

CASE STUDY

CYCLOPS MELTMASTER DELIVERS RETURN ON INVESTMENT FOR INDIAN FOUNDRY

INTRODUCTION

PSG Foundries required an effective solution for accurately measuring the temperature of liquid metals at its foundry. The business purchased over 10,000 DIP thermocouple consumables each year and was looking for a solution that was both safer and more cost effective. Its aim was to optimise the quality of the molten metal, whilst achieving significant annual savings on consumables.

THE CHALLENGE

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THE SOLUTION

AMETEK Land recommended the Cyclops 055L-2F Meltmaster, a high-precision portable non-contact thermometer that provides accurate measurement of liquid metal temperatures in the range 1000 to 2000 °C / 1832 to 3632 °F.

HOW DOES IT WORK

The operator stands 3-4 metres away from the molten metal and points the Cyclops Meltmaster at the liquid. The operator pulls the trigger to take a measurement. That measurement is then displayed in four simultaneous modes, including Continuous, Peak, Valley and a unique advanced Meltmaster measurement mode to meet users' specific requirements.

A clear, wide angle field of view and small, clearly defined measurement area help to ensure accurate sighting. All processed temperature values are shown continuously on the display when the trigger is pressed.

- MADE IN INDIA WITH ISO/IEC 17025 CERTIFICATION
- SIGNIFICANTLY REDUCES THE USE AND COST OF DISPOSABLE "DIP" TYPE THERMOCOUPLES
- STANDARD BLUETOOTH AND USB CONNECTIVITY
- RUGGED INSTRUMENT CASING FOR HARSH ENVIRONMENTS



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CYCLOPS 055L-2F

Meltmaster Portable

Non-contact Pyrometer

1000 to 2000 °C /1832 to 3632 °F

RETURN ON INVESTMENT

PSG Foundries already has achieved an annual saving on DIP thermocouples, which the plant had used previously to measure the temperature of molten metal at a cost of about \$6,000 per annum. The AMETEK Meltmaster represents a good return on investment, since its purchase it has paid for itself in less than 6 months, plus the instrument uses no consumables.

In addition, the Meltmaster will accrue greater value to the foundry over the years by enabling it to deliver the best and most consistent mould value by accurately measuring liquid metal temperatures using a single instrument.

THE ADVANTAGES

In addition to a relatively quick return on investment, the Cyclops 055L-2F Meltmaster offers PSG Foundries several other advantages. Because of the non-contact nature of its measurement, there are health and safety benefits to using the Meltmaster. It is much safer from an operational point of view. The temperature readings are triggered from a distance of 3 to 4 metres away from the molten metal, providing a much higher level of operator safety.

There is the high accuracy of the Cyclops 055L-2F Meltmaster, even while taking the temperature of the pouring of the last mould. The instrument is renowned for its ability to measure real liquid metal temperatures, regardless of high-temperature



Measurement taken while pouring liquid metal into the moulds - Manual Pouring Lines.

CASE STUDY

sparks, low-temperature water vapour, dust and smoke, which can cause errors in temperature measurement.

The instrument features four trigger operating modes for datalogging. Modes are available from logging a measurement for each trigger release to precisely executed pre-configured routes for consistent, repeated long-term readings. This innovative pyrometer can store up to 9,999 readings.

Emissivity compensation is provided via an icon-based menu system. The operating waveband is carefully chosen to minimise errors due to uncertainty in emissivity and the effects of atmospheric vapour components, such as steam or hot sparks. Consistency of measurement is assured as the Cyclops L Meltmaster offers excellent repeatability.

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. Its rugged instrument casing is designed to withstand harsh environments for extended periods. It also features a lens protector that maintains the optics in good condition.

The ergonomically friendly equipment is designed for single-hand operation, with contact-free measurement for better safety and easier use in hazardous environments.



Bluetooth® Jumbo Display



Measurement taken at the furnace location.

CONCLUSION

"AMETEK Land's Cyclops Meltmaster infrared, non-contact thermometer is a highly effective solution for accurate temperature measurement of molten metal. It provides easy, accurate point-and-measure temperature readings. Since its introduction, our plant has significantly reduced our expenditure on disposable DIP type thermocouples," comments Mr. S Kuppusamy, Vice President of PSG Foundries.

"Foundries in India have come to recognize the major advantages of our Cyclops Meltmaster both in terms of cost savings and in safer plant operation," notes Prasath Venkatasamy, National Service Manager for AMETEK Land in India. "Also, since the equipment is made in India and calibrated in our own NABL-accredited laboratory, our customers benefit from an easier transaction, shorter delivery times, local technical support, and access to annual calibration services."



SPECIFICATIONS - CYCLOPS 055L-2F

Measurement range:	1000 to 2000 °C / 1832 to 3632 °F
Display:	4-digit LCD in viewfinder; external backlit LCD display
Measuring modes:	Continuous, Peak, Valley and advanced Meltmaster
Data logging:	9999 readings and 4 routes internally; Mobile (4GB standard storage) or PC logger software (via Bluetooth® or USB connector)
Data logging modes:	Classic, Burst, Latched, Route
Optical system:	9° field of view; eyepiece adjustable -3.75 to +2.5 diopters
Focusing range:	Fixed focus, nominally at 5 m / 197 in. from thermometer body datum
Minimum target size:	Parallel 28 mm / 1.1 in target spot diameter from lens to 5 m / 197 in.
Spectral response	Nominally 0.55 µm
Emissivity adjustment:	0.10 to 1.20 in 0.01 step graduations
Response time:	30 ms
Display update time:	0.5 s
Accuracy:	<0.5% (K) of reading
Measurement resolution:	0.1 °C / 1 °F
Measurement field of view:	Fixed Focus
Repeatability:	<1 °C / 2 °F
Operating temp range:	0 to 50 °C / 32 to 122 °F
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



PERFORMANCE SERVICES

AMETEK Land's AMECare Performance Services ensure peak performance and maximum return on investment over the life of your equipment.

We will deliver this by:

- Proactively maintaining your equipment to maximize availability.
- Optimizing solutions to meet your unique applications.
- Enhancing user skills by providing access to product and application experts.

AMETEK Land's global service network provides unparalleled after-sales services to ensure you get the best performance and value from your AMETEK Land products. Our dedicated service centre teams and on-site engineers are trained to deliver the highest standard of commissioning, maintenance and after-sales support.

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CYCLOPS L
FAMILY OF
PORTABLE
PYROMETERS

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

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