Wahl
INSTRUMENTS, INC.

HEAT SPY®

Hand Held Non-Contact Infrared Thermometers

PALMER Wahl
INSTRUMENTATION GROUP

www.palmerwahl.com

PW1230

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DHS250 Series

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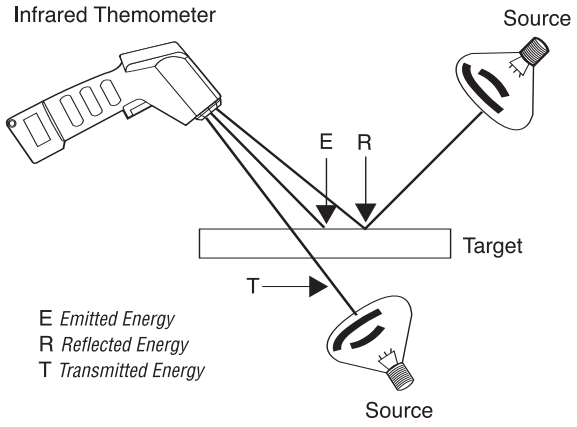
Certification Services Available

Heat Spy® General Information

How Does the Heat Spy Work?

All solid objects emit infrared energy above absolute zero. The amount of energy emitted is proportional to the body or target temperature. Wahl's Heat Spy directs this energy by means of fixed focus optics into a sensitive detector, which is amplified and processed by the micro processor to temperature readings in °F or °C. It is fast because it collects Infrared energy at the speed of light, and the detector has a very low mass. The time constant is 0.1 second, about 10 times faster than conventional contact methods. Measurements are displayed in less than one second. Some Heat Spy's offer an analog output option of 1mV/deg for recording, while others feature RS232 computer interface.



What Does the Heat Spy Measure?

Temperature at a Distance

You can stand 1 to 40 feet away and conveniently measure temperature of bearings, kiln and furnace walls, locate hot spots in reactor shells, steam piping, and insulation surfaces. Specialty models can be used up to 300 feet away from your temperature target.

Temperature of Moving Material

Moving materials require two Heat Spy features not available by any other measurement method: non-contact with the process material, and fast measurement of rapidly moving materials. Measure continuously moving solid materials such as plastic film and extrusions, pulp and paper, textiles, rubber, steel sheet, coating, or paint.

Temperature of Small Low Mass Materials

Electronic components or other small or low mass items can be measured with a Heat Spy where a contact thermometer would change the measured condition through heat transfer.

Temperature of Areas Too Hot to Approach Safely

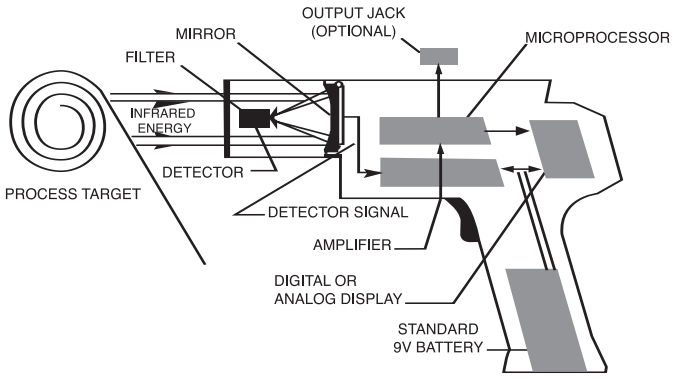
In foundries, forging shops, glass factories, and power plants, Heat Spy's can allow you to stand away from heat or high voltage to measure temperature up to 5800°F (3200°C).

Temperature of Rough Surfaces

The Heat Spy does not require contact with the target. It measures rough and uneven surfaces and averages temperature readings of the observed target area. It affords users an efficient method of measuring the temperature of granular materials, rough castings, and forgings.

Temperature Requiring Quick Measurement

Opening and closing of injection molding dies requires temperature to be measured in less than 2 seconds. The Heat Spy is ideal for use with rotating machinery - large motor armatures and drive couplings for example.



Heat Spy Emissivity

Emissivity in Infrared measurement refers to the ability of the measured surface to emit radiation. Surfaces vary in emissivity and this must be taken into account before accurate readings can be obtained. The emissivity ratio represents the amount of radiated energy the measured surface allows to be returned to the instrument. A return of 100% of the energy is measured as 1.0 emissivity. If all the radiated energy is reflected and/or transmitted and none emitted, the emissivity ratio is 0.0. A perfect radiator, such as a black body, has a 1.0 emissivity ratio and a very shiny or highly polished surface has a ratio of 0.2 or lower. Most textured or painted surfaces have an emissivity ratio of around 0.95. Many Heat Spy thermometers feature adjustable emissivity from 0.10 to 1.00. Other Heat Spy's without adjustment are set at 0.95 and include instructions on how to adjust readings to take low emissivity into account.

For a copy of the Emissivity of Common Materials please contact Customer Service at 1-800-421-2853, or email us at sales@palmerwahl.com.

Sighting Information

Sighting with the Heat Spy®

Understanding the relationship of target size to spot size is critical to obtaining accurate temperature readings with any infrared thermometer. Target size is the size of the object whose temperature you are measuring. Spot size is an indication of the diameter of the measurement area of the instrument. Picture a flashlight; as you shine it on a wall, the size of the bright spot on the wall gets larger as you move away from the wall. The same is true of the spot size for an infrared thermometer. For accurate temperature measurement, the spot size should always be smaller that the target size, since the instrument will "average" the temperatures of everything inside the spot. The spot size is expressed as a fraction of the distance to the target. For example a 10:1 instrument has a spot size of 1 foot at 10 feet from the target.

The distance to spot size ratio is specified for all Heat Spy models.

Heat Spys Incorporate The Following Sighting Methods

Open Sight

Open sighting simplifies Heat Spy operation and keeps cost low. Target size increases with the distance and must always fill the field of view to achieve the instrument's rated accuracy. Distance / target ratios are specified on all open sight Heat Spy models.

Open Sight

Enclosed Optical Sight

This sighting system allows more precise target definition with parallax correction at 4 feet and 20 feet. Distance to target ratios apply and are specified for all Heat Spy's incorporating enclosed optics.

Enclosed Optical Sight

Telescopic Sight

Some Heat Spy models offer telescopic sighting options for long distance (up to 300 feet) or precise aiming applications such as bolts, wire, tubing, forgings, and castings. Telescopes provide sighting on the centerline of the infrared optics.

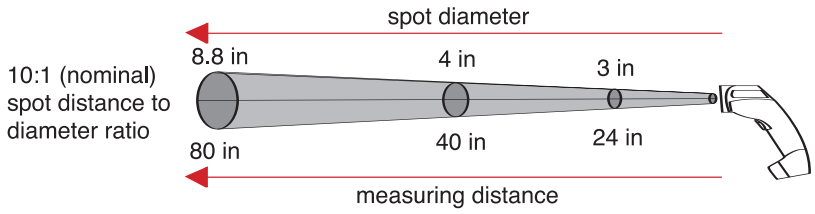

Telescopic Sight

Laser Sight

A high coherence laser aiming beam adds a powerful dimension to precise temperature measurements. The laser places a visible red dot on the center of the target surface. The Heat Spy can be held in any position and at any level. It is especially useful in cramped areas and in awkward conditions such as standing on ladders and platforms. The laser is very effective indoors under all lighting conditions and useful in low light conditions outdoors. Laser energy from low reflective targets such as painted surfaces or oxidized metals is considered safe for viewing. All Wahl laser sighting systems meet Federal Safety Regulations. It is important to note that the laser beam is a sighting device only and that the displayed temperature when using a laser-equipped Heat Spy is not the reading at the laser spot. The area being measured is always dependent upon the size-to-distance ratio of the Heat Spy.


Laser Sight

Distance to Target size ratio for DHS100XEL Heat Spy



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Heat Spy® Accessories • Applications

Heat Spy Accessories								
	DHS24, 26, 28, 29 & 35	DHS34 Series	DHS54 Series	DHS55 Series	DHS100 Series	DHS110 Series	DHS250 Series	HSA201 Series
Heat Dust Case		DA-34HDC	DA-54HDC	DA-55HDC				
Hard Carrying Case	9990	DA-34LHC		DA-55HCC	DA-100HC		DA-250RCC	10120
Replacement Soft Padded Case		DA-34SPC			DA-100		DA250	
Shoulder/Neck Strap		DA-34SNS	DA-SNS	DA-SNS				
Wrist Strap					DA-18078			
Spare Trigger Lock	9852							
Software							DA250WCSF	
Analog Cable							DA250AC	
RS232 cable - 9-Pin		DA-DB9	DA-DB9					
RS232 cable - 25-Pin		DA-DB25	DA-DB25					
RS232 cable - Open-Ended		DA-DB	DA-DB					
Long Eye Relief (added comfort)			DA-LER	DA-LER				
Replacement Lens Cap		DA-3456RLC	DA-RLC	DA-RLC				
Replacement Lens Filter			DA-54CFA					
Close-up Lens #110			L-110				DA250CL	
Close-up Lens #122			L-122					
Close-up Lens #135			L-135					
Close-up Lens #153			L-153					
AC Power Adapter, 110V	11441-1	531-1	531-1				11441-3	
AC Power Adapter, 220V	11441-2	531-2	531-2				11441-4	
Rechargeable Battery							DA-250RB	
LED Batteries	9782-01	NA	NA	NA	NA	NA	NA	12232
LCD Batteries	12232	9782-14	9782-14	12232	12232	12232	12232	
Bench Stand with Tripod Thread	B-11							
Fully Adjustable Tripod	TR-19							
Black Emissivity Test Paint	EP-10							
Nist Certification	NIST-HS				NIST-100		NIST-250	NIST-201

Note: Not all accessories are available for all Heat Spys and will vary by model. Please check appropriate catalog page for details or our website for further details.
Note: Please contact Wahl Customer Service for Calibration and Repair Manuals.

Heat Spy Applications

Heat Spy's perform in a wide variety of routine maintenance and inspection applications including:

- Steam Traps
- Electrical Busses
- Motor Bearings
- Paper
- Plastic
- Rubber
- Glass
- Painted Surfaces
- Ceramic
- Chips
- Asphalt
- Wood
- Stacks
- Circuit Boards
- Shells
- Dies
- Heat Treating
- Chemical Processes
- Furnaces
- Wave Soldering
- Wheel Bearings
- Welding
- Moving Machinery
- High Voltage Targets
- Transportation
- Rotating Machinery
- Food Processing
- Storage
- HVAC System Testing
- Exhausts
- Process Assembly Lines
- Closed Robotic Assembly Areas
- Vents
- Tires
- Fire Safety
- Grain Curing
- Pipes
- Insulation

Utility Heat Spys

DHS100XL • DHS100XEL

This Product has been Discontinued. It has been replaced by the DHS85 and DHS115.

The DHS100 Series are low-cost, value packed instruments that offer rugged and accurate service for general maintenance applications.

Features for All Models

- Rugged, Light-Weight Construction allowing Quick Pointing and Easy Carrying
- Temperature Measurement Range of 0° to 850°F (-18° to 450°C)
- Accuracy @ 23°C / ± 5°C, greater of ± 2% of reading or ± 3°F (± 2°C)
- Large, Easy-To-Read LCD Digits with Switch-On Back Light for Low Light Conditions
- Low-Drain Battery Operation with Low Battery Indicator
- Display Hold of Last Reading for 6 Seconds
- °F or °C Range Selectable
- Two Year Warranty
- **CE** Compliance

TWO YEAR 2 WARRANTY

DHS100XL

DHS100XEL Model Features

Advanced Menu-Driven Models

- Menu Selection of Maximum, Minimum, Average Temperatures, and Maximum Differential
- Adjustable Emissivity of 0.10 to 1.00
- °F or °C Menu Selectable
- Audible and Visual Alarm at HI/LO Setpoint
- Menu Selectable Battery Voltage and % of Battery Life Displays
- Memory Recalls All Previous Temperature Selections until Next Reading is Taken

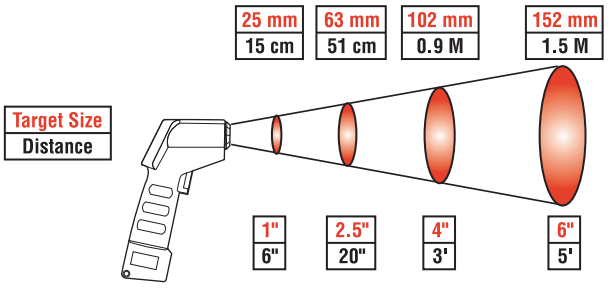
DHS100XEL

DHS100XEL Display

DHS100XL and DHS100XEL Model Features

Laser Sighting Models

- Bright Laser Aiming Beam for Precision Targeting
- Safe Class II, 1mW Laser Beam Sights at 0.5" above Target Center



DHS100 Series Heat Spy
Distance to Target Size Ratio 10:1

For Heat Spy Accessories see page 5

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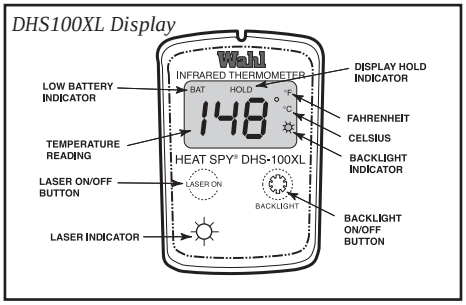
DHS100XL • DHS100XEL

This Product has been Discontinued. It has been replaced by the DHS85 and DHS115.

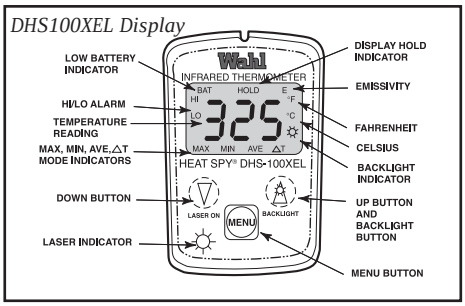
	Specifications	
	DHS100XL	**DHS100XEL**
Temperature Range	0° to 850°F (-18° to 450°C) Displays HI when target temp > 851°F (455°C) Displays LO when target temp < -20°F (-28°C) nominal	
Sighting	Bright laser sight Class II (1mW), 0.5" above target center	
Accuracy at 23°C ± 5°C, e = 0.95	Greater of ± 2% of reading or ± 3°F (± 2°C)	
Repeatability at 23°C ± 5°C, e = 0.95	Greater of ± 1% of reading or ± 2°F (± 1°C)	
Response Time	500m second	
Spectral Range	7-18 microns nominal, thermopile detector	
Display Hold	Last reading and operating mode displayed for 6 seconds nominal upon trigger release	
LCD Backlight	User selectable	
Emissivity	Pre-set 0.95	0.10 to 1.0, user selectable. Automatically switches to AVG mode for emissivity < 0.3
Calculating Mode	NA	MAX, MIN, AVG, MAX ΔT
Recall Last Reading	NA	Yes
High or Low Audible/Visual Alarm	NA	Yes
Temperature Display	°F or °C (switchable), 3 digit LCD	°F or °C (menu-selectable), 3 digit LCD
Display Resolution	1°F or °C in all modes	
Ambient Operating Conditions	32° to 120°F (0 to 50°C); 10% to 90% relative humidity noncondensing	
Storage Temperature	-13° to 158°F (-25° to 70°C) without battery	
Power Supply	9V Alkaline (included) or NiCad battery	
Battery Life (with alkaline)	150 hours, with backlight off. Laser and backlight operation will reduce battery life	
Battery Life Indicator	Display icon flashes when low	Display icon flashes when low
Temperature Update Rate	5 readings per second	
CE Compliant	Yes	
Dimensions	5.5 x 2.0 x 8.5 inches (140 x 51 x 216 mm)	
Weight	11.2 oz. (318 gm)	
Included Accessories	Zip-up soft carrying pouch, with "D" ring, Wrist strap	
Options	NIST Certification	

Specifications are subject to change without notice.

DHS100XL Display



DHS100XEL Display



Pocket Heat Spys

DHS110XL • DHS110XEL Pocket Series

Compact and economical Pocket Heat Spy for quick, handy general purpose maintenance use. Laser sighting on all models.

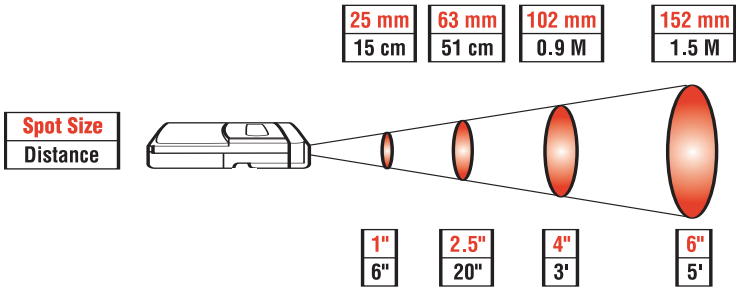
DHS110XL

DHS110XL and DHS100XEL Features

- Rugged, Light-Weight Construction allowing Quick Use and Easy Carrying
- Temperature Measurement Range of 0° to 850°F (-18 to 450°C)
- Accuracy @ 23°C / ± 5°C, greater of ± 2% of reading or ± 3°F (± 2°C)
- Large, Easy-To-Read LCD Digits with Switch on Back Light for Low Light Conditions
- Low-Drain Battery Operation with Low Battery Indicator
- Display Hold of Last Reading for 6 Seconds
- Bright Laser Aiming Beam for Precision Targeting
- Safe Class II, 1mW Laser Beam Sights at 0.875" to Left of Target Center
- Two Year Warranty

DHS110XEL Advanced Features

- Menu Selection of Maximum, Minimum, Average Temperatures, and Maximum Differential
- Adjustable Emissivity of 0.10 to 1.00
- °F or °C Menu Selectable
- Audible and Visual Alarm at HI/LO Setpoint
- Menu Selectable Display of Battery Voltage or % of Battery Life
- Memory Storage of Last Temperature Measured



DHS110 Series Heat Spy
Distance to Target Size Ratio 10:1

Applications

DHS110 Heat Spys perform in a wide variety of routine maintenance and inspection applications including:

- Steam Traps
- Paper
- Glass
- Chips
- Stacks
- Dies
- Furnaces
- Welding
- Transportation
- Storage
- Electrical Busses
- Plastic
- Painted Surfaces
- Asphalt
- Circuit Boards
- Heat Treating
- Wave Soldering
- Moving Machinery
- Rotating Machinery
- HVAC System Testing
- Motor Bearings
- Rubber
- Ceramic
- Wood
- Shells
- Chemical Processes
- Wheel Bearings
- High Voltage Targets
- Food Processing
- Process Assembly Lines
- Closed Robotic Assembly Areas

TWO YEAR 2 WARRANTY

For Heat Spy Accessories see page 5

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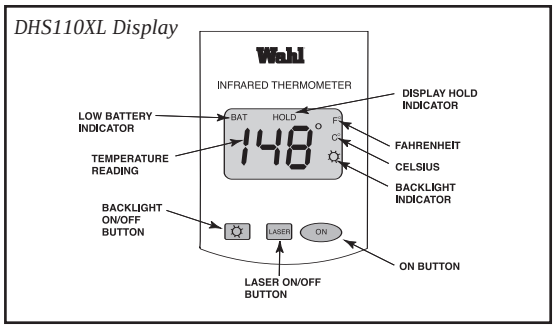
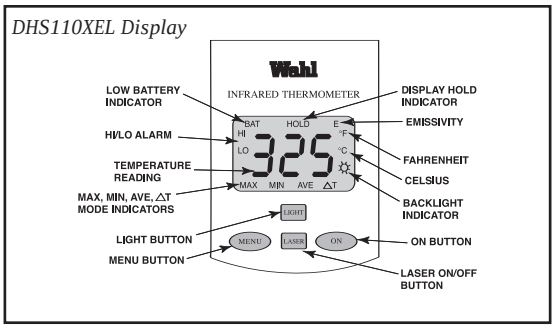
DHS110XL • DHS110XEL
Pocket Series

Specifications		
	DHS110XL	**DHS110XEL**
Temperature Range	0° to 850°F (-18° to 450°C) Displays HI when target temp > 851°F (455°C) nominal Displays LO when target temp < -20°F (-28°C) nominal	
Laser Sighting	Bright laser sight Class II (1mW), 0.5" left of target center	
Accuracy at 23°C ± 5°C, e = 0.95	Greater of ± 2% of reading or ± 3°F (± 2°C)	
Repeatability at 23°C ± 5°C, e = 0.95	Greater of ± 1% of reading or ± 2°F (± 1°C)	
Response Time	500m second	
Spectral Range	7-18 microns nominal, thermopile detector	
Display Hold	Last reading and operating mode displayed for 6 seconds nominal upon ON button release	
LCD Backlight	User selectable	
Emissivity	Pre-set 0.95	0.10 to 1.00, user selectable. Automatically switches to AVERAGE mode for emissivity < 0.3
Calculating Mode	NA	MAX, MIN, AVG, MAX ΔT
Recall Last Reading	NA	Yes
High or Low Audible/Visual Alarm	NA	Yes
Temperature Display	°F or °C (switchable), 3 digit LCD	°F or °C (menu selectable), 3 digit LCD
Display Resolution	1°F or °C in all modes	
Ambient Operating Conditions	32° to 120°F (0° to 50°C) at relative humidity of 10% to 90%, noncondensing	
Storage Temperature	-13 to 158°F (-25 to 70°C) without battery	
Power Supply	9V Alkaline (included) or NiCad battery	
Battery Life (with alkaline)	150 hours with backlight off. Laser and backlight operation will reduce battery life	
Battery Life indicator	Display icon flashes when low	Display icon flashes when low, menu recalls % life remaining and actual voltage
Temperature Update Rate	5 readings per second	
Dimensions	6 x 2 x 1 inches (152 x 51 x 25 mm)	
Weight	7 oz (198 gm)	
Included Accessories	one 9V Alkaline battery, carrying/storage case and wrist strap	
Options	NIST Certification	

DHS110XL Display



DHS110XEL Display

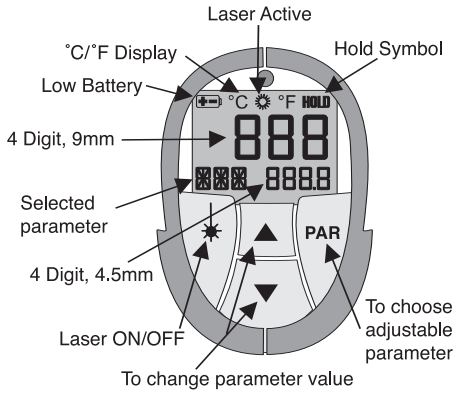


High Performance Heat Spys

DHS250 • DHS250M • DHS250H • DHS250HM

DHS250M

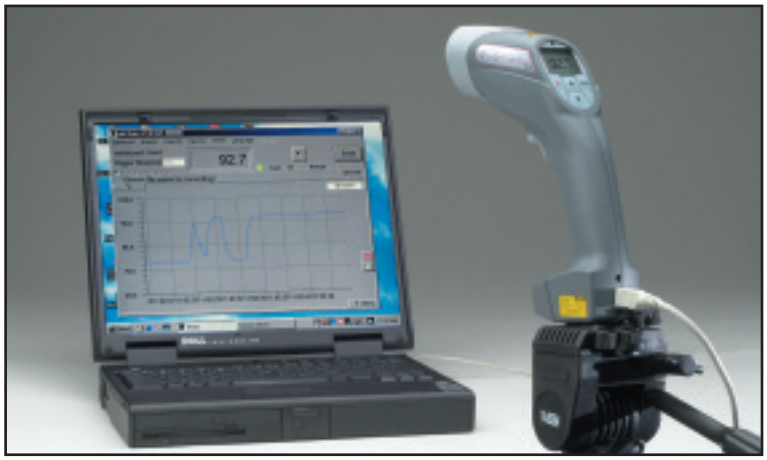
The DHS250 High Performance Series Heat Spys have the added capability of RS232 interface for computer storage and display of readings. Plus Wahl introduces two new additions to the DHS250 Series Heat Spy, the DHS250H and DHS250HM with readings up to 3272°F/1800°C.



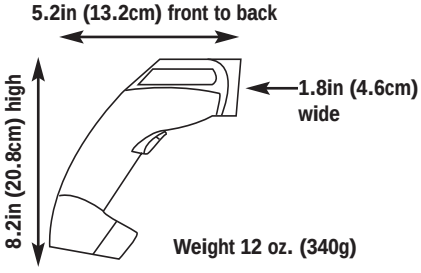
ONE YEAR 1 WARRANTY

Expanded Capabilities

- **New DHS250 Series: DHS250H and DHS250HM for Ferrous and Non-Ferrous Liquid Metal, Glass, and Ceramic**
- Laser Sighting System
- 50:1 Distance to Target Size Ratio (nominal)
- Available RS232 interface and Windows® compatible software for online data acquisition
- Option for 1mV / °C Analog Data Output
- Battery powered (one 9V) for portability, rechargeable option
- Dual Display with auto back light
- Adjustable Emissivity, 0.20 to 1.0
- Fahrenheit or Celsius scale selection
- Readings for Maximum, Minimum, Average, or Differential Value
- Audible and Visual Alarm at HI/LO Setpoint
- Sleek, ergonomic design, with rubber "bumper" to protect the lens
- Built in tripod mount and locking trigger mechanism
- Stores up to 250 temperature readings (DHS250M, and HM)



DHS250 with RS232 interface for online data acquisition
Shown with optional TR19 tripod



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DHS250 • DHS250M • DHS250H • DHS250HM

Specifications				
Model Number	**DHS250**	**DHS250M**	**DHS250H**	**DHS250HM**
Description	High Performance Heat Spy	High Performance Heat Spy with Internal Memory	High Temperature, High Performance Heat Spy	High Temperature, High Performance Heat Spy with Internal Memory
Temperature Range	-25° to 1652°F -32° to 900°C	-25° to 1652°F -32° to 900°C	302° to 3272°F 150° to 1800°C	302° to 3272°F 150° to 1800°C
Spectral Range	8 to 14µm		5.14µm	
Measurement Scale	User switchable °F to °C			
Emissivity	0.20 to 1.0 adjustable			
Accuracy	1% of reading or 2°F / 1°C whichever is greater, at an ambient temperature of 73°F / 23°C and emissivity of 1.0			
Repeatability	0.5% of reading			
Temperature Coefficient	0.03°/°C at 23°C			
Response Time	0.15 seconds			
IR Detector	Thermopile			
Distance to Target	50:1 nominal			
Lens Aperture	20mm			
Display Illumination	Automatic in low light			
Main Display	°F and °C switchable with a 4 digit, 9mm LCD display • Resolution: 0.1° to 999.9°F / 900°C			
Secondary Display	°F and °C switchable with a 4 digit, 4.5mm LCD display Resolution: 0.1° from 14° to 392°F (-10° to 200°C) in average mode, 1° in all others			
Ambient Operating Range	32° to 131°F (0° to 55°C) (Laser operating range 32° to 122°F)			
Storage Temperature	-4° to 158°F (-20°C to 70°C)			
Power Supply / Life	One 9V battery • **35** hours without laser. Laser and backlight operation will reduce battery life.			
Laser	Laser Class II, IEC825/91, output < 1mW			
Housing	High impact ABS, UL class VO			
Tripod Thread	UNC 1/4 inch			
Enclosure Class	IP20			
Dimensions • Weight	see fig 1 • 1 lb (340g)			
Calculating Mode	MAX, MIN, AVERAGE, MAX ΔT, and HOLD			
Digital Interface	RS232, 9600 Baud			
Audible Alarm	HI	HI, LOW	HI	HI, LOW
Internal Clock	NA	Yes	NA	Yes
Analog Output	NA	1 mV/ °C	NA	1 mV/ °C
Analog Cable	NA	Yes	NA	Yes
Data Storage	NA	250 Values	NA	250 Values
Adjustable Memory	NA	Yes	NA	Yes
Software	Optional	Optional	Optional	Yes
Included Accessories	All DHS250 Series Instruments are supplied with a foam-lined molded carrying/storage case, wrist strap, and one 9V battery.			

Specifications are subject to change without notice.

CE

For Heat Spy Accessories see page 5

High Performance Heat Spys

DHS24• DHS26 • DHS28 Series

Wahl's Digital Infrared Thermometers with NIST traceable accuracy are the most advanced, easy to use and durable Infrared Thermometers in the world. Their precision ground mirrors are protected by rare-earth germanium filters and tightly focus infrared energy on the patented detector for accuracy as good as ±0.3% full scale with 1°F / °C resolution.

Temperature readings are updated 3 times per second on a unique red liquid crystal display - more readable than a black display.

The entire body is made of cast and extruded aluminum, which provides shielding against stray EMF from machinery and engines. Factory Mutual Approved models for potentially explosive environments are also available. (see page 15).

Telescopic Sight

For long distances (20 to 100 feet) or precise aiming on small objects such as bolts, thick cable, tubing, forgings, and castings. The Heat Spy "T" version telescopic sight provides sighting on the centerline of the infrared optics.

Switchable Laser Aiming Sight

Highly visible narrow red light beam pinpoints objects up to 100 feet away. Good choice for locating hot spots and for centering on targets.

Enclosed Optical Sight

For most applications, the standard enclosed optical sight provides target definition at 4 feet and 20feet with parallax correction.

Features for All Models

Use Wahl's Heat Spy® with confidence. Thousands have been in trouble-free service for 10 years or longer. We stand behind them with a three year warranty, factory recalibration and service.

- Adjustable Emissivity
- Maxitemp® Peak Temperature Hold
- Self Test
- Auto Calibration
- Output to Recorder
- AC Adapter
- Input Jack for Battery Pack
- °F/°C Switchable
- NIST Traceable Accuracy
- Aluminum Housing
- Sighting and Display Options
- Three Year Warranty

Display Options and Modes

Display options for LCD and LED. LCD is best for most uses. Select LED for low light conditions.

Measured temperature is updated 3 times per second on large LCD.

PEAK holds highest measured temperature, and is especially useful in high temperature scans.

TEST mode flashes room temperature to show Heat Spy is working properly.

BATT displays low battery. HLP flashes when instrument is out of specification.

---- means measurement is over or under the range of the instrument.

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DHS24• DHS26 • DHS28 Series

High Performance Heat Spys

DHS24 Series Features

- Superior accuracy and sensitivity between 0° to 1000°F (-20° to 550°C)
- Accuracy of ±0.3% of full scale
- Repeatability of ±1°F
- Anti-reflective filter for accurate use in strong sunlight or other light sources
- Applications include all normal materials, including glass surfaces
- Not affected by IR heaters, carbon dioxide or water vapor, will not measure through glass
- Sighting options and FM approved models available
- 3 Year Warranty

Please see page 15 for a complete listing of DHS24 specifications.

DHS24 L

DHS26 Series Features

- Features listed above, *Plus*:
- Wider temperature range: 0° to 2000°F (-20° to 1000°C)
- Accuracy of ±0.3% of full scale
- Application for all normal material, including glass surfaces
- Sighting, display, and FM options available
- 3 Year Warranty

Please see page 15 for a complete listing of DHS26 specifications.

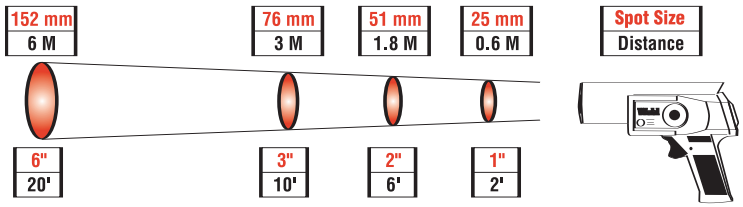
DHS24 XT

DHS28 Series Features

- Features listed above, *Plus*:
- Ultra High range: 32° to 2500°F (0° to 1380°C)
- Specialized tool for measurement of glass gobs, heat treating, annealing, welding, and metal ingot operations, does not measure through glass ports.
- Accuracy of ±0.3% of full scale
- Repeatability is 3°F
- 3 Year Warranty
- Telescopic sight option recommended

Please see page 15 for a complete listing of DHS28 specifications.

DHS28 XT



DHS24, 26, and 28 Series Heat Spy
Distance to Target Size Ratio: 20:1

For Heat Spy Accessories see page 5

High Performance Heat Spys

DHS29 • DHS35XT Series

Designed for extreme applications in Ferrous and Non Ferrous Metal, the DHS29 and 35XT Heat Spy models are built from the bottom up for precise, accurate measurement of high temperatures under the toughest factory conditions.

DHS29 Series Features

- Measures through glass ports, flames, and products of combustion
- High temperature Range: 900° to 3200°F (482° to 1760°C)
- Narrow spectral range for general purpose, high temperature measurement through glass
- Small target resolution and long telescopic range
- Aim through ports in furnace walls at refractories, glass gobs, furnace tubes, ceramics, billets, slag, and annealing materials
- Sapphire window protects the silicon optics from heat and contamination
- 3 Year Warranty

Please see page 15 for a complete listing of DHS29 specifications.

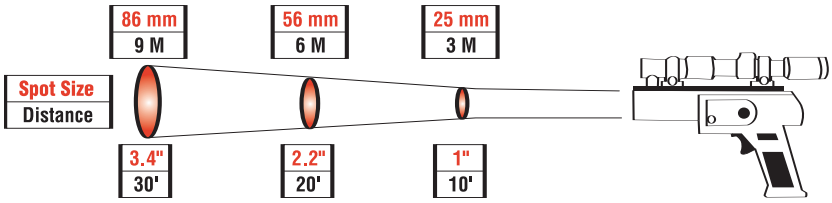
DHS29X

DHS35XT Features

- Measures furnace tube temperatures through open ports
- High temperature Range: 800° to 3200°F (426° to 1760°C)
- Narrow spectral range of 3.5 - 4.1 microns
- Specialized Reflex Sighting to enable readings from very small target areas
- Minimizes errors caused by the reflectance from walls and flames
- Does not measure through glass ports
- Best choice for high temperature general purpose operations
- Offered with telescopic sighting system only
- 3 Year Warranty

Please see page 15 for a complete listing of DHS35XT specifications.

DHS35XT



DHS29, and 35XT Series Heat Spy
Distance to Target Size Ratio 100:1

For Heat Spy Accessories see page 5

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High Performance Heat Spys

DHS24• DHS26 • DHS28
DHS29 • DHS35XT Series

DHS24, 26, 28, 29 & 35 Specifications					
	DHS24 (LED) DHS24X (LCD)	DHS26 (LED) DHS26X (LCD)	DHS28X (LCD)	DHS29X (LCD) DHS29XT (LCD)	DHS35XT (LCD)
Temperature Range	0° to 1000°F -20° to 550°C	0° to 2000°F -20° to 1000°C	32° to 2500°F 0° to 1380°C	900° to 3200°F 482° to 1760°C	800° to 3200°F 426° to 1760°C
Spectral Range	8 - 14 microns			2.1 - 2.5 microns	3.5 - 4.1 microns
Accuracy at 77°F ±5°	± 0.3% FS				± 0.5% FS
Repeatability	± 1°F	± 2°F	± 3°F		
Resolution	1°F / °C				
Ambient Operating Temperature	25° to 125°F (-4° to 52°C)				
Temperature Coefficient	± 0.1 deg/deg				
Response Time to 95% of Reading	1 second				
Target Size at Focal Point	1 in. diameter at 2 ft.			1 in. diameter at 10 ft.	
Distance to Target Size	20:1			100:1	
Practical Working Distance	0 to 40 ft.		0 to 40 ft. (T) 150 ft.	0 to 150 ft.	
Sighting System	Enclosed, Laser, or Telescope			Enclosed or Telescope	Telescope Only
Adjustable Emissivity Range	0.2 - 1.0				
Output to Recorder	1mV/deg.				
Power Supply	LCD 1 - 9V Alkaline Battery, LED 2 - 6V Batteries				
Battery Life	40 hours Laser Operation Will Reduce Battery Life			40 hours	
Weight (Lbs.)	2.2	2.2, (T) 2.8		2.5, (T) 3.0	3.0
Included Accessories	Carrying Case, LCD, 1-9V Battery, LED, 2-6V Batteries, Manual, Trigger Lock, AC Adapter (Specify 110V or 220V AC)				

Specifications are subject to change without notice.

Model No. Suffix Codes and Availability								
Suffix	No Suffix	X	L1	L5	XL1	XL5	T	XT
Heat Spy Series	F&C, LED enclosed optical sight	F&C, LCD enclosed optical sight	F&C, LED laser sight 1mW	F&C, LED laser sight 5mW	F&C, LCD laser sight 1mW	F&C, LCD laser sight 5mW	F&C, LED telescopic sight	F&C, LCD telescopic sight
DHS24	Yes FM	Yes FM	Yes	Yes	Yes	Yes	Yes FM	Yes FM
DHS26	Yes FM	Yes FM	Yes	Yes	Yes	Yes	Yes FM	Yes FM
DHS28	NA	Yes FM	NA	NA	Yes	Yes	NA	Yes FM
DHS29	NA	Yes	NA	NA	NA	NA	NA	Yes
DHS35	NA	NA	NA	NA	NA	NA	NA	Yes

Specifications are subject to change without notice.

FM - Factory Mutual approved model is available where noted above.

To specify FM model, modify the model number or suffix by adding "F" for Fahrenheit or "C" for Celsius scale, then add "-FM" to the model number. *EXAMPLE: DHS24XC-FM or DHS26XTF-FM*

Factory Mutual approved for use in Class I and II, Groups C, D, E, F, and G hazardous locations.

Factory Mutual (FM) approved models do not include the following Heat Spy features or options:

F/C switch (order dedicated Fahrenheit or Celsius model); 1mV/degree output; AC Adapter; laser sighting.

THREE YEAR 3 WARRANTY

FM APPROVED

DHS34A • DHS34S
Auto Focus

This Product has been Discontinued

DHS34

Features

- AUTO FOCUS for comfortable, one-hand operation
- DHS34A - RETICLE RING defines target area
- DHS34S - RECTANGULAR BOX defines target area
- Low Temperature Range -50° to 1800°F /-50° to 1000°C
- Small targets from 0.35" @ 20"
- Large, external LCD display
- Memory recalls Maximum, Minimum, and Mean
- Measures normal, peak, valley, average values
- Adjustable emissivity: 0.10 to 1.00
- Analog and RS232 output

Specifications		
	DHS34A	**DHS34S**
Temperature Low Range	-50° to 1800°F -50° to 1000°C	-50° to 1800°F -50° to 1000°C
Distance to Target Ratio	60:1	60 x 120:1
Temperature Scale	°F or °C switchable	°F or °C switchable
Output Signal	°1mV/degree & RS232C	°1mV/degree & RS232C
Accuracy at 23°C / ± 5°C	± 2°C / 4°F (0° to 200°C)	± 2°C / 4°F (0° to 200°C)
All Values ± 1-digit	± 3°C / 6°F (below 0°C) ± 1% of reading (above 200°C)	± 3°C / 6°F (below 0°C) ± 1% of reading (above 200°C)
Spectral Range	8 to 13 microns	8 to 13 microns
Emissivity	0.10 to 1.0 adjustable at 0.01 increments	0.10 to 1.0 adjustable at 0.01 increments
Operating Temperature	32° to 122°F 0° to 50°C	32° to 122°F 0° to 50°C
Target Size	9mm diameter at 500mm 0.35" diameter at 1.6'	9 x 3mm at 500mm 0.35 x 0.12" at 1.6'
Power Supply Battery Life	4 x AA alkaline batteries 40/hrs	4 x AA alkaline batteries 40/hrs
Included Accessories	Soft Padded Carrying Case with Belt Loop, Lens Cap, Hand Strap attached to unit, Batteries	

Specifications are subject to change without notice.

The DHS34A and the DHS34S Heat Spy's feature the world's first auto focus Infrared Thermometer for easier and more accurate spot temperature measurements. High precision, general purpose, thermometers, the DHS34A offers a reticle field of view, and the DHS34S has a rectangular field-of-view.

Applications

DHS34A

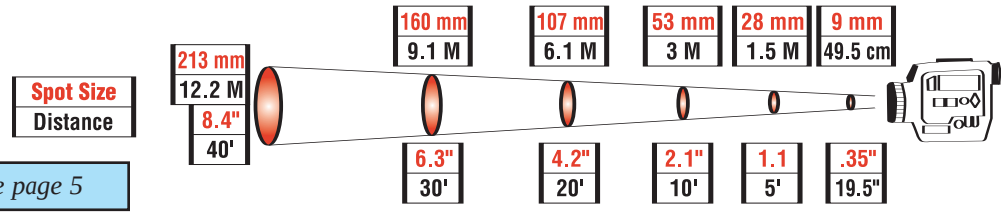
- Electrical inspection
- Mechanical inspection
- Insulation checks
- Steam trap inspection
- Routine maintenance

DHS34S

- Cable splices
- Insulators and switch points
- Electrical inspection
- Routine maintenance
- Power and utilities

ONE YEAR 1 WARRANTY

CE



DHS34 Series Heat Spy • Distance to Target Size Ratio: 60:1

For Heat Spy Accessories see page 5

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DHS54 • DHS54A
Wide Temperature Range

**This Product has been Discontinued.
It has been replaced by the DHS520 Series.**

- DHS54 - RS232C Digital Output
- DHS54A - Analog Output
- Reflective Error Compensation
- Measures through glass ports
- Measures high temperature surfaces with small target diameter from 0.8 inches
- Optional close up lens allows measurement as small as 0.016inch / 0.4mm diameter
- Built-in eye protection filter for high temperatures
- °F or °C switchable / Internal display shows temperature
- External display shows temperature, emissivity, out of range, battery status
- Variable focusing from 39 inches / 1 meter to infinity
- Narrow spectral range reduces errors due to emissivity and atmospheric absorption
- Handle detaches for mounting in continuous monitor mode


DHS54 Heat Spy

Use the DHS54 Series Heat Spy in tough, hostile industrial environments.This rugged, dust proof thermometer measures high temperature surfaces with small target diameters from 0.8 inches. Adjustable focus, and through-the-lens viewing allow you to sight the target while reading temperatures. The DHS54 has RS232C digital output, the DHS54A has an RS232C and an analog output of 1mV/°. A background reflection compensation function is provided for accurate measurement of targets in hotter surroundings.

Target Size	
Distance: ft (m)	**Target Size: in (mm)**
328 (100)	22.6 (576)
164 (50)	11.2 (287)
65.6 (20)	4.48 (114)
32.8 (10)	2.24 (57)
22.9 (7)	1.53 (39)
16.4 (5)	1.10 (28)
6.5 (2)	0.43 (11)
3.2 (1)	0.18 (4.8)

ONE YEAR 1 WARRANTY

CE

For Heat Spy Accessories see page 5

Specifications	
DHS54 • DHS54A	
Temperature Range	930° to 5800°F (500° to 3200°C)
Indication	4-digit LCD in view finder, 1° increments; over and under range warnings. External display 4-digit LCD of temperature, emissivity, mode, battery level, over and under range warnings
Measuring Mode	CONT, PEAK, VALLEY
Calculating Mode	MAX, MEAN, MIN
Optical System	8° field of view with 1/3° measurement area. Eyepiece adjustable -3.75 to 2.5 diopters
Distance to Target	180:1
Target Size	0.18" (4.8mm) at 39.3" (1m)
Spectral Range	0.8 to 1.1µm
Emissivity Range	0.10 to 1.30 in 0.01 graduations
Response Time	0.45 seconds (98% response)
Accuracy	±0.5% of reading ±1 digit in ambient temperature 64° to 82°F (18° to 28°C) e = 1.00
Repeatability	±0.15% of reading in ambient temperature 64° to 82°F (18° to 28°C) e = 1.00
Operating Temp. Range	32° to 122°F (0° to 50°C)
Storage Temp. Range	-4° to 131°F (-20° to 55°C)
Power Supply / Life	Six AA batteries or optional AC adapter/approx. 95 hours
Power Consumption	20mA (DHS54) approximate 25mA (DHS54A) approximate
Dimensions / Weight	8.75 x 3.06 x 6.75in (223.3 x 78 x 170mm) / 2.2 lb (1kg)
Included Accessories	Locking Hard Carrying Case with Shoulder Strap, Wrist Strap attached to unit, Lens Cap and Battery

Specifications are subject to change without notice.

DHS55 Narrow Spectral Range

This Product has been Discontinued

DHS56 Heat Spy

DHS55 – For Liquid Metals - is designed for accurate temperature measurement of liquid metals in iron and steel foundries. The thermometer automatically compensates for ambient temperature changes, and provides a fast response time (0.8 seconds) and reliable reading in the extended range of 1830° to 3270°F (1000° to 1800°C). Short wavelength operation (0.55µm) minimizes errors due to emissivity/atmospheric absorption.

ONE YEAR 1 WARRANTY

Target Size	
DHS55	
Distance: ft (m)	Target Size: in (mm)
23 (7)	2.4 (60)
19.7 (6)	2.0 (50)
16.4 (5)	1.1 (29)
13.1 (4)	1.2 (30)
9.8 (3)	1.2 (30)

Specifications	
DHS55	
Temperature Range	1830° to 3270°F (1000° to 1800°C)
Indication	4-digit LCD in view finder, 1° increments; display held for 30 seconds after switch-off: blinking display warns that temperature is out of measurable range
Measuring Mode	CONT, PEAK, AVERAGE
Calculating Mode	MAX, MEAN, MIN
Optical System	9° field of view with 1/3° measurement area. Single-lens-reflex system
Focusing Range	fixed at 16.4ft (5m)
Target Size	1.1" (29mm) at 16.4ft (5m) Fixed Focus
Spectral Range	0.55µm
Emissivity Range	0.10 to 1.00 in 0.01 graduations
Response Time	0.8 seconds (approximate)
Accuracy	±1% of reading ±1 digit in ambient temperature 64° to 82°F (18° to 28°C) e = 1.00
Repeatability	±0.3% of reading ±1 digit in ambient temperature 64° to 82°F (18° to 28°C) e=1.00
Operating Range	32° to 122°F (0° to 50°C)
Storage Range	-4° to 131°F (-20° to 55°C)
Power Supply	One 9V battery
Power Consumption	20mA with display on (approximate) 5mA with display off (approximate)
Dimensions / Weight	8.2 x 2.75 x 6.1in (208 x 70 x 154mm) / 1.76 lb (0.8kg)
Included Accessories	Locking Hard Carrying Case with Shoulder Strap, Wrist Strap attached to unit, Lens Cap and Battery

Specifications are subject to change without notice.

For Heat Spy Accessories see page 5

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HSA201 Telematic Heat Spy for Long Distance Targets

Preferred by maintenance engineers for checking distant targets such as transmission lines, transformers and insulators. Special shielding from EMI interference. Ideal for preventive maintenance in refinery, steel and chemical processing. Searches out hot spots on stacks, kilns, and reactors at a safe convenient distance.

This Product has been Discontinued. It has been replaced by the HSA300.

HSA201 shown with B-11 Bench Stand

Features

- Easy to use
- Easy Scanning for Hot Spots
- Maxi-temp Switch Holds Needle for Precise Readings
- 300 to 1 - Distance to Target Size Ratio
- Measures from 300 feet away
- High Precision Crosshair Telescopic Sight
- Gun Stock Mounted and Balanced for Comfort
- Tripod Fitting Included
- Emissivity control, Maxi-Temp™ Peak Hold, Millivolt Output to Recorder and Rugged Carrying Case are Standard
- 100 hours continuous operation on two 9 volt batteries

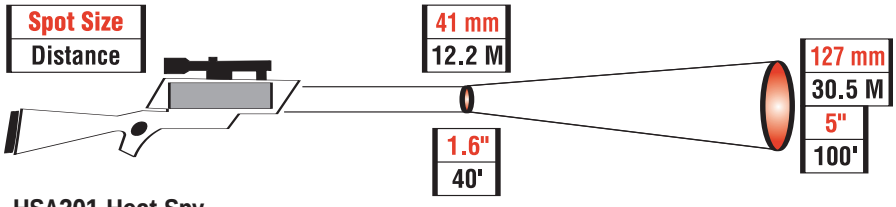
ONE YEAR 1 WARRANTY

Needle swing shows differential temperatures instantly.

Specifications	
Temperature, Low Range	-18° to 180°F (-10° to 100°C)
High Range	-36° to 360°F (-20° to 200°C)
Dual Range, °C	-10° to 100°C, -20° to 200°C
Dual Range, °F	-18° to 180°F, -36° to 360°F
Sensitivity	0.5°C (1°F)
Meter Accuracy	± 1% FS
Resolution	1°C (2.5°F) low range, 2.5°C (5°F) high range
Spectral Range	8 to 14 microns
Zero Calibration	Automatic self-calibration
Ambient Temperature	0° to 50°C (32° to 120°F)
Power Supply / Life	2 - 9V Batteries / 100 hours
Included Accessories	Carrying Case, Batteries and Manual

Ordering Information	
Part No.	**Description**
HSA-201	-18° to 180°F (-10° to 100°C)
HSA-201-2`	-36° to 360°F (-20° to 200°C)
HSA-201-3	-10° to 100°C, -20° to 200°C
HSA-201-4	-18° to 180°F, -36° to 360°F
TR-19	Heavy Duty Tripod, adjustable tilt
12232	9V Alkaline Battery, 2 required
B-11	Bench Stand

Specifications are subject to change without notice.



HSA201 Heat Spy
Distance to Target Size Ratio: 300:1

For Heat Spy Accessories see page 5

PALMER Wahl
INSTRUMENTATION GROUP

The World's Finest Manufacturers of Industrial Temperature, Pressure, and Humidity Instrumentation

PALMER INSTRUMENTS, INC.

- Industrial Glass Thermometers
- Bimetal Dial Thermometers
- Pressure Gauges and Accessories
- Temperature and Pressure Recorders
- Liquid and Mercury Filled Dial, Direct Drive, Dial Thermometer Systems
- Thermowells and Fittings
- ASTM and Laboratory Thermometers
- Process Thermometers
- Sanitary Thermometers and Gauges
- Thermometer Contract Manufacturing

Wahl INSTRUMENTS, INC.

- Heat Spy® Imager Thermal Imaging Camera
- Heat Spy® Hand-Held Infrared Thermometers
- Heat Spy Monitor® Fixed Infrared Sensors
- Heat Prober® RTD & TC Meter/Probe Thermometers
- Digi-Stem® Digital Thermometers and Transmitters
- Temperature Transmitters and Switches
- Temp-Plate® Temperature Recording Labels
- In situ RTD and Thermocouple Probes and Connection Systems
- Thermistor Probes and Connection Systems
- Specialty Probes for OEM applications
- Probe Extension Cables and Connectors

AOIP

- Portable Electronic Temperature and Process Calibrators
- Bench Top Electronic Temperature and Process Calibrators
- Bench Top Precision Thermometers
- Ohmmeters/Mega-Ohmmeters
- Cable Testers

Lufft

- Dataloggers for Temperature, Humidity, Barometric Pressure, CO_2, and Meteorological Conditions
- Modular Data Logger for Measuring, Logging and Control
- Hand-Held RTD, Dual Thermocouple, and Combination Thermocouple and RTD Meters
- Hand-Held Pressure and Differential Pressure Meters, Temperature, Humidity, and Dew Point Meters
- Electronic Weather Stations

Wahl Heat Spy Infrared Thermometers 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.

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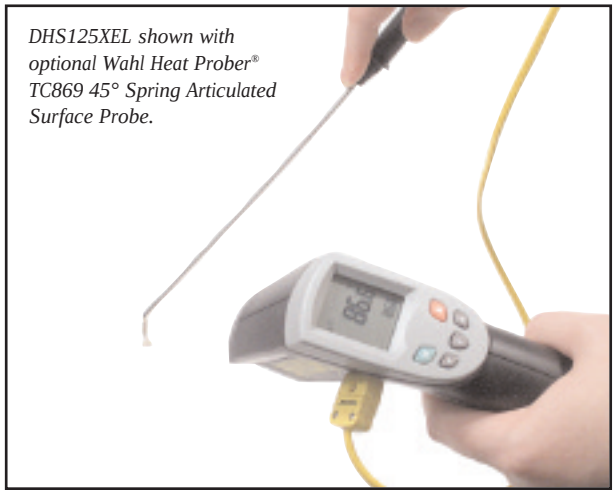
PW1230 **12/05**

NEW! Wahl® Heat Spy® Hybrid Infrared Thermometer DHS125XEL

- **eSmart Technology:** using an external Type K Thermocouple as a reference, the built-in software determines the emissivity of the target object, and automatically sets the emissivity of the instrument.
- **Color Identification Signal Technology:** display backlight changes to red when alarm setpoints are exceeded.
- **Ultra low power consumption**
- **Extended time measuring reliability**
- **Electronic Trigger Lock Function**
- **Tripod Mount** for hands free monitoring.



DHS125XEL shown with optional Wahl Heat Prober® TC869 45° Spring Articulated Surface Probe.

The New DHS125XEL Hybrid from Wahl® is an intelligent contact and non-contact infrared thermometer which goes beyond the conventional temperature measurement capabilities of other infrared thermometers.

DHS125XEL Specifications	
Distance to Spot Ratio	12:1
Temperature Range	-25° to +1400°F (-32° to +760°C)
Accuracy Ambient Operating Temperature of 77°F (25°C)	±5°F (±3°C) From -25° to -4°F (-32° to -20°C) ±3°F (±2°C) From -4° to 212°F (-20° to 100°C) ±2% Above 212°F (100°C)
Thermopile	5 to 14 µm
Repeatability	±1°C (±2°F)
Resolution	0.1°C (0.1°F)
Response Time	500 ms
Operating Temperature	0° to 50°C (32° to 122°F), 10 to 95% RH
Auto Power Off	Automatically after approx. 6 seconds
Emissivity	Adjustable 0.1 to 1.0
eSmart	Yes
Thermocouple Connection (K)	Yes
Thermocouple Range	-200° to 1380°C
Thermocouple Accuracy	±1.5% +1 degree
°F/°C Switchable	Yes
LCD Backlight	Yes
Color Identification Signal	Yes
Laser Sight Switchable	Yes
Audio Alarm	Yes
Dual Display	Yes
Trigger Lock Function	Yes
Max/Min/Avg/ΔT	Yes
Auto-Measuring	Yes
10 Point Memory	Yes
Battery Type	9V, 006P, IECF22, NEDA1604
Dimensions	7.09 x 5.12 x 1.57 inches (180mm x 130mm x40mm)
Weight	Approximately 6.87 ounces (195 grams)
Tripod Mount	Yes
Included Accessories	9V Battery, Carrying Case, and User Manual
Optional Accessories	see Wahl Heat Prober® Thermocouple probes for surface measuring

Applications

- Electrical Troubleshooting
- Automotive Maintenance
- HVAC Energy Audits
- Food Safety and Processing
- Test Terminals on Circuits
- Maintenance & Inspections

ONE YEAR 1 WARRANTY

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Specifications subject to change without notice

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PALMER Wahl INSTRUMENTATION GROUP

172 Years of Continued Innovation
ISO9001:2000 CERTIFIED

NEW! Wahl Heat Spy® High Precision Portable Infrared Thermometers

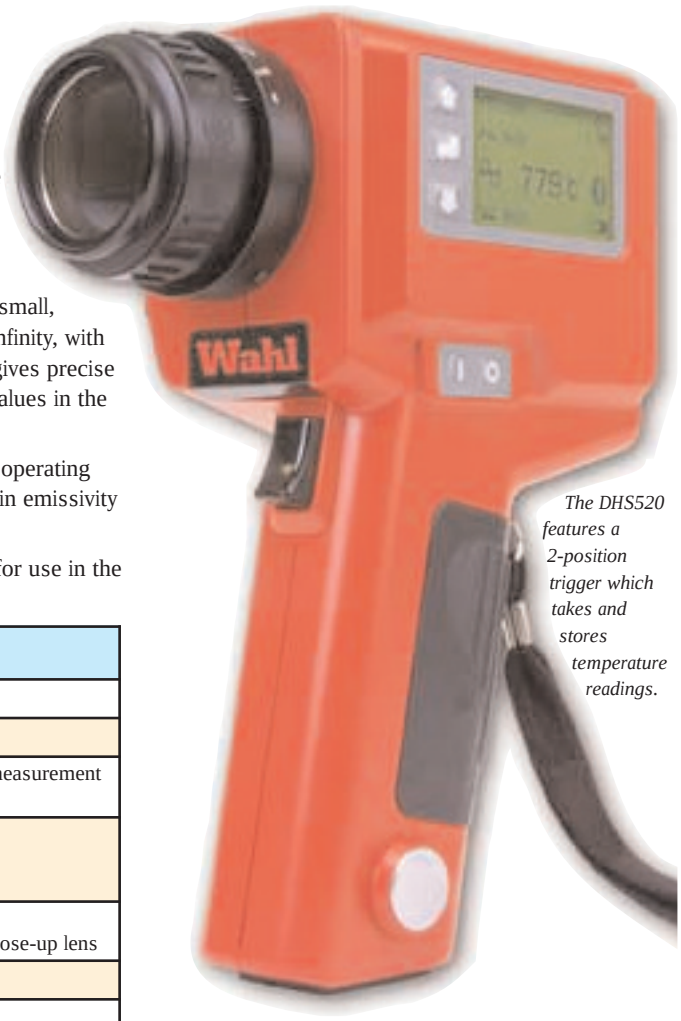
- **DHS520 & DHS520G with RS232**
- **DHS520B & DHS520GB with RS232 & Bluetooth® Communications**

The Wahl DHS520 is a general purpose, high precision, portable infrared thermometer, designed for accurate temperature measurement in the range of 1022° to 5432°F (550° to 3000°C). The bright, back-lit external display panel indicates status and configuration of thermometer, together with four simultaneous modes: continuous, average, maximum and minimum.

Accurate sighting is ensured by the clear, wide angle (9°) field of view and small, clearly defined (1/3°) measurement area. Focusing is variable from 1m to infinity, with close focus options available using auxiliary lenses. Reflex optical system gives precise definition of target spot and simultaneous backlit display of user selected values in the viewfinder.

Emissivity compensation is provided via the icon-based menu system. The operating waveband has been carefully chosen to minimize errors due to uncertainty in emissivity and the effects of atmospheric vapor components.

Models DHS520G & DHS520GB include 2 dark glass eye protection filters for use in the Glass industry.



The DHS520 features a 2-position trigger which takes and stores temperature readings.

DHS520(G) - DHS520B(GB) Specifications

Temperature Range	1022° to 5432°F (550° to 3000°C)
Measuring Mode	CONT, AVG, MAX & MIN
Optical System	9° Field of View with 1/3° (180:1 to 98% energy) measurement area. Eyepiece adjustable: -3.75 to +2.5 diopters
Focusing Range	39.3in / 1m to infinity 17.7 to 24.5in / 450 to 620mm with optional 8.5in / 215mm fixed focus close-up lens
Target Size	0.19in at 39.3in / 5mm at 1m 0.07in / 1.8mm at 0.016in / 0.4mm with optional close-up lens
Spectral Response	1 µm with advance spectral filtering
Emissivity Range	0.10 to 1.20 in 0.01 step graduations
Response Time	30 ms (98% response)
Display Update Time	0.5 seconds
Accuracy	< 0.25% (K) of reading
Repeatability	< 0.1% (K) of reading
Operating Temp Range	32° to 122°F (0° to 50°C)
Power Supply	1 9V Battery
Output	RS232, Bluetooth® (DHS520B only)
Dimensions	8.25 x 2.75 x 5.5 inches (210 x 70 x140mm)
Weight	Approximately 6.87 ounces (195 grams) 0.83kg/1.8lb
Sealing	IP54 / NEMA 3
Included Accessories	Lens Cap, Dark Glass Eye Protection Filter (G models include 2 filters), Wrist Strap, 9V Battery and User Manual
Optional Accessories	Waterproof Carrying Case, Close-up Lenses, Datalogger Software

Specifications subject to change without notice

Note: The DHS520 & DHS520B replaces the DHS54 & DHS54A which have been discontinued.

ONE YEAR 1 WARRANTY

CE

Applications

- **Heat Treatment**
- **Semi-Conductors**
- **Any Industrial use**
- **Refractories**
- **Steel**
- **Glass**

Features

- Digital signal processing
- High accuracy and repeatability
- Long term, drift free measurement
- Advanced spectral filtering enhances performance
- Flexible user configuration
- Robust - Ideal for industrial use

Benefits

- No contamination, interference or damage to process or material
- Accurate, reliable and stable temperature measurement to aid product quality control
- Maximize production rates and efficiency

Target Size

Distance: ft (m)	Target Size: in (mm)
328 (100)	22.6 (576)
164 (50)	11.2 (287)
65.6 (20)	4.48 (114)
32.8 (10)	2.24 (57)
22.9 (7)	1.53 (39)
16.4 (5)	1.10 (28)
6.5 (2)	0.43 (11)
3.2 (1)	0.18 (4.8)

Target size can be reduced to a minimum of 0.4mm/0.016in with optional close-up lenses.

Calibration Services available

(800) 421-2853 • FAX (828) 658-0728 • www.palmerwahl.com

06/09 Rev A

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NEW! Wahl Heat Spy® HSA300 Long Range Portable Infrared Thermometer

HSA300 Long Range Infrared Thermometer

The HSA300 offers a large, easy to read digital display.

The Wahl HSA300 is a Long Range Infrared Thermometer designed for use in the Electrical Power Generation and Transmission Industry, as well as other applications that require measuring objects from a long distance.

The HSA300 has 300:1 optics which provide a 2-inch measurement spot at 50 feet. Peak temperature is displayed on the large main display easing the ability to capture the hot spot. Current temperature is displayed on the smaller secondary display. Its telescopic sight allows precise positioning of the measurement spot, while maintaining a safe convenient distance from the target.

Features

- **Easy Scanning for Hot Spots**
- **300 to 1 - Distance to Target Size Ratio**
- **Measures from 300 feet away**

Specifications	
Model Number	**HSA300**
	Long Range
Range	(-20° to +280°C)
Scale	°C
Resolution	1°C
Optical D:S Ratio	**300:1**
Spectral Range	8 µm to 14 µm
Emissivity Range	0.50 to 1.00
Accuracy <100°C >100°C	±5°C ±5% of Reading
Battery	2 - 9V Batteries
Housing	Impact Resistant Plastic
Dimensions	10 x 9 x 2.25 inches (254mm x 228mm x57mm)
Weight (with Battery)	2.1lbs, (0.95 kg)
Included Accessories	Carrying Case, User Manual, and Batteries

Specifications subject to change without notice

Applications

- **Power Generation**
- **Power Transmission**
- **Preventive Maintenance**
- **Refinery and Steel Industry**
- **Chemical Processing**
- **Stacks, Kilns, and Reactors**

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