M10 Series Infrared Mini Sensors

Stationary Infrared Sensor for Non-Contact Temperature Measurement

M10 Infrared Sensor with 3 meter Cable
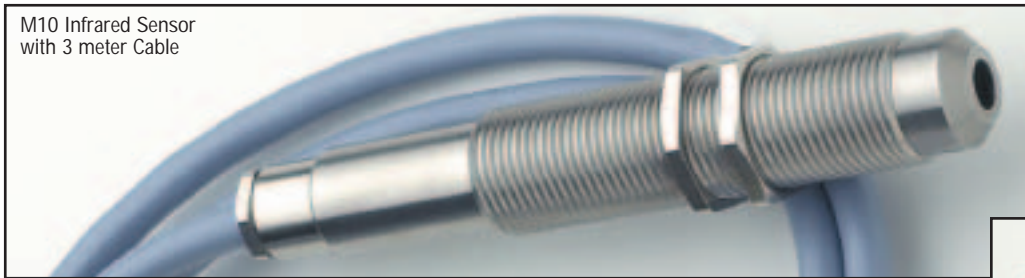
BELOW: M10L1V with standard air purge attachment in place, providing constant lens cleaning

- Output Options for Type K or J Thermocouple, or 10mV/˚C
- Rugged Stainless Steel Housing with PFG-11 Thread
- Built-In Lens Air Purge Unit
- Pre-Threaded Housing
- Easy to Install and Connect
- Optional 90˚ Sighting Lens

Applications

The M10 Series provide easy integration into process measurement and control systems such as:

- Food Processing
- Chemicals
- Heat Treating
- Curing Processes
- Glass Industry
- Plastics Industry
- Textile Industry
- Rubber Industry
- Asphalt Industry
- Wood Industry
- Paper Processing
- Paint Industry

M10L2K in use with optional, fully adjustable Mounting Bracket Assembly, M103

M10 Series									
Temperature Range	32˚/248˚F 0˚/120˚C			32˚/572˚F 0˚/300˚C			212˚/932˚F 100˚/500˚C		
Output Option	Type J	Type K	10 mV/ ˚C	Type J	Type K	10 mV/ ˚C	Type J	Type K	10 mV/ ˚C
Optics	Ratio 5:1	Ratio 5:1	Ratio 5:1	Ratio 5:1	Ratio 5:1	Ratio 5:1	Ratio 5:1	Ratio 5:1	Ratio 5:1
Order Model No.	M10L1J	M10L1K	M10L1V	M10L2J	M10L2K	M10L2V	M10L3J	M10L3K	M10L3V

Accessories		Extension Leads	
M101	Cooling Jacket for Air or Water Cooling	M130	Extension Lead, 10 mV/°C Output, 5m
M102	90° Mirror	M131	Extension Lead, 10 mV/°C,Output, 10m
M103	Adjustable Mounting Bracket Assembly	M132	Extension Lead, 10 mV/°C, Output, 15m
M104	Fixed Mounting Brackets	M133	Extension Lead, 10 mV/°C, Output, 30m
M105	LED Display Power Supply 24V DC	M134	Extension Lead, Type J/K Output, 5m
M106	LED Display Power Supply 230V DC	M135	Extension Lead, Type J/K Output, 10m
M107	LED Display with Relays Switch	M136	Extension Lead, Type J/K Output, 15m
M108	Transforming Unit, Current Power to Voltage	M137	Extension Lead, Type J/K Output, 30m

M10 Series Infrared Mini Sensors

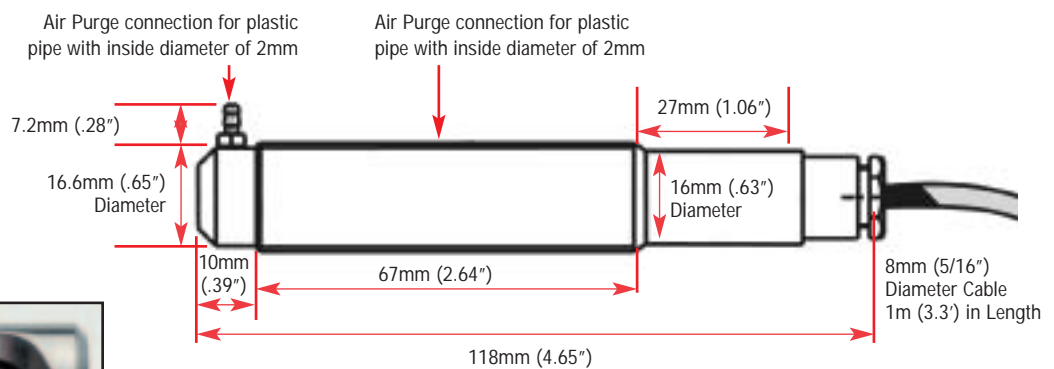| Specifications	
Temperature Range	Models M10L1J, K, or V = 32° to 248°F (0° to 120°C) Models M10L2J, K, or V = 32° to 572°F (0° to 300°C)v Models M10L3J, K, or V = 212° to 932°F (100° to 500˚C)
IR Detector	Thermopile, Si-based
Output Resistance	50µm
Output	Thermocouple Type J ("J" Model No.Suffix) Thermocouple Type K ("K" Model No. Suffix) 10 mV/°C ("V" Model No. Suffix)
Maximum Load	50kµm
Emissivity	0.95 Fixed
Response Time	0.3 Seconds
Repeatability	1% of Reading or ±1°C (1.8°F), Whichever is Greater
Accuracy	1.5% Temperature Range or 2.5°C (4.5°F), Whichever is Greater
Field of View	5:1 Spot Distance to Diameter Ratio (Nominal)
Spectral Range	8 to 14µm
Power Supply	24V DC, ±25%
Power Consumption	6.3 mA
Operating Temperature	32° to 158°F (0° to 70°C)
Storage Temperature	-22° to 185°F (-30° to 85°.C)
Sensor Housing	Stainless Steel, Pre-Threaded and Supplied with Two Lock Nuts
Safety System	IP 65 (DIN 40 050)
Safety Class	1 According to VDE 0411
Weight	200g (7oz)
Connection Cable	1m (3.3') Length, LiYCY, 5/16" (8mm) Diameter
EMC Test	CE label for ESD, RF-Radiation Bursts, Electromagnetic Fields

M10K shown with Wahl Digi-Stem Thermometer System

Wahl Instruments can now offer a complete Non-Contact Temperature Measurement package by combining the new Heat-Spy Monitor M10 Series with Wahl Digi-Stem Thermometers. Wahl Digi-Stems accept Type K Thermocouple input and provide a large, 1" LCD reading from a rugged, NEMA-4X rated stainless steel housing.

Use of Wahl Digi-Stems offers the added advantage of an easy-to-use recalibration feature that can zero out any system inaccuracy resulting from emissivity-related IR measurement errors.

Contact the factory or your Wahl representative for Digi-Stem catalog number PW1143.

Dimensions

M10 Series Heat Spy Monitor with Standard Air Purge Unit

Air Purge connection for plastic pipe with inside diameter of 2mm

Air Purge connection for plastic pipe with inside diameter of 2mm

27mm (1.06")

7.2mm (.28")

16.6mm (.65") Diameter

16mm (.63") Diameter

10mm (.39")

67mm (2.64")

8mm (5/16") Diameter Cable 1m (3.3') in Length

118mm (4.65")

Heat Spy Monitor shown with optional M10LA 90˚ sighting lens adapter for use in tight spaces.

M25 Series Ball and Socket Omni-Positional Mount

M25 Series

Allows Adjustment to Any Angle

• Ideal for OEM Applications

• Rugged Stainless Steel Construction

• Custom Configurations Available

Close Up of
Ball and Socket Mount
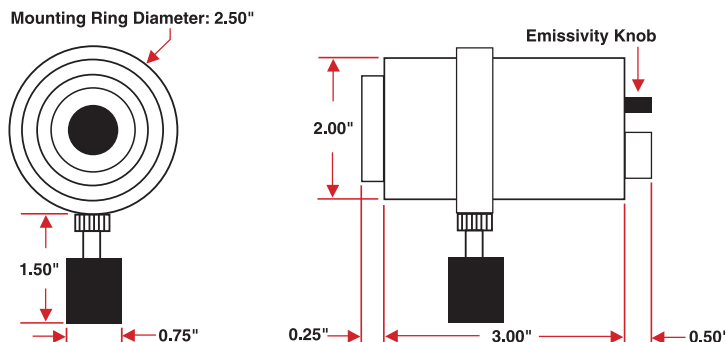
Model Features

M25L1

The low-temperature model M25L1 measures temperatures from -40˚ to 212˚F (-40˚ to 100˚C) with an accuracy of ±1°F or ±0.5˚C with analog output. This self-contained instrument is housed in rugged stainless steel body with stainless steel connectors and cabling. It is excellent for measuring temperatures of objects in the natural environment. The ball and socket omni-position mount comes standard with each unit, and is sealed to the sensor head. This allows the unit to be mounted to a 1/4-20 screw and then adjusted to any desired angle.

M25L2

The lightweight, miniaturized M25L2 provides high-temperature configuration with measurements along a wide range of -22˚F to 2000˚F (-30˚ to 1100˚C) with 1.0˚F or ˚C resolution. Both digital and analog output available, with options for a transmitter and remote terminals. It is ideal for high-temperature applications where it is unsafe or impossible to take a temperature reading with other instruments.

Ordering Information

Temperature Range	-40° to 212°F -40° to 100°C				-22° to 2000°F -30° to 1100°C Models with Type J or K Outputs: -30° to 1390°F or -30° to 760°C			
Output Option	D/A	Analog	Analog	Analog	D/A	Analog	Analog	Analog
Optics	4:1 or 15:1	4:1 or 15:1	Ratio 1:1	4:1 or 15:1	30:1 or 4:1	30:1 or 4:1	Ratio 1:1	30:1 or 4:1
Order Model No.	M25 L1-1	M25 L1-2	M25 L1-3	M25 L1-4	M25 L2-1	M25 L2-2	M25 L2-3	M25 L2-4

Dimensions

Mounting Ring Diameter: 2.50"

Emissivity Knob

2.00"

1.50"

0.75"

0.25"

3.00"

0.50"

ONE YEAR
1
WARRANTY

M25 Series Ball and Socket Omni-Positional Mount

Specifications								
Model No.	M25 L1-1	M25 L1-2	M25 L1-3	M25 L1-4	M25 L2-1	M25 L2-2	M25 L2-3	M25 L2-4
Temperature Range	-40° to 212°F -40° to 100°C				-22° to 2000°F -30° to 1100°C Models with Type J or K Outputs: -30° to 1390°F or -30° to 760°C			
Resolution	0.1°F or 0.1°C				1.0°F or 1.0°C			
Accuracy	±0.1°F or ±0.5°C	±0.5°F or ±0.5°C			±0.5% Full Scale	±1.0% of Reading, ±1.0°		
Repeatability	±0.2°F or ±0.1°C				±2.0°F or ±1.0°C			
Temperature	All Functions in °F or °C				All Functions in °F or °C			
Noise Effective Temperature	±0.2°C				±1.0°F or ±0.5°C		<1.0°C	
Optics	Robust, Aerospace Quality, Double-Coated Zinc Seleide Optics per Military Specification MIL-C-13508							
Spectral Pass Band	8 < Wavelengths < 14 µm				8 < Wavelengths < 14 µm		7 < Wavelengths < 15 µm	
Sighting	Line of Sight				Line of Sight			
Field of View	4° or 15°				2° or 15°			
Operating Environment	14° to 160°F (-10° to 70°C), up to 95% Relative Humidity				14° to 160°F (-10° to 70°C), up to 95% Relative Humidity			
Storage Temperature	Same as Operating Environment				Same as Operating Environment			
Response Time	0.10 Second			0.015 Second	0.10 Second			0.015 Second
Emissivity Compensation	Preset at 0.98 or at End-User's Request	0.2 to 0.98 Settable			Preset at 0.98 or at End-User's Request			
Operating Distance	2 cm to 300 meters				2 cm to 300 meters			
Mounting	Ball and Socket Swivel Mount				Ball and Socket Swivel Mount			
Power Requirements	5V to 26V DC Current Draw:10mA+Current Signal				5V to 26V DC* Current Draw: 30mA		5V to 26V DC Current Draw:10mA+Current Signal	
Output Signal	Standard: RS232C and Analog Millivolt (10mV/°C) Optional: 4-20mA*, 0-5V	Standard: mV (10mV/°C) Optional: 4-20mA*, 0-5V			Standard: RS232C and Analog Millivolt (1mV/°C) Optional: 4-20mA*, 0-5V and Type J or K Simulated T/C		Standard: mV (1mV/°C) Optional: 4-20mA*, 0-5V and Type J or K Simulated T/C	

* With mA output, user must provide 15-26V DC

Accessories	
M201	Transmitter
M202	Transmitter
M203	Remote Terminal with Readout
M209	Ball & Socket Swivel Mount
M210	Cable: Armored / Foot
M211	Cable: Plastic / Foot
M215	Replacement Lens (Lg. Soft)
M222	Power Supply
M232	Recalibration - Sensors
M234	Special Calibration
M236	Specific Pass-Band
M237	Specific Window

M25 Series

M30 Series Compact Sensors

M30 Series Heat Spy Monitors

- High Accuracy
- Superior Optics
- Digital Signal Conditioning
- Rugged Stainless Steel Housing
- Fast and Easy Adaptation to Applications
- Analogue Output of 4-20mA

Introducing Wahl's M30 Series high-end fixed infrared with high accuracy and superior optics in rugged stainless steel housing. Response time, emissivity, peak picker mode, and measuring subranges are adjustable via interface with a PC.

Specifications

Order Model No.	M30F	M30L	M30G1	M30G2	M30M1	M30M2	M30H1	M30H2
Temperature Range	392˚/1832˚F 200˚/1000˚C	-26˚/1112˚F -32˚/600˚C	212˚/2192˚F 100˚/1200˚C	752˚/4532˚F 400˚/2500˚C	572˚/2372˚F 300˚/1300˚C	662˚/3272˚F 350˚/1800˚C	1202˚/3272˚F 650˚/1800˚C	1472˚/4532˚F 800˚/2500˚C
Optics	I, II, or III	VII, VIII, or IX	IV, V, or VI	IV, V, or VI	I, II, or III	I, II, or III	I, II, or III	I, II, or III
Accuracy	1%	1%	1%	1%	0.5%	0.5%	0.5%	0.5%
Repeatability	0.5%	0.5%	0.5%	0.5%	0.1%	0.1%	0.1%	0.1%
Temperature	All Functions in ˚F or ˚C							
Spectral Range	3.9µm	8/14µm	5.14µm	5.14µm	1.45/1.8µm	1.45/1.8µm	0.8/1.1µm	0.8/1.1µm
Response Time	100ms	100ms	100ms	100ms	20ms	20ms	20ms	20ms
Emissivity	20/100%	20/100%	20/100%	20/100%	5/100%	5/100%	5/100%	5/100%
Power	24V DC	24V DC	24V DC	24V DC	24V DC	24V DC	24V DC	24V DC
Distance/Spot Ratio	33:1	50:1	50:1	50:1	100:1	100:1	100:1	150:1
Integrated LED Pilot Light	-	-	-	-	yes	yes	yes	yes
Integrated MAX Data Storage	-	-	-	-	yes	yes	yes	yes
Output, Linear	4-20 mA							
Maximum Load	700Ω (24V)							
Safety	IP65							
Operating Temperature	32˚/158˚F 0˚/70˚C							
Storage Temperature	-4˚/158˚F -20˚/70˚C							
Housing	Stainless Steel							
Weight	ca. 450g							

Response time, emissivity, peak picker mode and measuring subranges are adjustable via interface with a PC.

*1 year
limited
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PALMER Wahl
INSTRUMENTATION GROUP

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M30 Series Compact Sensors

Applications

- Steel Industry
- Glass Industry
- Paper Industry
- Plastics Industry
- Furnace Construction
- Research and Development

M30 Series Heat Spy Monitor

M30 Series Spot size diameter M(mm) at Distance A(mm)

Optics Type	Distance (mm)											
	0	100	200	300	600	800	1000	1200	1500	2000	2500	4000
I	13	-	-	-	6	-	15	-	26	36	-	-
II	16	-	-	-	10	-	9	-	15	22	-	-
III	17	-	-	-	13	-	11	-	11	17	-	-
IV	15	2, 5	18	35	-	-	-	-	-	-	-	-
V	15	-	-	6	22	-	45	-	-	-	-	-
VI	15	-	-	-	-	-	-	24	-	-	50	80
VII	15	2	18	35	-	-	-	-	-	-	-	-
VIII	15	-	-	6	22	-	45	-	-	-	-	-
IX	15	-	-	-	-	16	-	-	36	-	68	-
IS	13	-	-	-	4	-	12	-	23	34	-	-
IIS	16	-	-	-	7	-	5	-	12	19	-	-
IIIS	17	-	-	-	10	-	7	-	7	14	-	-

Please see WAHL M30 Series additional information on the following page.

Accessories

M301	Software "IP-Service" plus Interface Cable	M311	ID52, (ID50) with 2 Internal Limit Switches
M302	Cooling jacket, Air or Water	M312	ID52R, (ID52) controller plus RS232 Interface
M303	Stainless Steel Air-Purge unit (Standard)	M313	C/Z-Power Supply 230V AC in 24V DC
M304	Stainless Steel Air-Purge unit (Heavy Duty)	M314	ID54, Digital Display, Large version, 230V AC
M305	Mounting Brackets, Adjustable	M315	Transforming Unit, Current Power to Voltage
M306	Mounting Brackets, Fixed	M330	Cable Extension Lead, 5 meters (16.4 ft)
M307	Vacuum Adapter	M331	Cable Extension Lead, 10 meters (32.8 ft)
M308	Laser Pilot Light unit	M332	Cable Extension Lead, 15 meters (49.2 ft)
M309	Stainless Steel Protection Glass Cover	M333	Cable Extension Lead, 30 meters (98.4 ft)
M310	ID50, Digital Display, Integrated 2 Wire Supply		

Dimensions

Service Interface

25mm
0.984"

30mm
1.181"

74.5mm
2.933"

113mm
4.449"

M40x1.5
1.575"

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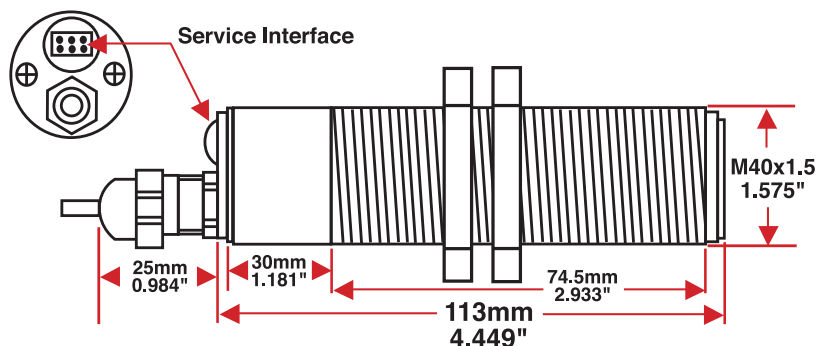
Wahl C-10 Calibrator

Do-It-Yourself Recalibration

- Portable
- Accurate
- Easy to Use
- Lightweight

For any infrared temperature sensor or thermometer. To use this portable calibration source simply turn the instrument on and choose between ˚F or ˚C; aim the infrared thermometer at the target with concentric rings. Compare the readings. They should be within ±0.2˚ of each other.

C-10 portable calibration source for field use.

Specifications			
Temperature Range	32˚/140˚F or 0˚/60˚C	Iris	NA
Ambient Range	32˚/140˚F or 0˚/60˚C	Controller Start-Up Equilibration Time	Instantaneous
Resolution	0.1˚F or 0.1˚C	Heating Method	None Assumes the Ambient Temperature
Accuracy	±0.5˚F or ±0.3˚C Over Entire Range	Target Configuration	Re-Entrant Concentric Rings
Repeatability	±0.1˚F or ±0.1˚C	Readout	Large 13mm LCD
Power Source	9V Alkaline Transistor Battery	Target Surface	Proprietary High Emissivity (0.98 ±0.01) Aluminum Oxide with Special High Emissivity Paint Overall

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