NIR-656 & NIR-2K

THERMAL IMAGING SOLUTIONS

600 to 1800 °C / 1112 to 3272 °F

LAND

AMETEK®

PROCESS & ANALYTICAL INSTRUMENTS

QUALITY CUSTOMER SOLUTIONS

NIR-656 & NIR-2K

THERMAL IMAGING SOLUTIONS

AMETEK LAND HAS BEEN BUILDING PRECISION MEASURING EQUIPMENT SINCE 1947.

We are specialists in non-contact temperature measurement and combustion monitoring with our products finding 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.

Using advanced high-resolution thermal imagers and thermal imaging systems, modern production processes can be controlled with a very high level of precision to improve product quality, increase production efficiency, and meet increasing quality and efficiency requirements.

Thermal imaging combines the advantages of highly accurate online temperature measurement with high-resolution measurement of temperature distributions to identify hot and cool spots for process optimization and the early detection of process deviations.

A clear view of the process is provided to the operator, while at the same time the process temperatures are precisely captured, documented, and also used for online process control.

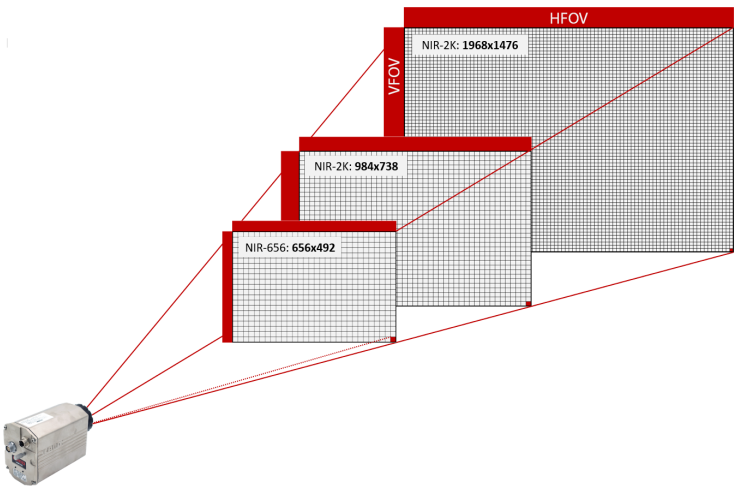
AMETEK Land offers a market-leading range of advanced, high-resolution thermal imaging cameras and systems, which enable a remote 24/7 view of the process and its temperatures online. The variety of cameras and systems available provide resolutions of up to 3 million fully radiometric calibrated camera pixels, temperature ranges from 600 to 1800 °C / 1112 to 3272 °F, and a choice of different optics for a wide range of industrial processing applications, like heating and induction heating, heat-treatment, forging and forming, and many more.

The supporting advanced IMAGEPro image and data processing and control software facilitates long term data trending, early detection of temperature variations while allowing full process control and optimisation to be achieved. The advanced open data interface allows easy configuration of multiple communications with plant and process control systems.

For heavy-duty industrial environmental conditions, an extensive range of protection, and cooling enclosures, and mechanical and electrical accessories are available to ensure the systems work reliably 24/7.

Models available:

- **NIR-656:**
  - 656 x 492 pixels gives 322,752 temperature points @30 fps
- **NIR-2K:**
  - 1968 x 1476 pixels gives 2,904,768 temperature points @15 fps
  - 984 x 738 pixels gives 726,192 temperature points @30 fps



OPTICS DATA

Optic	Resolution	1 m			5 m			10 m			15 m			20 m		
HFOV x VFOV	H x V	Width	Height	IFOV	Width	Height	IFOV	Width	Height	IFOV	Width	Height	IFOV	Width	Height	IFOV
48° x 36°	656 x 492	0.89 m	0.65 m	1.36 mm	4.4 m	3.2 m	6.7 mm	8.9 m	6.4 m	13.6 mm	13.3 m	9.7 m	20.3 mm	17.8 m	12.9 m	27.1 mm
	984 x 738			0.9 mm			4.5 mm			9.0 mm			13.5 mm			18.1 mm
	1968 x 1476			0.45mm			2.2 mm			4.5 mm			6.8 mm			9.0 mm
16° x 12°	656 x 492	0.28 m	0.21 m	0.43 mm	1.4 m	1.1 m	2.1 mm	2.8 m	2.1 m	4.3 mm	4.2 m	3.1 m	6.4 mm	5.6 m	4.2 m	8.5 mm
	984 x 738			0.29 mm			1.4 mm			2.8 mm			4.3 mm			5.7 mm
	1968 x 1476			0.14 mm			0.7 mm			1.4 mm			2.1 mm			2.8 mm

SPECIFICATION & DESIGN

1: HEAVY DUTY WATER COOLING AND AIR PURGING ENCLOSURE

For safe operation in hot and dusty industrial environmental conditions, with low water flow requirement and an aerodynamic air purging design

2: CHOICE OF OPTICAL FIELD OF VIEW

Adapt the thermal image view to the application

3: HIGH RESOLUTION WITH FULL RADIOMETRIC CALIBRATION

Up to 3 million camera pixels each providing highly accurate temperature readings within 0.5%K

4: REMOTE ACCESSIBILITY

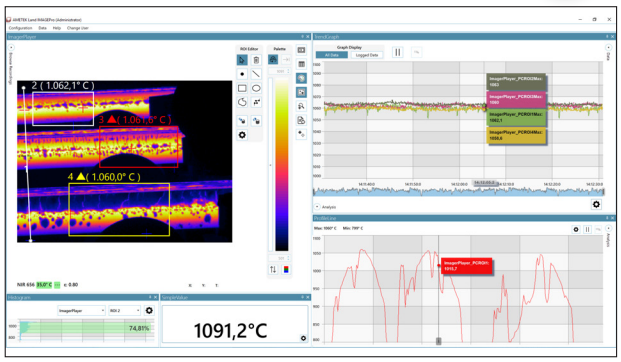
The IMAGEPro advanced thermal imaging and processing software enables full remote control of the camera to monitor and control the process at a safe distance

5: MULTIPLE EASY TO SETUP COMMUNICATION OPTIONS

The Open Data Interface (ODI) provides multiple and easy to setup I/O options, analog and digital, to connect to plant and process control systems

6: FULL RANGE OF MECHANICAL AND ELECTRICAL ACCESSORIES

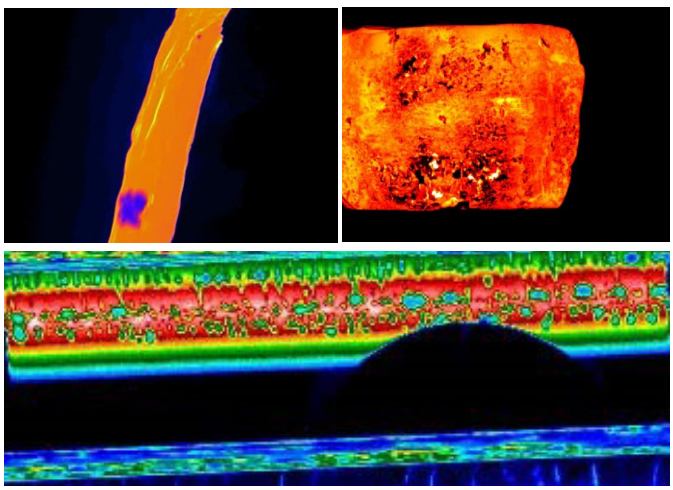
Available to ensure simple installation and maximize lifespan



TYPICAL APPLICATIONS

Heating	Hot Rolling
Heat Treatment	Continuous Casting
Welding	Tapping/Pouring (Liquid Metals)
Coating	Melting
Forming /Forging	Annealing

DETAILED TEMPERATURE MEASUREMENT



FEATURES & BENEFITS

High resolution and highly accurate - giving detailed temperature information, up to 3 million image pixels, transmitted via a high speed digital connection.

Six camera models covering temperatures from 600 to 1800°C / 1112 to 3272°F and different pixel resolutions with wide or narrow fields of view - enabling optimum process control for a wide range of applications.

Accessories suitable for harsh industrial environments - ensuring ultimate measurement reliability and availability.

Simple installation and operation - coupled with the advanced IMAGEPro imaging and processing software packages, costs and complexity are minimised.

2 Year Warranty - guarantee of reliability.

NIR-656 & NIR-2K

THERMAL IMAGING SOLUTIONS

SPECIFICATIONS

IMAGER PERFORMANCE	NIR-656	NIR-2K
Measurement Range:	600 to 1000 °C / 1112 to 1832 °F 800 to 1400 °C / 1472 to 2552 °F 1000 to 1800 °C / 1832 to 3272 °F	
Pixel Resolution:	656x492	984x738 / 1968x1476
Spectral Response:	1µm	
Frame Rate:	30 fps	15 fps (1968 x 1476) 30 fps (984 x 738)
Detector:	FPA - Semiconductor	
Optic HFOV x VFOV (Field of View):	48° x 36° 16° x 12°	
Optic (IFOV):	1.28 mrad (48°) / 0.43 mrad (16°)	1968 x 1476: 0.43 mrad (48°) / 0.14 mrad (16°) 984 x 738: 0.85 mrad (48°) / 0.28 mrad (16°)
Focus Range:	0.3 m to infinity	
Protection Window:	Glass (low thermal expansion)	
Accuracy:	< 0.5% K of reading (600-1000 °C, 800-1400 °C) / < 1% K of reading (1000-1800 °C) < 0.5% K of reading (1112-1832 °F, 1472-2552 °F) / < 1% K of reading (1832-3272 °F)	
Repeatability:	1K	
MECHANICAL & ENVIRONMENTAL		
Dimensions:	81 x 114 x 215 mm (3.2 x 4.5 x 8.5 inch)	
Weight:	approx. 1.5 kg (3.3 lbs)	
Operating Temperature:	0 to 50 °C (32 to 122 °F) non-condensing (0 to 90 % humidity)	
Storage Temperature:	-20 to 80 °C (-4 to 176 °F)	
Environmental Rating:	IP65 / NEMA 4	
Vibration:	Vibration 3g in all axes 10-30 Hz EMC to EN61326-1 industrial	
Mountings:	2x ¼" UNC mounting holes spaced 25 mm apart allow it to be mounted to a large range of accessories	
ELECTRICAL		
Connections:	Digital data over 1 GBit Ethernet (M12, 8 pin) Power (8 pin)	
Status-LED	Power (ON, green) / Camera Temperature/Ambient (OK, green)	
Interfacing:	Gbit-Ethernet	
Power Rating:	24 V DC / < 4 W	
IMAGE PROCESSING		
Software:	IMAGEViewer & IMAGEPro Advanced Image Processing and Controlling Software	
Workstation:	PC-Workstation (option)	
Interfacing:	Open Data Interface, Modbus TCP, Moxa I/O unit	
STANDARD ACCESSORIES		
Accessories (optional):	Power supply, cables, water cooled/purged enclosure, software, workstation	

LAND AMETEK®

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Certificate No. CC-2041 Applies in India

0034 Applies in the UK

Applies in the US

MARCOM0590 NIR-656/2K Brochure Rev 3