LAND®

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Modular Gold Cup

Reference pyrometer for tube furnaces

The LAND® Gold Cup probe is a non-contact thermometer specifically designed for reference measurements in fired heaters in the hydrocarbon processing industry. It has a highly reflective gold hemisphere which is held against the tube. This has two functions:

1) reducing background incident radiation from hotter surroundings

2) enhances the effective emissivity of the tube

The gold coating traps the infrared energy emitted by the tube and effectively creates a black body cavity, with a small aperture through which the radiation can be measured. In these conditions, the emissivity is close to the theoretical maximum of one. Black body condition combined with the lack of background radiation removes the two largest uncertainties in non-contact infrared temperature measurements.

The Modular Gold Cup repackages this technology in a convenient new probe, designed in collaboration with industry experts. It allows the probe to be assembled into different configurations for multiple furnace types, and it can be disassembled into a compact industrial case for easy shipping. The complete system weighs less than 32 kg so it can be transported on most commercial airlines.

Once assembled into the required configuration, the Modular Gold Cup is connected to a cooling air supply and inserted through a port into the furnace. Additional cooling is applied once the probe has been removed from the furnace to allow a quicker cool down before taking the next reading.

FEATURES & BENEFITS

- **Unique reference:** No other measurement device can provide the true temperature reading delivered by Gold Cup. Conventional infrared temperature measurements depend on accurate emissivity determination and compensation for the furnace environment.
- **Portable & configurable:** The probe can be transported easily in its peli case and can be made into whichever length or configuration best suits the application
- **Improves your process:** By increasing the accuracy of other non-contact devices, it helps make your fired heater operations more efficient while also extending tube life.
- **Reduces errors:** The Gold Cup provides reference readings that enable the correction of non-contact temperature measurement instruments. It cancels out the inherent errors typically found within other infrared thermometers.



A straight Modular Gold Cup used on an ethylene furnace.

See degrees differently.

SPECIFICATIONS

The Modular Gold Cup is ordered as a kit. There are two options, the Straight kit (left) and the 90/180 kit (right) pictured below.





Output:	LCD Display 300 to 1300 °C (572 to 2372 °F)
Response time:	0.5 s
Resolution:	0.1 °C/ 1 °F
Repeatability:	1 °C / 2 °F
Absolute accuracy:	<0.25% °C + 2 °C
Ambient temperature limits (Handheld Display Unit):	0 to 50 °C/32 to 122 °F
Thermometer module temperature limits: As displayed on HDU (note: this is only updated on HDU when trigger button is pressed)	0 to 55 °C/32 to 131 °F
Power Requirement:	1 x 9 V PP3 battery
Maximum cooling air pressure:	8 bar (g)
Pelicase dimensions	L = 1118 mm / 44”, W = 426 mm / 16.8”, H = 202 mm / 7.9”
Cooling connections:	1/2” BSP/NPT Inlet connections
Minimum Air flow rate:	1000 l/min at STP
Options:	Cooling control panel UKAS Calibration Shrouds to suit tube diameter
Max Straight operating length:	90/180: 1.8 m Straight: 3.0 m

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

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