NIR BORESCOPE GLASS

THERMAL IMAGING SOLUTIONS
FOR **GLASS FURNACE APPLICATIONS**

1000 to 1800 °C / 1832 to 3272 °F

LAND

AMETEK®
PROCESS & ANALYTICAL INSTRUMENTS

QUALITY CUSTOMER SOLUTIONS

NIR-B GLASS

THERMAL IMAGING SOLUTIONS

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.

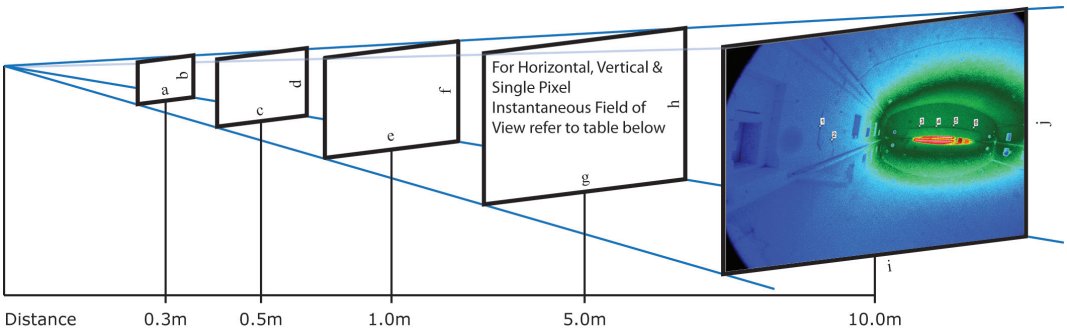
As part of AMETEK Process & Analytical Instruments Division since 2006, our customers benefit from the worldwide AMETEK sales and service team.

The NIR Borescope (NIR-B) Glass is a short wavelength radiometric infrared borescope imaging camera, designed to produce high definition (656 x 494 pixel) thermal images, along with providing accurate temperature measurements from any selected points in the image. The camera measures temperatures in the range 1000 to 1800 °C (1832 to 3272 °F) and is suitable for float glass, container glass, borosilicate glass and fibre glass melt furnaces.

Building on more than twenty years of thermal imaging experience, AMETEK Land has continued to widen its range of temperature measurement solutions by launching the NIR Borescope Glass. With the NIR-B Glass it is possible to use the proven technology of the NIR Thermal Imager to accurately and continuously profile the temperature of the entire furnace, including glass, refractory walls and port arches and the crown/roof, with only a small opening in the wall. Thermal imaging inside refractory lined furnaces, boilers and glass melt tanks normally requires the plant operator to cut large openings in the refractory to enable viewing of the critical area. This can cause significant wasted energy from heat loss and can be difficult to keep the opening free from debris. The NIR-B Glass only requires a small diameter hole through the furnace casing and refractory to accommodate the 90 degree field of view wide angle lens tip.

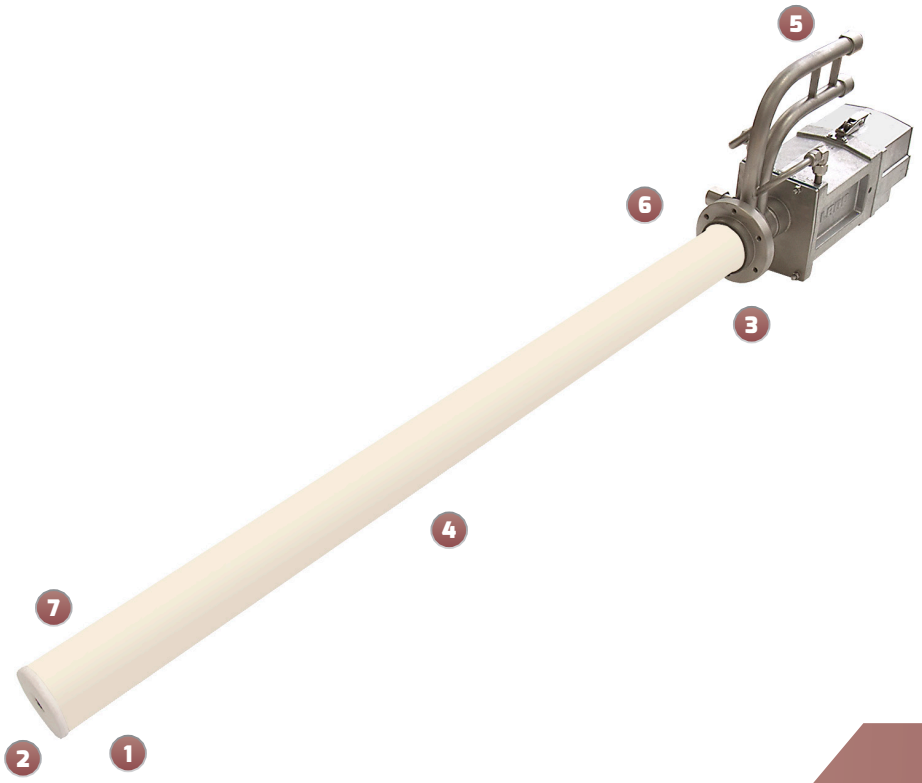
The NIR Borescope Glass offers significant advantages over the traditional methods of furnace monitoring. The NIR-B Glass offers continuous, labour free monitoring whereas manual visual inspection can take hours to complete, is not continuous and unreliable due to user error. A visual camera does not provide a temperature reading, with the NIR-B Glass you can see the process and measure the temperature at any point within the 324,000 pixel image and set alarms to detect air and glass leaks affecting the temperature and efficiency of the furnace. Also, Areas of Interest (AOI) can be user defined and trended, showing max, min and average temperatures and by using the included DVR function you can replay events and stop at any frame to measure multiple temperatures at the same point in time, particularly useful if you are measuring port arch temperatures at the moment of reversal.

FIELD OF VIEW LENS



	0.3m			0.5m			1.0m			5.0m			10.0m		
	a	b	IFOV	c	d	IFOV	e	f	IFOV	g	h	IFOV	i	j	IFOV
90°	0.60 m	0.45 mm	0.9 mm	1.00 m	0.75 m	1.5 mm	2.00 m	1.50 m	3.0 mm	10.00 m	7.50 m	15.2 mm	20.00 m	15.00 m	30.5 mm

SPECIFICATION & DESIGN



1: VIEWING ANGLE

90° angle provides full furnace or tank internal thermal view

2: HIGH RESOLUTION 656 X 494 IMAGE

Provide accurate temperature measurements from any selected data points in the 324,000 pixel image

3: INTEGRATED AIR PURGE

Our air purge design maintains a clean lens in harsh process environments while consuming minimal instrument air

4: PROBE LENGTHS

The range of the probe lengths create the best fit for every installation

5: HIGH PERFORMANCE WATER COOLING SYSTEM

The low water flow requirements for our cooling systems, even in the highest temperature furnaces equal low running costs

6: RANGE OF MOUNTING OPTIONS

The most common mounting options available to ensure simple installation

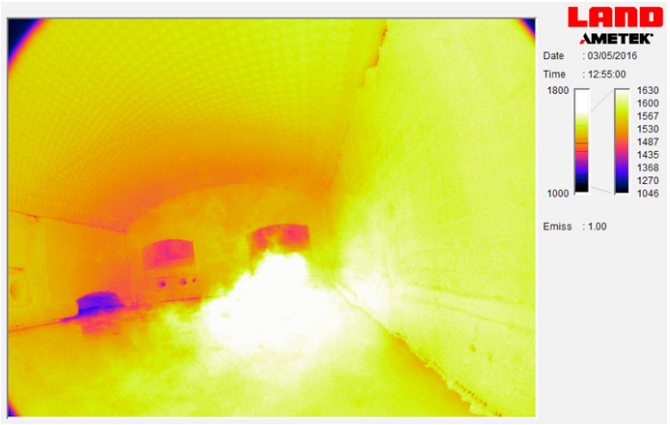
7: THERMOCOUPLE AT NIR-B TIP

Giving the operator an alarm for removing the instrument preventing damage if maximum temperatures are exceeded

OPTIONAL AUTO-RETRACT SYSTEM

provides a further level of protection from damage by overheating, should the water or air services fail.

VIEW OF GLASS MELT TANK



FEATURES & BENEFITS

High temperature measurement accuracy - enables optimum process control through enhanced thermal imaging

Short wavelength sensor - low sensitivity to emissivity changes

Dedicated software - data points, areas of interest, automated alarms, long term data trending and system inter-connectivity (DCS, OPC)

Export License Free - rapid, hassle-free shipping

Real time Thermal Data combined with high resolution visual image - allows true real time batch control, flame optimisation and the opportunity to improve energy efficiency without degrading refractory lifetime

24 Hour, 7 Day Monitoring - Shutterless operation guarantees accurate, reliable data with no blind time

3 Year Warranty - guarantee of reliability

NIR BORESCOPE GLASS

THERMAL IMAGING SOLUTIONS

FOR GLASS FURNACE APPLICATIONS

SPECIFICATIONS

Measurement Range:	1000 to 1800 °C / 1832 to 3272 °F
Spectral Response:	0.85 to 1.05 µm
Frame Rate:	30 fps (Gigabit Ethernet)
Image Pixels:	656 x 494
Accuracy:	1%
Sealing:	IP 65 / NEMA 4
Repeatability:	1 °C
Data Out:	Digital data over Gigabit Ethernet
Software:	Complete Land Image Processing Software (LIPS) package for Windows
Standard Accessories:	Power supply, cables, software, water cooled and air purged mounting and tube
Field of View (Horizontal):	90° x 67.5°
Instantaneous Field of View:	2.4 mrad (90°)
Focus Range:	1 metre to infinity
Probe Length:	610 or 915 mm (24" or 36")
Probe Diameter:	63 mm (2.48")
Mountings:	Multi-fitting Flange, Dual 3" ANSI and PN16 DN80/JIS
Dimensions:	305 x 155 x 1014 mm (or 1329 mm) 12 x 6 x 40 " (or 52")
Power Rating:	24 V dc, 3 watts
Weight:	19.5 kg (for 610mm / 24" variant)
Cable:	Choice of high temperature cable length of 25 or 50 m (82 ft or 164 ft) - cables designed to resist up to 160 °C (320 °F)
Auto Retract (Optional):	Consists of the retract mechanism (24V), control box (IP65 rated and includes PLC, UPS and customer connection terminals) and inter connects. The UPS provides the power to retract the borescope in the event of either air purge fail, water cooling fail, power fail, or an over-temperature condition at the probe tip. If the stored energy in the UPS falls to a certain level, the borescope automatically retracts. Dimensions (inc. Borescope): 486 x 709 x 1900 mm / 19 x 28 x 75 " Weight (inc Borescope): 95 kg / 223 lb

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

WWW.LANDINST.COM | WWW.AMETEK.COM

LAND
AMETEK

Land Instruments International
Stubley Lane, Dronfield
S18 1DJ
United Kingdom
Tel: +44 (0) 1246 417691
Email: land.enquiry@ametek.com
www.landinst.com

AMETEK Land - Americas
150 Freeport Road,
Pittsburgh, Pennsylvania, 15238
United States of America
Tel: +1 (412) 826 4444
Email: land.enquiry@ametek.com
www.ametek-land.com

AMETEK Land China Service
Part A1 & A4, 2nd Floor Bldg. 1
No. 526 Fute 3rd Road East,
Pilot Free Trade Zone 200131
Shanghai, China
Tel: +86 21 5868 5111 ext 122
Email: land.enquiry@ametek.com
www.landinst.com

AMETEK Land India Service
Divyasree N R Enclave,Block A,
4th Floor, Site No 1, EPIP Industrial Area
Whitefield, Bangalore- 560066
Karnataka, India
Tel: +91 - 80 67823240
Email: land.enquiry@ametek.com
www.landinst.com

For a full list of international offices, please visit our website **www.landinst.com**

MARCOM0389 NIR-B GLASS Rev 1

Applies in the UK

Applies in the US

Certificate No. C1200
Applies in India