

Overview

Series 500 heat sensors are normally-open devices designed to close an electrical circuit upon activation. Sensors use dual action, electric fire detection thermostats that employ two independent methods of detection: Rate-of-Rise and Fixed Temperature. Models are available in configurations that include rate-of-rise, fixed temperature and combination rate-of-rise/fixed temperature sensors.

The rate-of-rise detection senses fires that grow rapidly in intensity. This method responds to abnormally fast temperature increases.

The rate-of-rise element consists of an air chamber, flexible metal diaphragm and restricted orifice vent that can be closely calibrated to control air flow rate in and out of the chamber.

The air chamber expands and contracts as ambient room temperature changes. Under normal temperature fluctuations, the unit “breathes” through the calibrated vent. Under rapid temperature rise conditions, air expands faster than it can be vented, building up enough pressure to move a thin metal diaphragm until the flexible silver contact closes the electrical circuit against a stationary contact. When the heat is removed, the pressure is relieved through the vent and the contacts are restored to normal.

The fixed temperature detection senses fires that build temperatures to a high level at a slow rate. This method responds to a specific temperature setting.

The fixed temperature element is entirely independent of the rate-of-rise sensor. It consists of a phosphor-bronze spring held under tension by standard fusible solder. When heated to its rated temperature, the alloy melts, releasing the spring and closing the contacts.

Standard Features

- Rate-of-Rise and Fixed Temperature models
- Compact, simple design unaffected by vibration
- Large terminals and wireways simplify wiring in open or concealed applications
- No exposed metal parts carry current
- All electrical contacts are all silver-clad
- All metal parts are brass or aluminum, mounted on a durable, mineral-filled, phenolic base

Hazardous Location Heat Detectors

500 Series



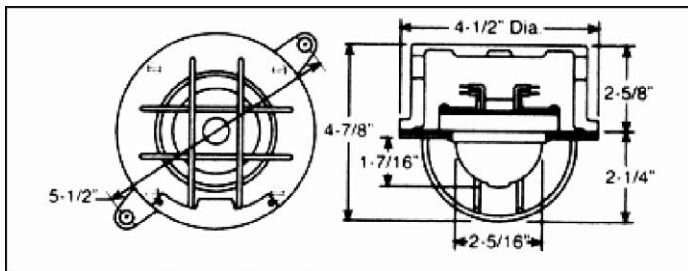
Application

Series 500 heat sensors are designed for use in applications requiring protection against weather, moisture (internal condensation), and explosive atmospheres.

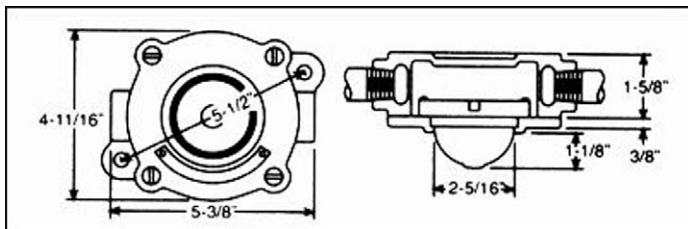
Weather/Moisture Proof Models (WPBMPB) consist of a cast metal box, gasket and special steel cover plate integrated with the sensor. A crossed wire guard is added for extra protection. The emerging wire points are sealed with epoxy, increasing resistance to moisture. The cast metal box has four wire entrances for ½-inch rigid conduit. The unit offers combined protection against weather and condensation in the conduit.

Explosion/Moisture Proof Models (EPBMPB) consist of a cast metal box, cover plate and modified 500 Series sensor. The backbox has two opposing wire entrances threaded for ½-inch rigid conduit. The box, cover and base are precision machined for extremely close tolerance fit. Explosion proof models are available in a moisture proof version, which includes a moisture-resistant gasket.

Installation



WPBMPB (weatherproof/moistureproof models)



EPBMPB (explosionproof/moistureproof models)

Approvals

The Explosion Proof models (EPBMPB) are UL and FM listed for the following classifications:

- Class I, Group C:** Atmospheres containing ethyl-ether vapors, ethylene or cyclo-propane.
- Class I, Group D:** Atmospheres containing gasoline, hexane, naphtha, benzene, butane, propane, alcohol, acetone, benzyl, lacquer solvent vapors, natural gas.
- Class II, Group E:** Atmospheres containing metal dust of aluminum, magnesium or their commercial alloys.
- Class II, Group F:** Atmospheres containing carbon black, coal or coke dust.
- Class II, Group G:** Atmospheres containing flour, starch or grain dust.

Testing

The rate-of-rise mechanism may be subject to reduced sensitivity over time. Annual testing is recommended. Rate-of-rise sensors can be tested by applying measured heat from a convenient source such as a hair dryer. Do not apply heat at temperatures above the rated fixed temperature of the unit. This will cause the unit to actuate and require replacement.

WARNING – Use For Property Protection Only: Heat sensors do not protect life against fire and smoke. In most fires, hazardous levels of smoke, heat and toxic gases can build up before a heat detector would initiate an alarm. Independent studies indicate that heat detectors should only be used when property protection alone is involved. In cases where life safety is a factor, the use of smoke detectors is recommended.

Under no circumstances should heat detectors be relied upon as the sole measure to ensure fire safety. However, if they are spaced in accordance with the directions in the Specifications table, these sensors can contribute, within an overall fire safety program, to reducing the risk of avoidable property losses.

Specifications

	Model 501	Model 502	Model 503	Model 504
Sensing elements	Combination fixed temperature/rate-of-rise		Fixed temperature only	
Fixed temperature rating	136°F (58°C)	190°F (88°C)	136°F (58°C)	190°F (88°C)
Applications	Ceiling temperature less than 100°F (38°C)	Ceiling temperatures more than 100°F (38°C) but less than 150°F (66°C)	Ceiling temperatures less than 100°F (38°C)	Ceiling temperatures more than 100°F (38°C) but less than 150°F (66°C)
Maximum Spacing	UL: 50 ft x 50 ft FM: 30 ft x 30 ft		UL: 15 ft x 15 ft FM: 15 ft x 15 ft	
Electrical Ratings	6 - 125 vac: 3.0 amps 6 - 28 vdc: 1.0 amp 125 vdc: 0.3 amp 250 vdc: 0.1 amp			
Listings	UL, FM, CSFM, MEA, ULC			

Ordering Information

Catalog Number	Description	Ship Wt lb. (kg)
WPBMPB501	Weather/Moistureproof combination r-of-r and fixed temp. sensors (136°F/58°C)	2 (0.9)
EPBMPB501	Explosion/Moistureproof combination r-of-r and fixed temp. sensors (136°F/58°C)	
WPBMPB502	Weather/Moistureproof combination r-of-r and fixed temp. sensors (190°F/88°C)	
EPBMPB502	Explosion/Moistureproof combination r-of-r and fixed temp. sensors (190°F/88°C)	
WPBMPB503	Weather/Moistureproof fixed temperature sensor (136°F/58°C)	
EPBMPB503	Explosion/Moistureproof fixed temperature sensor (136°F/58°C)	
WPBMPB504	Weather/Moistureproof fixed temperature sensor (190°F/88°C)	
EPBMPB504	Explosion/Moistureproof fixed temperature sensor (190°F/88°C)	

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