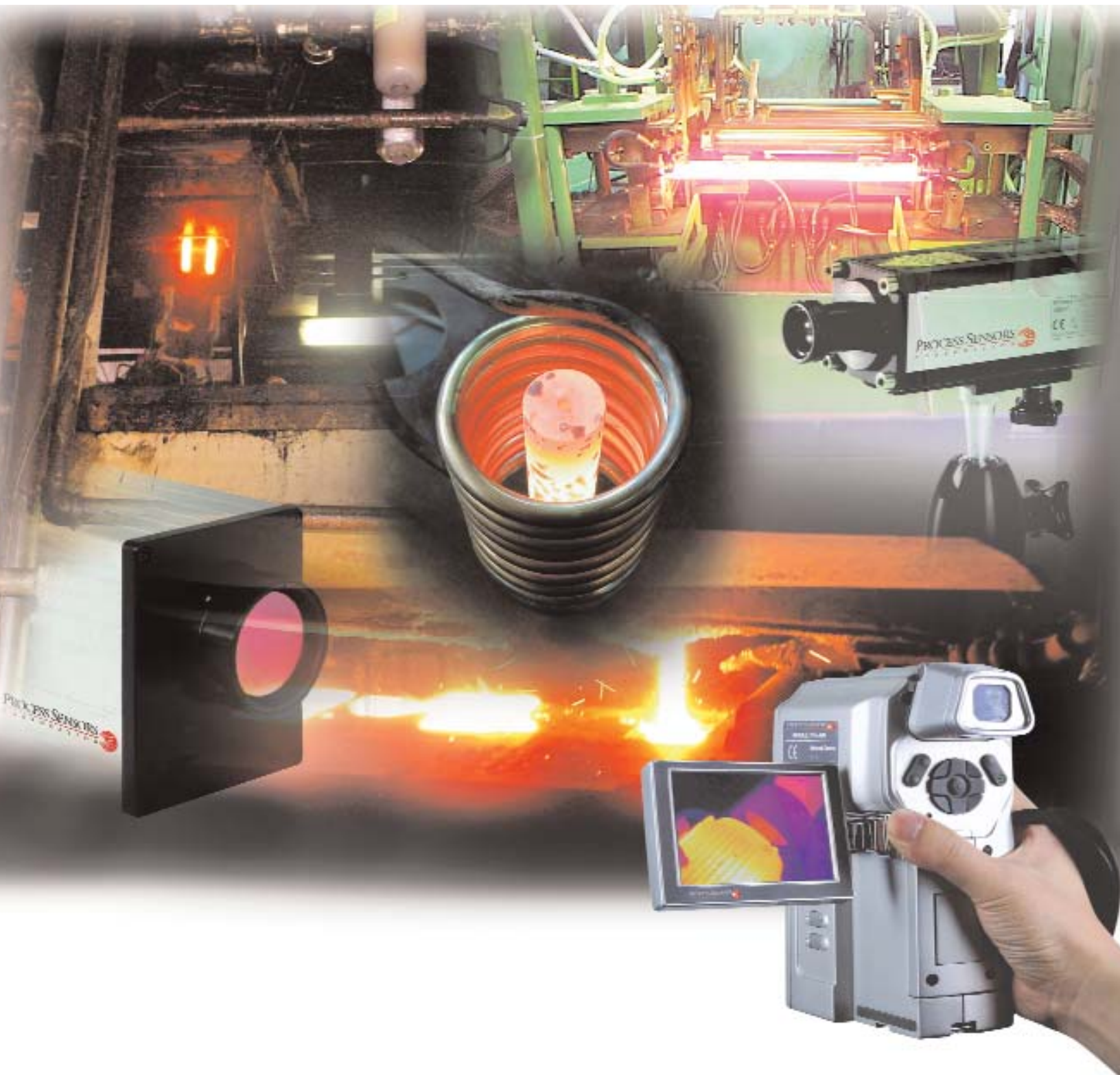# PROCESS SENSORS
CORPORATION

Non-Contact Infrared Temperature Measurement
for Industrial Process and Research Applications

MISSION

Since the beginning, Process Sensors Corporation has focused on the development and implementation of non-contact, moisture measurement instruments for on-line industrial process applications. We have drawn on our Near Infrared Technology expertise to introduce a comprehensive range of non-contact infrared temperature measurement sensors, Thermal imaging systems and Thermal line cameras.

Our mission is a simple one: to utilize the least complex, most reliable technology in order to provide sound solutions and long term, maintenance-free operation in industrial environments. Temperature and moisture are critical variables in most industries. Accurate measurement is vital to product quality and cost effective production. The instruments we manufacture and apply are designed to help you achieve those objectives effectively and economically.

PSC has recognized from the beginning that product excellence would be an important factor in the company's success and growth. However, just as important, is support and care for our customer base. Therefore, in parallel with the development of our products, we have always put you, the customer, at the forefront of our technical and strategic plans.

PSC is very fortunate to have experienced application specialists who can provide unique sensor solutions for temperature and moisture measurement applications. We have learned to combine product training, installation guidance assistance, and ongoing technical and commercial support to effectively address our customers' needs. PSC is a company totally dedicated to customer support.

Our customers, our partners, our products and our dedicated employees have built Process Sensors into the world class corporation it is today.

Infrared Radiation Theory and the Application of Infrared Pyrometers

Infrared radiation (IR) is a component of the electro-magnetic spectrum that falls between the frequencies of visible light radiation and radio waves.

Electromagnetic radiation is sinusoidal in nature and the components of the total spectrum are differentiated by the frequency bands they occupy.

IR occupies the wave-band between 0.7 microns and 1000 microns. Although IR sensors at a spectral wavelength of 0.65u (visible light region) are also used to measure temperature. By focusing the IR energy radiated by a surface onto an IR sensitive detector, it is possible to determine the temperature of the surface in question by measuring the output from the detector.

Though IR energy is invisible to the human eye, it is helpful to think of it as visible light because it behaves in an identical manner: it travels in straight lines, it can be reflected, absorbed and attenuated by objects and conditions in its path. Temperature of a glowing hot object (emitting in the visible region) can be determined visually based on its radiating color by a trained human eye.
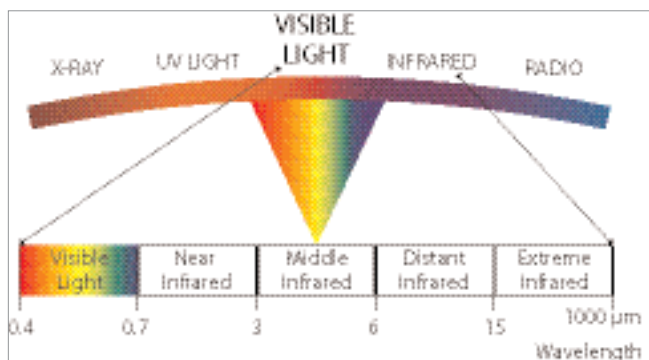
Rule of Thumb

Optimizing IR Measurements for Metal Surfaces

Select the shortest wavelength to raise absolute emissivity and to minimize temperature errors due to changes in emissivity.

Short wavelength: 0.65 μ to 3 μ
Medium wavelength: 3 μ to 5 μ
Long wavelength: >5 μ to 20 μ

Portable Thermal Imagers

PTI-160

*Portable thermal imagers are ideal tools for preventative predictive maintenance (PPM), machine diagnostic and for detecting abnormalities in a variety of manufacturing process applications. The PTI Series are innovative upright-style infrared cameras featuring powerful analysis tools, dual display and up to 2GB of memory storage on a removable SD card. The PTI Series are compact, light weight and were ergonomically designed for operator convenience. Every button is easily operated with a fingertip. A 3.5" rotating color LCD display (2.5" for the PTI-180) and high resolution viewfinder make it easy to shoot from difficult positions. Bluetooth technology allows wireless voice recording. High speed firewire enables real-time image analysis. Real-time video recording of thermal images is made possible by a built-in digital camera.*

PTI-180

PTI-280
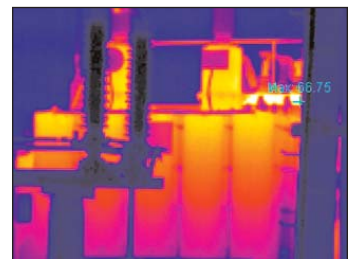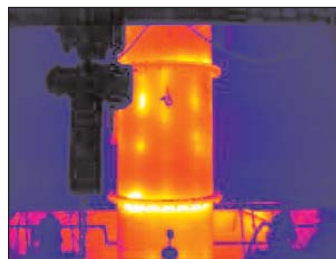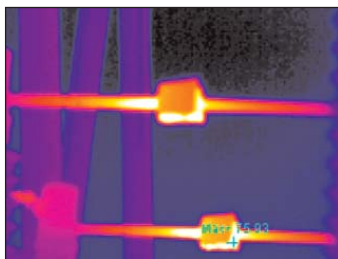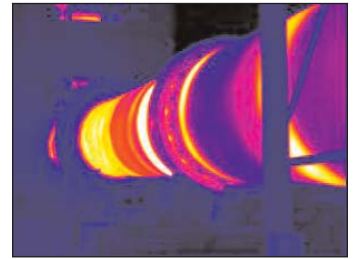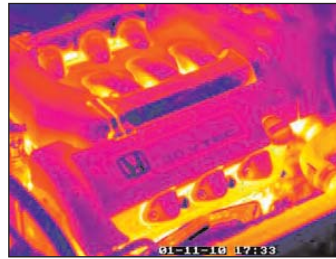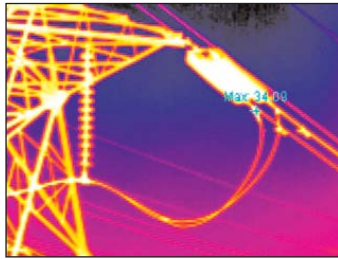
Bluetooth: Enables you to record your voice wirelessly

Firewire: the high-speed firewire enables real-time image analysis

Storage: Dual memory, internal memory (for infrared video) and removable SD card (up to 2GB)

| MODEL NUMBER	RESOLUTION	SPECTRAL RESPONSE	FRAMES PER SECOND	TEMPERATURE RANGE	MIN. FOCUS DISTANCE	LCD DISPLAY	MEMORY
PTI-160	160 X 120	8 – 14 µm	60	-20° – 250°C (other ranges available)	0.1mm	2.5"	USB connection
PTI-180	160 X 120	8 – 14 µm	60	-20° – 250°C	0.1mm	2.5"	Removable SD card up to 2GB
PTI-280	320 X 240	8 – 14 µm	60	-20° – 2000°C -4° – 3532°F	0.26mm	3.5"	Built-in 128mb

Process Thermal Imaging Systems

Thermal View 380 & 320 Compact

Thermal View 640N Compact

Thermal imaging systems/cameras respond to infrared energy or in some cases as in high temperature versions, visible light, that conventional cameras employ to create photographs. Thermal imagers can be relatively simple, like the night vision equipment used by the military, or sophisticated systems that create a color-coded temperature map to show unnaturally warm areas on the human body due to disease, or to show overheated components on a circuit board or a piece of machinery.

Thermal imaging systems are now used routinely to continuously monitor and control industrial processes. To meet this need, Process Sensors offers a comprehensive range of real-time imaging systems covering an overall temperature span from -20°C to 2500°C. These include the THERMAL VIEW series that monitor temperature distribution in 2 dimensions with high dynamic and spatial resolution and the THERMAL LINE systems with selected spectral responses for glass and for metals. Both series incorporate hardware & design features for long-term operation in harsh environments.
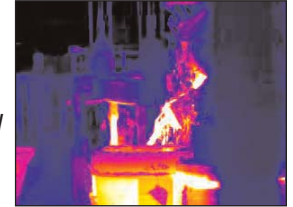
APPLICATIONS	MODEL NUMBER	ARRAY SIZE	TEMPERATURE MEASUREMENT RANGE	FIELD OF VIEW	SPECTRAL RANGE
Glass, ladle shell, torpedo cars, utility boilers, pc boards, kilns, critical vessels, furnaces, conveying of bulk solids and powders, gypsum, thermoforming	THERMAL VIEW 380L compact	384 x 288	Range 1: -20°C – 120°C Range 2: 0°C – 500°C	30° x 23° (optional 59° x 46°, 15° x 12°, macro 80µm)	8µm – 14 µm
	THERMAL VIEW 320L compact	320 x 240	Range 1: -20°C – 120°C Range 2: 0°C – 500°C	25° x 19° (optional 50° x 39°, 13° x 10°, macro 80µm)	8µm – 14 µm
	THERMAL VIEW 320M compact	320 x 240	Range 1: 100°C – 300°C Range 2: 200°C – 500°C	32° x 24° (optional 16° x 12°)	3 µm – 5 µm
	THERMAL VIEW 320G compact	320 x 240	Range 1: 200°C – 500°C Range 2: 400°C – 1250°C	32° x 24° (optional 16° x 12°)	4.8 µm – 5.2 µm
	THERMAL VIEW 320F compact	320 x 240	600°C – 1250°C	32° x 24° (optional 16° x 12°)	3.9 µm
Furnaces, welding, heat treating, laser, metal pouring streams, composites	THERMAL VIEW 640N compact	640 x 480	600°C – 1500°C optional 2500°C	32° x 24°	0.8 µm – 1.1µm

Infrared Thermal Line Camera Systems

Thermal Line

Process Sensors Thermal Line Cameras are reliable and have no moving mechanical parts, unlike conventional line scanning cameras utilizing an internal spinning (scanning) mirror assembly. The armored tank design construction of the water cooled housing make these systems virtually indestructible, allowing for operation in the most severe industrial environments. Our high speed version detects and measures phenomena occurring as fast as 2 milliseconds.

APPLICATIONS	MODEL NUMBER	ARRAY SIZE	TEMPERATURE MEASUREMENT RANGE	FIELD OF VIEW	SPECTRAL RANGE
Glass, Kiln Shell, Conveying of Bulk Solids and Powders, Torpedo Cars, Gypsum Board, Rotating Machinery, Paper Converting, Thermoforming, Flooring Material, Wood, Plastic, Rubber, Research & Development and High Speed Applications, Glass Surface, Semiconductor, Ceramics, Metals, Composites, Glass, Vacuum Chambers, Sees through Sapphire Windows	THERMAL LINE 128	128 x 1	0°C – 1250°C	60°, 40°, 56°	available in a variety of spectral responses
	THERMAL LINE 256	256 x 1	0°C – 1250°C	60°, 40°, 20°	available in a variety of spectral responses
	THERMAL LINE 128N THERMAL LINE 256N	256 x 1	600°C – 1300°C	60°, 40°, 20°	1.4 µm – 1.8 µm

40 Series "Loop Powered" Pyrometers

Non-Fiber and Fiber Optic Versions

The PSC Models DS-40N, DG-40N and fiber optic models DSF-40N and DGF-40N are compact, rugged and simple to install. A laser or green LED facilitates aiming.Typical application areas include: steel and metal, heat treating, induction / laser heating, semiconductor, vacuum, welding, furnace, molten glass, and measurement of metal molds.

- Digital 2-wire loop powered, self contained Pyrometer
- Laser or green LED Aiming (using 4-wire)
- Selectoin of temperature ranges from 250°C to 2500°C
- Integrated USB interface for sensor parameter settings
- Built-in peak picker
- Robust stainless steel housing

- Software is provided for IR sensor adjustments, temperature measuring and data acquisition evaluation.
- Used in high ambient enviorments without cooling (fiber optic models)
- Immune to RF / EMI influence (fiber optic models)
- Small and Flexible
- Can be installed in a vacuum

DT-40 Series

The Innovative design of PSC Models DT-40L, DT-40G and DT-40F with digital technology, are compact, rugged and based on simplicity of installation.Used in a 2 wire loop powered configuration the sensor's 4-20 mA linear output signal can be easily integrated into existing instrumentation for recording and process control.

- Digital 2-wire loop powered, self contained Pyrometer
- For use with a wide array of applications
- Selection of temperature ranges from -40°C to 1400°C

- Integrated USB interface for sensor parameter settings
- Built-in peak picker
- Robust stainless steel housing

MODEL NUMBER	TEMPERATURE RANGE	SPECTRAL RANGE	APPLICATIONS
DT 40L	-40 to 1000°C	8 µm to 14 µm	Ovens and dryers, Thermoforming, Aggregate, powders and organics, Paper, packaging and food, Textiles, rubber and plastics >100mils.
DT 40F	300 to 1300°C	3.9 µm	Furnace applications. Sees through hot combustible gases and clean flames.
DT 40G	100 to 1200°C	5.14 µm	Glass surfaces and ceramics.
DT 40G	200 to 1400°C	5.14 µm	

DSF-30NG/ DSF-34NG Series

DSF-30NG/ DSF-34NG Series

The digital fiber optic DSF-30NG and DSF-34NG are especially designed for applications in the glass industry. These pyrometers are ideal for temperature measurement in glass tanks, forehearths and feeders. A rugged stainless steel air purge with mounting bracket and either an alumina or inconel sight/target tube assembly allows for operation in harsh furnace environments. The optical lens can be easily cleaned or replaced.
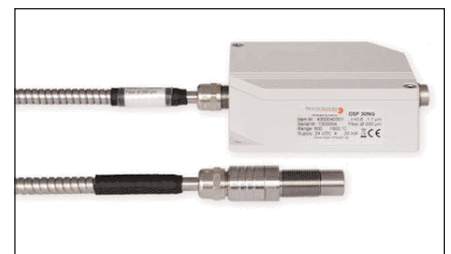
- Wide Temperature range from 600°C to 1800°C
- Loop-powered sensor with 4-20mA output (DSF-30NG)
- Simple installation and operation
- High accuracy

- Robust air purge design for maintenance-free operation
- Digital RS485 communication (DSF-34NG)
- Integrated peak picker
- Used in high ambient environments without cooling (250°C)

The Metis Series

Metis "Self Contained" series of IR Pyrometers was developed for precision on-line process measurement applications. By utilizing digital signal processing, the Metis line exceeds standard analog pyrometers as far as accuracy, repeatability and wide temperature ranges are concerned.

Precision, adjustable focusable optics allows the Metis to pinpoint very small targets and features advanced sighting capabilities such as through the lens, laser or video. A variety of spectral responses are available for addressing the needs for specific temperature measurement applications, i.e.: Metals, Glass, Semiconductor, Ceramics, Plastics composites etc.

The IP65 extruded aluminum housing with mounting groove allows for easy installation onto a swivel base, adjustable bracket or within a companion heavy duty water cooling jacket for use in harsh environments.

Metis-Pyrometers provide analog & digital signals such as 4-20mA, 0-20mA, RS232, RS485 & Profibus. Optionally the product line offers integrally a bright rear LED display, dual relays or fiber optic versions for use in high temperature locations, use in tight spaces or in areas of high magnetic RF fields.

APPLICATIONS	TEMPERATURE RANGE	MODEL NUMBER	SPECTRAL RESPONSE	MINIMUM SPOT SIZE	RESPONSE TIME	OUTPUTS
Metals, Composites, Molten Glass, Graphite, Semiconductor, Vacuum Applications	300°C – 1300°C	MQ22	2-color 1.45 – 1.8 µm	1mm	2ms	4-20mA, RS 232, RS 485, Profibus
Metals, Molten Glass, Graphite, Semiconductor, Composites, Ceramics	600°C – 2500°C	MQ11	2-color 0.7 – 1.1 µm	0.5mm	1ms	4-20mA, RS 232, RS 485, Profibus
Metals, Molten Glass, Composites, Ceramics	550°C – 3300°C	MS09	0.7 – 1.1 µm	0.35mm	1ms	4-20mA, RS 232, RS 485, Profibus
Metals, Laser applications, Ceramics, Vacuum	200°C – 1800°C	MI16	1.45 – 1.8 µm	0.35mm	1ms	4-20mA, RS 232, RS 485, Profibus
Metals, Laser applications, Ceramics, Composites, Vacuum	120°C – 800°C	MI18	1.45 – 2.1 µm	0.7mm	1ms	4-20mA, RS 232, RS 485, Profibus
Metals, Composites, Graphite, Ceramics	75°C – 1300°C	MP25	2.0 – 2.8 µm	0.25mm	3ms	4-20mA, RS 232, RS 485, Profibus
Metals, Ceramics, Composites, Vacuum	130°C – 700°C	MP23	2.0 – 2.6 µm	0.6mm	3ms	4-20mA, RS 232, RS 485, Profibus
Metals, Vacuum, Composites, Ceramics	50°C – 1000°C	MB35	2 – 5 µm	1.6mm	3ms	4-20mA, RS 232, RS 485, Profibus
Plastics, Glass Subsurface, Ceramics, Composites	300°C – 1300°C	MY34	3.43 µm	1.5mm	100ms	4-20mA, RS 232, RS 485, Profibus
Sees thru clean flames, Furnaces, Glass Subsurface, Flame Treating	200°C – 2000°C	MY39	3.95 µm	1.5mm	10ms 40ms 100ms	4-20mA, RS 232, RS 485, Profibus
Glass surface	100°C – 2500°C	MY51	5.14 µm	0.9mm	10ms 40ms 100ms	4-20mA, RS 232, RS 485, Profibus
Plastic	50°C – 400°C	MY68	6.85 µm	5mm	100ms	4-20mA, RS 232, RS 485, Profibus

Sirius SS and SI " Self Contained" Pyrometer Series

The Sirius line of Pyrometers was developed to meet the growing demand for small, compact and easy-to-install sensors with first-class optical and electronic characteristics. Sirius-Pyrometers operate at short wavelengths and therefore are an excellent choice for measurement of ferrous and non-ferrous metals above 250°C.
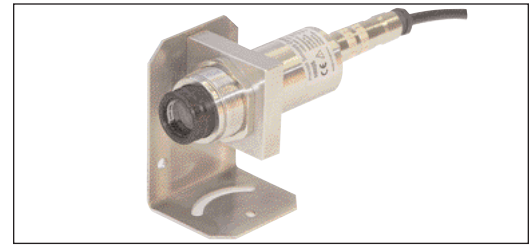
PSC Sirius Series with adjustable focus

The units are exceptionally robust due to the fact that the self contained IR sensor has no mechanical moving parts, and because the lens, detector and electronics are contained in a stainless steel IP65 housing. By utilizing digital signal processing, the Sirius line exceeds standard analog pyrometers as far as precision and repeatability are concerned. Our other series of low cost sensors are ideal for OEM applications.

| SI16 | SS09 | SSS | SSS-Laser | SSSFast | Compact Sensor | Compact Micro Sensor |

APPLICATIONS	TEMPERATURE RANGE	MODEL NUMBER	SPECTRAL RESPONSE	MINIMUM SPOT SIZE	RESPONSE TIME	OUTPUTS
Metals, Laser applications, Composites, Ceramics	250°C – 1800°C	SI16	1.45 – 1.8 µm	2mm	5ms	RS232, RS485, 4-20mA
Metals, Molten Glass, Semiconductor composites, ceramics	550°C – 1800°C	SS09	0.7 – 1.1 µm	2mm	5ms	RS232, RS485, 4-20mA
Powders and bulk solids, Food, Tiles, Wallboard, Plastic, Equipment Monitoring, Pavement, Painting and Drying, Glass, Paper, Converting, Ceramics	-40°C – 900°C	SSS	8 – 14 µm	1.2mm	150ms	USB, RS485, RS232, 4-20mA, J or K thermocouple
	-40°C – 975°C	SSS-Laser	8 – 14 µm	0.9mm	120ms	USB, RS232, RS485, Profibus, J or K thermocouple
	-40°C – 600°C	SSS Fast	8 – 14 µm	1.2mm	9ms	USB, RS232, RS485, 4-20mA, T/C, Profibus
	-20°C – 350°C	Compact Sensor	8 – 14 µm	1.2mm	30ms	RS232, O-5VDC & O-10VDC,1/10/100 mv°
	-20°C – 350°C	Compact Micro Sensor	8 – 14 µm	1.2mm	30ms	RS232

Infrared Heat Switch

The Polaris line is a cost-efficient, high-speed and accurate non contact infrared temperature switching device, for the recognition of hot parts. The short wave spectral sensitivity of these units is important for the precise detection of polished, bright metal parts, because the infrared energy radiated by such surfaces grows weaker as wavelength increases. In addition, the impact of emissivity deviation on accuracy is much lower in the short-wave infrared region.

APPLICATIONS	TEMPERATURE RANGE	MODEL NUMBER	SPECTRAL RESPONSE	FIELD OF VIEW	RESPONSE TIME	OUTPUTS
Counting, identification and positioning of hot parts	550°C – 1800°C	PS09	0.67 – 1.1 µm	2mm	4ms (adjustable to 10s)	2 transistors
	300°C – 1800°C	PI16	1.45 – 1.8 µm	2mm	4ms (adjustable to 10s)	2 transistors

Portable Laser Aiming Thermometer

The models PSC-PLST and PSC-PLMS are portable battery operated devices primarily used for general purpose temperature measurement applications such as electrical connections, motors, switch gear, PC board components, composites, wood etc.

MODEL NUMBER	TEMPERATURE RANGE	SPECTRAL RESPONSE	RESPONSE TIME
MiniSight	-32°C – 420°C	8 – 14 µm	300ms
MiniSightPlus	-32°C – 530°C	8 – 14 µm	300ms
MiniSightPro	-32°C – 760°C	8 – 14 µm	300ms
Portable Laser Sight Thermometer	-35°C – 900°C	8 – 14 µm	150ms

The PSC-PLST has advanced capabilities featuring an external switch which changes the focus range from a far distance with cross hair laser to a close focus distance providing an extremely small target size diameter of 1mm. In addition it offers high resolution optics, graphical PSC-PLST connect software, a thermocouple input, a 180° rotating display for flexible viewing positions, internal data memory and multi-color backlit display for status of set point alarms

The PSC-PLMS versions are ergonomic designed and economically priced with high value features in mind, including a wide temperature range, laser sighting, on board alarms, adjustable emissivity, PSC connect software & thermocouple.

Blackbody Calibration Sources

To calibrate infrared pyrometers and thermal imaging systems accurately, it is necessary to have a source of IR emittance that is controlled and predictable. Such sources are known as Blackbody Calibrators. They provide a target of known emissivity, temperature and aperture size. Blackbody sources can also provide calibration traceability to certified laboratories and national standards. Process Sensors offers a comprehensive family of such devices.

MODEL NUMBER	TEMPERATURE RANGE	APERTURE SIZE	EMISSIVITY VALUE	POWER REQUIREMENT
PSC-BBS400-2	50°C to 400°C	1.18" (30mm)	0.96 ± 0.01	Switchable from 115 VAC to 230 VAC, 50/60 Hz, 200 W
PSC-BBS500	50°C to 500°C	2.36" (128mm)	0.97	115 VAC or 220 VAC
PSC-BBS4000	Ambient +5°C to 400°C	5" (128mm)	0.95	Available only in 220 VAC

Precision On-line, Industrial and Laboratory, Non-Contact Moisture Measuring Systems

Unlike infrared (IR) pyrometers, which measure temperature by detecting IR energy radiated by the material of interest, NIR moisture measuring systems aim selected wavelengths of energy at the material and detect the amount of the energy reflected back from that material. The difference in the amount of reflected NIR compared with the NIR energy generated by the source is proportional to the energy absorbed by moisture and/or other constituents in the material

The MCT360 NIR Transmitter is the next generation of the MCT series, designed by Process Sensors in response to industry's need for a high quality NIR sensor at an economical price. The MCT360's versatile design permits the Transmitter to operate on its own or in a manufacturing plant network.

The MCT360 Transmitter is driven by a single board employing all surface mount electronics. Dual Micro Technology has created increased memory capacity used for multiple languages, product codes and calibration routines. All digital and analog signals are provided from the MCT360 to communicate directly with computers, controllers and PLCs. Four measurements, including moisture and temperature, can be performed simultaneously. The stand alone design eliminates the need for proprietary electronics, cables or conduit, greatly reducing installation and maintenance costs.

Used in a wide variety of industrial processes, the MCT 360 Multi-Constituent NIR Transmitter can provide accuracy and repeatability for moisture, oil and coating measurements under on-line operating conditions. The MCT360 supports Profibus, Ethernet, Devicenet, Profinet, Modbus TCP/IP, Modbus RTU and Bluetooth.

MCT 600 Bench Top NIR Tester is a simple and reliable Near Infrared Reflection Analyzer for a wide range of industrial applications and manufacturing processes. Designed for high speed and accurate analysis of up to three constituents simultaneously, the MCT 600 provides precise measurement of moisture, fats, oils, proteins, sugars, nicotine and other constituents, in virtually all types of powders, flakes and leaves in the Food, Tobacco, and Panel Board industries.

Pyrometer Sighting Methods

To measure accurately, an IR pyrometer must be aimed at the surface or part of the surface of interest. For very large areas such as steel slabs or web processes this does not present a problem, but for smaller surfaces such as wire, pc board components, weld bead etc., a more precise method is required.

Process Sensor's pyrometers can incorporate a variety of sighting methods such as through-lens, where an installer can aim through the same lens that focuses the IR energy on the detector; or laser aiming via a built-in laser beam that illuminates the center of the target area. The pyrometers can also incorporate a video output that presents a picture of the area being measured on the image. A reticle defines the exact spot size of temperature measurement.

Where there is no direct line-of-sight between the pyrometer and the target, a flexible fiber optic cable can be used to carry the IR energy around obstacles and corners. Specifically used in high-strength magnetic fields, high ambient temperature and vacuum environments, it allows the IR sensor' electronics to be placed remotely, outside from these upsetting conditions.

Lenses and Fiber-Optic Cable

The infrared energy radiated by the target is transferred via focusable lenses either directly on the detector (standard version) or onto one end of a fiber optic cable. For applications where the lens must be refocused during operation, a remote focusable lens is available.

Focussing

Some pyrometers are designed with adjustable focusing. This does not necessarily mean that the target must be a sharp, clear image in order to obtain an accurate measurement, as would be the case with a camera. Pyrometer focusing is simply intended to permit the pyrometer to "see" the smallest spot size at a given distance. This is helpful when measuring through small openings or for avoiding obstacles in the sight path.

Sight Path

The sight path is the space between the pyrometer lens and the object being measured. For accurate measurement the sight path must be clear and free of obstacles, steam and water droplets, and heavy concentrations of particles. Devices such as fans and air purges, or careful sighting can usually ensure that this condition is met, but sometimes the use of a Two Color or ratio pyrometer can be helpful.
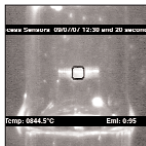
Focusing, Sight Path and Field of View

A well designed infrared pyrometer is inherently a very accurate measurement device, but because it measures from a distance, the focus and field of view (FOV) play an important part in the quality of the measurement, unlike other temperature sensors.

The FOV is an invisible cone that extends from the lens out to infinity. The FOV ratio is the diameter of the cone (Spot size) at a given distance from the lens. It is expressed in inches as a ratio e.g. 20:1, 60:1 etc.

So if a 60:1 FOV pyrometer is focused at a distance of 120" , it will gather energy from a 2" dia. area on the object being measured. It will see only a small percentage of energy outside that circular FOV area based on the quality of it's optics.

The equation to determine spot size is:

$$\frac{Focus\ Distance}{FOV} = Spot\ Size$$

To obtain an accurate temperature measurement, the FOV must be filled, smaller than the target at whatever distance the pyrometer is from the object being measured. The exception to this rule is the Two Color or Ratio Pyrometer which can measure accurately when only part of the FOV is filled. Listed below is an explanation of operation for one and two color pyrometry.

Single Color Thermometers

1. Depend on the emissivity of the target:
   - Short wavelength selection reduces affect of emissivity errors for metals
   - Offer a variety of wavelengths for specific applications.
   - Used for low temperature measurements (sub zero temperatures)

2. Measure the average temperature within the field of view:
   - Field of View must be completely filled by the target
   - Focus dependent on the target
   - Affected by dirty windows or dusty atmosphere

Two Color Thermometers

1. Independent of emissivity of the target - (If emissivity changes proportionally, for each single color wavelength)

2. Measure the weighted peak temperature within the field of view.
   - Tolerates up to 99% blockage of the target
   - Unaffected by dust and other contaminants in the field of view i.e. dirty viewing windows
   - Unaffected by moving targets within the field of view

3. Limited low temperature measurements to about 300° C

4. Higher cost solution compared to Single-Color.

ACCESSORIES

The circumstances under which Process Sensors pyrometers are used are many and varied. In order to accommodate these differences and to ensure durable, trouble-free operation, we have designed a comprehensive family of accessories. Some are purely protective, while others simplify a measurement that would otherwise be difficult or impossible.

SC10 "Scanning Adapter" for all Metis and Sirius Pyrometers

The scanning adapter SC10 is based on a mechanically moved, gold plated mirror, which deflects the cone of vision of the pyrometer through about 90° ± max. 6°, with an adjustable scanning frequency of 1 – 5 Hz. In conjunction with the peak picker (maximum value storage) of the pyrometer, the scanner is useful for measuring intermittently visible targets, or as a means of selecting oxidized surface areas on steel billets or for detecting hot spots on rotating vessels.

Infrared Line Scanner Accessory Galaxy SC11 and Galaxy SC12 For all Metis Pyrometers

The Galaxy line scanner enables a profiled temperature measurement to be made of stationary objects based on individual data points. If the object is moving, the scanner creates a two-dimensional thermographic image from a profile measurement. This is made possible by a mirror which tilts precisely in the cone of vision of the pyrometer. The temperature profile acquired by means of a tilting movement is displayed on a screen or as an analog output.

Galaxy SC11

Galaxy SC11 represents the standard version, which is operated using the interface or by way of a PC or notebook. The unit supplies 0/4-20 mA analog output signals for the temperature profile and for the angular position of the mirror. The object being measured can be divided into & up to 4 zones. Each zone provides an analog output that can be used for control of the process.

Galaxy SC12

Galaxy SC12 offers, in addition, a digital display and service console allowing the system to be operated without the need for a local computer. Furthermore, temperature information on the zones is available as an analog output signal.

Regulus RS10 "Fast PID Controller"

Fast, auto-tuning PID or temperature profiling controller with a cycle time of 200 µs offered as panel mounted or stand alone configuration.

The digital program controller Regulus was especially designed for demanding pyrometer temperature control requirements where rapid, precise and accurate time/temperature control is necessary. Above all, this unit is an excellent complement to the Metis and Sirius product lines, where fast, step-response is important. A maximum of 9 process-related programs with up to 9 different temperature set points can be stored as individual steps in the controller.

Air purge accessory PN BL11-00

Can be mounted to the focusable lens of the Metis or Sirius Series pyrometers to keep the lens clear of particulates and deposits, typical of many industrial processes.

Metis Water cooling jacket with air purge PN KG10-00/BL12-00

For PSC model Metis series. Designed to protect pyrometer in ambient temperatures up to 200°C and keep lens clean.

Swivel Base-mount for Metis Sensor Head PN HA20-00

A mounting device allowing positioning of the Metis Sensor head for aiming.

Water cooling jacket for PSC's Model Series SSS Laser PN AC-SSS-LW

Designed to protect pyrometer in ambient temperatures up to 175°C.

TIC500 Temperature Indicator/Controller PN TIC-500

Temperature indicator including Hi and Low (relay) setpoints for control.

PROCESS SENSORS CORPORATION

787 Susquehanna Avenue, Franklin Lakes, NJ 07417 • Tel: 201-485-8772 • Fax: 201-485-8770 • www.ProcessSensorsIR.com • irtemp@processsensors.com

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