CASE STUDY

SAPA PROFILES UK REAPS BENEFITS OF NEW TEMPERATURE MEASUREMENT SOLUTION

SAPA Profiles UK has implemented AMETEK Land's new SPOT AL EQS (SPOT Aluminium Extrusion, Quench and Strip) pyrometers at its aluminium extrusion plant in Tibshelf, Derbyshire, and reaps major efficiencies and performance benefits by accurately measuring temperature of low and variable emissivity aluminium.

This innovative new SPOT AL EQS pyrometer from AMETEK Land, the leading industrial non-contact temperature measurement specialist, provides high accuracy and a three-in-one capability for aluminium applications, including extrusion press exit, extrusion press quench zone and strip mills.



"WITH PRECISION CONTROL OF EXTRUSION CONDITIONS, WE HAVE MINIMAL TO NO TEMPERATURE VARIATION FOR EACH EXTRUSION LENGTH OR FROM EXTRUSION TO EXTRUSION, RESULTING IN REPEATABLE RELIABLE MATERIAL PRODUCTION WITH EVEN METAL QUALITY AND STRENGTH".

Cristiano Baiano

Senior Automation Engineer, SAPA Profiles, UK

With SAPA Profiles UK, the world's leading producer of aluminium extrusions, supplying a large proportion of its products to the highly controlled automotive, marine and construction industries, the aluminium it processes needs to be cooled at an exact quenching rate to achieve the highest quality metallurgical properties. If this is achieved, it gives greater confidence that the extruded profiles will meet the required structural properties in subsequent testing. In the past, SAPA Profiles UK found it challenging to measure the lower end of the temperature range and sometimes had two separate pyrometers to cover the wide spectrum. The advantage of SPOT AL EQS is that it covers temperatures from 200 to 700 °C / 392 to 1292 °F within one highly effective instrument.

Cristiano Baiano, Senior Automation Engineer at SAPA Profiles UK, said: "Implementing AMETEK Land's SPOT AL EQS pyrometer at the press exit and after the quench at our site in Tibshelf has enabled us to continue to meet the exacting standards of our customers. SPOT AL EQS gives us the ability to take accurate measurements at very low temperatures, which is essential to ensure product quality and performance.

"We now have all the data available to our operators that they need to enable them to make informed decisions. An added benefit was that it was very simple and straightforward to integrate into our control system."

SAPA PROFILES UK REAPS BENEFITS OF NEW TEMPERATURE MEASUREMENT SOLUTION

SPOT AL EQS

Aluminium Applications Pyrometer
For Extruders and Rolling Mills
200 to 700 ˚C / 392 to 1292 ˚F

SAPA Profiles UK required the ability not only to take fast and accurate temperature measurement readings in real time but also to provide its operators with vital diagnostic information about what is happening throughout the extrusion press exit and quench process. The company has the ability to trend data over time, via a direct digital connection to the PLC. This gives operators a much better overview of the process performance, compared to using real-time readings alone. Operators also can remotely trigger the LED sighting from a PLC and adjust the position of the quench exit instrument remotely.

Cristiano Baiano adds: "With precision control of extrusion conditions, we have minimal to no temperature variation for each extrusion length or from extrusion to extrusion, resulting in repeatable reliable material production with even metal quality and strength".

SPOT AL EQS, the latest innovation to the SPOT range, is specifically designed to work within low



SPOT AL EQS at the press exit and quench displayed on the customer's PLC.



SPOT AL EQS at the quench exit. Green target LED is activated.

emissivity environments where regular pyrometers might struggle to provide accurate and reliable readings. Utilising the latest cutting edge design detectors, combined with the most-advanced data processing algorithms, AMETEK Land has created an extremely accurate and repeatable pyrometer with an industry-leading response time.

SPOT AL EQS pyrometer offers the ability to customise and tune the algorithms for bespoke applications and specific aluminium grades.

TYPICAL APPLICATIONS

Aluminium Extrusion - Press Exit

Aluminium Extrusion - Quench

Hot Rolling Mills - Aluminium Strip

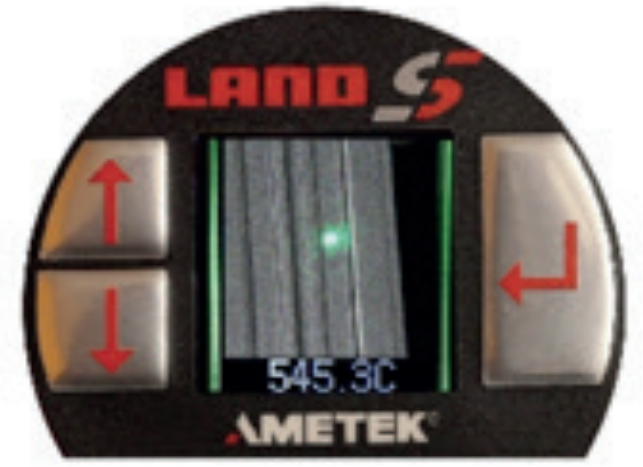
Richard Gagg, Global IR Product Manager for AMETEK Land, says: "This revolutionary new pyrometer is designed for even greater accuracy and convenience and means the same pyrometer type can be used at all positions in the aluminium extrusion process. SPOT AL EQS can make a huge difference to product quality and performance for companies like SAPA Profiles UK for whom accurate temperature measurement at both ends of the spectrum is vitally important.

"SPOT AL EQS is a very user friendly, intuitive system that has been specifically designed to be easy to integrate within existing control systems. The high ambient temperature rating of 70 °C allows the pyrometer to be used in many locations without the need for additional cooling."



SPOT AL EQS at the press exit. Green target LED is activated.

Incorporating the latest digital communication systems, the SPOT AL EQS can be configured remotely through a dedicated webserver. With Power over Ethernet capabilities, it will communicate data over Ethernet to any web browser or via Modbus TCP, DHCP, http, udp and ICMP. This ensures that along with its traditional 4-20mA/0-20mA output signal, the SPOT AL EQS can be easily integrated into any plant control infrastructure.

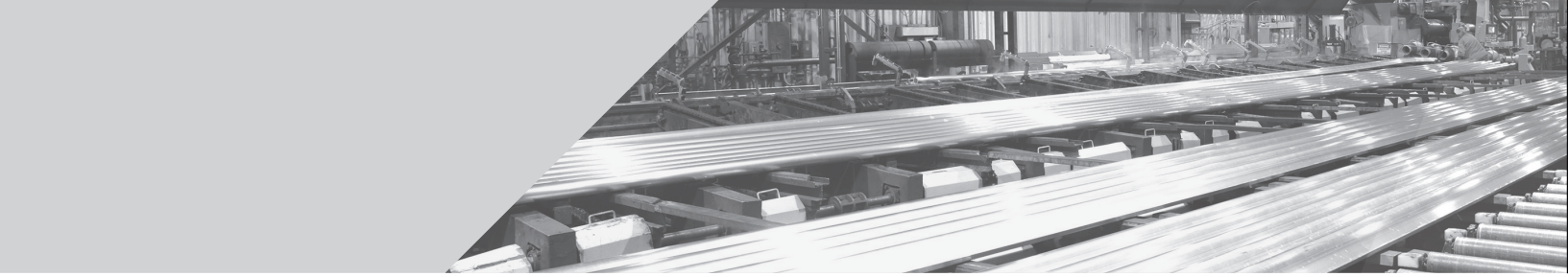


Integrated video camera provides confirmation of target alignment either locally or remotely through a dedicated web server. The green target LED is also visble in the video view.

SPOT AL EQS can be operated straight out of the box by just one person, providing greater convenience and ease of use. If the sensor is in an inaccessible location, SPOT AL EQS provides remote viewing and motorised focus to verify alignment and ensure a high level of accuracy. A built-in camera aids alignment, and, combined with a green LED, allows the user to position the measurement point in the optimal location to avoid any ambient lighting reflections. Data from SPOT AL EQS is available remotely as snapshots using free SPOT Viewer software or standard web browsers.



Optional SPOTServer software allows up to 40 SPOT pyrometers to be displayed and data logged.



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 (strip)
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)
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:	0-20 mA DC or 4-20 mA DC, Digital or Analogue (0 or 4-20 mA) 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; SPOTServer 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:	24 V DC, CMD In, Ethernet, (TCP-IP, Modbus TCP, DHCP, http, udp, ICMP)
Outputs:	0-20 mA, 4-20 mA, CMD Out, Ethernet (TCP-IP, Modbus TCP, DHCP, http, udp, ICMP)
Settings:	Configure locally using the thermometer interface or remotely (using the Webserver, SPOTViewer, or SPOTServer). 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. ** Patent pending

SEE OUR RELATED LITERATURE FOR THE SPOT AL EQS:



SPOT AL EQS

DOWNLOAD:
WWW.LANDINST.COM/PRODUCTS/SPOT-AL-EQS

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

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MARCOM0416 Case Study - SAPA Rev. 1

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