PRO 40 and 50 Series
Single-Wavelength Infrared Temperature Sensors

Unit shown with optional Air Purge

- Temperature ranges to 2475°C
- Fully configurable for range, emissivity, peak hold, averaging, alarm parameters and set points via RS232/RS485 communications
- Accuracy to 0.25% of reading
- Different spectral ranges to suit many applications
- Precision optics.
- Visual aiming or fibre-optic versions
- Short wavelength operation dramatically reduces sensitivity to emissivity variation
- Views through common window materials.
- As much as ten times more accurate than long-wavelength sensors when measuring low-emissivity materials such as aluminium, chrome, stainless steel, tin and zinc.

GENERAL SPECIFICATIONS

PRO 40 SERIES – Visual Aiming, Single-Wavelength (1λ) Sensors			
PRO Model	Spectral Response (microns)	TEMPERATURE RANGE	FIELD OF VIEW
42-08	2.8 to 3.3 µm	40 to 425 °C	D/35
42-20	2.8 to 3.3 µm	65 to 425 °C	D/100
42-30	2.0 to 2.4 µm	65 to 425 °C	D/50
42-36	2.0 to 2.4 µm	150 to 1100 °C	D/50
42-40	2.0 to 2.4 µm	200 to 1375 °C	D/100
41-20	1.5 to 1.65 µm	260 to 1150 °C	D/100
41-25	1.5 to 1.65 µm	300 to 1375 °C	D/100
41-30	1.5 to 1.65 µm	375 to 1750 °C	D/100
41-50	0.8 to 1.0 µm	540 to 1375 °C	D/100
41-60	0.8 to 1.0 µm	650 to 1750 °C	D/100
41-70	0.8 to 1.0 µm	760 to 2475 °C	D/150

PRO 50 SERIES – Fibre Optic, Single-Wavelength (1λ) Sensors						
PRO Model	Spectral Response (microns)	TEMPERATURE RANGE	FIELD OF VIEW		FIBRE CABLE	
			Standard Resolution Optics	High Resolution Optics	Max. Length	Type of Cable
52-30	2.0 to 2.4 µm	65 to 425 °C	D/2 or D/12	n/a	91 cm	Quartz
52-35	2.0 to 2.4 µm	95 to 425 °C	D/2 or D/16	n/a	2 m	Quartz
52-40	2.0 to 2.4 µm	230 to 1375 °C	D/2, D16 or D/35	D/50	9.1 m	Quartz
51-20	1.5 to 1.65 µm	260 to 1150 °C	D/2, D16 or D/35	D/50	7 m	Quartz
51-25	1.5 to 1.65 µm	300 to 1375 °C	D/2, D16 or D/35	D/50	9.1 m	Quartz
51-30	1.5 to 1.65 µm	375 to 1750 °C	D/35 or D/50	D/75 or D/100	9.1 m	Glass
51-50	0.8 to 1.0 µm	540 to 1375 °C	D/75 or D/16	n/a	91 cm	Glass
51-60	0.8 to 1.0 µm	650 to 1750 °C	D/35 or D/50	D/75	3 m	Glass
51-70	0.8 to 1.0 µm	760 to 2475 °C	D/35 or D/50	D/75 or D/100	9.1 m	Glass

(i) Temperature Range Selection: The temperature units (°F/°C) can be selected in the sensor or display menu.
(ii) FOV Selection: d=D/F, where d=Measured Target Diameter, D=Working Distance, F=Optical Resolution Factor
(iii) Fibre Cables are available in the following lengths: 91cm, 1.8m, 3m, 6m, 7.6m, 9.1m

The PRO 40 and 50 series of advanced infrared temperature sensors are ideal for use with targets with low emissivities at high and low temperatures. By operating at short wavelengths they are able to reduce the errors from changing and very low emissivity.

The sensitivity to emissivity variation is one quarter (high emissivity targets) to one tenth (low emissivity targets) that of a long wavelength sensor. For this reason, the PRO series 40 and 50 infrared thermometers are able to provide an accurate and reliable temperature reading where others fail.

Narrow fields of view allow very small targets to be accurately measured, and visual or laser aiming is available on all models to ensure that their alignment is correct.

The fibre-optic PRO 50 models allow the sealed sensing head to be positioned near the target, while the electronics are mounted in a more convenient position. Heavy armour is available for the fibre-optic cable to ensure it is safe even in hazardous locations.

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GENERAL SPECIFICATIONS - Continued

Accuracy	0.25% to 0.5% of Reading or 2°C (varies by model)
Repeatability	Better than 1°C
Response Time	
Constant Target:	PRO 41 & 51: 5 ms; PRO 42 & 52: 50 ms (update time)
Intermittent Target:	PRO 41 & 51: 5 ms; PRO 42 & 52: 150 ms
	(98% of Reading - 4τ)
CE Certification	EMI / RFI for heavy industry; LVD (Low Voltage Directive)
Ambient Temperature Limits	
Sensor Head:	PRO 41 & 51: -17 to 60°C
	PRO 42 & 52: -17 to 50°C
Interface Module:	50°C
Sensor w/ Water Cooling:	95-175°C (varies with water rate and temperature)
Fibre Optic Assembly:	200°C
Input Power	
Stand-alone Sensor:	24 V DC (300 mA);
With Interface Module:	90-260 V AC, 50/60 Hz
Input and Output Signals	
Stand-alone Configuration:	
Analogue Mode	• 4-20 mA or 0-20 mA (1000 Ω max. impedance Shunt resistors produce voltage outputs.)
	• TTL Alarm with 2 mA at 5 V DC rating
	• External peak hold reset
	• Select parameter, scale, & range of output & alarm
Digital Mode	• Bi-directional RS485 communications
	• RS232 with a converter
	• Used to connect to the Interface Module
System Configuration with Interface Module:	
2 Programmable Analogue Outputs	• 4-20 mA or 0-20 mA (1000 Ω max. impedance. Shunt resistors produce voltage outputs.)
	• Select parameter, scale, and range
3 Analogue Inputs	• Sample and Hold
	• External peak hold reset
	• Analogue input for remote parameter adjustments
Bi-directional Serial Comms	• RS232 and RS485 simultaneously
2 Programmable Relay Alarms	• Form C (4 A at 250 V AC or 2.5 A at 30 V DC)
	• Select alarm parameter and set point
1 Programmable TTL Alarm	• TTL rating is 2 mA at 5 V DC
	• Select alarm parameter and set point
Programmable Output and Alarm Parameters	Filtered Temperature, Unfiltered Temperature, Ambient Temperature, and Cell Strength (PRO 42 & 52 only)
Signal Conditioning	Average Time, Peak Hold Delay, Temperature Scale (°F/°C) Adjustment, Emissivity Adjustment
Status Messages	Out of Range, Ambient Warning, Establishing Communications, and Aiming System Status (optional)
Diagnostics	System Test, Analogue Output Tests, Alarm Tests, Menu Access/Security
Enclosure Rating	
Sensor:	IP65 - Coated Aluminium Casting
Interface Module:	IP52 front panel - Anodised Aluminium Housing
Dimensions	
Sensor:	229 mm x 140 mm x 152 mm
Interface Module:	178 mm x 96 mm x 96 mm
Weight	
Sensor:	3.4 kg
Interface Module:	1 kg

PRO SERIES OPTIONS AND ACCESSORIES

IM	Programmable Interface Module (see above)
25/25S/25RS	PID Controllers with Power Supply, 4-20 mA Output, and Signal Conditioning Options
PS	Power Supply for Stand Alone Sensors 24 V DC (700 mA) to 90-260 V AC (50/60 Hz)
AP	Air Purge
WCAP	Water Cooling Air Purge
SB	Swivel Bracket
LA	Laser Aiming (visual and fibre optic sensors)
AL	Aim Light (For PRO 50 Series only)
Cable Sheathings	Armour Guard (AG), Stainless Steel Braid (SSB), Gooseneck (GN) (For PRO 50 Series only)

Rated for NEMA 4X (IP65)
Corrosion Resistant

2.75 (69.8)
7.75 (196.5)
9.00 (228.6)

Water Cooling Option:
1/4" NPT thread,
supplied with fittings
for 1/4" tubing

(1-5 gph)

1.25 (31.75)
5.50 (139.7)
3.63 (92.2)
3.00 (76.2)
6.00 (152.4)

1 1/2 NPS Thd.
X .55 (14.0) Dp.

1/4-20 thd
x .25 (6.5) dp.
2 plcs.

2.50 (63.5) (typ)
C/L
2.50 (63.5) (ref)

3.25 (82.5)
5.75 (146.0)
.25 (6.4) Thru
4 holes