

# PyroSight Series

## Industrial Infrared Thermometers



PyroSight Series with  
Line-of-Sight or Integrated  
Laser Aiming Alignment

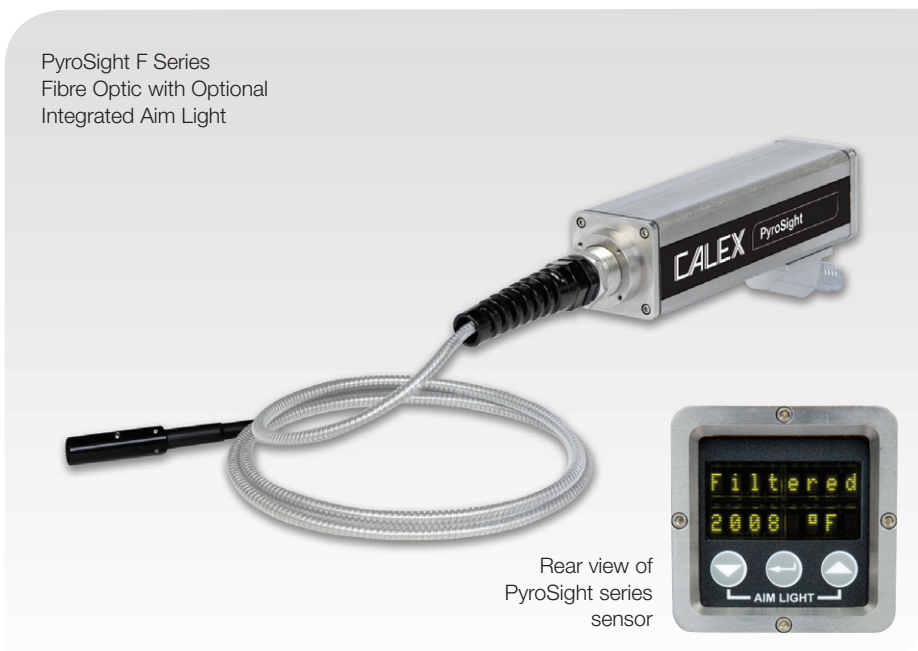
The PyroSight series of non-contact infrared thermometers provides accurate and reliable measurements for a wide range of industrial applications.

- Temperature ranges up to 2475°C
- Traditional or fibre-optic versions
- Optional laser sighting or aiming light
- Built-in digital display and controls
- Optional interface module
- Adjustable range, emissivity and signal processing
- Precision optics
- Rugged stainless steel enclosure

PyroSight series sensors feature a variety of input, output, and alarm options to enable advanced process monitoring and control. Each sensor can be configured to operate as a stand alone sensor or with a remote Interface Module.

The sensor can be set to an analogue (A) configuration for operation with a digital indicator, PID Controller, or PLC. In addition to providing an analogue output, the sensor may be configured for an alarm relay output (default) or a remote analogue input for adjustment of the sensor's alarm set-point or emissivity.

Alternatively the sensor can be set to a digital (D) configuration (RS485) for operation with the Interface Module, a PC or a PLC. The 1/4 DIN Interface Module includes an RS232 connector for interface with the PyroSight PC Software.



	Stand Alone Sensor (A)	Sensor with Interface Module (D)
Analogue Output(s)	One	Two
Relay Alarm(s)	One	Two
Analogue Input	One	One
Digital Interface	RS485	RS485 & RS232
Input Power	24 V DC	90-260 V AC

## GENERAL SPECIFICATIONS

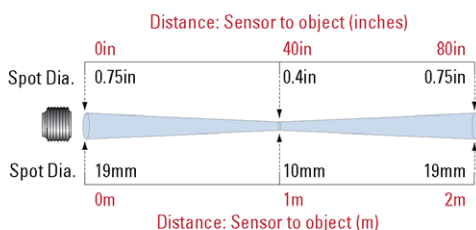
PyroSight Series Sensors without fibre-optic sensing head					
Model	Spectral Response (microns)	Temperature Range	Field of View		
			Standard Resolution Optics	Minimum Focal Distance with Line of Sight Aiming	Minimum Focal Distance with Laser Aiming
Short-Wavelength Sensors					
PS100-LT-0.9	0.9 µm	540 to 1375°C	D/100	25 cm	25 cm
PS100-MT-0.9	0.9 µm	650 to 1750°C	D/100	25 cm	25 cm
PS100-HT-0.9	0.9 µm	760 to 2475°C	D/100	25 cm	25 cm
PS50-LT-1.6	1.6 µm	260 to 1150°C	D/50	25 cm	25 cm
PS100-MT-1.6	1.6 µm	315 to 1375°C	D/100	25 cm	25 cm
PS100-HT-1.6	1.6 µm	375 to 1750°C	D/100	25 cm	25 cm
PS50-MT-2.2	2.2 µm	150 to 1100°C	D/50	25 cm	25 cm
PS100-HT-2.2	2.2 µm	200 to 1375°C	D/100	25 cm	25 cm
Specialty-Wavelength Sensors					
PS20-LT-5.0	5 µm	95 to 540°C	D/20	25 cm	10 cm
PS20-HT-5.0	5 µm	200 to 800°C	D/20	25 cm	10 cm
PS20-LT-7.9	7.9 µm	30 to 315°C	D/20	25 cm	10 cm
PS20-HT-7.9	7.9 µm	100 to 600°C	D/20	25 cm	10 cm
PS40-HT-7.9	7.9 µm	260 to 1375°C	D/40	25 cm	25 cm
Long-Wavelength Sensors					
PS40-LT-14	8 to 14 µm	0 to 260°C	D/40	25 cm	25 cm
PS40-HT-14	8 to 14 µm	0 to 550°C	D/40	25 cm	25 cm

GENERAL SPECIFICATIONS continued

PyroSight F Series Sensors with fibre-optic sensing head							
Model	Spectral Response (microns)	Temperature Range	Field of View			Fibre Cable	
			Wide Angle Optics	Standard Resolution Optics	Minimum Focal Distance	Type of Cable	Max. Length
Short-Wavelength Sensors							
PSF.75-LT-0.9	0.9 µm	540 to 1375°C	D/.75	-	0 cm	Glass	3ft/ 91cm
PSF35-LT-0.9	0.9 µm	540 to 1375°C	-	D/35	5.1 cm	Glass	3ft/ 91cm
PSF35-MT-0.9	0.9 µm	650 to 1750°C	n/a	D/35	5.1 cm	Glass	10ft / 3m
PSF50-HT-0.9	0.9 µm	760 to 2475°C	n/a	D/50	5.1 cm	Glass	30ft / 9.1m
PSF2-LT-1.6	1.6 µm	260 to 1150°C	D/2	-	0 cm	Quartz	10ft / 3m
PSF15-LT-1.6	1.6 µm	260 to 1150°C	-	D/15	5.1 cm	Quartz	10ft / 3m
PSF2-MT-1.6	1.6 µm	315 to 1375°C	D/2	-	0 cm	Quartz	30ft / 9.1m
PSF15-MT-1.6	1.6 µm	315 to 1375°C	-	D/15	5.1 cm	Quartz	30ft / 9.1m
PSF35-HT-1.6	1.6 µm	375 to 1750°C	n/a	D/35	5.1 cm	Glass	30ft / 9.1m
PSF2-LT-2.2	2.2 µm	150 to 1100°C	D/2	-	0 cm	Quartz	30ft / 9.1m
PSF15-LT-2.2	2.2 µm	150 to 1100°C	-	D/15	5.1 cm	Quartz	30ft / 9.1m
PSF2-HT-2.2	2.2 µm	200 to 1375°C	D/2	-	0 cm	Quartz	30ft / 9.1m
PSF35-HT-2.2	2.2 µm	200 to 1375°C	-	D/35	5.1 cm	Quartz	30ft / 9.1m

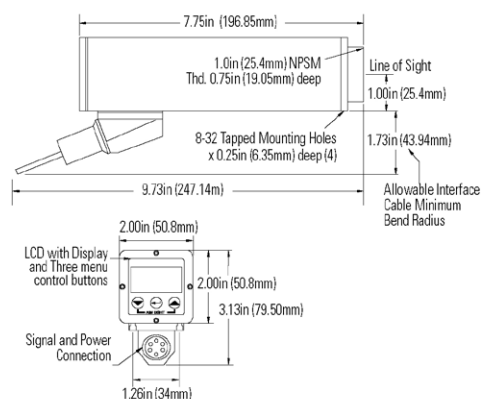
<b>Temperature Limits</b>	-45 to 2500°C (actual sensor ranges vary by model)	<b>Digital Interface</b>	Bi-Directional RS485 and RS232 communications
<b>Spectral Response</b>	Complete Range of Short, Long, and Speciality Wavelengths	<b>Operator Interface</b>	Built-in Menu System with Access to Averaging, Peak/Valley Hold (Time or Temp Reset), Programmable Outputs and Alarms
<b>Optical Resolution</b>	Range of Optics with Nominal Spot Size based on 90% of Energy	<b>Measured Parameters</b>	Filtered and Unfiltered Temperature, Ambient Temperature & Rate of Change
<b>Accuracy</b>	Short Wavelength Models: 0.25% of Reading or 2°C whichever is greater All other Models: 0.5% of Reading or 2°C whichever is greater	<b>Input Power</b>	Sensor: 24 V DC (300 mA); Interface Module: 90 to 260 V AC 50/60 Hz
<b>Repeatability</b>	Better than 1°C	<b>Ambient Temperature Limits</b>	Sensor: -17 to 60°C, with Water Cooling limit is 175°C (varies with water rate and temp) Fibre Optic Cable & Lens Barrel: 200°C Interface Module: -17 to 50°C
<b>Emissivity</b>	0.010 to 1.500	<b>Enclosure Rating</b>	Sensor: Stainless Steel Enclosure with IP65 Rating. Optional NEMA 7 and ATEX enclosures are available Interface Module: IP52 Front Panel with Anodized Aluminium Enclosure
<b>Response and Update Time</b>	Short Wavelength Models: 5 ms (95% of Response) with 5 ms Update Time All other Models: 75 ms (95% of Response) with 5 ms Update Time Interface Module: 100 ms Update Time	<b>Weight</b>	Sensor: 1.3 kg; Interface Module: 1 kg
<b>Analogue Outputs</b>	4 to 20 mA or 0 to 20 mA output (maximum impedance 1000 Ω)	<b>Dimensions</b>	Sensor: 197 mm x 51 mm x 79 mm Interface Module: 178 mm x 96 mm x 96 mm
<b>Alarms</b>	Sensor: SPST relay rated 2 A @ 24 V Interface Module: Two SPDT relays rated 2 A @110 V AC	<b>CE Certification</b>	EMI/ RFI for heavy industry; LVD ( Low Voltage Directive)
<b>Analogue Input</b>	Sensor: 4 to 20 mA or 0 to 20 mA input (impedance 250 Ω) Interface Module: 4 to 20 mA or 0 to 20 mA input (impedance 237.5 Ω)		

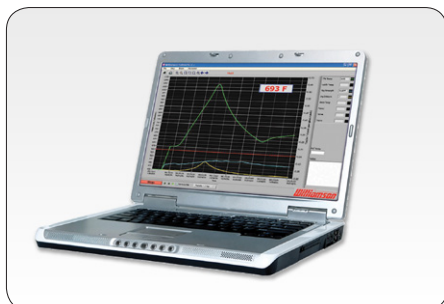
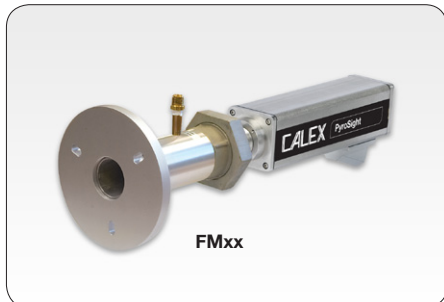
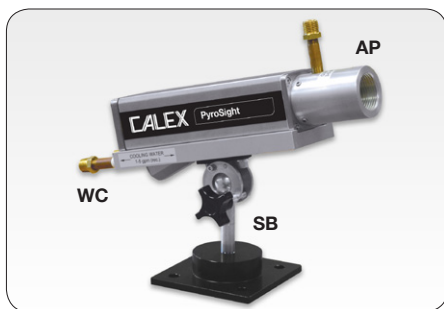
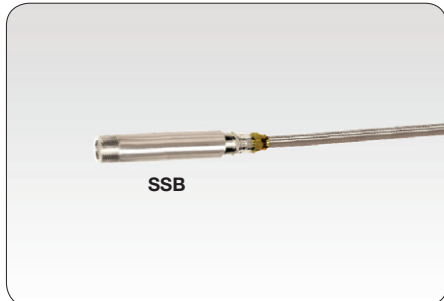
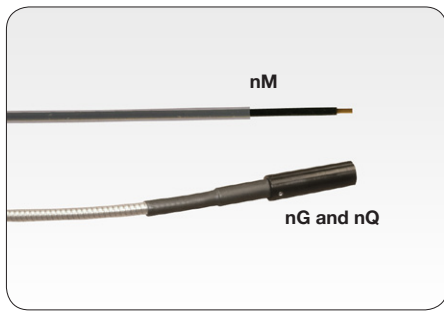
SAMPLE FIELD OF VIEW (FOV)



PyroSight sensors may be used at any distance as long as the measured target fills the sensor's viewing area. The diameter (d) of the viewing area is calculated as  $d = D/F$  where D is the focal distance of the sensor from the target and F is the optical resolution factor of the sensor. The part number for the sample FOV below is FOV1m/100 where the focal distance D is 1 m, the optical resolution factor F is 100, and the diameter of the viewing area is 10 mm.

PYROSIGHT DIMENSIONS





## OPTIONS

ProSight Series	
LA	Laser Aiming
PyroSight F Series	
The standard fibre optic cables (nG and nQ) are sealed with a Teflon jacket over a stainless steel sheath and are available in lengths of 1 m to 9 m. The cable diameter is 6.5 mm with a lens assembly that is 77 mm x 14 mm diameter.	
For added protection, the flexible, lightweight Stainless Steel Braid (SSB) is available with a built in air purge and a stainless steel sight tube with a 1 inch pipe thread.	
For applications with very confined access and the potential for electromagnetic interference, the mono-filament fibre cables (nM) with a Teflon sheathing and Teflon outer jacket offer a smaller diameter of 1.3 mm and non-conductive packaging.	
nG	Teflon Sealed Glass Fibre Optic Cable (n=length in feet)
nQ	Teflon Sealed Quartz Fibre Optic Cable (n=length in feet)
nM	Mono-filament Fibre Cable with Teflon sheathing and Teflon outer jacket (does not include lens and offers D/2 optics)
SSB	Stainless Steel Braided Conduit includes flexible, lightweight conduit, air purge and a stainless steel sight tube
AL	Built in Aim Light
3QT	Non-conductive Ceramic Quartz Tip, 83 mm Long, threads onto end of fibre cable
ATEX	ATEX Enclosure

Sensor Cable	
OC	Sensor Connector Kit (no Cable)
nCF	Sensor Cable. Lengths (n) ordered in increments of 10 feet
nCM	Sensor Cable. Lengths (n) ordered in increments of 3 meters
R	Reverse Orientation of Connector 180°
nPT	Sensor Cable is Pigtail/Hard-wired. Lengths (n) ordered in increments of 10 ft./3m, 20 ft./6m, 30 ft./12m

N.B. The standard fibre optic cable lengths (n) are 3ft/0.9m, 6ft/1.8m, 10ft/3m, 15ft/4.6m, 20ft/6.1m, 25ft/7.6m, and 30ft/9.1m. Consult Calex for custom lengths, cables with vacuum bushings and right angle bends.

## ACCESSORIES

PyroSight Series	
To simplify installation and provide additional protection to the sensor, Calex offers a Swivel Bracket (SB) and Water Cooling Air Purge (WCAP) accessories. The recommended air flow is 1.5 to 5 m <sup>3</sup> /hr and water flow is 2 to 12 l/min.	
AP	Air Purge Assembly
WCAP	Water Cooling Air Purge
SB	Swivel Bracket (includes MP)
FMxx	A Selection of Flange Mounts

PyroSight F Series	
To simplify the installation and alignment of the PyroSight F series sensors, Calex offers a Site Tube Swivel Bracket (STSB) and a Fibre Optic Swivel Bracket (FOSB) that also includes the Air Purge (FOAP) accessory as standard.	
FOAP	Fibre Optic Air Purge Assembly
WC	Water Cooling for Fibre Optic Sensors
FOSB	Fibre Optic Swivel Mounting Bracket (includes FOAP)
STSB	Sight Tube Swivel Bracket (use with SSB)
RAM	Right Angle Mirror for Fibre Optic Systems
FOFMxx	A Selection of Fibre Optic Flange Mounts
STFMxx	A Selection of Sight Tube Flange Mounts (used with SSB)

All Models	
Calex's PyroSight PC Software can be used to adjust sensor settings as well as log and analyse data from the sensor. It requires a Windows XP based PC, an Interface Module, and a USB to RS232 converter with a DB9 male connector.	
IM	Interface Module with Display, Output, and Power Supply
PACS	Purge Air Control/Filter System
VCS	Vortex Cooling System (requires WC)
MP	Mounting Plate
PSS	PyroSight PC Software for Windows XP with USB to RS232 Cable
NIST	NIST Calibration Certificate