

HotSpotIR 9000

HOT SPOT MONITORING - DETECT
EMERGING HOT SPOTS OF MOVING OBJECTS
AND CONVEYORS



i 20 to 600 °C / 68 to 1112 °F

LAND
AMETEK®



QUALITY CUSTOMER SOLUTIONS

HotSpotIR 9000

HOT SPOT MONITORING - DETECT EMERGING
HOT SPOTS OF MOVING OBJECTS AND CONVEYORS

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.

The HotSpotIR 9000 is an extremely compact, fast-response infrared linescanning system specifically designed to detect emerging hot spots on moving objects and conveyors.

Detecting these developing hot spots and sending an alarm to the process operators prevents costly shutdowns and potential fire risks. However, visual inspection and single-point pyrometers have neither the speed nor the resolution to meet the application demands.

The HotSpotIR 9000 high-speed scanning system can detect these emerging hot spots, making 100 high-resolution temperature scan lines every second (100 Hz) and detecting the hottest point in each scan.

Three HotSpotIR 9000 Sensor options are available, offering a total measurement range of 20 to 600 °C / 68 to 1112 °F. Protection and cooling enclosures allow for installation in harsh, dirty, and damp environments.

The Landmark Graphic (LMG) MkII 9000 processor provides high-speed alarms that alert the control room operator, allowing them to take the correct preventative action.

ACCURATE HOT SPOT DETECTION

With a wide scan angle of 80°, the HotSpotIR 9000 monitors and protects an entire conveyor. Its rapid scan speed of up to 100 Hz provides a fast response and allows temperature tracking of even small hot spots with a field of view of 100:1 and a repeatability of ± 0.5 °C / ± 0.9 °F.

IMPROVED SAFETY

The HotSpotIR 9000's continuous, accurate and fast monitoring ensures that hot spots are detected and an alarm triggered in a hundredth of a second, allowing the plant operator to respond quickly to a potentially dangerous condition. That means safer employees, reduced damage and downtime risks, and lower insurance costs.

EASY INSTALLATION

HotSpotIR 9000 Sensors are easy to install, with a quick-release mounting bracket for rapid fitting and maintenance. A single, quick-release cable connects the sensor to the alarm processor.

The HotSpotIR 9000 is AMETEK Land's compact, accurate linescanning solution for moving objects and conveyor belt systems.

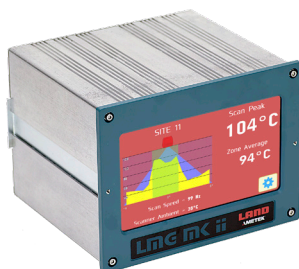
SYSTEM INTEGRATION

The processor provides power for the sensor, plus the user interface displaying numeric and graphical measurement data.

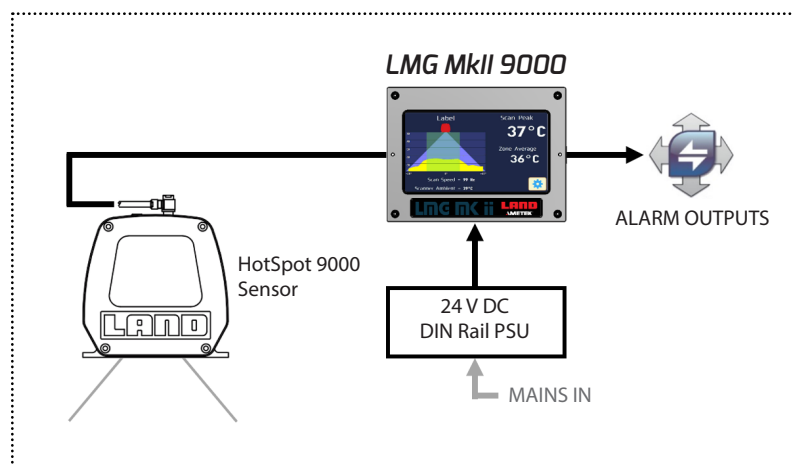
The sensor measurement signal is input directly, and a 'peak picker' function allows the processor to respond quickly to hot spots, and provide alarms to the operator.

Two configurable hotspot temperature alarms provide warnings of alarm conditions, which are sent directly to the plant control system, allowing for immediate action.

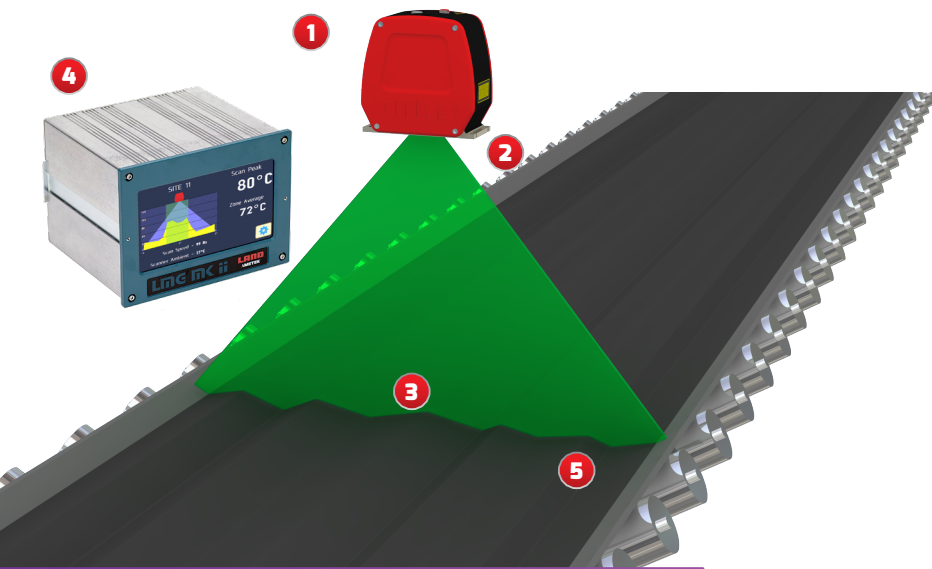
Additionally, alarms assure that the system is running correctly.



SYSTEM OVERVIEW



SPECIFICATION & DESIGN



TYPICAL APPLICATIONS

Monitor conveyors and loading or unloading zones for:

- Biomass pellets
- Sub-bituminous coal
- Coke
- Cement Clinker
- Lignite
- Direct reduced iron (DRI) pellets
- Wood Chips (Wood Manufacturing)

1: DESIGN

The HotSpot 9000 Sensor is installed above the conveyor at a safe distance, scanning continuously across the whole belt width. Additional protection, cooling and air purging enclosures are available for use in harsh environmental conditions, allowing for 24/7 operation, with minimum maintenance required.

2: OPTICS

A durable, flush mounted sapphire window provides reliable protection for the system optics and easy cleaning. Laser alignment allows easy setup with built-in laser targeting system.

3: SCAN ANGLE & SPEED

A wide scan angle of 80° monitors and protects the entire conveyor. Fast scan speed of up to 100 Hz provides fast response and temperature tracking of even small hot spots with a FOV of 100:1.

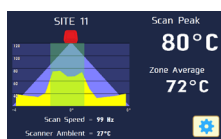
4: DIRECT CONTROL SYSTEM INTEGRATION

Temperature measurements are sent to the LMG MkII 9000 processor, which produces alarm outputs, set by the user to their desired value. This can be sent directly to the plant control system.

5: ALARMS

The HotSpot 9000 Sensor detects the entire belt width and moving load surface, raising alarms if threshold levels are reached, or exceeded. These alarms can trigger water sprays or suppression systems. For hot spot product detection, the scanner can be installed above the conveyor to monitor the material preventing hot items from being loaded, transported and causing critical fires within the storage area, or plant.

MAIN SYSTEM STATUSES

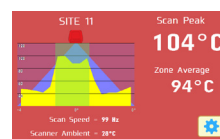


TYPICAL DISPLAY

NO ACTIVE ALARMS – profile and ambient temperatures are below alarm thresholds

SCAN PEAK – actual scan peak temperature

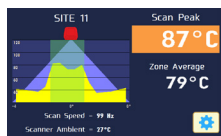
ZONE AVERAGE – average scan temperature



HIGH-ALARM IS TRIGGERED

ACTIVE PEAK-ALARM – scan peak temperature exceeds the peak alarm threshold

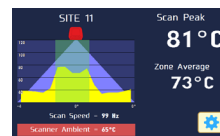
HIGH-ALARM ACTIVE – is triggered, whole display is flashing (blue/red)



PRE-ALARM IS TRIGGERED

ACTIVE PEAK-WARNING – scan peak temperature exceeds the peak warning threshold

HIGH-ALARM – not triggered



SCANNER STATUS

SCANNER AMBIENT TEMPERATURE – scanner ambient temperature threshold is triggered

SCANNER FAIL – in case of scanner failure, the whole screen shows a red flashing background

FEATURES AND BENEFITS

Hot spot detection using accurate temperature monitoring and high resolution scanning.

Simple, reliable alarm processing without the need for external software or a computer.

Prevent hot spot particles from entering the conveyor or storage area.

Reduce insurance costs by early detection of critical risks.

Higher confidence in safety 24/7 continuous monitoring and operation with alarm alerts for critical hot spots.

Reduce plant operating costs - reduce damage, maintenance and downtime.

Improve safety - safeguard the plant, the environment and employees.

Continuous, automatic monitoring alarm condition indication.

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SPECIFICATIONS

	HOTSPOT-IR-9000-25	HOTSPOT-IR-9000-40	HOTSPOT-IR-9000-60
Sensor Head			
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:	1200 mm Fixed. Scanline width @ 1.2 m = 2 m		
Spot Size (IFOV):	<1200 mm: 12mm	>1200 mm: 100:1	
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		
Cable Length:	15 or 50 m as standard		
Alignment:	Class 2, max. output 1.0 mW at 635 nm, IEC60825-1:2001		
Environmental Sealing:	IP65		
EMC:	EN 61326-1		
Landmark Graphic MkII 9000			
Accuracy:	0.12 % of reading		
Operational Mode:	HOTSPOT		
Response Time:	10 ms		
Alarms:	4 x Relay Outputs: Critical, Warning, Scanner ambient, Scanner OK		
Option:	2 x 0-20 or 4-20 mA outputs. Peak Temperature and either Zone Average or Scanner Ambient		



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:

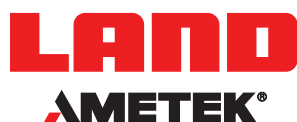
- Proactively maintaining your equipment to maximize availability.
- Optimizing solutions to meet your unique applications.
- Enhancing user skills by providing access to product and application experts.

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 LITERATURE ON ENCLOSURE OPTIONS AND ACCESSORIES:

DISCOVER HOW OUR BROAD RANGE OF NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION & EMISSIONS PRODUCTS OFFER A SOLUTION FOR YOUR PROCESS

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