Infrared Temperature Measurement for Continuous Web Processes

The ES150 System is an automated inspection system for detecting, measuring, and classifying thermal features and defects occurring in continuous web processes.

Core of the system is the MP150 linescanner. The MP150 measures a line of up to 1024 points using a rotating mirror that scans a 90° field-of-view up to 150 times per second. The high scan rate allows rapid detection of temperature non-uniformities and hot spots. As the band traverses the field-of-view, a two-dimensional thermal image is formed.

The ES150 System provides the capability to define any number of sectors corresponding to specified areas across the web. Sectors are defined by name, a fixed location, and the desired processing of temperature data within the sector (e.g., average, minimum, or maximum). For example, in sheet extrusion processes, sectors can be configured to provide temperatures corresponding to each die bolt. The ES150 system continuously monitors the web process allowing temperature data to be visualized as a line graph (profile) and a thermal image.

Through the use of OPC (OLE for Process Control), the ES150 system acts as an OPC server and communicates with many common process control systems. This feature allows the ES150 to move beyond being just a measurement tool and to become an integral part of the total process control system.
System Description

Web Analysis with 40,000 Pixels per Second
The ES150 software displays each thermal image with overlaid customizable sectors and sector results. 100 sectors are shown (several have alarm conditions). A high-alarm appears red and a low-alarm is blue. These results can be output to your PLC or SCADA system.

Generic Sectors follow your Web
In some applications the web moves or is divided into a varying number of bars, e.g. alternating adhesive-coated stripes with non-adhesive stripes on a carrier. To follow these movements, stationary standard sectors with fixed locations cannot be used. With the so called “generic sectors” the ES150 system provides a dedicated feature to address this issue. Generic sectors are not fixed by a consistent position, but will be generated dynamically with each new line depending on the evaluated temperature plates within the scan. In this way, generic sectors are following the position of the web movement and permanently provide the desired sector results.

Easy Installation
PC Ethernet Linescanner Ethernet Fieldbus Coupler Analog Out Digital Out Relay Out Digital In

Supported Applications

<table>
<thead>
<tr>
<th>Category</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>Hot strip mills &amp; continuous casting&lt;br&gt;Painting &amp; coating</td>
</tr>
<tr>
<td>Plastics</td>
<td>Sheet &amp; cast film extrusion&lt;br&gt;Laminating &amp; converting</td>
</tr>
<tr>
<td>Glass</td>
<td>Tin bath exit &amp; annealing lehns (float glass)&lt;br&gt;Glass wool production</td>
</tr>
<tr>
<td>Paper</td>
<td>Coating &amp; laminating&lt;br&gt;Corrugated cardboard drying</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical Resolution</td>
<td>up to 200:1 (90% energy)</td>
</tr>
<tr>
<td>Ambient Temp.</td>
<td>0 to 50°C (32 to 122°F), with water cooling 180°C (356°F)</td>
</tr>
<tr>
<td>Field of View</td>
<td>90°</td>
</tr>
<tr>
<td>Points per Line</td>
<td>up to 1024 pixels</td>
</tr>
<tr>
<td>Scan Rate</td>
<td>up to 150 Hz</td>
</tr>
</tbody>
</table>

Scope of Delivery

- RAYTES150xx
  - MP150xx linescanner
  - ES150 Software
  - Line laser sighting
  - Industrial power supply

Accessories

- XXXTMP50ARMB
  - Adjustable mounting base
- XXXETHBASICKIT
  - Ethernet Fieldbus Coupler
- XXXETH2R
  - Relay Output Module
- XXXETH2ADC
  - Analog Output Module
- XXXETH16DO
  - Digital Output Module

Fluke Process Instruments

Americas
Santa Cruz, CA USA
Tel: +1 800 227 8074 (USA/Canada only)<br>+1 831 488 3800
solutions@flukeprocessinstruments.com

EMEA
Berlin, Germany
Tel: +49 30 4 78 00 80
info@flukeprocessinstruments.de

China
Beijing, China
Tel: +86 10 6438 4691
info@flukeprocessinstruments.cn

Japan
Tokyo, Japan
Tel: +81 03 6714 3114
info@flukeprocessinstruments.jp

Asia East and South
India Tel: +91 22 2920 7691
Singapore Tel: +65 6799 9579
sales.asia@flukeprocessinstruments.com

Worldwide Service
Fluke Process Instruments offers services, including repair and calibration. For more information, contact your local office.

www.flukeprocessinstruments.com
© 2016 Fluke Process Instruments
Specifications subject to change without notice. 10/2016 – Rev. G1, 85509