Specifications

Key System Components	
Thermal Imager	
Range	0 to 500°C / 32 to 932°F
Accuracy	±2°C or 2%
Hazardous Area Rating	Zone 2 Group IIC temp. class T1 (standard) Zone 1 Group IIC temp. class T3 (optional)
Ambient Temperature	-20 to 60°C / -4 to 140°F
Field Connection Box	
Power Supply	24V DC
Connections	Redundant Fibre Optic to Control Room
Hazardous Area Rating	Zone 2 Group IIC temp. class T1 (standard) Zone 1 Group IIC temp. class T3 (optional)
Ambient Temperature	-20 to 60°C / -4 to 140°F
Control Room	
PC	1x Live Data Server 1x Archive Data Server
Network Panel	Fibre Optic Termination and Distribution Redundant Ethernet Switches
Optional Items	
Pan and Tilt unit for Hazardous Areas	To maximize coverage in restricted installations by moving the thermal imager
Hazardous Area Power Supply	90-240V Input / 24V Output
Software	
Areas of Interest	4 per Camera
Area of Interest Alarm Functions	Maximum Temperature Average Temperature Minimum Temperature Rate of Change
Hotspot Detection & Tracking	Within an Area of Interest Per Camera Overall System
Measured Values & Alarm Output	OPC Server
Trending and Archiving	All measured values are logged into a database and can be trended over time to allow the development of a hotspot to be monitored
System Status Monitoring	Alarm if camera is over temperature, loses communication or power failure
Configurable Parameters	Focus of camera Alarm setup • Warning Levels (Low / High) • Shut down alarms Low-Low / High-High Adjust electronic zoom
Browser-Based Viewer	Visualisation of current vessel condition from remote locations using Web Browser

Intelligent Imaging

Intelligent imaging solutions aim to solve problems by providing more than just a measurement. Land is able to provide a custom solution according to your requirements; this includes custom temperature ranges, application specific mountings, and custom communications protocols.

LAND

Non-Contact Temperature Measurement Solutions

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UKAS CALIBRATION 0034 — Applies in the UK

LABORATORY ACCREDITATION BUREAU ACCREDITED ISO/IEC 17025:2005

REGISTERED ISO 9001 MANAGEMENT SYSTEM — Applies in the USA

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Continuous product development may make it necessary to change these details without notice.

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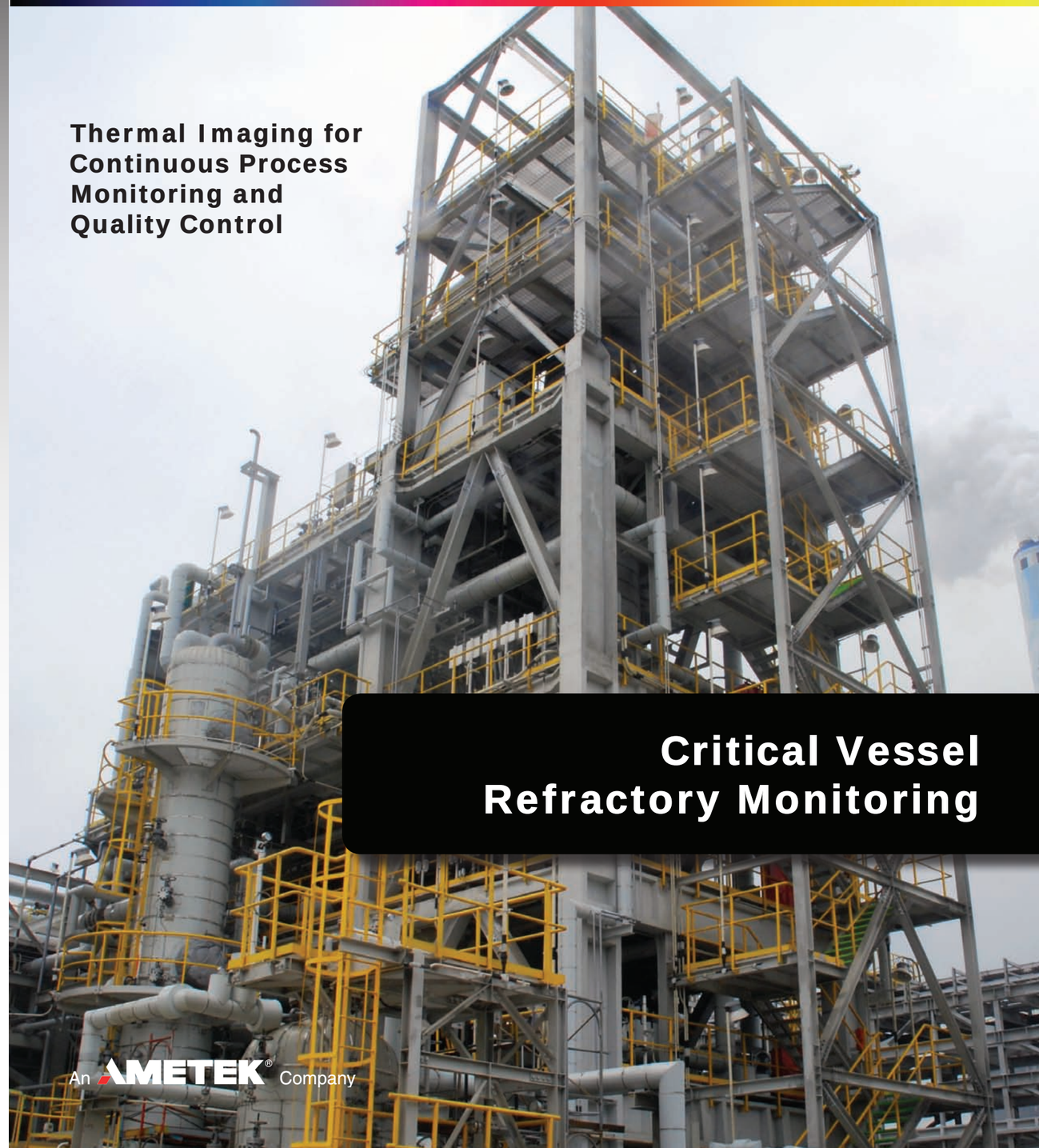
Thermal Imaging for Continuous Process Monitoring and Quality Control



Critical Vessel Refractory Monitoring

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When processes take place inside refractory lined vessels it is critical for safe plant operation to ensure the integrity of the refractory lining. In the event of refractory breakdown hot gases come into contact with the vessel shell potentially causing catastrophic failure and risking costly unplanned shutdowns.

Limited Capability

It has long been acknowledged that the most effective method for monitoring refractory integrity is through vessel skin temperature measurements. However this is typically performed using contact thermocouples bonded to the vessel surface and connected via a fiber optic mesh.

The measurement coverage on the vessel is often one measurement per 250cm²/38 in². Such systems are both expensive to install, require regular maintenance and often need to be replaced after less than 3 years of vessel operation.

Proven Monitoring System

The proven Critical Vessel Monitoring System from LAND is able to provide a significantly improved measurement density with one measurement per 16cm²/2.5 in² allowing earlier detection of refractory breakdown often before the problem becomes dangerous.

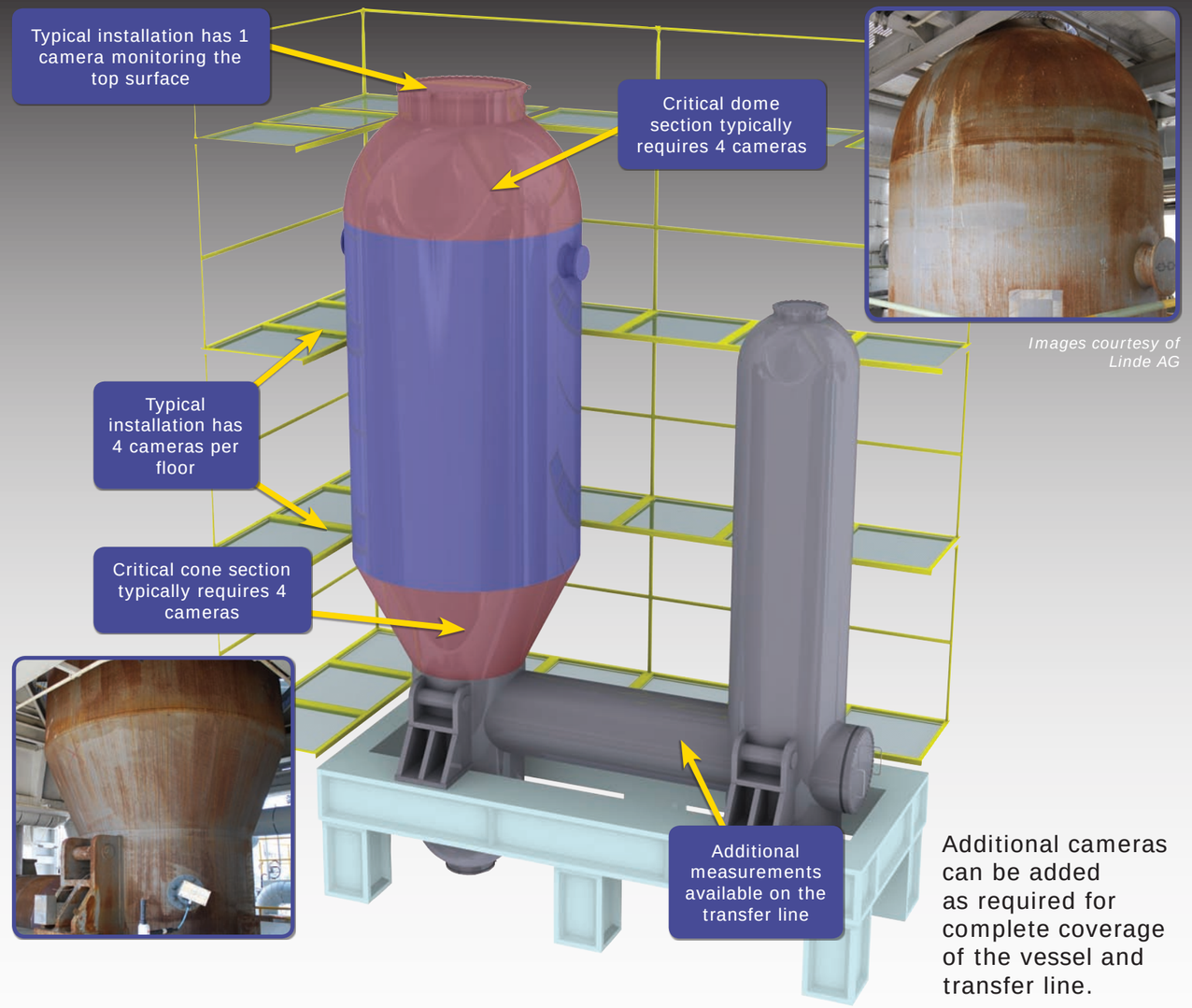
The system uses low maintenance, industrial thermal imaging cameras installed around the vessel to maximize the coverage of the entire vessel and provide complete coverage of the critical dome and cone sections.

Key Applications

High Temperature Gasifier Vessels -
Typically coal and oil fuelled

Gas to Liquid Process Vessels

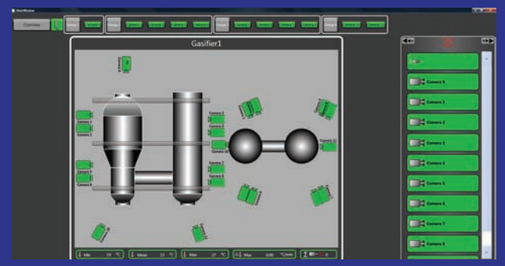
Thermal Imager Housing suitable for Hazardous Area installations



Images courtesy of Linde AG

Additional cameras can be added as required for complete coverage of the vessel and transfer line.

The individual camera display allows the operator access to detailed information from each measurement location.



The standard operator interface showing a complete overview of the system, any alarms within the system will be highlighted to alert the operator to potential problems quickly.

Features and Benefits

Maximum protection - *Over 76,000 individual measurements per thermal imager, ensuring that even the smallest degradation in the refractory can be detected improving safety for both plant and personnel*

Low cost of ownership - *Installation and maintenance can be performed under a hot permit reducing the plant downtime*

Reliable and robust - *Industrial thermal imaging system which is designed for harsh environments, ensuring ultimate measurement reliability and availability backed up with a 36 month warranty and expected lifetime in excess of 10 years*

Payback - *Potential cost savings by extending refractory lifetime based on actual data rather than historic experience*

Simple Integration - *Integrated web interface allow visualization of current vessel condition from all plant locations with a network connection (user account on the server is required for additional security)*

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