



CONVEYOR MONITORING

DETECT EMERGING HOT SPOTS ON A MOVING CONVEYOR BELT



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AMETEK LAND HAS BEEN MANUFACTURING PRECISION MEASURING EQUIPMENT SINCE 1947.

WE ARE SPECIALISTS IN NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION MONITORING WITH APPLICATIONS ACROSS DIVERSE INDUSTRIES SUCH AS STEEL AND GLASS MAKING, POWER GENERATION AND CEMENT MANUFACTURE.

As part of AMETEK Process & Analytical Instruments Division since 2006, our customers benefit from the worldwide AMETEK sales and service team.

Many materials that are transported on conveyors contain hot inclusions. These hot objects can damage belts or cause belt or material fires. Traditional temperature measurement methods are unable to detect small hot spots on a moving conveyor.

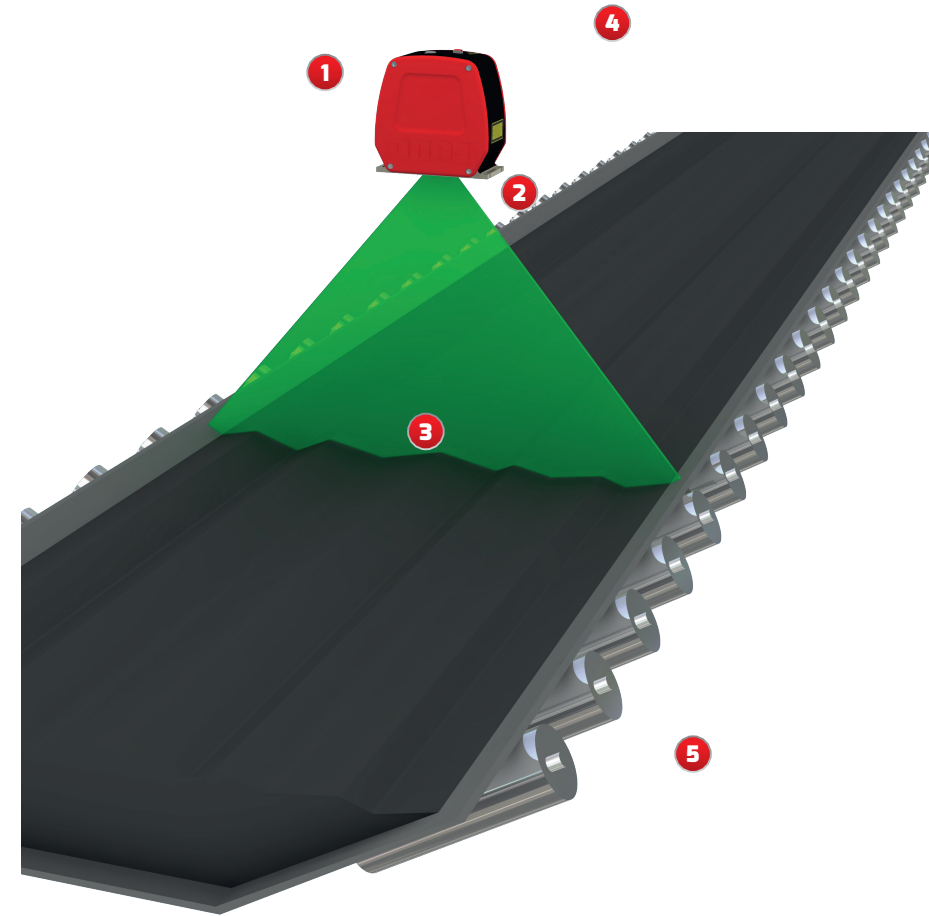
A method of detecting these developing hot spots and sending an alarm to the process operators would prevent costly shutdowns. Traditional methods such as visual inspection and single point pyrometers do not have the speed nor the resolution to meet the application demands.

The HotSpotIR High-speed Scanning System is used to detect these emerging hot spots. The HotSpotIR makes 100 high resolution temperature scan lines every second

while the hottest point measured is updated and output to the alarm processor every one hundredth of a second. The system covers a measuring range of 68 to 482 °F / 20 to 250 °C.

The HotSpotIR is easy to install, a quick release mounting bracket allows rapid fitting and maintenance. The mounting bracket is keyed so that the alignment is maintained when returning it to the mounting. A single, quick release cable connects the sensor to the alarm processor.

The HotSpotIR processor provides high speed alarm contacts that are sent to the control room for operator attention.



SPECIFICATION & DESIGN

1: DESIGN

Specifically designed for industrial environments. The HotSpotIR head is extremely compact and has a minimized depth and base "footprint" for installation in restricted spaces.

For Belt Production, the HotSpotIR is small enough to be positioned under a belt just after the material has been transferred. It will measure the entire belt surface and alarm if any areas are above a safe temperature. Alarms can be used to trigger water sprays or suppression systems.

Alternatively, for hot spot product detection, it can be positioned above the conveyor to monitor the material to determine hot spots. This can prevent hot items from being loaded, transported and causing fires later in the plant.

2: OPTICS

A durable, flush mounted sapphire window provides reliable protection for the system optics.

Laser alignment allows easy setup. A built-in laser targeting system aids alignment on to the target.

3: SCAN ANGLE & SPEED

Wide scan angle of 80° with 1000 temperature spots each scan- Monitor and protect the entire conveyor, even against small hotspots.

Fast Scan Speed of up to 100Hz - Fast response, hottest temperature tracking.

4: HAZARDOUS LOCATIONS

HotSpotIR for hazardous locations versions available as an option.

5: DIRECT CONTROL SYSTEM INTEGRATION

Temperature measurements generated by the high-speed scanner are sent to a dedicated processor. The processor produces an alarm output set by the user to their desired value. This can be sent directly to the plant control system.

TYPICAL APPLICATIONS

Transport of Materials - Conveyors, Railcars, DRI Pellets

Storage of Materials - Coal, BioMass, Chemicals, Powders

Non-Woven Materials - Process Control, Supercalender Roll Covers

Refractory - Rotary Kilns, Torpedo Cars

HOTSPOTIR CONVEYOR APPLICATIONS

SYSTEM INTEGRATION

The processor provides power for the scanner, plus the user interface into the measurement information. It can display numeric, line chart, deviation chart or a combination of these formats. The scanner measurement data is input directly, where a 'peak picker' function allows the processor to respond quickly to temperature rises, and provide alarms to the operator. Two alarms are provided, selectable as either high or low. These can provide either a warning or an alarm condition, sent directly to the plant control system.



FEATURES & BENEFITS

Hot Spot detection using accurate temperature monitoring

Simple, reliable alarm processing without the need of software or a computer

Prevent hot particles entering the conveyor or storage area

Reduce insurance costs

Higher confidence in safety of transported and stored material

Reduce plant operating costs - reduce damage and downtime

Improve safety of employees - minimise fire risk

Continuous, automatic monitoring alarm condition indication

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SPECIFICATIONS

	HotSpotIR-25	HotSpotIR-40	HotSpotIR-60
Measurement Range:	20 to 250 °C / 68 to 482 °F	50 to 400 °C / 122 to 752 °F	100 to 600 °C / 212 to 1112 °F
Speed of Response:	≤10 μs		≤5 μs
Scan Speed:		10 to 100 Hz - user adjustable	
Scan Angle:		80 °	
Repeatability:		± 0.5 °C / 0.9 °F	
Emissivity:		0.20 to 1.00	
Focus & Field of View:		1200 mm Fixed Focus	
		Target Distance: >1200 / 47.2", FOV 100:1 at other distances	
Ambient Temperature:		5 to 60 °C / 41 to 140 °F (specified)	
		5 to 70 °C / 41 to 158 °F (operating)	
Spectral response:		3 - 5 μm nominal	
Dimensions:		206 x 209 x 100 mm / 8.1 x 8.2 x 3.9 in	
Alignment:		Class 2, max. output 1.0 mW at 635 nm, IEC60825-1:2001	
Environmental Sealing:		IP65	
EMC:		EN 61320:1999 Class A (immunity and emission); IEC 1010 (safety)	
Approvals:		Hazloc versions available; Optional ATEX Zone 20 or ATEX Zone 21	

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PERFORMANCE SERVICES
 AMETEK Land's AMECare Performance Services ensure peak performance and maximum return on investment over the life of your equipment.

- We will deliver this by:
- Proactively maintaining your equipment to maximize availability.
 - Optimizing solutions to meet your unique applications.
 - Enhancing user skills by providing access to product and application experts.

AMETEK Land's global service network provides unparalleled after-sales services to ensure you get the best performance and value from your AMETEK Land products. Our dedicated service centre teams and on-site engineers are trained to deliver the highest standard of commissioning, maintenance and after-sales support.

SEE OUR OTHER RELATED LITERATURE FOR THE HotSpotIR:



SUPERCALENDER ROLLS

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