

LAND

AMETEK®

*STEEL & METAL
FOUNDRY TEMPERATURE
MEASUREMENT AND
PROCESS CONTROL*
APPLICATION NOTE





CYCLOPS MELTMASTER (C055L)

The CYCLOPS MELTMASTER portable application pyrometer is a dedicated high precision, portable non-contact pyrometer, designed for accurate measurement of liquid metal temperatures in the range 1000 to 2000 °C / 1832 to 3632 °F at the push of a button

- The CYCLOPS MELTMASTER enables accurate and easy temperature measurement of liquid metals in foundry processes by simply pressing a button. Additional working modes allow further and automatic processing of the measurement data.
- Accurate sighting is ensured by the clear, wide angle (9°) field of view and small, clearly defined (1/3°) measurement area. Focusing is fixed at 5m / 16ft.
- All processed temperature values are shown continuously on internal (through a lens sighting) and an external built in display when the trigger is pressed – Peak | Continuous | Valley | Meltmaster
- Built in stages of 10,000 values, four trigger operating modes for data logging are available from logging a measurement for each trigger release to precisely executing pre-configured routes for consistent, long-term readings.
- Emissivity compensation can be used via the icon-based menu system.
- The operating waveband has been carefully chosen to minimize errors due to uncertainty in emissivity and the effects of atmospheric vapor components such as steam or hot sparks.
- With on-board storage the Cyclops 055L-2F provides fast, simple data logging with Bluetooth® and USB connectivity to download this data to PC or Mobile device for analysis and trending.
- World leading lens sighting based on a high quality photo optics, providing clear and detailed views of the measuring spot and the local area.



"THE C055L-2F SIGNIFICANTLY REDUCES THE USE AND COST OF DISPOSABLE 'DIP' TYPE THERMOCOUPLES"

FEATURES & BENEFITS

- Thermocouple tip reduction offering a cost saving benefit
- Instant accurate temperature measurement at the press of a button
- Measuring at a distance for increased operator safety
- Data logging allows multiple readings to be taken across the plant
- High quality lens optics, providing clear and detailed views
- Designed for use in harsh industrial environments
- Return on investment typically within a few months



Through lens sighting and temperature display based on a high quality photo optic lens.

C055L SPECIFICATIONS

Measurement range:	1000 to 2000 °C / 1832 to 3632 °F
Data logging:	9999 readings and 4 routes internally; Mobile (4GB standard storage) or PC logger software (via Bluetooth® or USB connector)
Focusing range:	Fixed focus, nominally at 5 m / 197 in. from thermometer body datum
Response time:	30 ms
Display update time:	0.5 s
Accuracy:	<0.5% (K) of reading
Power requirement:	One MN1604 / 6LR61 / PP3 Battery or USB
Output:	Bluetooth®/USB Connector
Weight:	0.83 kg / 1.8 lb.
Sealing:	IP40
Standard accessories:	Lens cap, protection window/filter, battery, wrist strap, USB cable, heat protection jacket
Optional accessories:	Waterproof carry case, Long eye relief eyepiece
Free Data-Logger Software:	Available at www.ametek-land.com/products/software/cyclopslogger



JUMBO DISPLAY



AMETEK Land Jumbo Display is an LED display unit, which connects via Bluetooth to the Cyclops L, to display instant temperature measurement updates.



SPOT+ MM – MELTMASTER APPLICATION PYROMETER

The smart SPOT+ MM (Meltmaster) application pyrometer provides a single-sensor solution for liquid metal temperature measurements in foundry and tapping applications.

Optimised signal processing and a dedicated application mode allow the SPOT+ MM to accurately measure tapping stream temperatures independent of surface and condition changes during the process.

The SPOT+ MM has millisecond responsivity with integrated time functions to monitor and hold the tapping temperature for a configured time or until the next tapping process starts.

Multiple digital and analog interfaces enable easy integration into new and existing process control systems. The AMETEK Land Jumbo Display can be used for to monitor the tapping temperature via the 4-20 mA output of the pyrometer. An internal visual camera aids alignment and provides a remote process view via the integrated webserver of the SPOT+ MM. The webserver and Modbus TCP/IP enable full remote access to the pyrometer without the need for any additional software.

The SPOT+ MM is compatible with the SPOT Actuator for alignment with moving or multiple tapping streams. A further range of accessories, including the industrial enclosure with cooling and air purging options, allow the SPOT MM to work in harsh environmental conditions 24/7.



FEATURES & BENEFITS

Integrated application mode for accurate tapping stream measurements

1kHz responsivity with intelligent processing time functions for optimized process control

Plug 'n' play operation with process-specific configuration options

Remote access with integrated camera allowing full process control through digital interfacing

Multiple interfaces via analog and digital I/O, Modbus TCP/IP and integrated webserver

Accurate tapping stream temperature measurement improves product quality and process efficiency



SPOT+ AL - LIQUID ALUMINIUM APPLICATION

The SPOT+ AL smart application pyrometer provides a single-sensor solution for multiple aluminium temperature measurement applications, including liquid aluminium in tapping or melting processes.

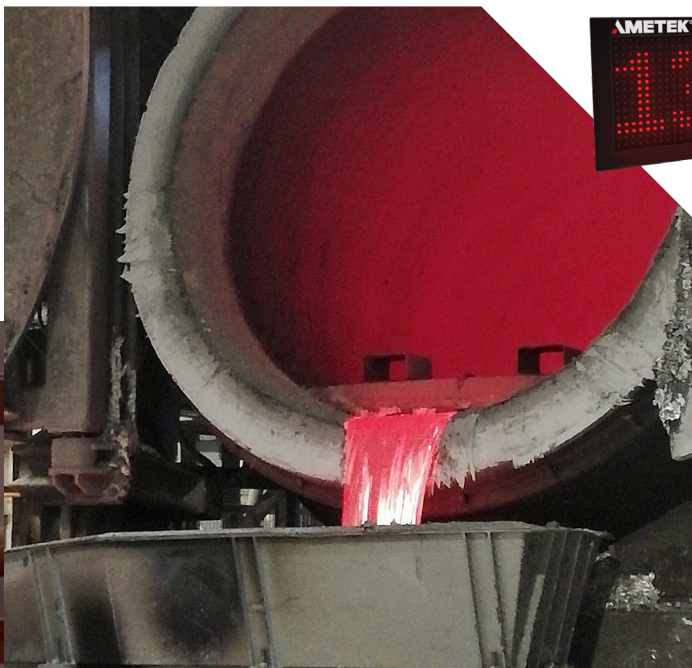
SPOT+ AL's unique Liquid Aluminium Mode (L) enables accurate live and accurate temperature measurements of tapping stream temperatures, even on the most reflective liquid aluminium surfaces.

By choosing the preset liquid mode and aligning the patented green target spot with the pouring stream or the melt pot, the pyrometer gives continuous readings through the digital and analogue interfaces within 15 ms.

The integrated visual camera and SPOT+ AL patented green LED clearly indicate the target area to aid alignment. Combining the SPOT+ AL with the smart SPOT Actuator, the spot detects and tracks the tapping automatically without the need for manual adjustment. Multiple analog and digital interfacing allows an easy communication with plant control systems.

Via the integrated 4-20 mA output the AMETEK Land Jumbo Display can be used for immediate live temperature monitoring in the meltshop.

Both SPOT+ AL and SPOT Actuator provide integrated webservers for easy access through a simple browser. Live pouring temperatures and a remote video view of the process can be streamed live to any computer on a site network. Digital and analogue outputs – or Modbus TCP outputs – provide direct input to process control systems. Installed SPOTPro monitoring and data-logging software offers additional functionality for temperature trending and product quality recording.



FEATURES & BENEFITS

Accurate and fast measurement. Readings accurate to 0.25 % (K) with 15 ms responsivity

Dedicated application mode with intelligent data processing for optimized process control

Fixed or pan-and-tilt installation via SPOT Actuator for manual or automatic alignment with the tapping stream

Smart system with integrated web servers in both the SPOT+ AL and SPOT Actuator

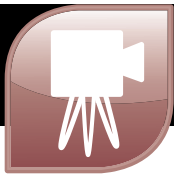
Multiple interfaces using analogue and digital I/O and Modbus TCP/IP ethernet protocol

Remote access and integrated visual camera allows fully remote process control and safe 24/7 operation



NIR-2K-1000/1800-48
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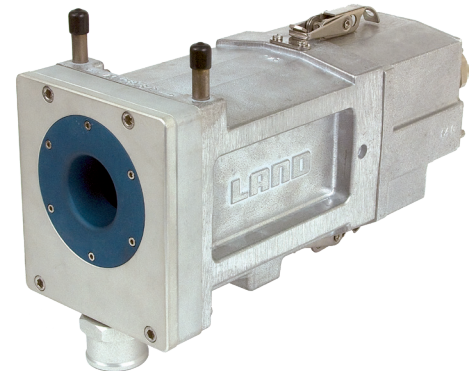
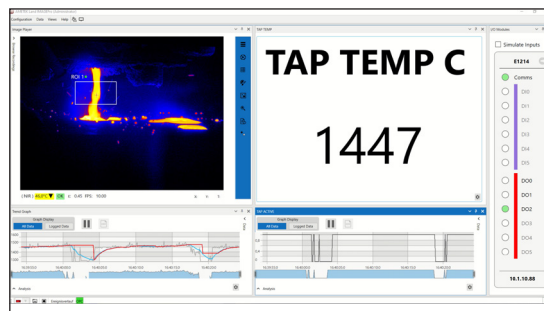
NIR-656/-2K - ADVANCED THERMAL IMAGING

The NIR-656 and NIR-2K are high-resolution, full radiometric infrared imaging cameras, designed to produce continuous live, high-definition thermal images with a resolution of up to 3 million pixels with an NIR spectral response.

They measure temperatures in the range of 600 to 1800 °C (1112 to 3272 °F) in three ranges, providing highly accurate, high-resolution images of the liquid metal, in foundry and tapping processes.

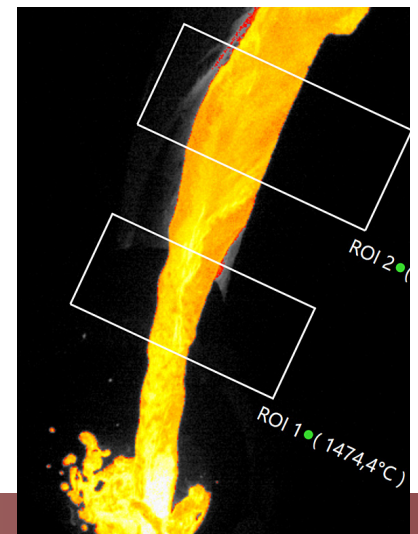
Advanced IMAGEPro thermal imaging and process control software monitors the live thermal image and accurately measures and captures liquid metal temperatures. Multiple interface options, including Modbus TCP/IP, OPC/UA and I/O modules allow an extensive data exchange to plant control systems from multiple imagers.

Triggered data and video recordings can be configured to document the process including anomalies of foundry process.



FEATURES & BENEFITS

- High resolution with full radiometric calibration
- Position-independent monitoring and temperature measurement of moving tapping streams
- Accessories available for harsh industrial environments
- Simple installation and operation
- Multiple easy to setup communication options
- Two year warranty offering a guarantee of reliability
- IMAGEPro control software provides full remote access and monitoring of the process
- Event trigger based data recording allows full process control



SPECIFICATIONS

	NIR-656	NIR-2K
Measurement range:	600 to 1800 °C / 1112 to 3272 °F In three ranges	
Focusing range:	0.3 m to infinity	
Pixel Resolution:	656x492	984x738 / 1968x1476
Field of View (FOV):	16° x 12° / 48° x 36°	
Frame Rate:	30fps	15 fps (1968 x 1476) / 30 fps (984 x 738)
Data logging:	IMAGEPro - Advanced Image Processing and Controlling Software	
Accessories:	Industrial enclosures and other application specific accessories are available	

AMETEK LAND SOLUTIONS FOR STEEL FOUNDRY DIGITALISATION



Our in-house service centres provide after-sales services to ensure you get the best performance from your system. This includes technical support, certification, calibration, commissioning, repairs, servicing, preventative maintenance and training. Our highly trained technicians can also attend your site to cover planned maintenance schedules and repair emergency breakdowns.

CYCLOPS 055L 2F



PORTABLES

SPOT+ MM



FIXED SPOT THERMOMETERS

SPOT+ AL

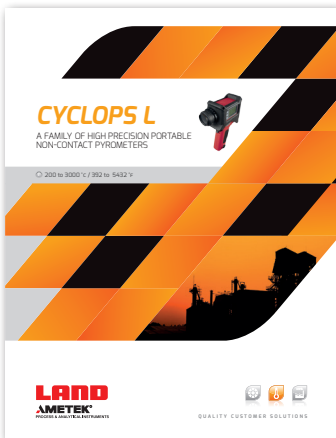


FIXED SPOT THERMOMETERS

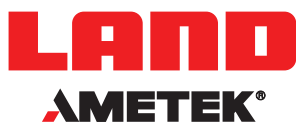
NIR-656 & NIR-2K



PROCESS IMAGING



DOWNLOAD THE BROCHURE AT: WWW.AMETEK-LAND.COM



CONTACT US



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We are fully committed to Quality Assurance. See all our accreditations at AMETEK-LAND.COM/QUALITY