MWx-AS Aluminum Strip Pyrometer Datasheet

Williamson
Where Wavelength Matters

How MWx Pyrometers with Dynamic ESP Technology Work

- Multi-wavelength pyrometers are used to measure the temperature of non-greybody materials. These are materials for which the emissivity not only varies, but varies differently at different wavelengths.
- Traditional multi-wavelength pyrometers use static, application-specific algorithms to compensate for complex emissivity characteristics. The MW pyrometers assume that the surface conditions for these applications are relatively consistent.
- The Williamson MWx pyrometer uses Dynamic ESP Technology to compensate for more significant variation in surface character and conditions without adjustments. For example, at the aluminum reversing hot rolling mill, the surface character of the aluminum varies dramatically from pass-to-pass, so the traditional MW technology is not appropriate.

MWx-AS Application

Models MWx-AS-09 and MWx-AS-11 include algorithms for the following measurement positions:

- Ingot
- Reversing/Roughing Mill
- Finishing Mill

Reversing Mill Accuracy

With its Dynamic ESP Technology, no adjustments to the MWx are required to achieve the following results. These results are obtained using the Reversing Mill algorithm and using the same default parameter settings across all alloys and for all passes.

Aluminum Hot Rolling Mill On-Line Results		
	Middle Passes (Typically Pass 5 to 11)	**Final Passes** (Typically Pass 12 to 18)
Alloy	**Average Variance**	**Average Variance**
1000	3˚C	-9˚C
2000	-1˚C	-2˚C
3000	0˚C	-1˚C
4000	14˚C	0˚C
5000	1˚C	2˚C
6000	2˚C	1˚C
7000	11˚C	-11˚C
8000	0˚C	-1˚C

Specifications

MWx Technology

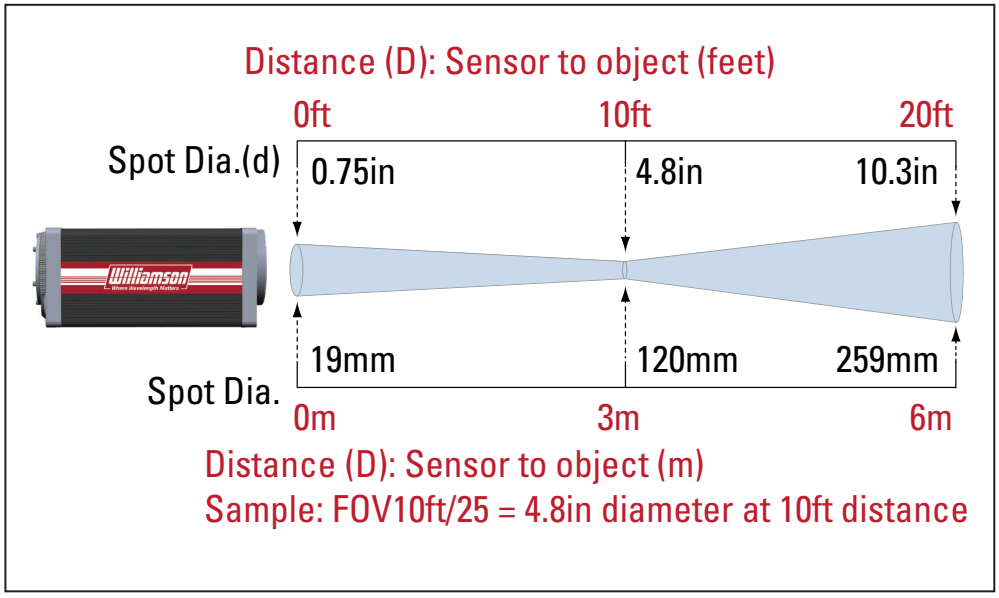
Traditional Style MWx

MWx Specifications	
Temperature Limits	MWx-AS-09: 250 to 480°C / 480 to 900°F MWx-AS-11: 300 to 600°C / 575 to 1100°F
Spectral Response	Range of precisely selected narrow wavelength bands
Optical Resolution	MWx-AS-09: D/17 MWx-AS-11: D/25, D/17
Accuracy	0.5% of reading or 2°C whichever is greater
Repeatability	Better than 1°C
E-Slope	0.000 to 2.000
Response and Update Time	50ms (initial response) with 25ms update time
Analog Output	0/4-20mA output (max impedance 1000 ohms)
Alarms	One field-selectable N.O. or N.C. Relay rated 1A@24V
Analog Input	4-20mA/0-20mA input (impedance 250 ohms)
Digital Communications	Bi-Directional RS485 and RS232 Multidrop communications available
Human Interface	Built-in menu system with Averaging, Peak/Valley Hold (Time or Temp Reset), Programmable Outputs & Alarms & ESP Filters
Measured Parameters	Filtered and Unfiltered Temperature, Ambient Temperature, Signal Strength/Emissivity, Signal Dilution & Rate of Change
Input Power	24Vdc (300mA)
Ambient Temperature Limits	0 to 150°F / -17 to 65°C with Water Cooling Plate: 350°F/175°C (varies with water rate & temp) with Protective Cooling Jacket: 600˚F / 315˚C
Enclosure Rating	Corrosion resistant enclosure w/ NEMA4X (IP65) rating. Optional IECEX and ATEX enclosures are available
Weight	3.6lbs (1.6kg)
Dimensions	3.5in x 3.5in x 8.25in / 89mm x 89mm x 210mm
Certification	Calibration certificate is standard with each unit CE: EMI / RFI for heavy industry; LVD (Low Voltage Directive)
Warranty	2 years

Multi-Wavelength Technology

Sample Field of View

Multi-wavelength pyrometers may be used at any distance as long as the measured target fills the sensor's viewing area (i.e. a full FOV).



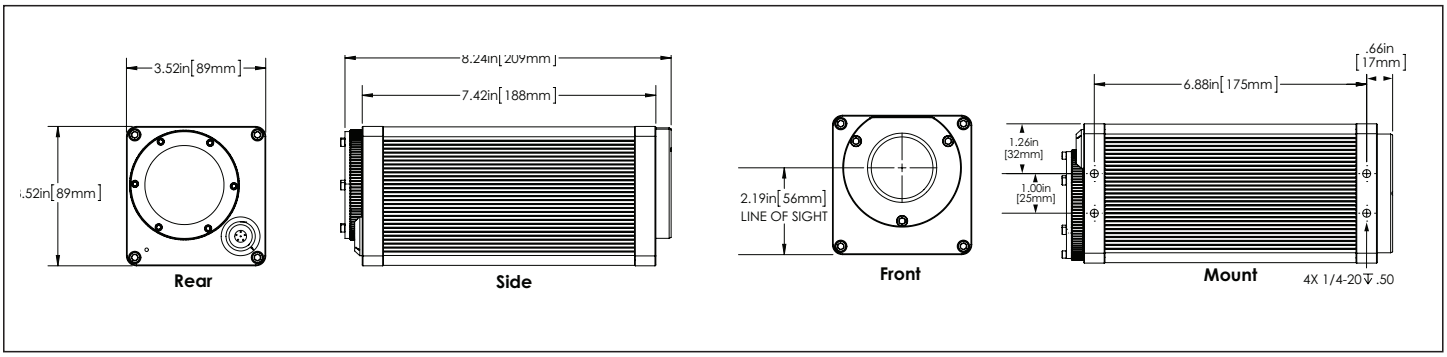
Local and Remote User Interface

Local Interface

- Increase Value
- Decrease Value
- Menu
- Enter
- Aiming On/Off
- Through Lens Aiming
  (local interface only)

Remote Interface

Pro Series Dimensions

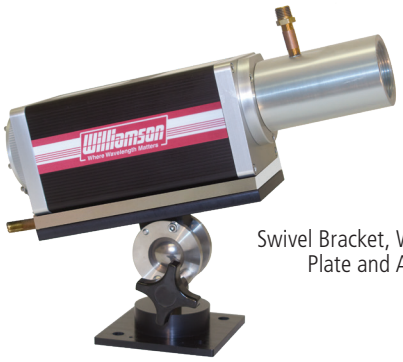


Sample Part Numbers

A – Model	B – Wavelength	C – Temp Code	Temp Scale	D – Field of View	E – Sensor Output	F – Options	G – Accessories	H – Cable
MWx-	AS-	09	F- or C-	10ft/17 or 3m/17	A- or D-	VALA	IM-SB-PCJ-AP-	CF040 or CM012
MWx-	AS-	11-	F- or C-	10ft/25- or 3m/25-	A- or D-	VALA-	IM-SB-PCJ-AP-	CF040 or CM012

Traditional Style Mounting and Protective Accessories

Popular Williamson accessories include: Swivel Bracket (SB), Water Cooling Plate (WC), Air Purge (AP), Protective Cooling Jacket (PCJ) and a Remote Interface Module (IM).



Swivel Bracket, Water Cooling Plate and Air Purge

Protective Cooling Jacket

Thermocouple Probe Assembly

The MWx Dynamic ESP Technology was created through a series of on-line trials that compared the pyrometer readings with thermocouple data. For this purpose, Williamson has developed a three pronged thermocouple probe assembly to ensure the best possible reference temperature. The reference temperature takes an average of all three of the Anritsu ribbon probes and compares it to an MWx pyrometer that is aimed at the same area. This reference measurement may be made at every pass where operators are able to hold the strip stopped for a few seconds.

E – Sensor Output *(Select One)*

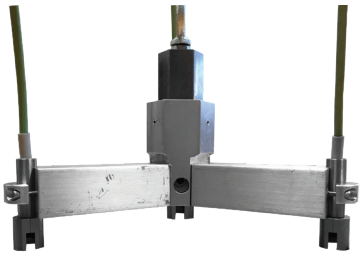
Part No.	Description
A	Set to Analog Output/Input with linear mA output
D	Set to Digital Communications for operation w/ Interface Module or for 4-wire digital operation

F – Options *(Must Be Specified at Time of Order)*

Part No.	Description
LA	Laser Aiming
VALA	Visual Aiming and Laser Aiming

G-Accessories

Part No.	Description
AP	Air Purge
SB	Swivel Bracket
PCJ	Protective Cooling Jacket
IM	Interface Module, 1/4DIN, Outputs, Inputs, Relay Alarms, 24Vdc Power to Sensor, Input Power (90-260Vac)
WC	Water Cooling Plate
VCS	Vortex Cooling System includes Filter & Regulator
TCMS	Tripod Based thermocouple Measurement System: 887-9900-000
887-0000-020	MWx Data Logger System



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