

MWx-AB Aluminum Billet Pyrometer Datasheet



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-AB pyrometer uses Dynamic ESP Technology to compensate for elemental migration and accelerated oxidation at elevated temperatures.
- Measures side and cut-face of billet.

MWx-AB Application

Williamson MWx-AB technology is intended for aluminum forging and extrusion plants heating billets above 925°F / 500°C

MWx-AB vs. Thermocouple Comparison

Measurement Technique	Number of Billets	Average Variance	Standard Deviation
MWx-AB vs Hammered Reference Thermocouple on Cut Billets	166	1°F / 0.5°C	6°F / 3°C
MWx-AB vs Hammered Reference Thermocouple on Side of Billets	153	3°F / 1.5°C	6°F / 3°C
Billet Furnace TC vs Hammered Reference Thermocouple	95	24°F / 13°C	15°F / 3°C

When a billet is heated above 500°C / 925°F, this accelerates elemental migration and surface oxidation, and this introduces significant variability in the spectral emissivity. This variable surface condition renders MW technology ineffective and dictates the use of the more advanced MWx technology.

Specifications

MWx-AB Technology



Traditional Style
MWx-AB

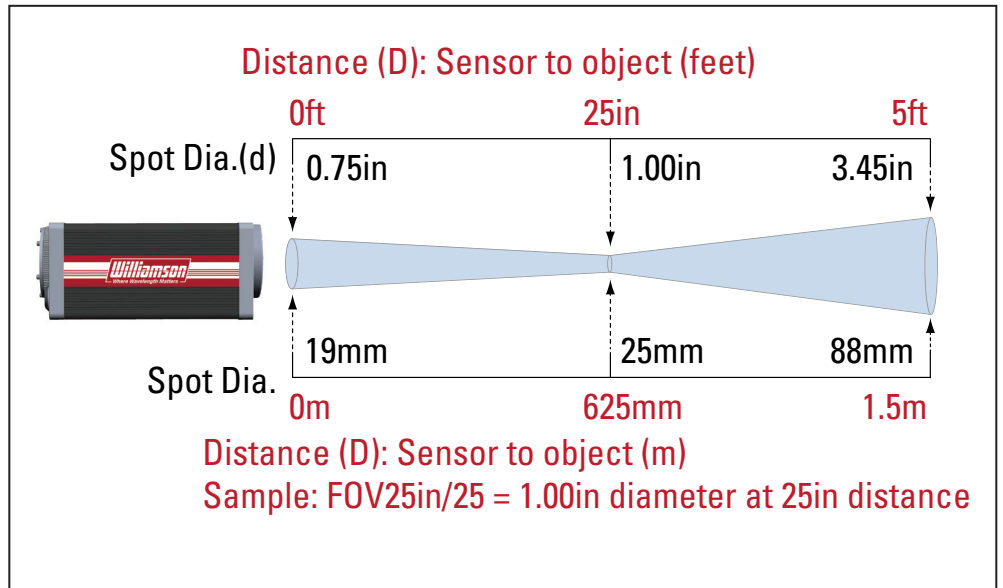
MWx-AB Specifications

Temperature Limits	285 to 600°C / 550 to 1100°F
Spectral Response	Range of precisely selected narrow wavelength bands
Optical Resolution	D/25
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



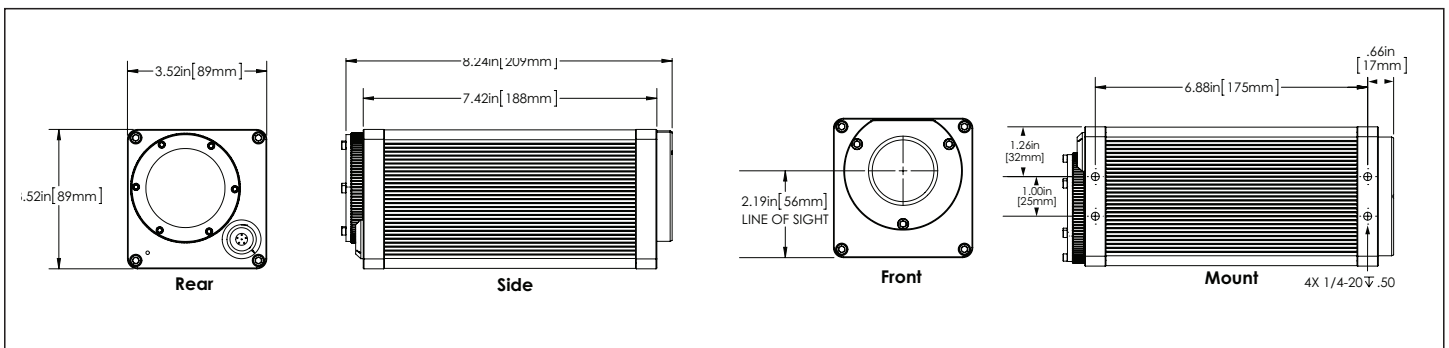
Local Interface

- 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-	AB-	11-	F- or C-	25m/25 or 625mm/25	A- or D-	VALA-	IM-SB-PCJ-AP-	CF040 or CM012

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)*

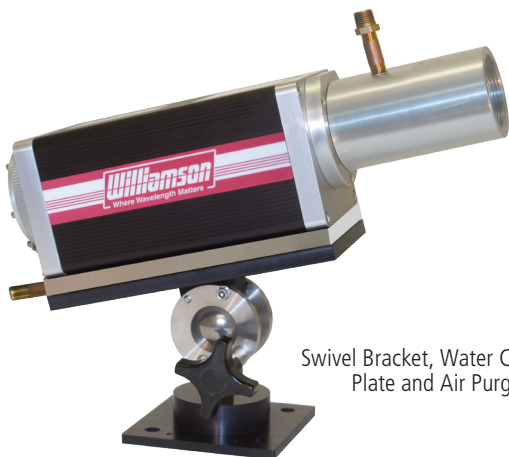
Part No.	Description
LA	Laser Aiming
VALA	Visual Aiming and Laser Aiming

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

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

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Williamson
Where Wavelength Matters