HeatSpy® Monitor Fixed Infrared Thermometers

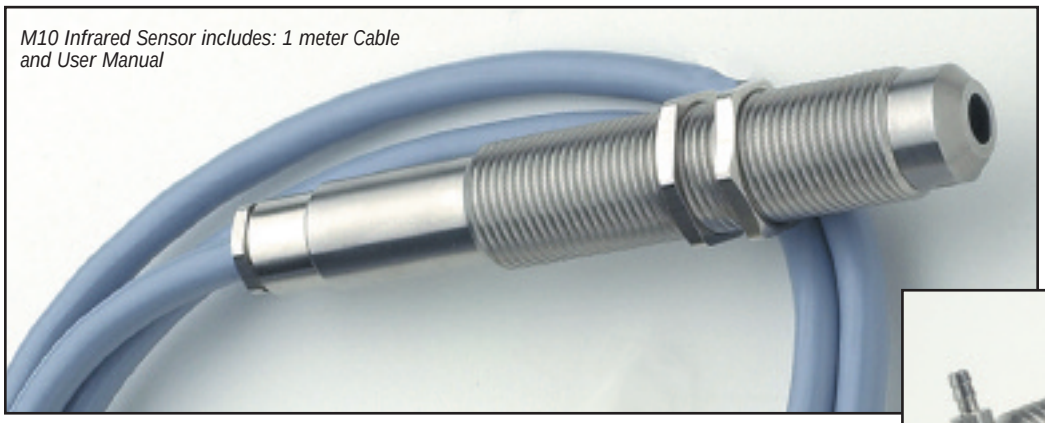
The World's Smallest Infrared Temperature Sensors Go Where Others Can't!

M10 Mini Infrared Sensors
M30 Compact Infrared Sensors
C-10 Calibration Source

PALMER Wahl
INSTRUMENTATION GROUP

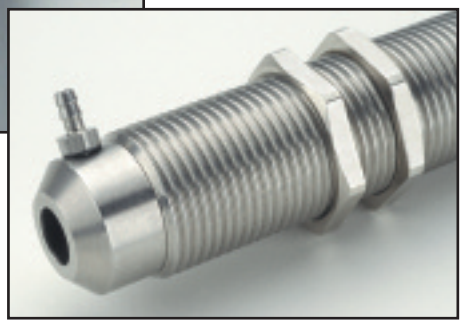
173 Years of Continued Innovation

M10 Series Mini Infrared Sensors



M10 Infrared Sensor includes: 1 meter Cable and User Manual

The M10 Series are small and solid Infrared mini sensors for non-contact temperature measurement of non-metallic materials. They provide easy integration into process measurement and control systems.



M10L1V with standard air purge attachment in place, providing constant lens cleaning

- **Temperature ranges from 32° to 932°F (0° to 500°C).**
- **Rugged, compact, self contained stainless steel housing.**
- **Output options for type K or J thermocouple or 10 mV/°C for easy integration into process measurement and control systems.**
- **Built-in Lens Air Purge unit for improved operation and accuracy in dusty or high humidity environments.**
- **Pre-threaded housing and 1m (3.3') cable, easy to install and connect.**
- **Standard unit functions in ambient temperatures up to 158°F (70°C).**
- **Optional air or water Cooling Jacket allows operation in ambient temperatures up to 262°F (128°C).**
- **Optional 90° Sighting Lens for use in limited spaces.**
- **Miniaturized for Hard-to-Reach Areas**

Wahl Instruments offers a complete non-contact temperature measurement package by combining the 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.

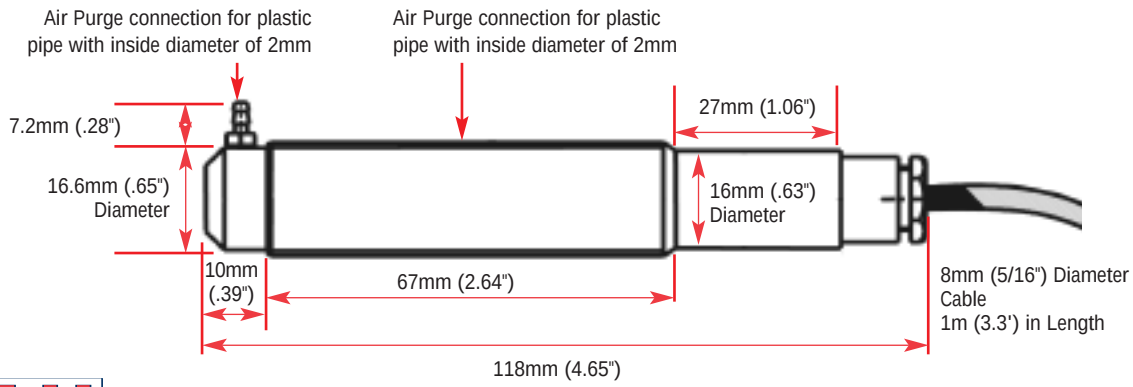
For more information go to www.palmerwahl.com.

Applications

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

M10 Dimensions

M10 Series Heat Spy Monitor with Standard Air Purge Unit



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TWO YEAR 2 WARRANTY

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Calibration Services Available

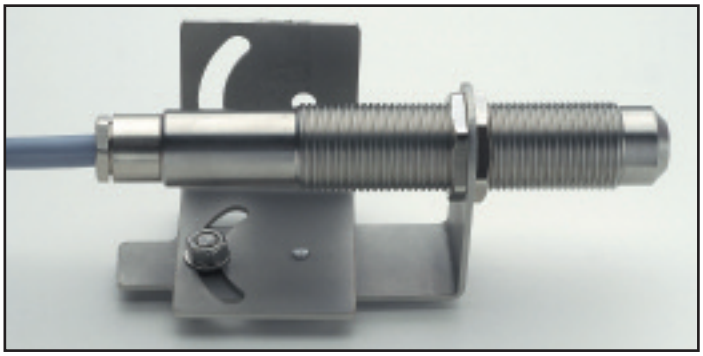
PW1240
03/09

M10 Series Specifications

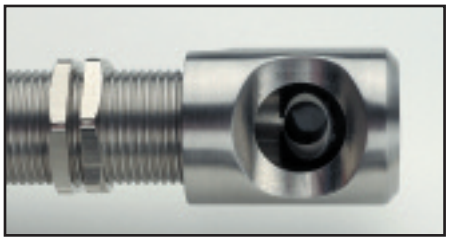
M10 Series Specifications									
Model	**M10L1J**	**M10L1K**	**M10L1V**	**M10L2J**	**M10L2K**	**M10L2V**	**M10L3J**	**M10L3K**	**M10L3V**
Range	**32° to 248°F 0° to 120°C**			**32° to 572°F 0° to 300°C**			**212° to 932°F 100° to 500°C**		
Spectral Range	8 to 14 µm			8 to 14 µm			8 to 14 µm		
Distance to Spot Ratio	Ratio 5:1			Ratio 5:1			Ratio 5:1		
Accuracy	1.5% of Measuring Range			1.5% of Measuring Range			1.5% of Measuring Range		
Repeatability	1% of Reading			1% of Reading			1% of Reading		
Emissivity	Fixed, 95%			Fixed, 95%			Fixed, 95%		
Power Supply	24 V DC ±25%			24 V DC ±25%			24 V DC ±25%		
Power Consumption	6.3 mA			6.3 mA			6.3 mA		
Output	**Type J**	**Type K**	**10 mV/°C**	**Type J**	**Type K**	**10 mV/°C**	**Type J**	**Type K**	**10 mV/°C**
Output Resistance	50 Ohm			50 Ohm			50 Ohm		
Response Time t_{90}	300 ms			300 ms			300 ms		
Safety Class	IP65 (DIN 40050)			IP65 (DIN 40050)			IP65 (DIN 40050)		
Operating Temperature	32° to 158°F 0° to 70°C			32° to 158°F 0° to 70°C			32° to 158°F 0° to 70°C		
Storage Temperature	-22° to 185°F -30° to 85°C			-22° to 185°F -30° to 85°C			-22° to 185°F -30° to 85°C		
Housing	Stainless Steel			Stainless Steel			Stainless Steel		
Weight	approx. 7 oz (200 grams)			approx. 7 oz (200 grams)			approx. 7 oz (200 grams)		

Specifications subject to change without notice

M10 Series Accessories	
M101	Cooling Jacket for Air or Water Cooling
M102	90° Sighting Lens Adapter
M103	Adjustable Mounting Bracket Assembly
M104	Fixed Mounting Bracket Assembly
M105	LED Display Power Supply 24V DC
M106	LED Display Power Supply 230V DC
M108	Transforming Unit, Current Power to Voltage
M130	Extension Lead, 10 mV/°C Output, 5m
M131	Extension Lead, 10 mV/°C Output, 10m
M132	Extension Lead, 10 mV/°C Output, 15m
M133	Extension Lead, 10 mV/°C Output, 30m
M134	Extension Lead, Type J/K, Output, 5m
M135	Extension Lead, Type J/K, Output, 10m
M136	Extension Lead, Type J/K, Output, 15m
M137	Extension Lead, Type J/K, Output, 30m



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



Heat Spy Monitor shown with optional M102 90° sighting lens adapter for use in tight spaces.

Calibration Services Available

M30 Series Compact Infrared Sensors

M30 Series Heat Spy Monitors

Wahl's M30 Series Compact Infrared Sensors offer high accuracy and superior optics. Two wire sensors are built into a rugged stainless steel housing suitable for continuous monitoring and process control in any application. Response time, emissivity, peak picker mode, and measuring subranges are adjustable via interface with a PC. Now featuring a plug in power supply.

- **Digital Signal Conditioning**
- **Rugged Stainless Steel**
- **Analog output of 4-20mA**
- **Fast & Easy Adaptation**
- **High Accuracy**
- **Superior Optics**

Applications

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

M30 Series Accessories

M302 - Stainless Steel Cooling Jacket is used to protect the sensor from harsh conditions in high ambient temperature environments using air or water as a cooling media. The instruments can operate up to ambient temperatures of 392°F (200°C). A cooling water flow rate of 4l/min at about 68°F (20°C) water temperature is needed.

M307 - Vacuum Adapter allows the unit to be easily adapted onto an vacuum chamber or furnace.

M308 - Laser Pilot Light unit screws into the front of the instrument enabling alignment of the object with the laser pointer.

M303 - Air Purge unit is designed to protect the lens of the instrument from dust, humidity and suspended particles. To ensuring a proper function, a flow rate of 1.5 m^3/h (0.2 - 0.5 bar) is needed.

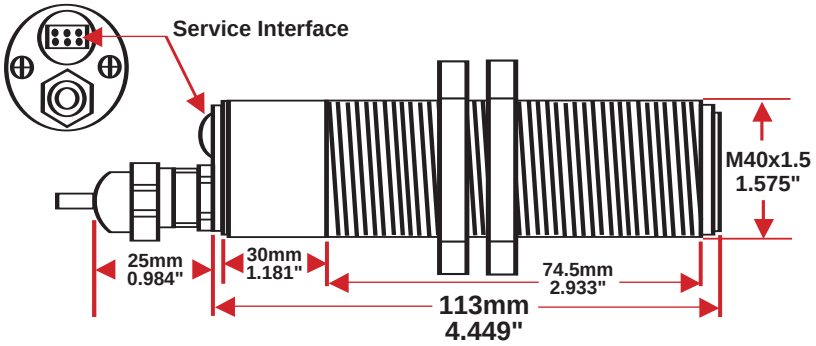
M30 Series Accessories			
M301	Software IP Service with interface cable	**M316**	Handheld multi-function set up unit
M302	Cooling Jacket for Air or Water Cooling	**M326**	Connection Cable for M30 H1, H2, M1, M2, 2m length
M303	Stainless Steel Air-Purge Unit (standard)	**M327**	Connection Cable for M30 H1, H2, M1, M2, 5m length
M305	Adjustable Mounting Bracket Assembly	**M328**	Connection Cable for M30 H1, H2, M1, M2, 10m length
M306	Fixed Mounting Bracket Assembly	**M329**	Connection Cable for M30 F, G, or L, 2m length
M307A	Vacuum Adapter, Quartz (M30 H1, M1, M2)	**M330**	Connection Cable for M30 F, G, or L, 5m length
M307B	Vacuum Adapter, Zn, Se (M30 L)	**M331**	Connection Cable for M30 F, G, or L, 10m length
M307C	Vacuum Adapter, CaFE2 (M30 F, M30 G1)	**M332**	Connection Cable for M30 F, G, or L, 15m length
M308	Laser Pilot Light unit	**M333**	Connection Cable for M30 F, G, or L, 30m length
M311	ID61, digital display, 100-240V AC, 2 limit switches	**M334**	Connection Cable for M30 F, G, or L, 20m length

M30 Series Compact Infrared Sensors

M30 with emissivity corrector allows for easy adjustment of emissivity.

M30 with interface plug allows for direct connection to a PC USB interface.

M30 Dimensions



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Configuring the M30 Sensor

M301 - "IP-Service" Interface Module with Temperature Control Software and interface cable enables configuration of the M30 Series Sensors. Parameters such as response time, temperature subrange or emissivity can be set to application specific requirements

M311 Specifications	
Display	4-digit, 0.5 in high(13mm)
Power Supply	100 to 240 V AC, 50 - 60 Hz
Power Supply, Sensor	24 V AC, 22mA
2 Limit Switches	3 A @ 230 V AC, Ohmic Load
Dimensions	7.5 x 5.3 x 3.6 in (190 x 135 x 93 mm)

M311 - ID61 Digital Desktop Display with power supply for 2-wire units, 2 limit switches and pilot light switch. Includes power cord, specification sheet and user manual.

M316 - Hand Held Multi-Function Set up Unit combines 3 instruments in one.
Detect Emissivity: with probe connected, the unit automatically reads and displays the temperature of the sensor and the probe simultaneously. Calculated emissivity can be transferred and stored to the sensor. Contact Palmer Wahl for a wide range of temperature probes to fit your application.
Contact Temperature Measurement: included type K thermocouple probe to measure in the range of (-100° to 1300°C). Max, Min and AVG calculation.
Adjust Settings: Adjust temperature sub-range, emissivity, maximum value storage or response time. Includes service cable, specification sheet, user manual, carrying case and probe (ordered separately).

M316 Specifications	
Display	LCD 2 x 12 characters
Temperature Display	°F, °C adjustable
Battery	9V (500 mAh)
Operating Time	18 hours
Weight	7.76 oz (220 grams)
Dimensions	3.5 x 2.8 x 1.4 in (89 x 72 x 37 mm)

Calibration Services Available

Heat Spy® Monitor

M30 Series

M30 F • G1 • L Specifications
M30 Series Optics

M30 Series Specifications			
Model	**M30 F***	**M30 G1***	**M30 L**
Range	**392° to 1832°F 200° to 1000°C**	**212° to 2192°F 100° to 1200°C**	**-26° to 1652°F -32° to 900°C**
Spectral Range	3.9 µm	5.14 µm	8 to 14 µm
Optics	Ratio 33:1	Ratio 50:1	Ratio 50:1
Accuracy	1% of Measuring Range	1% of Measuring Range	1% of Measuring Range
Repeatability	0.5% of Measuring Value	0.5% of Measuring Value	0.5% of Measuring Value
Emissivity	20 to 100% Adjustable	20 to 100% Adjustable	20 to 100% Adjustable
Power Supply	24 V DC ±25% (ripple 500 mV)	24 V DC ±25% (ripple 500 mV)	24 V DC ±25% (ripple 500 mV)
Power Consumption	maximum 0.6 W	maximum 0.6 W	maximum 0.6 W
Output	linear, 4-20 mA	linear, 4-20 mA	linear, 4-20 mA
Output Resistance	700 Ohm (24V)	700 Ohm (24V)	700 Ohm (24V)
Response Time t_{90}	100 ms	100 ms	100 ms
Safety Class	IP65 (DIN 40050)	IP65 (DIN 40050)	IP65 (DIN 40050)
Operating Temperature	32° to 158°F 0° to 70°C	32° to 158°F 0° to 70°C	32° to 158°F 0° to 70°C
Storage Temperature	-4° to 158°F -20° to 70°C	-4° to 158°F -20° to 70°C	-4° to 158°F -20° to 70°C
Housing	Stainless Steel	Stainless Steel	Stainless Steel
Dimension	Thread: M 40 x 1.5, 5.4" L (138mm)	Thread: M 40 x 1.5, 5.4" L (138mm)	Thread: M 40 x 1.5, 5.4" L (138mm)
Weight	approx. 16 oz (450 grams)	approx. 16 oz (450 grams)	approx. 16 oz (450 grams)

* M30 F (Measures through Flames) M30 G1 (Measures Glass Surfaces)

Specifications subject to change without notice

M30 Optics

M30 F - G1 Optics				
Optics	**a = 0**	**100**	**200**	**300**
100	15	**2.5**	18	35
Optics	**a = 0**	**300**	**600**	**1000**
300	15	**6**	22	45
Optics	**a = 0**	**1200**	**2500**	**4000**
1200	15	**24**	50	80

M30 L - Optics				
Optics	**a = 0**	**100**	**200**	**300**
100	15	**2**	18	35
Optics	**a = 0**	**300**	**600**	**1000**
300	15	**6**	22	45
Optics	**a = 0**	**800**	**1500**	**2500**
800	15	**16**	36	68

M30 L Extended Ranges	
L1-7, 8, 9	-26° to 392°F -32° to 200°C
L2-7, 8, 9	32° to 212°F 0° to 100°C
L3-7, 8, 9	32° to 392°F 0° to 200°C
L4-7, 8, 9	32° to 932°F 0° to 500°C
L5-7, 8, 9	-26° to 1652°F -32° to 900°C

M30 H1 - M1 - M2 Optics					
Optics	**a = 0**	**600**	**1000**	**1500**	**2000**
600	13	**6**	15	26	36
1000	16	10	**9**	15	22
1500	17	13	11	**11**	17

M30 H2 Optics					
Optics	**a = 0**	**600**	**1000**	**1500**	**2000**
S600	13	**4**	12	23	34
S1000	16	7	**5**	12	19
S1500	17	10	7	**7**	14

Optical Tables: Spot size "M" (mm) at distance "a" (mm)
a = aperture

M30 M1 Special Optics	
Optics	**Aperture**
M = 2 mm	a = 300
M = 3.5 mm	a = 350
M = 5 mm	a = 500

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Calibration Services Available

M30 H1 • H2 • M1 • M2 Specifications

M30 Series Specifications				
Model	**M30 H1**	**M30 H2**	**M30 M1**	**M30 M2**
Range	**1202° to 3272°F 650° to 1800°C**	**1472° to 4532°F 800° to 2500°C**	**572° to 2372°F 300° to 1300°C**	**662° to 3272°F 350° to 1800°C**
Spectral Range	0.8 to 1.1 µm	0.8 to 1.1 µm	1.45 to 1.8 µm	1.45 to 1.8 µm
Optics	Ratio 100:1	Ratio 150:1	Ratio 100:1	Ratio 100:1
Accuracy	0.5% of Measuring Range	0.5% of Measuring Range	0.5% of Measuring Range	0.5% of Measuring Range
Repeatability	0.1% of Reading in °C +1°C	0.1% of Reading in °C +1°C	0.1% of Reading in °C +1°C	0.1% of Reading in °C +1°C
Emissivity	5 to 100% Adjustable	5 to 100% Adjustable	5 to 100% Adjustable	5 to 100% Adjustable
Power Supply	24 V DC ±25%	24 V DC ±25%	24 V DC ±25%	24 V DC ±25%
Power Consumption	maximum 0.6 W	maximum 0.6 W	maximum 0.6 W	maximum 0.6 W
Output	linear, 4-20 mA	linear, 4-20 mA	linear, 4-20 mA	linear, 4-20 mA
Output Resistance	700 Ohm (24V)	700 Ohm (24V)	700 Ohm (24V)	700 Ohm (24V)
Response Time t_{90}	20 ms	20 ms	20 ms	20 ms
Safety Class	IP65 (DIN 40050)	IP65 (DIN 40050)	IP65 (DIN 40050)	IP65 (DIN 40050)
Operating Temperature	32° to 158°F 0° to 70°C	32° to 158°F 0° to 70°C	32° to 158°F 0° to 70°C	32° to 158°F 0° to 70°C
Storage Temperature	-4° to 158°F -20° to 70°C	-4° to 158°F -20° to 70°C	-4° to 158°F -20° to 70°C	-4° to 158°F -20° to 70°C
Housing	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Dimension	Thread: M 40 x 1.5, 5.4" L (138mm)	Thread: M 40 x 1.5, 5.4" L (138mm)	Thread: M 40 x 1.5, 5.4" L (138mm)	Thread: M 40 x 1.5, 5.4" L (138mm)
Weight	approx.16 oz (450 grams)	approx. 16 oz (450 grams)	approx. 16 oz (450 grams)	approx. 16 oz (450 grams)

Specifications subject to change without notice

Wahl C-10 Calibration Source

Do-It-Yourself Recalibration

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

Specifications subject to change without notice

C-10 portable calibration source for field use.

- Portable
- Easy to Use
- Accurate
- Lightweight

ONE YEAR 1 WARRANTY

Calibration Services Available

PALMER Wahl
INSTRUMENTATION GROUP

The World's Finest Manufacturers of Industrial Temperature, Pressure, Humidity, Test and Calibration Instruments

Calibration Services

We offer two levels of calibration services to choose from to meet your quality system requirements.

STANDARD CERTIFICATION: Unit is calibrated to factory specifications using NIST traceable equipment. Unit is provided with:

Certificate of Conformance*- Statement that our product meets published specifications. Included when you buy a new product.

Calibration Sticker*- (or tag) Advising you of the date your instrument(s) was/were calibrated, and the suggested date for its next calibration. This is provided when you buy a new product and when you return a product for calibration. (*Most Products)

NIST TRACEABLE TEST REPORT: Unit is calibrated to factory specifications using NIST Traceable equipment. Unit is provided with:

TRACEABLE TO NIST

NIST Traceable Test Report - Our quality Management system is certified to conform to ISO9001:2000. We maintain a calibration system in conformance with ANSI/NCSL Z-540 and MIL-STD-45662A.

"Before" and "After" Data with Out of Tolerance conditions noted.

Calibration Sticker (see above).

Repair and Other Services

We offer repair services on most products we sell. The customer will be faxed a written estimate for approval before proceeding with work. Repair pricing includes Standard Certification as listed above.

Detailed Repair Report - Available upon request, this report provides details of evaluation and repairs made.

Reminders - Go to www.palmerwahl.com/register, and in about a minute you can register your product for warranty protection and our calibration reminder service. Let us help you protect your investment, and maintain product accuracy and compliance with ISO and other quality standards.

Custom Points - Palmer Wahl will calibrate your instruments at your specified temperatures.

Special Requests - When calibrating your instrument, our experienced personnel will help you to achieve the level of quality that you need in your facility.

Note: Before returning your product please call Customer Service at 1-800-421-2853 or go to www.palmerwahl.com and click on Service/Product Return Request.

Why you need a Wahl Calibrator for your business

- **Increase customer satisfaction with consistent products.**
- **To comply with quality standards.**
- **Improve product quality.**
- **Ensure traceability throughout your entire manufacturing process.**
- **Integrates all the necessary functions for adjustment and maintenance of your process.**
- **Our products are easy to use and Palmer Wahl is there to help, every step of the way.**

Wahl Heat Spy® Monitor products are distributed by:

Palmer Wahl Warranty

Manufacturer warrants all products listed in this catalog to be free from defects in material or workmanship under normal use and service. The Manufacturer agrees to repair or replace any product which upon examination is revealed to have been defective due to faulty workmanship or material if returned to our factory, transportation charges prepaid, within the product specific warranty period stated in the catalog by the manufacturer. This warranty is in lieu of all other warranties, expressed or implied and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use or misuse of instruments sold by the Manufacturer. No agent is authorized to assume for manufacturer any liability except as set forth above.