SPOTAL EQS

ALUMINIUM APPLICATIONS PYROMETER

EXTRUSION, STRIP MILL, FORMING / FORGING AND FURTHER PROCESSING

A PRODUCT OF THE SYSTEM 5 FAMILY

200 to 700 °C / 392 to 1292 °F

LAND

AMETEK®

PROCESS & ANALYTICAL INSTRUMENTS

QUALITY CUSTOMER SOLUTIONS

SPOT AL EQS

ALUMINIUM PROCESSING APPLICATION PYROMETER

BUILDING ON THE VAST EXPERTISE AMETEK LAND HAS IN MEASURING ACCURATE TEMPERATURE OF ALUMINIUM IN ALUMINIUM PROCESSING APPLICATIONS, LIKE EXTRUSION, ROLLING, FORMING / FORGING AND FURTHER PROCESSING, THE SPOT AL EQS NOW PROVIDES A CHOICE OF DESIGNATED MODES IN ONE DIGITAL PYROMETER.

Utilising the latest cutting edge design in detectors combined with the most advanced data processing algorithms has created an extremely accurate and repeatable pyrometer for use in the low emissivity Aluminium industry.

AMETEK LAND HAS BEEN MANUFACTURING PRECISION MEASURING EQUIPMENT SINCE 1947.

WE ARE SPECIALISTS IN NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION MONITORING WITH 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.

Pre-set algorithms are specifically designed for measurements at the extruder press exit (E), quench and billets (Q), strip mill (S), forging / forming applications (F) and forging / forming applications with high-magnesium content alloys (F Mg). All algorithms are configured to work plug'n'play, and can be fine-tuned through a simple to use interface. Emissivity is measured and output alongside surface temperature. SPOT AL EQS uses the latest on-board digital processing to ensure a fast response time and small spot size even with these complex algorithm calculations.

With the Webserver or free to download SPOTViewer and SPOTPro software, the pyrometer can be tuned to the site or alloy parameters depending on the expected emissivity range and alloys. In the SPOTViewer and SPOTPro software you can fully customise an algorithm to a new product using reference temperature measurements if needed.

This latest SPOT application pyrometer can be integrated with press controls, PLCs and control software, and the temperature can be used to accurately control the production process to run at optimum throughput rates increasing efficiency and product quality. Integrating directly allows aluminium processing processes to run reliably and repeatably and produce the highest quality products with minimal scrap.

The SPOT AL EQS has additional inputs and outputs including emissivity out and LED switching which are available as analogue/digital control I/O as well as over Modbus/TCP.

Combining Ethernet, Modbus TCP, Video, Analog and Alarm Outputs within one device, SPOT makes all these conveniently available to the operator. Pyrometer readings and configuration settings are available on the rear display and remotely via a web browser or through SPOTViewer/ Pro software. SPOT AL EQS features both local and remote motorized focus adjustment.

Dedicated software extends the usability. SPOTViewer PC software gives small SPOT AL EQS installations the added benefits of remote monitoring and algorithm tuning; larger installations can use SPOTPro, which allows users to configure, display and log data from up to 40 pyrometers and the advanced SPOT Actuator, as well as full algorithm customisation for a new added product.

MOUNTINGS & ACCESSORIES

AMETEK LAND OFFERS A RANGE OF MOUNTINGS AND ACCESSORIES FOR SPOT PYROMETERS

SPOT AL EQS is designed to be interchangeable with existing fixed spot pyrometers.

The SPOT Actuator is an intelligent motorised unit providing:

- **Automatic or remote manual alignment** of the SPOT AL EQS with extruded profiles at the press or quench exit positions following die change
- **Temperature scanning** functionality for measurement of billet temperature profile before extrusion or further metal processing

Please contact us for specific recommendations on the choice of mountings, brackets, cables, or any other accessories, that may suit your specific industry or installation.

SPOT MODES

ALGORITHM	MODE DESCRIPTION	EMISSIVITY
E	Extrusion	Low
Q	Quench	Medium
S	Strip	Medium
F	Forming/ Forging	Lower to Medium
F Mg	High Magnesium Alloy	Lower

SPECIFICATION & DESIGN

1: PRE-SET ALGORITHMS

Multiple dedicated pre-set algorithms for Aluminium Extrusion, Quench, Strip, Forming / Forging and Higher Magnesium Alloys

2: THROUGH-THE-LENS INTEGRATED CAMERA

Easy target alignment and verification in low and high brightness environments

3: PATENTED PULSED HIGH BRIGHTNESS LED SIGHTING

Indicates both target size and location using an easily visible pattern; no laser safety requirements

4: SIGNAL PROCESSING

All processing features are integrated into SPOT. No need for any separate processor unit

5: HIGH QUALITY OPTICS

Features a durable sapphire protection window and ensures precise targeting and quality measurements

6: INTEGRATED WEB SERVER

Allows for remote adjustment and readings via any web browser

7: REAR DISPLAY & CONTROLS

Target viewing, temperature reading and set-up through simple menu driven choices; no need for separate software

8: POWER OPTIONS

Power over Ethernet or 24 to 30 V DC at the instrument. Multiple I/O options, in/outputs and digital/analog interfacing

TYPICAL APPLICATIONS

Extrusion - Billet profile, Extrusion, Quench

Strip Mill - Ingot/slab (re)heat furnace, Hot rolling

Forming / Forging - Preheated and reaheated billets, slabs, and formed / forged products

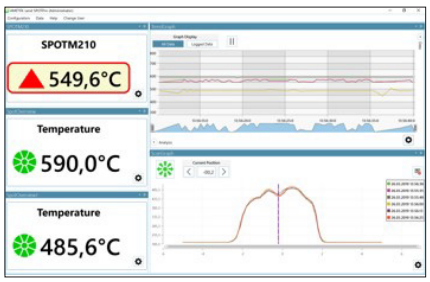
Other - Induction heating / heat treatment, Mounting / shrinking, Preheating for coating, Preheating for bending

SPOTPRO SOFTWARE

SPOTPro provides a single control point to configure, store and view data for up to 40 SPOT infrared pyrometers and SPOT Actuators.

Giving a complete overview of all the SPOT thermometers connected to your network, SPOTPro allows you to independently configure data logging for each thermometer, by setting automatic triggers for data storage.

SPOTPro allows users to compare live and historical data to trend and diagnose process issues. Data can be logged to an SQLite database for easy configuration or an MS SQL Server database for enterprise-level data requirements. All data can be exported to CSV or XML for integration into other processes or further processing in applications such as MS Excel.



FEATURES & BENEFITS

Specialized Aluminium Algorithms - provide accurate digital temperature readings of low and variable emissivity Aluminium allowing optimisation of process speed and quality of the aluminium processing extrusion

Single person installation at instrument location - local display and settings; no need for a second person in the control room

Industry standard 4-20 mA linear temperature output - multiple I/O option analog/digital in and outputs

Modbus TCP - widely used and popular industrial protocol over Ethernet

Durable Sapphire Protection Window - resists scratches, solvents and easily cleaned with a soft cloth

Single Sensor Solution - Ideal for use with customer PLCs or DCS systems; no requirement for a separate processor. Easy to implement in small or large organizations

Software - SPOTViewer provides remote display and data logging of one SPOT pyrometer; SPOTPro provides for multiple thermometers. Both SPOTViewer and Pro provide configuration, datalogging and algorithm customisation

SPOT AL EQS
ALUMINIUM APPLICATIONS PYROMETER

SPECIFICATIONS

Measurement Range:	200 -700 °C / 392-1292 °F
Measurement Accuracy:	± 5 °C at 200 °C, ± 3 °C at 250 °C or ± 2 °C or 0.25% K at 300 °C and above (extrusion and quench), ± 5 °C or ±0.5 %K (lubricated strip, forming / forging)
Repeatability:	±3 °C at 200 °C, ±2 °C at 250 °C, ±1 °C at 300 °C and above (extrusion and quench), ± 5 °C (lubricated strip, forming / forging)
Resolution:	0.1 °C
Noise:	5 °C at 200 °C, 1.5 °C at 250 °C, <0.5 °C at 300 °C and above
Detector Type:	Application specific selected range of narrow wavelength bands designed to optimise temperature accuracy measurement of Aluminium
Sealing:	IP65
Response Time:	Adjustable 15 ms to 10 s
Interfaces:	x2 0/4 - 20 mA Output, 4 - 20 mA Input, Digital CMD In and CMD Out, Ethernet (TCP-IP, Modbus TCP, DHCP, http, udp, ICMP)
Processing Functions:	Peak/Valley Picking, Averager, Modemaster, CMD In sampling or LED control, CMD Out alarms, emissivity output or actuator control
Power Requirement:	Power over Ethernet or 24 to 30 V DC at the instrument
Display:	Local display with image streaming
Software:	Live configuration and temperature display on any web browser. Freely downloadable SPOTViewer software with datalogging, live and historical data trending plus remote image capture; SPOTPro software available for use with multiple SPOT pyrometers
Languages:	Integrated multiple language selections: English, German, French, Italian, Spanish, Portuguese (Brazilian), Japanese, Chinese (simplified Mandarin), Korean, Russian, Polish
Field of View:	60 :1 to 90%
Mounting:	Full range of mountings and accessories available
Ambient Temp Range:	5 - 60 °C / 41 - 140 °F specified, 0-70 °C / 32 - 158 °F operating before cooling required
Focus Range:	300 mm / 11.8 in to infinity, locally or remotely adjusted
Sighting:	Integrated video with local display and remote image capture. Patented pulsed Green LED focus pattern confirmation
Inputs:	4 - 20 mA Input, 24 V DC CMD In, Ethernet, (TCP-IP, Modbus TCP, DHCP, http, udp, ICMP)
Outputs:	2x 0/4 - 20 mA, CMD Out relay, Ethernet (TCP-IP, Modbus TCP, DHCP, http, udp, ICMP)
Settings:	Configure locally using the thermometer interface or remotely (using the Webserver, SPOTViewer, or SPOTPro). Emissivity, mode, current output range, alarm logic output and thresholds, network settings, focus and LED, language and user name
Warranty:	36 months

*Measurements within specification over 5-95% of range.

SEE OUR OTHER LITERATURE ON SPOT MOUNTINGS & ACCESSORIES AND SPOTVIEWER/SPOTPRO SOFTWARE:


SPOT FAMILY PYROMETERS


SPOT ACTUATOR


SPOTVIEWER/ SPOTPRO SOFTWARE

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

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