



## Features

/ For temperatures up to 1500°C / Very robust / Ranges up to 50:1 (D:S ratio) / Memory log / Continuous reading / USB connector

# **IR-04**

## **Infrared Thermometer**

#### **Description**:

The IR-04 series infrared thermometers measure temperatures in the range of -32°C to +1500°C at a distance ratio from 8:1 to 50:1 without contact to the object. The radiation of the object of measurement is constantly compared with the radiation of the sensor's surroundings and the current value of the object's surface temperature is displayed by the IR-04 within at least 500 milliseconds. An additional thermocouple probe can be attached to the IR-04 for measuring inside objects or fluids. The thermocouple can also be used to measure the emissivity of the target and automatically corrects the measurement accordingly. A version with USB adapter and data logging software can be used for easily recording the measured values or for stationary use over time, in intervals from 1 second to 999 hours. A tripod is optionally available. The data can be stored in a text file to be used with programs such as Excel<sup>™</sup>, Access<sup>™</sup> or Word<sup>™</sup> for further analysis, graphing and reports. All handheld devices use a 9 V battery as power source, offering continuous measuring up to 16 hours.

#### Application:

Handheld infrared thermometers are used in the industry whenever a quick measuring is needed. Because of their range and versatility, they can be used to measure the surface temperature of very hot and hard to reach objects from a safe distance. An additional probe expands the range of application even further, as well as various configuration options, like adjustable emissivity. The probe can be used for cooling chain testing in the food industry or automotive maintenance. The IR-04s recognize surface temperatures; they are free of repercussions and can measure even objects of small specific heat capacity or less thermal conduction such as plastic or various types of glass. The dynamics are solely determined by the evaluation electronics, with the result, that fast changing conditions of temperature can be captured.





Temperature-Measurement and -monitoring

#### **Standard Thermometers:**

mid range (< 1000 mm)	Model	IR-04.85	IR-04.115	IR-04.115P	IR-04.125	
1201.4207321.4337C321.4537C3224537C321.4537CDitance to spot ratioB.1121121121Spectral rangeS14µmS14µmAdjutable 0.0 to 100Adjutable 0.0EmisolvityFixed rad 0.05FixedAdjutable 0.0 to 100Adjutable 0.0Acurrbit fixed rad 0.05Fixed rad 0.05Adjutable 0.0 to 100Adjutable 0.0Acurrbit fixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05Acurrbit fixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05Repetabilityfixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05LD backlightfixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05LD backlightfixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05LD backlightfixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05LD backlightfixed rad 0.05fixed rad 0.05fixed rad 0.05fixed rad 0.05LD backlightfixed rad	Description	Close range (< 600mm)	•	,	High temperature, mid range (< 1000 mm), extended features, probe*	
Spectral range514µm514µm514µm514µmEmissivityFixed at 0.55FixedAdjustable 0.10 to 100Adjustable 0.11 to 10Accuracy2.75 of reading or 2C whichever is greater554 (£T) - 25747 (\$T) -	Temperature range					
Initiality         Fixed at 055         Fixed Adjustable 0.10 to 100         Adjustable 0.10 to 10           Accuracy         ± 2% of reading or 2°C whichever is greater         ± 5.4°F (± 5°C) - 25°4°F (± 2°C)         ± 5°F (± 2°C) (± 1°C)         ± 5°F (± 1	Distance to spot ratio	8:1	12:1	12:1	12:1	
Accuracy $\pm 2.\%$ of reading or 2°C whichever is greater $\pm 5.4\%$ ( $\pm 3'C$ ) $-25'$ $4^{4F}$ ( $\pm 3'C$ $400°C$ ) $\pm 3.6\%$ ( $\pm 2.5\%$ ( $\pm 2.5\%$ $42\%$ ( $\pm 1.5\%$ $42\%$	Spectral range	514µm	514µm	514µm	514µm	
whichever is greater $\pm 3,6^{rr}$ ( $\pm 2'C) - 4'', \pm 321^{rr} (\pm 20'', \pm 100'')\pm 3,8'' (\pm 2'C) - 4'', \pm 321^{rr} (\pm 20'', \pm 100'')\pm 2'' (\pm 1'C) \pm 3,6'' (\pm 2''C) - 4'', \pm 321'' (\pm 2''C) - 4'', \pm 32''' (\pm 3''C) - 5''C'' - 5''C'''C'' - 5''C'''C'' - 5''C'' - 5''C'' - 5''C'''C'''C'''C'' - 5''C$	Emissivity	Fixed at 0.95	Fixed	Adjustable 0.10 to 1.00	Adjustable 0.1 to 1.0	
Resolution0.FF (0.FC)0.FF (0.FC)0.FF (0.FC)Resolution500 ms.500 ms.500 ms.500 ms.Operating tempe- rature32°, .122'F32°, .122'F32°, .122'F32°, .122'Frature(050°C)(050°C)(050°C)(050°C)10 - 90% RH10 - 90% RH10 - 90% RH10 - 95% RHStorage temperature14°, .140°F14°, .140°F14°YesYesYesYesDal displayNANANAYes56 codeYesYesYesYesLaser sight switchableYesYesYesAuto measuringNoNoYesYesAuto masuringNoYesYesYes15 Point memoryNoNoNoYes17 pod mountYesNoNoNoType K thermoccupieNoNoNoNoSors respiny9V Battery9V Battery9V BatteryShrs for continuous operationIbension59 x52 x18°£8 x 36 x 18°709 x 512 x157° (180 x 133 x 45 mm)709 x 512 x157° (180 x 133 x 45 mm)Weight (with battery)47 cz (135 y)78 cz (20 y)78 cz (20 g)68 cz (95 g)	Accuracy	5	± 3,6°F (± 2°C) -4	°+212°F (-20°+100°C)	± 3,6°F (± 2°C) -4°+212°F (-20°+100°C)	
Response time50 ms.50 ms.500 ms.Operating tempe- rature32°122F32°122F32°122F(050°C)(050°C)(050°C)(050°C)10 - 90% RH10 - 90% RH10 - 95% RH10 - 95% RHStorage temperature14°140°F14°.14°140°F14°140°F14°140°F14°.14°.14°140°F <td>Repeatability</td> <td>± 2°F (± 1°C)</td> <td>± 2°F (± 1°C)</td> <td>± 2°F (± 1°C)</td> <td>± 2°F (± 1°C)</td>	Repeatability	± 2°F (± 1°C)	± 2°F (± 1°C)	± 2°F (± 1°C)	± 2°F (± 1°C)	
Operating temperature32°12?F32°1232°1232°1232°1232°1232°1232°1232°1232°1232°1232°1232°1232°12 </td <td>Resolution</td> <td>0.1°F (0.1°C)</td> <td>0.1°F (0.1°C)</td> <td>0.1°F (0.1°C)</td> <td>0.1°F (0.1°C)</td>	Resolution	0.1°F (0.1°C)	0.1°F (0.1°C)	0.1°F (0.1°C)	0.1°F (0.1°C)	
Tarture(050°C) 10 -90% RH(050°C) 10 -90% RH(050°C) 10 -90% RH(050°C) 10 -95% RHStorage temperature14°140°F (10°60°C)14°140°F (10°60°C)14°140°F (10°60°C)14°140°F (10°60°C)LCD backlightYesYesYesYesDual displayNANANAYesPf & C SelectableYesYesYesPf & C SelectableYesYesYesAuto per offYesYesYesAutomasuringNoNoYesMax/Min/Avg/ATNoNoYesNoNoYesYesBeletring picot.YesYesStorage lenger lockNoYesStorage lockNoYesStorage lockNoYesStorage lockNoYesStorage lockNoNoStorage lockStorage lockStorage lockStorage lock <td>Response time</td> <td>500 ms.</td> <td>500 ms.</td> <td>500 ms.</td> <td>500 ms.</td>	Response time	500 ms.	500 ms.	500 ms.	500 ms.	
Initial content of the second of the secon	Operating tempe- rature	(050°C)	(050°C)	(050°C)	(050°C)	
Dual displayNANANAYesPs & C SelectableYesYesYesYesAter sight switchableYesUser selectable, class II laser, less than ImWAuto power offAutomatically after approx. 6 secondsMax/Min/Avg/ATNoYesYesAuto measuringNoYesYesAudible alarmNoYesYes10 Point memoryNoYesYes10 Point memoryNoYesYes10 Se data outputYesNoNo10 Point memoryNoNoYes10 Point memoryNoNoYes10 Point memoryNoNoNo10 Point Se data outputNoNoNo10 Point Se data outputNoNoNo10 Point Se data outputNoNoNo10 Point Se data output16 hrs for (continuous operation15 hrs for (continuous operation10 Point Se data output16 hrs for (f05 v133 x 45 mm)15 hrs for 	Storage temperature					
Pf & °C Selectable     Yes     Yes     Yes     Yes       Laser sight switchable     User selectable, class II laser, less than 1mW       Auto power off     Automatically after approx. 6 seconds       Max/Min/Avg/ΔT     No     Yes       Max/Min/Avg/ΔT     No     Yes       Auto measuring     No     Yes       Opoint memory     No     Yes       Dio Doint memory     No     Yes       Tripod mount     Yes     Yes       USB data output     No     No       No     No     Yes       Type K thermocouple     No     No       Operating software     No     No       Sys 5.2 x 18"     6.8 x 3.6 x 18" (150 x 133 x 45 mm)     7.09 x 512 x 157" (180 x 130 x 45 mm)       Tipe Meatery     47 oz (15 g)     7.8 oz (220 g)     7.8 oz (220 g)	LCD backlight	Yes	Yes	Yes	Yes	
Laser sight switchable       User selectable, class II laser, less than IMW         Auto power off       Automatically after approx. 6 seconds         Max/Min/Avg/AT       No       Yes       Yes         Max/Min/Avg/AT       No       Yes       Yes         Auto measuring       No       Yes       Yes         Auto measuring       No       Yes       Yes         Dip fort memory       No       Yes       Yes         IS Point memory       No       Yes       Yes         IS Point memory       No       Yes       Yes         USB data output       No       Yes       Yes         Is point memory       No       No       Yes         USB data output       No       No       Yes         Is point function upper termine output       No       No       No         Type K thermocouple       No       No       No       No         Power supply       9V Battery       9V Battery       9V Battery       9V Battery         Power supply       9V Satter for continuous operation       So for continuous operation       Continuous operation         Dimensions       59 x 52 x 18° (150 x 133 x 45 mm)       7.09 x 512 x 15° (150 x 133 x 45 mm)       7.09 x 512 x 15° (150	Dual display	NA	NA	NA	Yes	
Auto power off       Automatically alter approx. 6 seconds         Max/Min/Avg/AT       No       No       Yes         Auto measuring       No       No       Yes       Yes         Audible alarm       No       Yes       Yes       Yes         Do Point memory       No       Yes       Yes       Yes         ID Point memory       No       Yes       Yes       Yes         ISB data output       No       Yes       No       Yes         USB data output       No       No       No       Yes         Operating software       No       No       No       No         Power supply       9V Battery       9V Battery       9V Battery       9V Battery         Dimensions       25 x 5 2 x 18" (150 x 133 x 45 mm)       G8 x 3.6 x 18" (173 x 93 x 45 mm)       709 x 512 x 15" (160 x 130 x 40 mm)	°F & °C Selectable	Yes	Yes	Yes	Yes	
Max/Min/Avg/ATNoYesYesAuto measuringNoNoYesYesAudible alarmNoYesYesYesDo Point memoryNoNoYesYesBeterronic trigger lockNoYesYesYesTripod mountYesNoNoYesUSB data outputNoNoNoYesType K thermocoupleNoNoNoYesPower supply9V Battery9V Battery9V Battery9V BatteryPower supply16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operationDimensions59 x 52 x 18" (150 x 133 x 45 mm)68 x 36 x 18" (173 x 93 x 45 mm)709 x 512 x 157" (180 x 130 x 40 mm)	Laser sight switchable	User selectable, class II laser, less than 1mW				
Auto measuringNoNoYesYesAudible alamNoYesYesYes10 Point memoryNoNoYesYes10 Point memoryNoYesYesYes11 point memoryNoYesYesYes12 point memoryNoYesYesYes13 data outputYesNoNoYes13 data outputNoNoNoYes13 data outputNoNoNoYes15 data outputNoNoNoYes15 data outputNoNoNoNo15 data outputNoNoNoNo15 per thermocoupleNoNoNoNo16 mer soft16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operation15 mensions59 x 52 x 18" (150 x 133 x 45 mm)6.8 x 3.6 x 18" (173 x 93 x 45 mm)70 9 x 5.12 x 157" (180 x 130 x 40 mm)15 mensions59 x 52 x 18" (150 x 133 x 45 mm)6.8 x 20 g)7.8 oz (220 g)6.8 r 20 g)	Auto power off	Automatically after approx. 6 seconds				
Audible alarmNoYesYesYes10 Point memoryNoNoYesYes10 Point memoryNoYesYesYesElectronic trigger lockNoYesYesYesTripod mountYesNoNoYesUSB data outputNoNoNoNoType K thermocoupleNoNoNoYesOperating softwareNoNoNoNoPower supply9V Battery9V Battery9V Battery9V BatteryBattery life (laser off) (t50 x 133 x 45 mm)5.9 x 5.2 x 1.8" (t50 x 133 x 45 mm)6.8 x 3.6 x 1.8" (T73 x 93 x 45 mm)7.8 oz (220 g)7.8 oz (220 g)	Max/Min/Avg/∆T	No	No	Yes	Yes	
ID Point memory       No       No       Yes       Yes         Electronic trigger lock       No       Yes       Yes       Yes         Tripod mount       Yes       No       No       Yes         USB data output       No       No       No       No         Type K thermocouple       No       No       No       Yes         Operating software       No       No       No       No         Power supply       9V Battery       9V Battery       9V Battery       9V Battery         Dimensions       59 x 52 x 18" (150 x 133 x 45 mm) $6.8 x 3.6 x 1.8"$ (173 x 93 x 45 mm) $7.09 x 512 x 1.57"$ (180 x 130 x 40 mm)         Weight (with battery)       47 or (135 g) $7.8 or (220 g)$ $7.8 or (220 g)$ $7.8 or (220 g)$ $6.8 r 0.2 (195 g)$	Auto measuring	No	No	Yes	Yes	
Electronic trigger lockNoYesYesYesTripod mountYesNoNoYesUSB data outputNoNoNoNoType K thermocoupleNoNoYesOperating softwareNoNoNoPower supply9V Battery9V Battery9V Battery9V Battery life (laser off)16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operationDimensions5.9 × 5.2 x 1.8" (150 × 133 x 45 mm)6.8 x 3.6 x 1.8" (173 × 93 x 45 mm)7.09 x 5.12 x 1.57" (180 × 130 x 40 mm)Weight (with battery)4.7 oz (135 g)7.8 oz (220 g)7.8 oz (220 g)6.87 oz (195 g)	Audible alarm	No	Yes	Yes	Yes	
Tripod mountYesNoNoYesUSB data outputNoNoNoNoType K thermocoupleNoNoNoYesOperating softwareNoNoNoNoPower supply9V Battery9V Battery9V Battery9V BatteryBattery life (laser off)16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operation7.09 x 5.12 x 1.57" (180 x 130 x 40 mm)Dimensions5.9 x 5.2 x 1.8" (150 x 133 x 45 mm)7.8 oz (220 g)7.8 oz (220 g)7.8 oz (220 g)6.8 r 3.6 x 1.0" (180 x 130 x 40 mm)	10 Point memory	No	No	Yes	Yes	
USB data outputNoNoNoType K thermocoupleNoNoNoOperating softwareNoNoNoPower supply9V Battery9V Battery9V Battery9V BatteryBattery life (laser off) continuous operation16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operationDimensions5.9 x 5.2 x 1.8" (150 x 133 x 45 mm)6.8 x 3.6 x 1.8" (173 x 93 x 45 mm)7.09 x 5.12 x 1.57" (180 x 130 x 40 mm)	Electronic trigger lock	No	Yes	Yes	Yes	
Type K thermocoupleNoNoYesOperating softwareNoNoNoOperating softwareNoNoNoPower supply9V Battery9V Battery9V Battery9V BatteryBattery life (laser off)16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operationDimensions5.9 x 5.2 x 1.8" (150 x 133 x 45 mm)6.8 x 3.6 x 1.8" (173 x 93 x 45 mm)7.09 x 5.12 x 1.57" (180 x 130 x 40 mm)Weight (with battery)4.7 oz (135 g)7.8 oz (220 g)7.8 oz (220 g)6.87 oz (195 g)	Tripod mount	Yes	No	No	Yes	
Operating softwareNoNoNoPower supply9V Battery9V Battery9V Battery9V BatteryBattery life (laser off) continuous operation16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operationDimensions5.9 x 5.2 x 1.8" (150 x 133 x 45 mm)6.8 x 3.6 x 1.8" (173 x 93 x 45 mm)7.09 x 5.12 x 1.57" (180 x 130 x 40 mm)Weight (with battery)4.7 oz (135 g)7.8 oz (220 g)7.8 oz (220 g)6.87 oz (195 g)	USB data output	No	No	No	No	
Power supply       9V Battery       9V Battery       9V Battery       9V Battery         Battery life (laser off)       16 hrs for       15 hrs for       15 hrs for         continuous operation       continuous operation       continuous operation         Dimensions       5.9 x 5.2 x 1.8"       6.8 x 3.6 x 1.8"       7.09 x 5.12 x 1.57"         (150 x 133 x 45 mm)       (173 x 93 x 45 mm)       (180 x 130 x 40 mm)         Weight (with battery)       4.7 oz (135 g)       7.8 oz (220 g)       7.8 oz (220 g)	Type K thermocouple	No	No	No	Yes	
Battery life (laser off)16 hrs for continuous operation15 hrs for continuous operation15 hrs for continuous operationDimensions5.9 x 5.2 x 1.8" (150 x 133 x 45 mm)6.8 x 3.6 x 1.8" (173 x 93 x 45 mm)7.09 x 5.12 x 1.57" (180 x 130 x 40 mm)Weight (with battery)4.7 oz (135 g)7.8 oz (220 g)7.8 oz (220 g)6.87 oz (195 g)	Operating software	No	No	No	No	
continuous operation         continuous operation         continuous operation           Dimensions         5.9 x 5.2 x 1.8"         6.8 x 3.6 x 1.8"         7.09 x 5.12 x 1.5"           (150 x 133 x 45 mm)         (173 x 93 x 45 mm)         (180 x 130 x 40 mm)           Weight (with battery)         4.7 oz (135 g)         7.8 oz (220 g)         7.8 oz (220 g)	Power supply	9V Battery	9V Battery	9V Battery	9V Battery	
(150 x 133 x 45 mm)       (173 x 93 x 45 mm)       (180 x 130 x 40 mm)         Weight (with battery)       4.7 oz (135 g)       7.8 oz (220 g)       7.8 oz (220 g)       6.87 oz (195 g)	Battery life (laser off)					
	Dimensions					
Included accessories User manual, 9V battery User manual, 9V battery, soft pouch User manual, 9V battery, carrying case	Weight (with battery)	4.7 oz (135 g)	7.8 oz (220 g)	7.8 oz (220 g)	6.87 oz (195 g)	
	Included accessories	User manual, 9V battery	User manual, 9	W battery, soft pouch	User manual, 9V battery, carrying case	

\*different kinds of probes are available, depending on the application. Please specify the desired use when ordering.



Temperature-Measurement and -monitoring

### °E

#### **High-Temperature Thermometers:**

Model	IR-04.135	IR-04.215	IR-04.235			
Description	High temperature, long range (< 1500 mm), extended features	High temperature, extra long range (> 1500 mm), extended features, USB, probe*	extra high temperature, extra long range extended features			
Temperature range	-58°+1832°F -50°+1000°C	-58°+1832°F -50°+1000°C	-58°+2732°F -50°+1500°C			
Distance to spot ratio	30:1	50:1	50:1			
Spectral range	8 to 14µm	8 to 14µm	8 to 14µm			
Emissivity	Adjustable 0.10 to 1.00	Adjustable 0.10 to 1.00	Adjustable 0.10 to 1.00			
Accuracy	$\pm 5.4^{\circ}F(\pm 3^{\circ}C) - 58 4^{\circ}F(-50 20^{\circ}C)$ and $\pm 3,6^{\circ}F(\pm 2^{\circ}C) - 4 + 212^{\circ}F(-20 + 100^{\circ}C)$ and $\pm 2\% > 212^{\circ}F(100^{\circ}C)$					
Repeatability	± 2°F (± 1°C)	± 2°F (± 1°C)	± 2°F (± 1°C)			
Resolution	0.1°F (0.1°C)	0.1°F (0.1°C)	0.1°F (0.1°C)			
Response time	500 ms.	500 ms.	500 ms.			
Operating temperature	32122°F (0+50°C) 10 - 90% RH	32122°F (0+50°C) 10 - 90% RH	32122°F (0+50°C) 10 - 90% RH			
Storage temperature	14140°F (-10+60°C)	14140°F (-10+60°C)	14140°F (-10+60°C)			
LCD backlight	Yes	Yes	Yes			
Dual display	Yes	Yes	Yes			
°F & °C Selectable	Yes	Yes	Yes			
Laser sight switchable	User selectable, class II laser, less than 1mW					
Auto power off	Automatically after approx. 6 seconds	Automatically after approx. 30 seconds	Automatically after approx. 6 seconds			
Max/Min/Avg/ <b>Δ</b> T	Yes	Yes	Yes			
Auto measuring	Yes	Yes	Yes			
Audible alarm	Yes	Yes	Yes			
10 Point memory	Yes	Yes	Yes			
Electronic trigger lock	Yes	Yes	Yes			
Tripod mount	Yes	Yes	Yes			
USB data output	No	Yes	No			
Type K thermocouple	No	Yes	No			
Operating software	No	Software included	No			
Power supply	9V Battery	9V Battery	9V Battery			
Battery life (laser off)	15 hrs for continuous operation	15 hrs for continuous operation	15 hrs for continuous operation			
Dimensions	7.9 x 5.0 x 1.9" (200 x 127 x 47mm)	7.9 x 5.0 x 1.9" (200 x 127 x 47mm)	6.7 x 5.2 x 1.8" (200 x 132 x 45mm)			
Weight (with battery)	12.7 oz (360 g)	12.7 oz (360 g)	11.6 oz (330 g)			
Included accessories	User Manual, 9V Battery, Carrying Case, and Wrist Strap	User Manual, 9V Battery, Carrying Case, Wrist Strap & Software	User Manual, 9V Battery, Carrying Case, and Wrist Strap			

#### **Ordering Codes:**

#### Order number

#### IR-04. 115

IR-04 Infrared Thermometer

Model - see table /

85, 115, 115P, 125, 135, 215, 235



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\*different kinds of probes are available, depending on the application. Please specify the desired use when ordering.



Temperature-Measurement and -monitoring

