

PRO 40 and 50 Series

VISUAL AND FIBER OPTIC SINGLE-WAVELENGTH NONCONTACT TEMPERATURE SYSTEMS

SENSOR SELECTION GUIDELINES

The PRO 40 and 50 single-wavelength sensors provide an average temperature measurement of the measured target area. The short wavelength designs are recommended to reduce or eliminate errors due to emissivity variation. Advanced signal processing techniques allow for broad temperature ranges, operation at low temperatures, and long term calibration stability. These sensor's are recommended for applications involving:

- A constant emissivity with an unobstructed view of the target (all temperatures)
- Low temperature measurements of low-emissivity materials (2 μm sensors)

TEMPERATURE RANGE AND FIELD OF VIEW SPECIFICATIONS

<i>PRO 40 SERIES – Visual Aiming, Single-Wavelength (1λ) Sensors</i>				
PRO Model	Spectral Response (microns)	TEMPERATURE RANGE		FIELD OF VIEW Standard Resolution Optics
		Fahrenheit	Celsius	
42-10	2.8 to 3.3 μm	125 - 800 °F	50 - 425 °C	D/50
42-20	2.8 to 3.3 μm	150 - 800 °F	65 - 425 °C	D/100
42-30	2.0 to 2.5 μm	150 - 800 °F	65 - 425 °C	D/50
42-40	2.0 to 2.5 μm	450 - 2500 °F	230 - 1375 °C	D/100
41-20	1.5 to 1.65 μm	500 - 2100 °F	260 - 1150 °C	D/100
41-30	1.5 to 1.65 μm	700 - 3200 °F	375 - 1750 °C	D/100
41-50	0.8 to 1.0 μm	1000 - 2500 °F	540 - 1375 °C	D/100
41-60	0.8 to 1.0 μm	1200 - 3200 °F	650 - 1750 °C	D/100
41-70	0.8 to 1.0 μm	1400 - 4500 °F	760 - 2475 °C	D/150

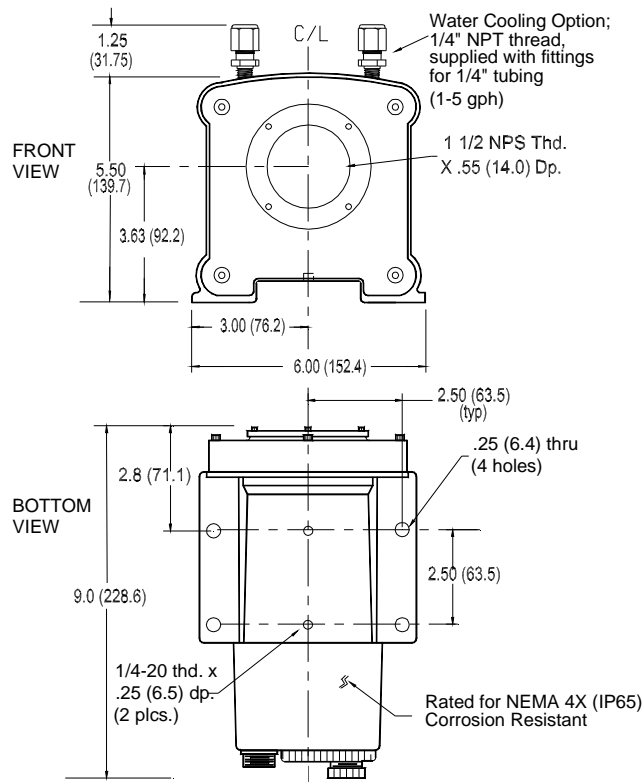
<i>PRO 50 SERIES – Fiber Optic, Single-Wavelength (1λ) Sensors</i>								
PRO Model	Spectral Response (microns)	TEMPERATURE RANGE		FIELD OF VIEW			FIBER CABLE	
		Fahrenheit	Celsius	Standard Resolution Optics (2)	High Res. I Optics	High Res. II Optics	Max. Length	Type of Cable
52-35	2.0 to 2.5 μm	200 - 800 °F	95 - 425 °C	D/2 or D/12	n/a	D/50	3ft / 91cm	Quartz
52-40	2.0 to 2.5 μm	450 - 2500 °F	230 - 1375 °C	D/2 or D/12	D/35	D/50	30ft / 9.1m	Quartz
51-20	1.5 to 1.65 μm	500 - 2100 °F	260 - 1150 °C	D/2 or D/12	D/35	D/50	10ft / 3m	Quartz
51-30	1.5 to 1.65 μm	700 - 3200 °F	375 - 1750 °C	D/.75 or D/12	D/35	D/50	30ft / 9.1m	Glass
51-50	0.8 to 1.0 μm	1000 - 2500 °F	540 - 1375 °C	D/.75 or D/12	n/a	D/50	3ft / 91cm	Glass
51-60	0.8 to 1.0 μm	1200 - 3200 °F	650 - 1750 °C	D/.75 or D/12	D/35	D/50	10ft / 3m	Glass
51-70	0.8 to 1.0 μm	1400 - 4500 °F	760 - 2475 °C	D/.75 or D/12	D/35	D/50	30ft / 9.1m	Glass

- **Temperature Range Selection:** The temperature units (°F/°C) can be selected in the sensor or display menu.
- **FOV Selection:** $d=D/F$, where d =Measured Target Diameter, D =Working Distance, F =Optical Resolution Factor
- **Fiber Cables** are available in the following lengths: 3ft (91cm), 6ft (1.8m), 10ft (3m), 20ft (6m), 25ft (7.6m), 30ft (9.1m)
- Consult with Williamson for **custom temperature ranges, wavelengths, and optics.**
- Two year **warranty** on all sensors.

PRO 40 AND 50 SPECIFICATIONS			
ACCURACY	0.25% to 0.5% of Reading or 2°C (varies by model)		
REPEATABILITY	Better than 1°C		
RESPONSE TIME	Constant Target: 41/51's 5ms, 42/52's 50ms (update time) Intermittent Target: 41/51's 5ms; 42/52's 300ms (98% of Reading - 4τ)		
CE CERTIFICATION	EMI / RFI for heavy industry; LVD (Low Voltage Directive)		
AMBIENT TEMPERATURE LIMITS	Sensor Head: 41 & 51 Models: 0 to 140°F (-17 to 60°C) 42 & 52 Models: 32 to 120°F (-17 to 50°C) Interface Module: 0 to 120°F (50°C) Sensor w/ Water Cooling: 200-350°F (95-175°C) (this varies with water rate and temperature) Fiber Optic Assembly: 400°F (200°C)		
INPUT POWER	Stand-alone Sensor: 24Vdc (300mA); With Interface Module: 90-260Vac, 50/60Hz		
INPUT AND OUTPUT SIGNALS	Stand-Alone Configuration: An internal jumper is used to select the analog or digital mode.		
	<table border="0"> <tr> <td style="vertical-align: top;"> Analog Mode <ul style="list-style-type: none"> • 4-20 mA or 0-20 mA (1000ohm max. impedance. Shunt resistors produce voltage outputs.) • TTL Alarm with 2mA at 5Vdc rating • External Peak Hold Reset • Select parameter, scale, & range of output & alarm </td> <td style="vertical-align: top;"> Digital Mode <ul style="list-style-type: none"> • Bi-directional RS485 communications • RS232 with a converter • Used to connect to the Interface Module </td> </tr> </table>	Analog Mode <ul style="list-style-type: none"> • 4-20 mA or 0-20 mA (1000ohm max. impedance. Shunt resistors produce voltage outputs.) • TTL Alarm with 2mA at 5Vdc rating • External Peak Hold Reset • Select parameter, scale, & range of output & alarm 	Digital Mode <ul style="list-style-type: none"> • Bi-directional RS485 communications • RS232 with a converter • Used to connect to the Interface Module
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	System Configuration with Interface Module		
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PRO SERIES MENU SYSTEM	
PROGRAMMABLE OUTPUT & ALARM PARAMETERS	Filtered Temperature, Unfiltered Temperature, Ambient Temperature, and Cell Strength (PRO 42s & 52s only)
SIGNAL CONDITIONING	Average Time, Peak Hold Delay, Temperature Scale (°F/C) Adjustment, Emissivity Adjustment
DIAGNOSTICS	System Test, Analog Output Tests, Alarm Tests, Menu Access/Security
STATUS MESSAGES	Out of Range, Ambient Warning, Establishing Communications

PRO SERIES OPTIONS AND ACCESSORIES	
2I	Programmable Interface Module (see above)
25/25S/25RS	PID Controllers w/ power supply, & 4-20mA Output
PS	Power Supply 24Vdc (700mA) to 90-260Vac (50/60Hz)
AP	Air Purge
WCAP	Water Cooling Air Purge
SB	Swivel Bracket
LA	Laser Aiming (visual and fiber optic sensors)
AL	Aim Light (For PRO 50 Series only)



Fiber Cable Sheathings	Armor Guard (AG), Stainless Steel Braid (SSB), Gooseneck (GN) (For PRO 50 Series only)
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