June 2017

Williamson PRO Series Hot Spot Detectors

VISUAL AIMING LARGE-VIEWING-AREA INFRARED THERMOMETERS WITH RATE OF CHANGE ALARM (WHEN SUPPLIED WITH THE REMOTE INTERFACE MODULE)

SENSOR SELECTION GUIDELINES

Williamson has developed a series of infrared thermometers designed specifically for use as highly effective yet affordable hot spot detectors. For many applications, these sensors provide the performance of a thermal imaging or line scanning system at a fraction of the cost and without the undesirable complexity. These sensors are particularly popular for conveyor belt protection and for refractory hot spot detection (rotary kiln under-tire hot spot detection, for example). In addition, Williamson offers one model (model HSD-01) specifically designed for the fiberglass batting manufacturing process to detect undesirable hot glass slugs.

Each of these sensors views an exceptionally large area: 23 inches at a 5 foot distance / 575 mm at a 1.5 M distance. The versatile short-wavelength model 2A-30 is recommended for most hot spot detector applications, as it is exceptionally sensitive to even small hot spots and it is four times less sensitive to dirty optics and misalignment compared to a long-wavelength sensor. The similar short-wavelength model 29-08 offers a slightly lower temperature span, but it is not as tolerant of steam interference. The model GP-20 is reserved for applications requiring measurement below 100 F / 25 C, as this longer wavelength sensor provides more of an average temperature value and is more sensitive to optical obstructions when compared to the shorter-wavelength alternatives.

When supplied with the optional remote interface module the sensor may be configured to alarm on an absolute temperature value, or a rate of temperature rise value, or both. This unique feature allows the sensor to detect even the smallest hot spot even as the baseline average temperature value changes. When supplied as a stand-alone four-wire transmitter the sensor is able to alarm on the absolute temperature value.

Temperature Range and Field of View Specifications

Visual Aiming, Single-Wavelength (1λ) Sensors					
PRO Model	**Spectral Response (microns)**	**TEMPERATURE RANGE**		**FIELD OF VIEW**	**Application Notes**
		Fahrenheit	**Celsius**	Standard **Optics**	
2A-30	2.0-2.4 µm	150 - 800 °F	65 - 425 °C	D/2.6	Exceptionally Sensitive to Hot Spots Views Clearly Through Heavy Steam
29-08	2.8-3.3 µm	100 - 800 °F	40 - 425 °C	D/2.6	Exceptionally Sensitive to Hot Spots Does Not Tolerate Heavy Steam
GP-20	8 to 14 µm	0 - 1000 °F	0 - 540 °C	D/2.6	Provides More of an Average Temperature Value Tolerates Moderate Steam
HSD-01	Proprietary	75 - 250 °F	25 - 125 °C	D/2.6	Specialized Configuration for Fiberglass Batting Hot Slug Detection Does Not Tolerate Sunlight or Stray Light Reflections

- **Temperature Range Selection:** The temperature units (°F/°C) can be selected from the sensor or display menu.
- **FOV Selection:** d=D/F, where d=Measured Target Diameter, D=Working Distance, F=Optical Resolution Factor
- Consult with Williamson for **custom temperature ranges, wavelengths, and optics**.
- Two year **warranty** on all sensors.

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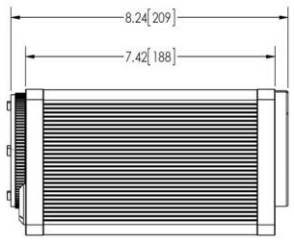
Williamson
Innovators In Noncontact Temperature Measurement

PRO SINGLE WAVELENGTH SPECIFICATIONS		
ACCURACY	0.50% of Reading or 2°C	
REPEATABILITY	Better than 1°C	
RESPONSE TIME	100ms initial response with 50ms update time	
CE CERTIFICATION	NIST: Calibration certification is standard with each sensor CE: EMI/ RFI for heavy industry; LVD (Low Voltage Directive)	
AMBIENT TEMPERATURE LIMITS	0 to 150°F / -17 to 65°C With water-cooling plate: 350°F/175°C (varies with water rate and temp) With protective cooling jacket: 600°F/315°C Fiber-Optic Cable & Lens Barrel: 400°F/200°C	
INPUT POWER	**Stand-alone Sensor:** 24Vdc (300mA);	**With Interface Module:** 90-260Vac, 50/60Hz
INPUT AND OUTPUT SIGNALS	**Sensor Output:** Set in Configure I/O Submenu	
	Analog Mode • 4-20 mA or 0-20 mA (1000ohm max. impedance. Shunt resistors produce voltage outputs.) • TTL Alarm (2A at 115Vac) • 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 Remote Interface Module	
	2 Programmable Analog Outputs • 4-20 mA or 0-20 mA (1000ohm max. impedance. Shunt resistors produce voltage outputs.) • Select parameter, scale, and range **3 Analog Inputs** • Sample and Hold • External Peak Hold Reset • Analog input for remote parameter adjustments	**Bi-directional Serial Communications** • RS232 and RS485 simultaneously **2 Programmable Relay Alarms** • Form C (4A at 250Vac or 2.5A at 30Vdc) • Select alarm parameter and set point **1 Programmable TTL Alarm** • TTL rating is 2 ma at 5Vdc • Select alarm parameter and set point
ENCLOSURE RATING	**Sensor:** NEMA 4X (IP65) - Coated Aluminum Casting **Interface Module:** NEMA 12 front panel - Anodized Aluminum Housing	

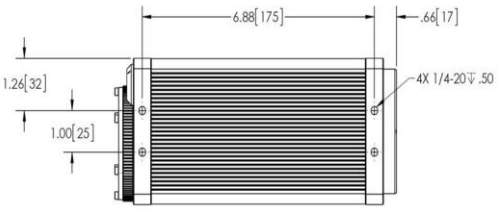
PRO SERIES MENU SYSTEM	
PROGRAMMABLE OUTPUT & ALARM PARAMETERS	Filtered Temperature, Unfiltered Temperature, Ambient Temperature, and Cell Strength
SIGNAL CONDITIONING	Average Time, Peak Hold Delay, Temperature Scale (°F/C) Adjustment, Emissivity Adjustment
DIAGNOSTICS	System Test, Analog Output Tests, Alarm Tests, Menu Access/Security
STATUS MESSAGES	Out of Range, Ambient Warning, Establishing Communications

PRO SERIES OPTIONS AND ACCESSORIES	
IM	Programmable Interface Module (see above)
WC	Water Cooling Plate
PCJ	Protective cooling Jacket
AP	Air Purge
SB	Swivel Bracket
LA	Laser Aiming Feature
PSD	Power Supply 24Vdc (700mA) to 90-260Vac (50/60Hz)
RAO	Relay Alarm Option for Stand-Alone Sensors

Side View



Bottom View



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