5000 Series: Model 5012

Infra-Red Transit Heat Sensor

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FIRE DETECTION SOLUTIONS



The 5000 Series is an early warning infra-red transit heat sensor, which can trigger at temperatures as low as 100°C, when monitoring materials being transported on conveyor systems, before they have reached the ember or flame condition.

Its unique eight detector enhanced Infra-red monitoring has been created to detect black heat. Black body emissions occur for all material, the sensor is designed to detect a change in these emissions even at relatively low temperatures, when the material moves through its field of view.

Air purging from a compressed air feed is used to maintain a positive air pressure in the sensor enclosure, an air knife ensures the prevention of dust settling on the sensor window. The air supply is monitored by a pressure switch which on air failure is signalled as a fault status.

The 5020 controller is directly connected to the sensor. A series of user programmable DIL switches allows option selection including detector sensitivity settings, auto/manual reset sequence selection and single / coincidence voting from the four individual internal detection channels for the alarm trip and shutdown outputs.

The sensor air pressure and signal cable connections are fault monitored and fail safe. The controller incorporates an aux. fault input & common fault output contact.

Features

- Detection of hazards at temperatures below flame point including both embers and buried hot spots.
- Air purged system for dusty environments with air pressure monitoring.
- Four Channels of Detectors (two detectors per channel) for Maximum reliability.
- Multi-Facet lensing provides wide uniform coverage
- Single / Coincidence voting output
- Timed auto reset / coincidence analyser circuit
- Tuned response — solar blind
- Voting Logic & Latching options
- Alarm & Trip Functions
- Fault Monitored, with Test & Reset push Buttons
- Field Programmable
- Local Indicators

Applications

- Conveyors
- Escalators
- Drying Lines
- Sorting Machines
- Food Processing
- Baggage Handling
- Production Lines
- Warehouse Robots
- Waste Recycling Conveyors

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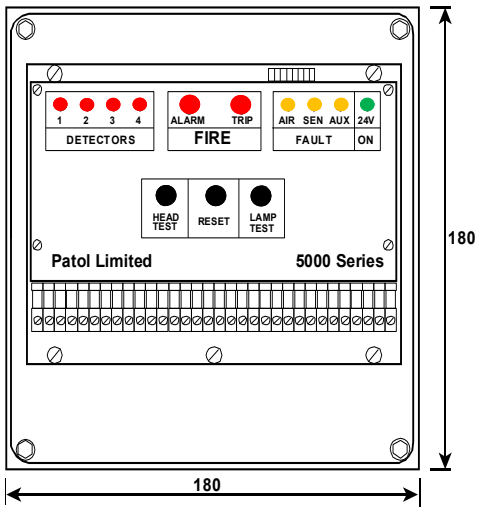
5020 Controller

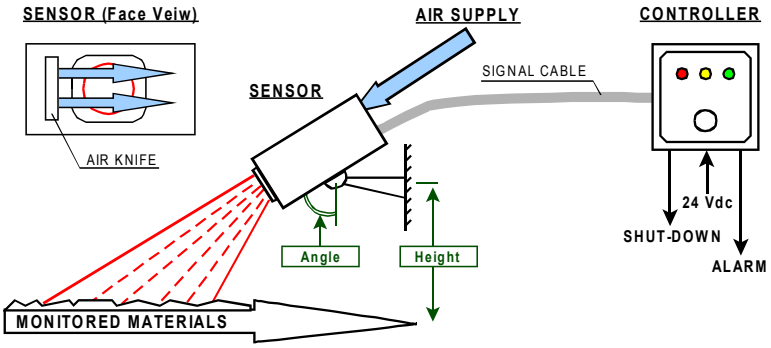
Includes LED indication of the Four detector channels; along with LED indication and relay outputs for Alarm, Trip and Fault.

The control module is easily de-mountable and allows installation of the housing and site cables prior to fittment of the module.

The controller can be provided in an optional outer control panel together with power supplies, battery chargers, DIN rail terminals, etc. as required.

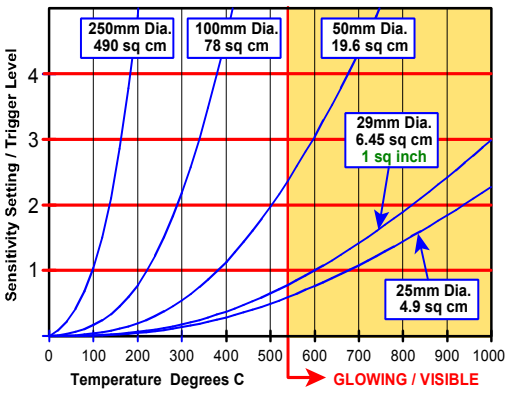


TYPICAL SYSTEM



The sensor is located above or beside the materials transit path (conveyor, roadway, etc.) by means of the adjustable mounting bracket and aligned such that the monitored hazard passes through the sensor's field of view. The distance and angle of the sensor determine the width of the monitored path.

Typically conveyor widths of 1.6 to 4.2 m can be monitored with a sensor mounted 1.0 to 1.5 m above the conveyor at an angle of 0° to 55° (see separate datasheet).



The chart (left) indicates the correlation between the temperature and size of 'hot spot' anomalies for a typical installation to produce one or more detector channel activations at various trigger level settings.

Exact response is dependant on the emissivity factor of the monitored material, sensor orientation and target speed.

Specification

Detectors:	8 off-Interlaced lensing configured as four channels.
Spectral Filter:	5 - 14 µm (wide band)
Sensitivity:	10 - 40 µW
Transit Speed:	0.5 to 6 m/s
Sensor Head:	2.9Kg
Material:	Stainless Steel
IP Rating:	IP67
Controller:	5020
Material:	Polycarbonate 1Kg (IP 66)
Supply Voltage:	20-30 Vdc
Supply Current:	
35 mA Quiescent	
70 mA Max / Full Alarm	
Temperature:	-20°C to +70°C
Outputs:	
Alarm Contact - 1 Pole C/O	
Trip Contact - 1 Pole C/O	
Fault Contact - 1 Pole C/O	
Rating:	- 30 Vdc - 500 mA
Auxiliary Input:	PSU / Charger etc.
Purge Air:	
Input Fitting: 1/4 inch NPT	
Pressure: 0.7 Bar (10 psi)	
Delivery: 1.9 litres/sec (4 cubic feet/min)	

Ordering Information

Description	**Part Number**
5012: Stainless Steel, Controller 5020, 10m cable, Mounting Bracket	710-006
Sensor 5012 (without Controller)	710-015
Controller 5020	710-020
Specials	**Reference Dwg**
Single 5020 Control Panel with PSU / Charger, Reset & space for Batteries	11152
Dual 5020 Control Panel with PSU / Charger, Reset & space for Batteries	11153

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