

MA Datasheet



Highlights

- Choice of 1 micron or 1,6 micron spectral response
- Fast response time down to 1 ms
- Superior optical resolution to 300:1
- Variable-focus optics and built-in interface
- High speed digital signal processor
- Bi-directional RS-485 communications (networkable)
- Background radiation compensation
- Through-the-lens sighting or laser aiming
- Simultaneous analog and digital outputs
- Programmable relay output (dual temperature setpoints or fail safe alarm)
- Ambient temperatures to 315°C with ThermoJacket™
- Compact, rugged design, IP65 rated
- Marathon DataTemp® software for remote configuration and monitoring

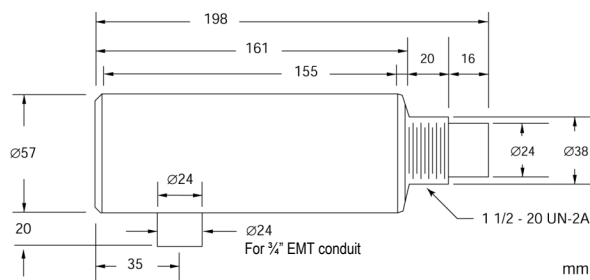
Electrical Specifications

Outputs	0/4-20 mA, max. load: 500 Ω RS-485 full duplex, networkable Relay, 48 V, 300 mA, response time < 2 ms
Power Supply	24 VDC ±20%, 500 mA

General Specifications

Environmental Rating	IP65 (IEC529)
Ambient Temperature	
without cooling	10 to 65°C
with air cooling	up to 120°C
with water cooling	up to 175°C
with ThermoJacket	up to 315°C
Storage Temperature	-20 to 70°C
Relative Humidity	10 to 95%, non-condensing
Shock	IEC 68-2-27
Vibration	IEC 68-2-6
Weight	
Optical head	480 g
with air/water cooled housing	800 g

Dimensions

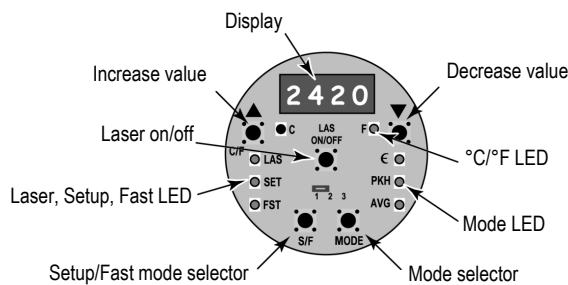


Measurement Specifications

Temperature Range	
MA1SA	500 to 1400°C
MA1SB	600 to 2000°C
MA1SC	750 to 3000°C
MA2SA	250 to 1000°C
MA2SB	300 to 1400°C
MA2SC	350 to 2000°C
Spectral Response	
MA1S	1,0 μm
MA2S	1,6 μm
System Accuracy	±(0,3% T _{meas} + 1 K) ¹
Repeatability	±(0,1% T _{meas} + 1 K) ¹
Temperature Resolution	1°C
Response Time (95%)	1 ms, selectable to 10 ms
Emissivity	0,10 to 1,00 in 0,01 increments
Signal Processing	Peak hold, valley hold, averaging

¹ T_{meas} in K

User Interface



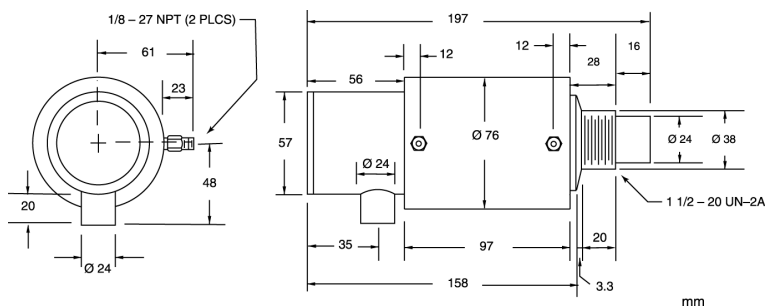
Accessories

The models include a mounting nut, an adjustable bracket, an operator's manual and Marathon DataTemp Software.

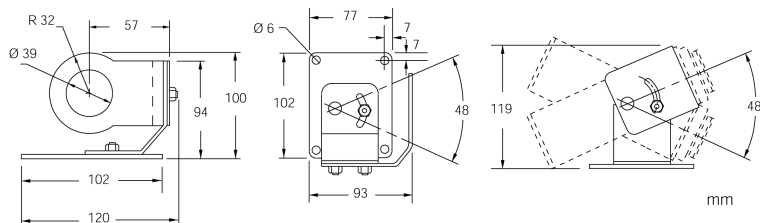
Additional accessories are available:

- Fixed bracket (XXXTXACFB)
- Air purge collar (XXXTXACAP)
- ThermoJacket enclosure for ambient temperatures to 315°C (RAYTXJT1M), see also ThermoJacket-datasheet
- Polarizing filter end cap (XXXTPFEC)
- Cable with terminal block (XXX2CCB...)
- Switching power supply 110 / 220 VAC to 24 VDC, 1,1 A (XXX2CDCPSS)
- RS-485 / RS-232 interface converter with 220 VAC / 9 VDC adapter (XXX485CVT2)
- Focus adjustment tool when the sensor is installed in a ThermoJacket (XXX2CFT)
- Protective front window incl. O-ring (XXX2CPW)
- Marathon transportable accessory kit (RAYMTAKE)

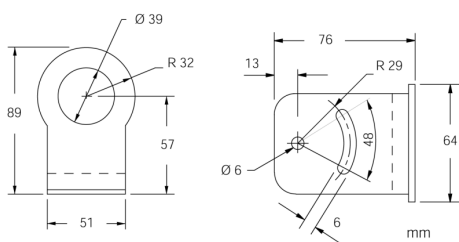
Air/Water-Cooled Housing (...W)



Adjustable Bracket (XXXTXACAB)



Fixed Bracket (XXXTXACFB)



Optical Specifications

Optical Resolution D : S¹

MA1SA	80 : 1
MA1SB	300 : 1
MA1SC	300 : 1
MA2SA	80 : 1
MA2SB	200 : 1
MA2SC	300 : 1

Focus Distance

Standard Focus, MA1S	600 mm to ∞
Standard Focus, MA2S	675 mm to ∞
Close Focus, MA1S	275 mm to 450 mm
Close Focus, MA2S	300 mm to 550 mm

Smallest Spot Size²

	SF	CF
MA1SA	7,5 mm	3,5 mm
MA1SB	2,0 mm	0,9 mm
MA1SC	2,0 mm	0,9 mm
MA2SA	8,0 mm	3,7 mm
MA2SB	3,4 mm	1,5 mm
MA2SC	2,3 mm	1,0 mm

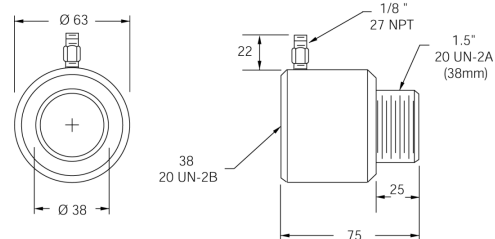
¹ at 95% energy, D: Distance between sensor and object, S: diameter of spot size
² typical values at minimum focus distance, SF = Standard Focus, CF = Close Focus

Options

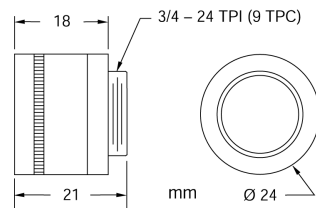
Options must be specified at time of order.

- Laser aiming-light (...L)
- Water-Cooled Housing, incl. Air Purge Collar (...W)
- ISO Calibration Certificate, based on NIST/DKD certified probes (XXXMACERT)

Air Purge Collar (XXXTXACAP)



Polarizing Filter (XXXTPFEC)



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