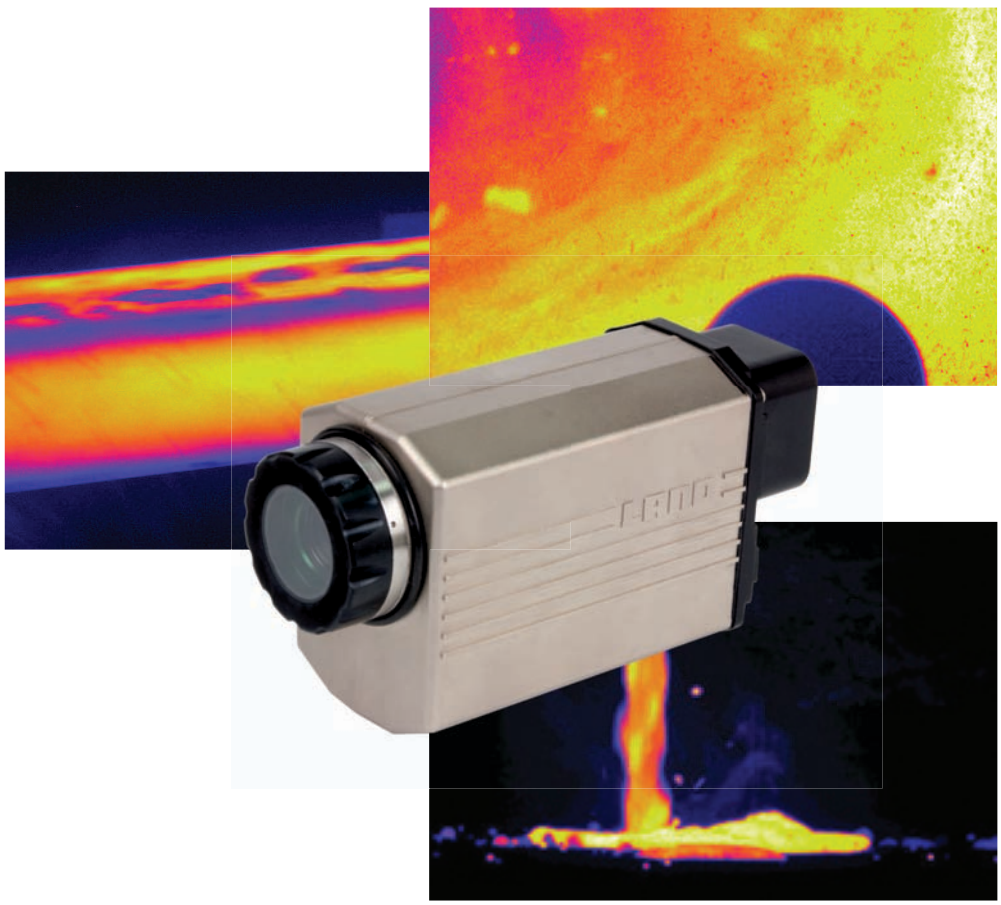
LAND

Thermal Imaging and Temperature Measurement for Continuous Process Monitoring and Quality Control

NIR

Thermal Camera



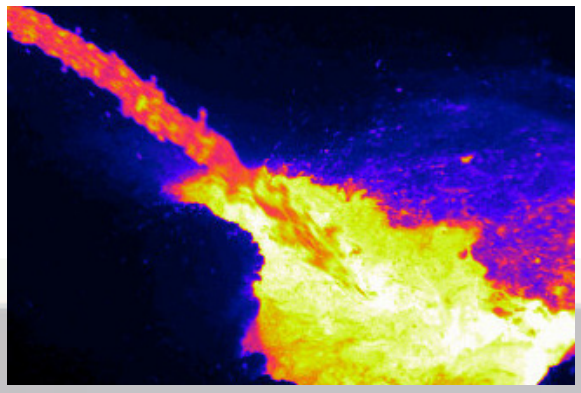
Near Infrared Fixed Thermal Imaging and Temperature Measurement Camera

AMETEK®
PROCESS & ANALYTICAL INSTRUMENTS

NIR

NIR Fixed Thermal Imaging and Temperature Measurement Camera

Fixed Thermal Imager for high temperature measurement and thermal imaging.
Direct Ethernet cable connection to PC running LIPS NIR for display, recording, alarms, analysis and manipulation of thermal images



Example Application: Liquid Metals

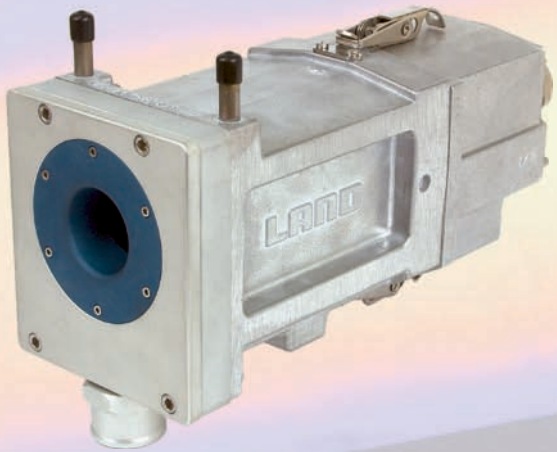
Intelligent Design

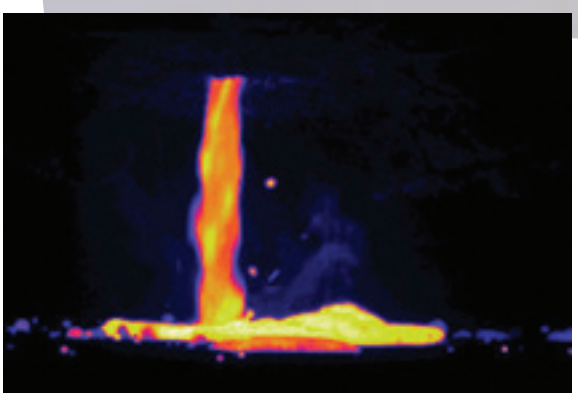
Features - ***Benefits***

- High resolution radiometric thermal imager - *giving detailed temperature information transmitted via a high speed digital connection*
- Choice of robust housing suitable for harsh industrial environments- *ensuring ultimate measurement reliability and availability*
- Choice of 4 models ranging from 600 to 3000°C / 1100 to 5400°F, plus 4 field of view options - *suitable for a wide range of applications*
- High temperature measurement accuracy - *enabling optimum process control*
- Simple installation and ease of use - *minimises cost and complexity*
- 2 Year Warranty - *guarantee of reliability*
- Export Licence Free - *rapid, hassle-free shipping*
- Range of 5 Close-up lenses (focal range from 100mm / 4in upwards) available - *match your product exactly to your application*
- *NOTE: Can directly replace an existing short wavelength, high temperature spot thermometer**

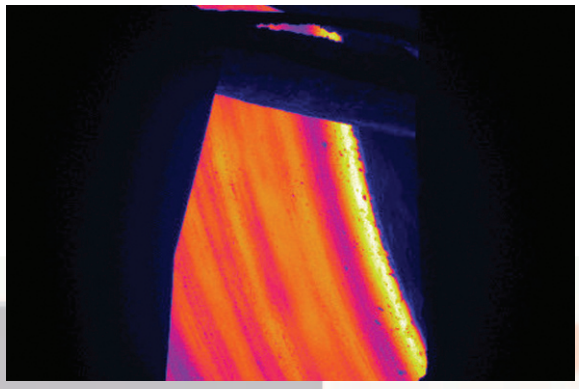
**Example System 4 M1 thermometer*

NIR Camera
Standard Housing





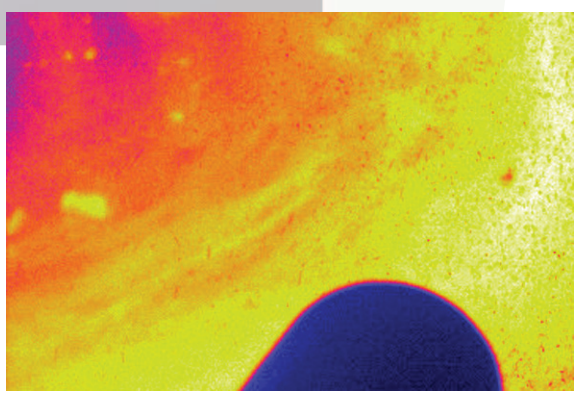
Example Application: Ladle Pouring



Example Application: Continuous Casting

Applications

- Iron and Steel e.g. concaster
- Black Liquor Boilers
- Heat Recovery Boilers
- Cement Kilns
- Pipe welding (with close focus lenses)
- Glass
- Liquid Metals
- Coating Processes
- *plus many more...*



Example Application: Cement Kiln

Intelligent Imaging

The NIR Thermal Imaging Camera is an integral part the LAND intelligent imaging solution, and is complemented by an extensive range of dedicated system peripherals.

- **LAND Image Processing Software**
  On-line system providing flexible, application specific thermal analysis including

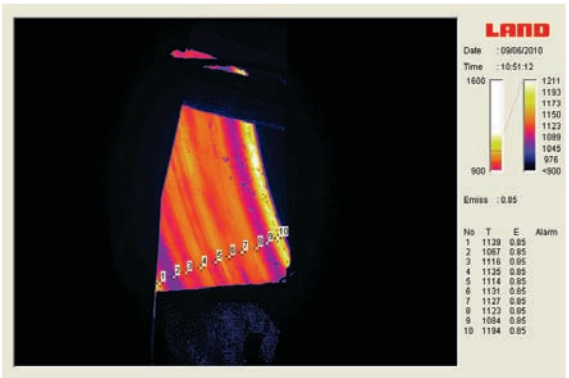
  Capture live images and video

  3D display

  Timed image acquisition

  Temperature span controls

  Profile display



LIPS NIR - Point Measurement

Temperature measurement: point, rectangle, polygon, isotherm, histogram, area

Alarms - Setting up, saving and loading settings

Change image properties, colour palette

Saving, storing, copying and printing views

Saving and loading config. files

LAND

Specifications - Configurations

Temperature Range	Model Reference NIR			
Lens Focal Length	***8 mm****	***25 mm***	***50 mm***	***75 mm***
600 to 1000°C / 1112 to 1832°F	10 - 08	10-25	10-50	10-75
800 to 1400°C / 1472 to 2552°F	14 - 08	14-25	14-50	14-75
1000 to 1800°C / 1832 to 3272°F	18 - 08	18-25	18-50	18-75
1400 to 3000°C / 2552 to 5432°F	-	30-25	30-50	30-75

Optical Performance

Lens Type	***8 mm***	***25 mm***	***50 mm***	***75 mm***
Field of View (h x v)	44° x 33°	14.4° x 10.8°	7.2° x 5.4°	4.8° x3.6°
Focus Range	600 mm (2') to infinity (manual focus)			
IFOV	1.2 mrad	0.40 mrad	0.20 mrad	0.13 mrad
Window material	Glass	Glass	Glass	Glass

Close-up Lens options

Close-up Lens Ref.	G1	G2	G3	G4	G5
Focal Range mm/inch	100 to 123 / 4 to 4.85	120 to 160 / 4.7 to 6.3	150 to 215 / 5.9 to 8.5	200 to 340 / 7.8 to 13.4	250 to 495 / 9.8 to 19.5

Imager Performance

NIR Scene Radiation Range	(see above) based on blackbody temperature
System Temperature Measuring Accuracy	0.5% (K) up to 1600°C/2912°F and 1% (K) above
Spectral Range	0.78 to 1.1 µm
Detector	Silicon focal plane array
Detector array format	656 x 494
Frame Frequency	30 Hz (Gigabit Ethernet)
Physical & Environmental	
Dimensions (w x h x d)	81 x 114 x 215 mm / 3.2 x 4.5 x 8.5 inches
Weight kg / lbs	1.76 kg / 3.88 lbs
Operating Temperature Range	0 to 50°C / 32 to 122°F
Storage Temperature Range	-20° to 80°C / -4 to 176°F
Operating Humidity	0 to 90 % Non-Condensing
Sealing	IP65 / NEMA 4 (with Phoenix Ethernet connector)
Vibration	3g between 10 and 30 Hz
EMC Emissions and Immunity	
NIR Interfaces	Separate sockets / lead for power and data connection
Power range	12 to 30 V dc, 3 Watts
Data Out	Digital data over Gigabit Ethernet (RJ-45)
Mountings	Two ¼" UNC mounting holes spaced 25mm apart allow it be mounted to a large range of accessories
Software	Complete Land Image Processing Software (LIPS)package for PC
Standard Accessories	Power Supply, Cables, Software, Close-up Lenses

**8mm lens requires hot target to fill minimum of 30% of scene to achieve stated accuracy*

LAND

Non-Contact Temperature Measurement Solutions

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UKAS CALIBRATION 0034 — LLOYD'S REGISTER QUALITY ASSURANCE ISO9001 — UKAS MANAGEMENT SYSTEMS 001

Applies in the UK

LABORATORY ACCREDITATION BUREAU ACCREDITED ISO/IEC 17025:2005

REGISTERED ISO 9001 MANAGEMENT SYSTEM

Applies in the USA

 Continuous product development may make it necessary to change these details without notice. NIR/0613