UL 1.23 - 2.09 %/ft ULC 1.44 - 2.3 %/ft	UL 1.23 - 2.09 %/ft ULC 1.44 - 2.3 %/ft	n/a
UL Instruction	Smoke Automatic Fire Detector for use with a S5022 UL listed Base	Smoke Automatic Fire Detector with integral Heat Detector for use with a S5022 UL listed Base	Heat Automatic Fire Detector for use with a S5022 UL listed Base
Test Method	Please refer to the detector instructions. Spray with any of the following smoke products: • Solo Detector Tester Solo A10 • Smoke Sabre Smoke Detector Tester • Solo Detector Tester Solo 365 • Solo Detector Testifire		Hair Dryer

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