

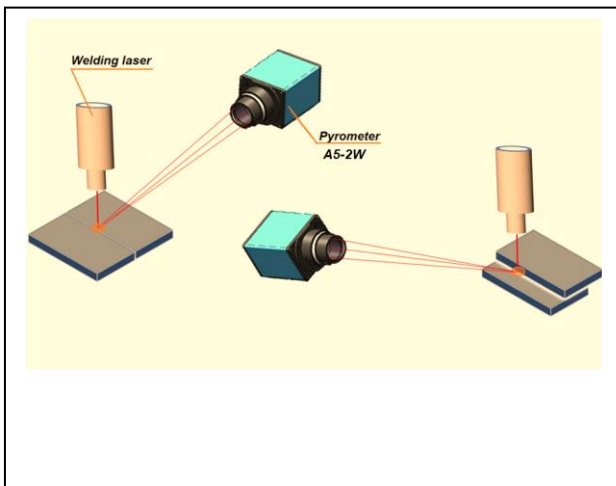


Highly Accurate, On-Line Infrared Pyrometers for Laser welding process

A5-WL-PL / A5-WL-FO: 300 to 1500°C (572 to 2732°F)



A5-WL-PL
A5-WL-FO



AST A5-WL is specially designed IR Pyrometers for non-contact temperature measurement in a welding process.

AST A5-WL-PL and AST A5-WL-FO are Multi-wavelength pyrometers that use application-specific databases derived from years of experience in a real application. AST A5-WL-PL and AST A5-WL-FO use special algorithms to accurately calculate the actual temperature and emissivity of the surface during Laser Welding.

AST A5-WL and AST A5-WL-FO have Laser Emission Immunity for $\lambda=910, 1032, 1064\text{nm}$ (Each $\lambda \leq 1080\text{nm}$) but not for keyhole welding mode.

They have a laser pointer aligned in line with the detector to ensure both laser and detector look into the same spot. This helps precise aiming even in long distances.

AST A5-WL and AST A5-WL-FO offer Bluetooth communication to communicate with Android smartphones or laptops to view the measured temperature and adjust the parameters/selection of database and data logging.

Features

- High accuracy - $0.25\% \pm 2^\circ\text{C}$ (3.6°F) of measured value for a full range of emissivity.
- High consistency, suitable for closed-loop control.
- Temperature ranges - see table at the beginning of next page.
- Temperature range for measurement in front of a blackbody, when measuring a shiny body minimum temperature will be higher.
- Fast response, compared to T/C.
- Full range of accessories and wide range of built-in functions.
- Durability, low maintenance.
- Easy to install in the existing line, replacing of contact probes.
- Capable of measuring targets with variable emissivity.
- AST NET SW software for PC.
- AST Pyrometer Android Application via Bluetooth.

Standard Scope of Supply

- Integrated laser pilot light - Models A5-WL-PL and A5-WL-FO
- Digital Interface RS-232
- Calibration Certificate, PC Software & Operation Manual

Optional

- Mechanical and Electrical Accessories
- RS485, OpenBus, USB, Bluetooth, Alarm
- Special filter for High power plasma

Applications

- Laser Welding



Technical Specifications

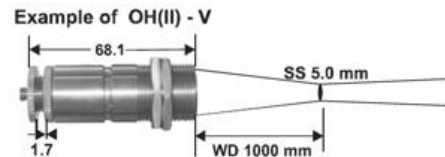
| Specification | Model A5-WL-PL | Model A5-WL-FO |
|---|---|---|
| Temperature Range (Analog sub-range adjustable) | 105 - 900°C 221 - 1652°F 200 - 1640°C 392 - 2984°F 250 - 1850°C 482 - 3362°F 360 - 2500°C 680 - 4532°F | 300 - 980°C 572 - 1796°F 450 - 1500°C 550 - 2732°F 500-3000°C |
| Spectral Range | 2.1μ / 2.4μ | 2.1μ / 2.4μ |
| Photodetector Type | InGaAs Extended | |
| Distance to Spot Size Ratio | 100:1 200:1 | See table of spot sizes A5-WL-FO below |
| Protection Class | IP65 | |
| Response Time t90 | Adjustable from 0.1 sec to 17 sec | |
| Accuracy and Repeatability | 0.25% ± 2°C (3.6°F) of measured value for full range of emissivity | |
| Sighting | Integrated Laser Pilot Light 650-670nm for A5-WL and A5-WL-FO | |
| Power Supply | 24VDC | |
| Analog Output | 4-20 mA, 0-20 mA, 0-10V, K Type T/C | |
| Digital Output | RS-232, RS-485, USB, Bluetooth | |
| Digital Display | P110 | |
| Sensor overall dimensions | 215 x 110 x 105 mm / 8.46 x 4.33 x 4.13 in | |
| Sensor weight | ~2.0Kg / ~4.4lbs | |
| Operating temperature range | 0°C +50°C / 32°F +122°F | |
| Storage temperature range | -20°C +70°C / -4°F +158°F | |

Spot Sizes for A5-WL-PL (Range 2.0-2.4mkm, InGaAs Extended)

| Working Distance [mm] / [in] | InGaAs Extended | A5-WL-PL \ Spot Size [mm] / [in] | | | |
|---------------------------------|--------------------|----------------------------------|--|-------------|--|
| | | FOV 1:100 | FOV 1:200 | FOV 1:400 | |
| | | 105 - 900°C | 200 - 1640°C 250 - 1850°C 360 - 2500°C | | |
| | | 2.5 / 0.1 | 1.25 / 0.05 | | |
| 5 / 0.2 | 2.55 / 0.1 | | | | |
| 500 / 20 | | 5 / 0.2 | 7 / 0.3 | 3.50 / 0.15 | |
| 1000 / 40 | | 10 / 0.4 | 10 / 0.4 | 5.0 / 0.2 | |
| 1500 / 60 | | 15 / 0.6 | 12.5 / 0.5 | 6.25 / 0.25 | |
| 2000 / 80 | | 20 / 0.8 | 25 / 1.0 | 2.5 / 0.5 | |
| 2500 / 100 | | 25 / 1.0 | | | |
| 5000 / 200 | | | | | |

Spot Sizes for A5-2W -FO

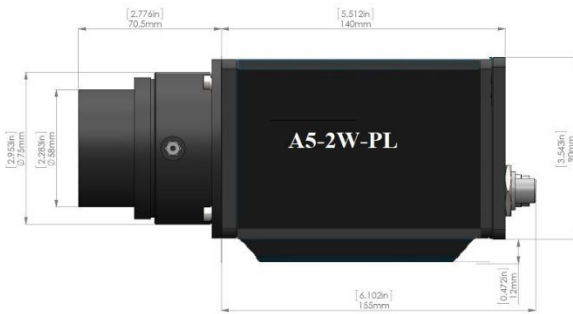
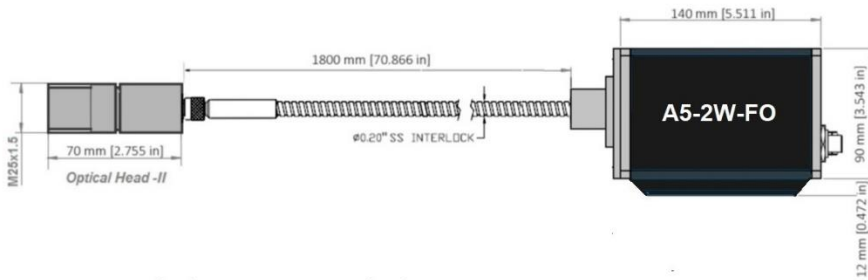
| Fixed Optics | | A5-WL-FO | A5-WL-FO-S |
|--|-------------------------------|------------------------|--------------|
| Optical Head | Working Distances (mm) / [in] | Spot Sizes (mm) / [in] | |
|  | 120 / 4.7 | 3.6 / 0.14 | 1.2 / 0.047 |
| | 260 / 10.2 | 7.8 / 0.30 | 2.6 / 0.102 |
| | 700 / 27.5 | 21.0 / 0.82 | 7.0 / 0.275 |
|  | 90 / 3.6 | 1.5 / 0.059 | 0.5 / 0.019 |
| | 140 / 5.5 | 1.8 / 0.07 | 0.6 / 0.023 |
| | 200 / 7.9 | 3.0 / 0.11 | 1.0 / 0.039 |
| | 600 / 23.6 | 9.0 / 0.35 | 3.0 / 0.118 |
| | 4500 / 177.1 | 69.0 / 2.71 | 23.0 / 0.905 |



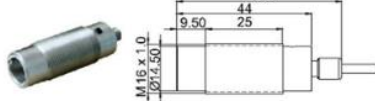
Pull Out (P) = 1.7 mm
Optical Head Length (L) = 68.1 mm

| Variable Optics | Optical Head - II - V (Variable) | | | | | | | | | |
|-----------------------------------|----------------------------------|-------------|--------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| Working Distance (mm) / [in] | 0 / 0 | 250 / 9.84 | 300 / 11.81 | 400 / 15.74 | 600 / 23.62 | 800 / 31.49 | 1000 / 39.37 | 1500 / 59.05 | 2000 / 78.74 | 2500 / 98.42 |
| Optical Head Length L (mm) / [in] | 66.4 / 2.61 | 78.9 / 3.10 | 75.75 / 2.98 | 72.8 / 2.86 | 70.1 / 2.75 | 68.8 / 2.7 | 68.1 / 2.68 | 67.15 / 2.64 | 66.7 / 2.62 | 66.4 / 2.61 |
| Optical Pullout P (mm) / [in] | 0 / 0 | 12.5 / 0.49 | 9.35 / 0.36 | 6.4 / 0.25 | 3.7 / 0.14 | 2.4 / 0.09 | 1.7 / 0.06 | 0.75 / 0.02 | 0.3 / 0.01 | 0 / 0 |
| Spot Size (mm) / [in] | 18 / 0.7 | 3.9 / 0.15 | 4.5 / 0.17 | 6.0 / 0.23 | 9.0 / 0.35 | 12.0 / 0.47 | 15.0 / 0.59 | 22.5 / 0.88 | 30.0 / 1.18 | 39.0 / 1.53 |

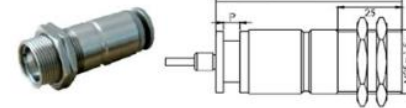
Pyrometer Drawing



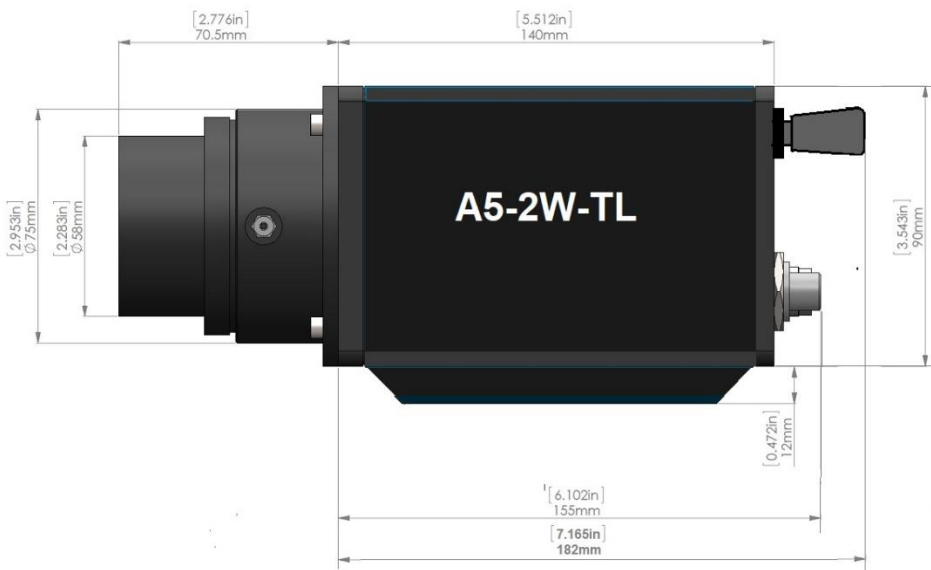
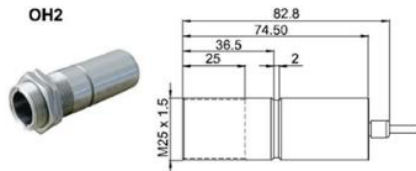
OH1



OH2-V



OH2



We measure accurate temperature in extreme conditions

Accessories for A5-WL

AS3000 Application Selector
(Reference no: 300-07)

Power Supply Unit
(Reference no: 200-09)

Air Purge Tube 200 mm
(Reference no: 200-03)

Display
(Reference no: P-110)



Adjustable Mounting
(Reference no: 200-01)

Air Purge Tube Adapter
(Reference no: 200-02)

Frontal Water-Cooling Plate
(Reference no: 200-06)

Top Water-Cooling Plate
(Reference no: 200-10)



Air purge unit for optical head II
Reference No. 8200 - 01

Air purge unit for optical head-I
Reference No. 8200 - 02

Adjustable Mounting for optical head II
Reference No. 8200 - 03

Adjustable mounting for optical head-I
Reference No. 8200 - 04



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We measure accurate temperature in extreme conditions