Raytek Marathon Series

MM 1M, 2M

Datasheet

Highlights

- Wide temperature range from 300 to 3000°C (572 to 5432°F)
- Superior optical resolution up to 300:1
- Spot sizes down to 0.6 mm (0.02 in)
- Variable focus from 0.3 m to 2.2 m (1 to 72 ft)
- Fast exposure time down to 1 ms
- Real time video monitoring and snapshot recording
- Through-the-lens sighting with video or laser aiming
- Digital RS485 communications (networkable)
- Real time ambient background radiation compensation
- Simultaneous analogue and digital outputs
- Programmable relay output
- Ambient temperatures to 315°C (600°F) with ThermoJacket™
- Compact, rugged design, IP65 / NEMA-4 rated
- DataTemp® Multidrop software for remote configuration and monitoring

Electrical Specifications

Outputs	
mA	0/4-20 mA
Relay	48 V, 300 mA, response time < 2 ms
RS485	2-wire or 4-wire, networkable to 32 sensors
Video	analog, NTSC, 510x492 pixel, FOV 8°
Inputs	Emissivity setting, background radiation compensation, trigger, laser on/off (software enabled)
Power Supply	24 VDC ±20%, 500 mA

General Specifications

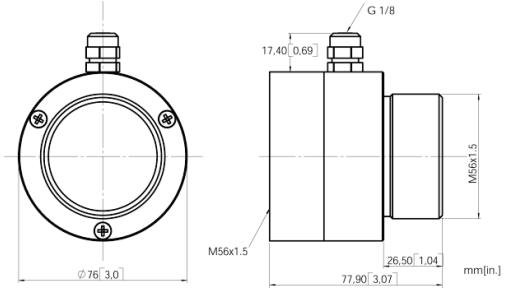
Environmental Rating	IP65 (IEC529), NEMA-4
Ambient Temperature	
without cooling	5 to 65°C / 41 to 149°F (video: 50°C/122°F)
with air cooling	10 to 120°C (50 to 250°F)
with water cooling	10 to 175°C (50 to 350°F)
with ThermoJacket	10 to 315°C (50 to 600°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Relative Humidity	10 to 95%, non-condensing
Shock	IEC 68-2-27
Vibration	IEC 68-2-6
Weight	700 g (25 oz)

Options

Options must be specified at time of order.

- Laser sighting (…L) or Video sighting (…V)
- Variable focus (…VF1)
- Water-Cooled Housing, incl. Air Purge Collar (...W)
- Manufacturer's Calibration Certificate based on certified probes traced on national standards, e.g. DAkkS (XXXMMCERT)

Air Purge Collar (XXXMMACAP)



Measurement Specifications

Temperature Range	
2ML	300 to 1100°C (572 to 2012°F)
2MH	450 to 2250°C (842 to 4082°F)
1ML	400 to 1740°C (752 to 3164°F)
1MH	540 to 3000°C (1004 to 5432°F)
Spectral Response	
2M	1.6 µm
1M	1 µm
System Accuracy[1]	
2ML	± (0.3% of reading + 2°C)
2MH, 1ML, 1MH	± (0.3% of reading + 1°C)[5]
Repeatability[3]	± (0.1% of reading + 1°C)[5]
Temperature Resolution	
2ML, 1ML	0.1 K
2MH, 1MH	0.2 K
Exposure Time[4] (95%)	1 ms
Emissivity	0.100 to 1.150 in 0.001 increments
Signal Processing	Peak hold, valley hold, averaging, advanced peak hold, advanced valley hold, ambient background temperature compensation

[1] at 23°C ±5°C (73°F ±9°F), emissivity = 1.0, and time response 1.0 s

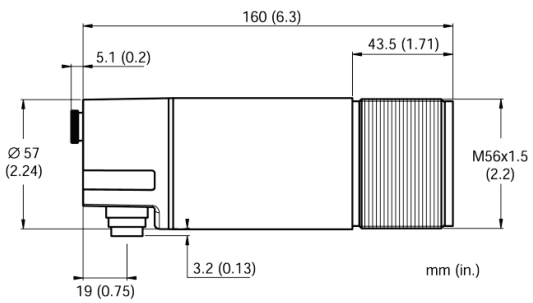
[2] whichever is greater

[3] at 23°C ±5°C (73°F ±9°F)

[4] response time (95%): 2 ms

[5] ± (2% of reading + 2°C) for T_{meas} < 450°C/842°F (1ML) and for T_{meas} < 650°C/1202°F (1MH)

Dimensions



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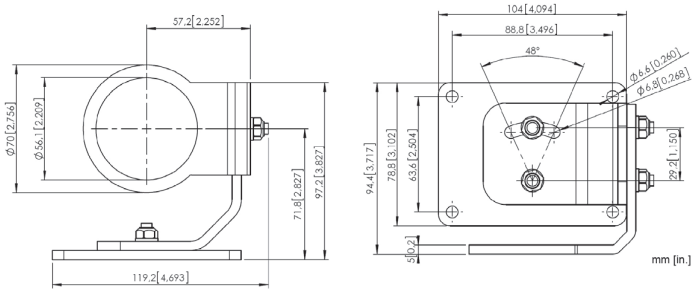
Accessories

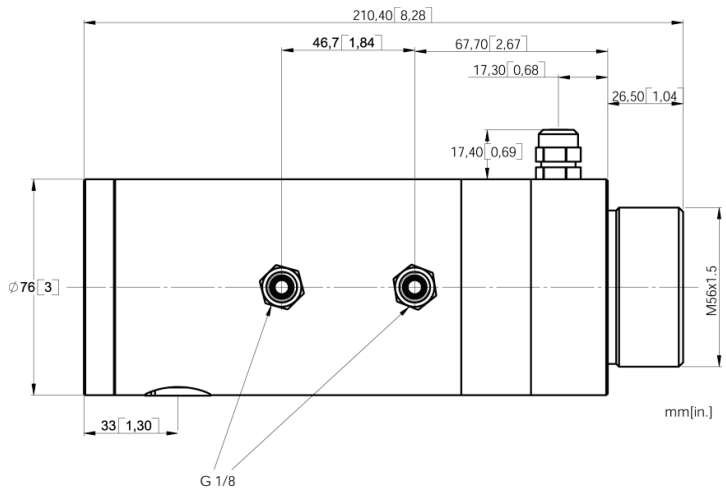
The models include through-the-lens sighting, mounting nut (stainless steel), fixed bracket (stainless steel), an operator's manual and DataTemp Multidrop Software.
Additional accessories are available:

- Sight Tube made from stainless steel up to 800°C/1472°F (XXXTST12)
- Sight Tube made from ceramic up to 1500°C/2732°F (XXXTSTC12)
- Pipe Thread Adapter made from stainless steel (XXXMMACPA)
- Protective Window for 1M, 2M (XXXMMACTWGP)
- USB/RS485 Converter (XXXUSB485)
- Industrial Power Supply 100/240 VAC to 24 VDC, 1.25 A (XXXSYSPS)
- Low Temp Cable (XXX2CLTCB…)
- High Temp Cable (XXX2CCB…)
- Terminal Block (XXXMATB)
- Terminal Block including 24 VDC power supply (110/230 VAC input) and IP65/NEMA-4 rated housing (RAYMAPB)
- ThermoJacket enclosure for ambient temperatures to 315°C/600°F (RAYTXXTJ4), see also ThermoJacket datasheet

Adjustable Bracket (XXXMMACAB)



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



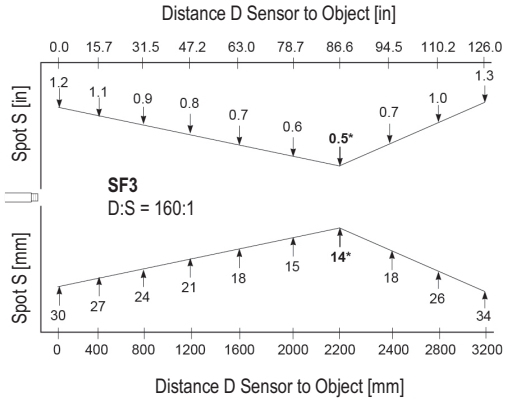
Optical Specifications

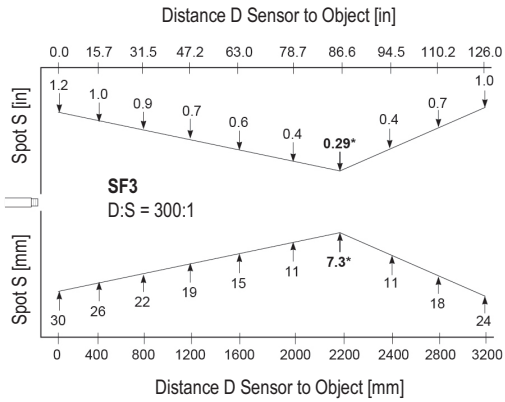
Optical Resolution (90% energy, for the focus point)

1ML, 2ML	160:1
1MH, 2MH	300:1

Optics

1ML, 2ML, 1MH, 2MH	SF1, SF2, SF3, CF1





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Worldwide Headquarters
Raytek Corporation
Santa Cruz, CA USA
Tel: +1 831 458 – 3900
+1 800 227 – 8074
solutions@raytek.com

European Headquarters
Raytek GmbH
Berlin, Germany
Tel: +49 30 47 80 08 0
Fax: +49 30 4 71 02 51
raytek@raytek.de

United Kingdom
ukinfo@raytek.com

France
info@raytek.fr

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