

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**

NIR

NIR Fixed Thermal Imaging and Temperature Measurement Camera

Fixed Thermal Imager for high temperature measurement and thermal imaging.

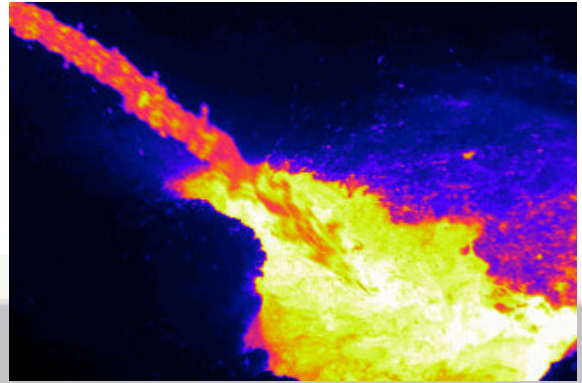
Direct Ethernet cable connection to PC running LIPS NIR for display, recording, alarms, analysis and manipulation of thermal images

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***

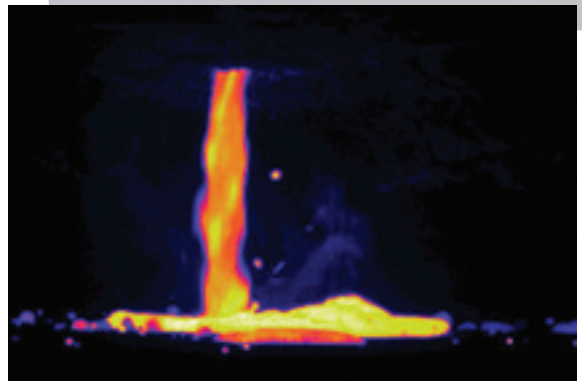
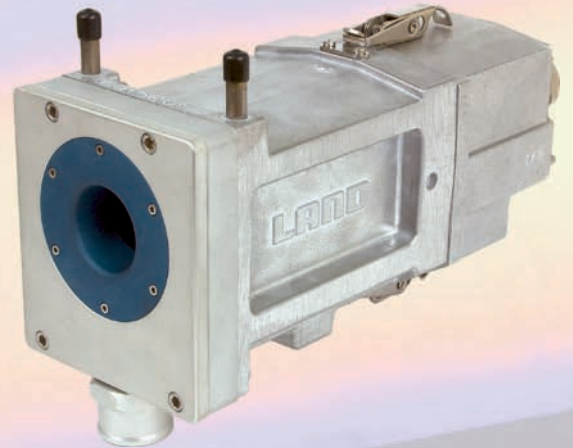
*Example System 4 M1 thermometer



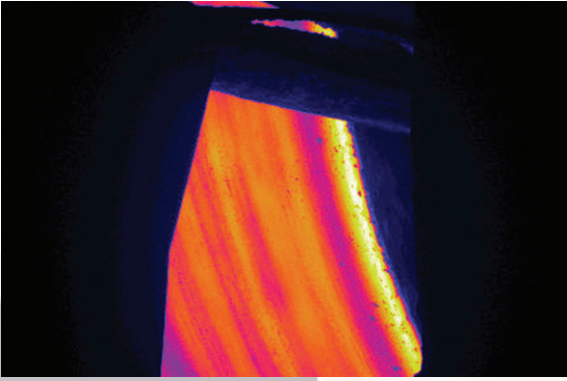
Example Application: Liquid Metals



NIR Camera Standard Housing



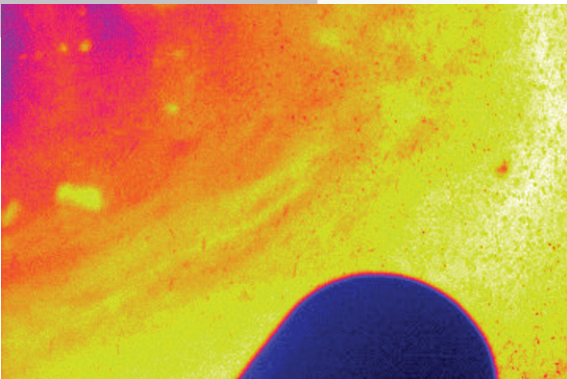
Example Application: Ladle Pouring



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

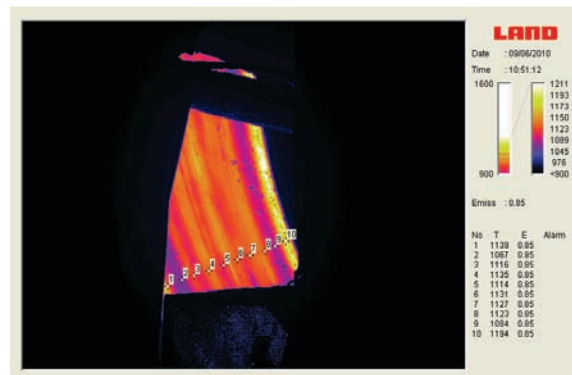
Capture live images and video

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

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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° x 3.6° |
| 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

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ISO 9001
MANAGEMENT SYSTEM

Applies in the UK

Applies in the USA