FLUKE®

Process Instruments

Endurance® Series

Innovative High Temperature Infrared Pyrometers



Flexible

Durable

Visual

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Raytek® Fluke Process Instruments

IRCON® Fluke Process Instruments

DATAPAQ® Fluke Process Instruments

In the heat of the moment, what is the temperature? Not knowing can mean the investment and labor of everyone and every material involved in the manufacturing process, from the raw to the finished product, is at risk. We take the heat and tell you its temperature. Precisely, accurately, and with the greatest of detail, all to ensure our customers' promise of quality is delivered.

We are Raytek, Ircon, and Datapaq. Combined, we have over 125 years of experience in temperature measurement. Individually, we have earned the respect of manufacturing's most valued names.

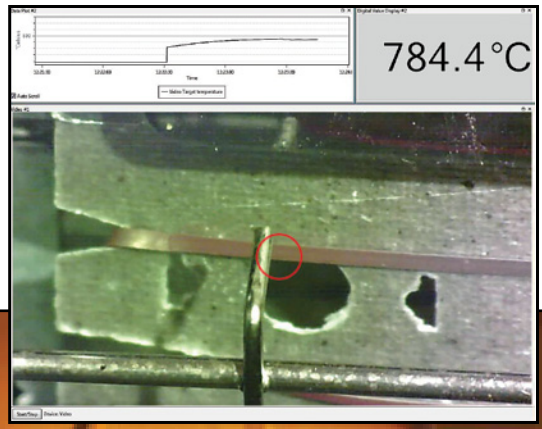
Together, we are Fluke® Process Instruments – a triad of the top performing, innovative, most rugged and dependable noncontact temperature measurement and profiling equipment made – a complete line of infrared sensors, line scanners, thermal imagers and profiling systems for use in today's most demanding environments.

Raytek, Ircon, and Datapaq. The first names in temperature control have become the last word in manufacturing with confidence:

Fluke Process Instruments

The flexible, durable, visual solution ... saving you time and money





Flexible

Designed to handle wider temperature ranges with superior optical resolution. Profinet, Ethernet, RS-485 and analog output is available to meet your process requirements. Endurance® series sensors are rugged, small and easy to install.

Durable

Built to withstand the harshest environments, the sensor is housed in a stainless steel IP65 (NEMA 4) housing. Accessories such as high temperature enclosures, cables, and totally sealed connectors, along with best in class 4 year warranty, Endurance series sensors are a snap to install.

Visual

The video camera option provides remote verification of sighting as well as continuous monitoring of your process. The LED sighting option can be used in applications where it is important to "see" the actual spot size projected on the target. The laser sighting option is useful for local verification of sighting accuracy. By using the Endurance software or the built in web server, you can archive, monitor and troubleshoot with a total view to your process.



Source: "Stahl-Zentrum", ThyssenKrupp Steel in Duisburg

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Rugged sensors for harsh installations

Endurance sensors have a rugged stainless steel housing designed to meet IP65 (NEMA 4) environmental requirements in high ambients up to 65 °C (149 °F) without cooling. Fluke Process Instruments stands behind our product with best in class 4 year warranty.

Isolated analog outputs and sensor protection circuitry prevent sensor damage from mis-wiring at installation or unstable power supply line voltages.

See more of your process

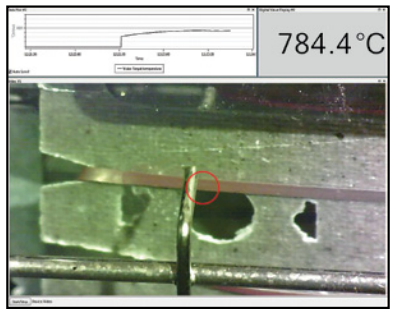
Using the onboard Ethernet option, you have access to a web server, Power over Ethernet, ASCII over Ethernet and video if the camera option is selected for the sighting method. The camera option can be used to stream a view of your process (while showing exactly where the pyrometer is aimed) right into a control room to see what is happening at the exact instant a temperature event occurs.

For local verification of sighting in applications where the sensor is in a restricted area, a laser option is available to locally verify that the sensor is sighted properly. Alternatively, you can use the LED sighting option which allows you to see the actual spot size projected on your target.

Use the SpotScan™ accessory to allow Endurance sensors to monitor temperatures over a line where temperature variations or peak temperature monitoring is important.

Software

Plot the temperature values of an Endurance sensor with high resolution video image. High and low alarms are shown, making it easy to identify out-of-range conditions. Endurance software makes it easy to remotely configure Endurance sensors from the safety of the control room.



Interface Options

Full access to all sensor settings is achievable from the backlit rear panel. This panel displays the indicated temperature, system alarm status, as well as all sensor parameters.



Measurement Specifications

	E1R	E2R	1M	2M	3M
Temperature Range	**E1RL** 600 to 1800 °C (1112 to 3272 °F) (2 color mode) 550 to 1800 °C (1022 to 3272 °F) (single color mode) 100 : 1 **E1RH** 1000 to 3200 °C (1832 to 5792 °F) 150 : 1	**E2RL** 250 to 1200 °C (482 to 2192 °F) 75 : 1	**1ML** 400 to 1740 °C (752 to 3164 °F) 160 : 1 **1MH** 540 to 3000 °C (1004 to 5432 °F) 300 : 1	**2ML** 250 to 1100 °C (482 to 2012 °F) 160 : 1 **2MH** 450 to 2250 °C (842 to 4082 °F) 300 : 1	**3ML** 50 to 1000 °C (122 to 1832 °F) 100 : 1 **3MH** 150 to 1800 °C (302 to 3272 °F) 300 : 1
Spectral Response	1.0 µm nominal one/two color	1.6 µm nominal two color	1.0 µm nominal single color	1.6 µm nominal single color	2.4 µm nominal single color
Lens Options	600mm – ∞ (24" – ∞) (**F2**), 300 - 600mm (12 - 24") (**F1**), 190-300mm (7.5 - 12") (**F0**) Through-the-lens with laser option or Through-the-lens camera option				
Outputs	0/4-20mA, (galvanic isolated); 16 bit resolution, relay				
Communications	RS-485/Ethernet, Profinet				
Power Options	DC power or Power over Ethernet (PoE)				

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Key Features

- Visible through-the-lens sighting standard with simultaneous camera, LED or laser sighting options
- Manually adjustable focus options allows for easy installation
- Durable stainless steel IP65 (NEMA 4) enclosures designed to withstand ambient temperatures up to 65 °C (149 °F)
- Backlit rear panel with tactile feedback for easy menu navigation
- Isolated outputs
- Analog inputs to control e-slope or emissivity
- Background compensation
- Multiple communications interfaces (RS-485, Ethernet, Profinet) providing access to a web server, ASCII over Ethernet, and video streaming
- Full line of installation and mounting accessories

Highlights

- Innovative optional camera feature allows you to continuously monitor your process visually
- LED sighting option allows you to see the spot size on the target and make sure you have a clean line of sight to the target.
- Match function takes the guess work out of setting the emissivity
- Endurance companion software allows you to archive your process temperatures for data analysis and sensor setup.
- Easy to upgrade from your existing Ircon Modline® 5 or Marathon™ MR series installations. Adapter accessories and patch cables allow you to use existing accessories
- Endurance software allows you to set-up, monitor and archive temperatures from your Endurance sensor. High and low process alarm conditions show out of range conditions. If your sensor is equipped with the video option, you can use the camera image with the reticle on the target superimposed to see exactly where the pyrometer is looking.

Applications

- **Metals processing**
- **Molten metal/forging**
- **Hot rolling mills**
- **Rod/wire mills**
- **Heat treating & annealing**
- **Induction heating**
- **Lightbulb and halogen lamp production**
- **Glass melting**
- **Semiconductor furnaces**
- **Cement & lime kilns**
- **Refuse burning**
- **Carbon graphite production**
- **Foundry & welding**
- **Rubber & thick plastic**



The Fluke Process Instruments Guarantee

The Endurance Series is supported by a 4 year warranty. With a network of trained representatives and agents in over one hundred (100) countries and offices located in the U.S., Germany and China, we provide local service and support you can rely on time after time.

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