

# Infrared Temperature



Model Number	HHM290	OS530E Series	OS523E/524E	OSXL450	OSXL650	OSXL680	OS425-LS	OS562	OS561	OSM101	OS8886	OS681-CE/OS-FS/OS-PP
Price	\$245	\$295-\$650	\$1095-\$1295	\$59	\$75	\$345-\$495	\$245	\$125	\$85	\$115	\$149	\$49-\$170
Page	J-7	J-11	J-17	J-19	J-20	J-21	J-22	J-23	J-24	J-25	J-25	J-26, J-27
Temperature Range	-20 to 550°C (-4 to 1022°F)	-30 to 871°C (-22 to 1600°F)	18 to 2482°C (0 to 4500°F)	-20 to 320°C (-4 to 608°F)	-32 to 538°C (-25 to 1000°F)	-50 to 1000°C (-58 to 1832°F)	-60 to 1000°C (-76 to 1832°F)	-60 to 780°C (-76 to 1400°F)	-60 to 500°C (-76 to 932°F)	-18 to 538°C (0 to 1000°F)	-20 to 420°C (-4 to 788°F)	-18 to 315°C (0 to 600°F)
Accuracy	2% reading or 1.7°C	±1% of rdg or 3°F	±1% of rdg or 2°F	±2°C (3°F) or 2% rdg	±2°C (3°F) from -20 to 538°C	±2°C (3°F) or 2% rdg -20 to 1000°C	Target temp 33 -100°C ±2% of rdg or 2°C (4°F)	±2% rdg or 2°C (4°F)	±2% rdg or 2°C (4°F)	±3% rdg or 2.2°C	±2% rdg or 2°C	2% full scale
Repeatability	1°C to 1°F	±1% rdg +1 digit	±(1% rdg +1 digit)	2% rdg or 3°F	1°C (2°F)	1°C (2°F)				±1% rdg	±1°C	3°F/2°C or 2% full scale
Emissivity	0.1 to 1.00	0.1 to 1.0 in 0.01 steps	0.10 to 1.00 in 0.01 increments	0.95	0.95 fixed	0.1 to 1	Adj. 0.1 to 1 0.01 step	0.10 to 1.00	0.95	0.1 to 1.00	0.3 to 1.0	0.95
Spectral Response	8 to 14 μ	8 to 14 μ	8 to 14 μ 2 to 2.5 μ	7 to 18 μ	5 to 14 μ	8 to 14 μ	8 to 14 μ	8 to 14 μ	8 to 14 μ	5 to 14 μ	8 to 14 μ	8 to 14 μ
Response Time to 95% Full Scale	1.5 sec	100 msec	100 msec	500 msec	500 ms	500 ms	1 sec (90%)	1 sec	1 sec	150 msec	500 ms	0.05 sec
Outputs		1 mV/°, RS232	mV/deg- RS232							K		
Display	LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD		LCD	LCD
Resolution	1°C or 1°F	1°	1°C or 1°F	0.1°C	0.1°C/°F	0.1°C/°F	0.1°C (0.1°F)	0.1°C (0.1°F) -9.9 to 199.9	0.1°C (0.1°F) -9.9 to 199.9		1°C	1°C or 1°F
Power	6 "AA" alkaline batteries	4 "AA" batteries or AC adaptor	4 "AA" batteries or AC adaptor	9 V	9 V	9 V	2 "AAA" batteries	2 "AAA" batteries	2 "AAA" batteries	1 "AA" battery	One 9 V alkaline battery	One 9 V alkaline battery
Battery Life	100 hrs typical with no laser	240 hrs with lithium battery	60 hrs alkaline, 10 days lithium	12 hrs with laser on				180 hrs without laser	180 hrs without laser	1.6	100 hrs	
Minimum Spot Size vs Distance	0.5" @ 0"	0.35" @ 24" 1.0" @ 30"	See specifications	1:6	1:12	OSXL685: 1:30 OSXL689: 1:50	1:50	1:12	1:10		1:8	3" @ 1" dia.
Aiming	Built-in laser circle/dot	Built-In switchable laser circle/dot sight	Switchable laser circle/dot or sighting scope	Laser dot or circle	Laser Circle	Laser Circle	Laser Circle	Laser Circle	Laser Circle	Laser	Laser sighting	Visual or laser
Alarms		Hi and low alarm standard	Hi and low alarm standard		OSXL653 only	High and low audible	Display flash/beep				Audio	
Data Storage		✓	✓		OSXL653 only	10 points					Recall	
Switchable °F/°C	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Tripod Mount	✓	✓	✓				✓ Magnetic swivel mount					
Other Features	Multimeter thermometer backlit display CE	Backlit LCD display audible buzzer RS232 free CE software	Backlit LCD audible buzzer RS232 free CE software	Circle/dot laser	CE	s/w included OSXL689: K input and probe	AVG, dif mode	K T/C input, NIST cert 5 math modes CE	NIST certificate CE	Handheld CE		Laser sighting CE

\* Meters shown with these sensors are for reference only and not included with the basic unit.

✓ = has this feature.

# Selection Guide

See OMEGA's Complete Line of Blackbody Calibration Sources (Section K) Used to Test and Calibrate Your Non-Contact and Infrared Pyrometers and Transmitters



**Model BB701 Hot/Cold**  
0 to 300°F, 2.5" Target Plate  
0.95 Emissivity



**Model BB702**  
90 to 420°F, 2.5" Target Plate  
0.95 Emissivity



**Model BB703**  
90 to 752°F, 1.125" Target Plate  
0.95 Emissivity



**Model BB704**  
212 to 752°F, 4" Target Plate  
0.95 Emissivity



**Model BB705**  
212 to 2190°F, 1.75" Cavity  
Cone, 0.99 Emissivity

Model Number	OS200	OS685	OS546	OS643 Series	OS540	OS423-LS	OS91/OS93 OS951 Series	OS610 and OS620/OS500
Price	\$267	\$149	\$105	\$85	\$85	\$185	\$329-\$769	\$435-\$650
Page	J-28	J-29	J-30	J-31	J-33	J-34	J-35 to J-39	J-40, J-41
Temperature Range	-20 to 250°C (-5 to 482°F)	-20 to 500°C (-4 to 932°F)	-30 to 550°C (-22 to 1022°F)	-20 to 400°C (-4 to 750°F)	-20 to 420°C (-4 to 788°F)	-60 to 800°C (-76 to 1472°F)	-46 to 228°C (-50 to 550°F)	-55 to 315°C (-67 to 600°F) (see ranges)
Accuracy	±1% rdg ±1°C (±2°F)	±1% rdg or 1°C	±2% rdg or 3°C (6°F)	3% or ±3°C 3% or -5.5°F	3%	±2% rdg or 2°C (4°F)	1.0% reading +1 digit	±1% rdg + 1 digit OS614; ±1°F (0.5°C) +1 digit
Repeatability	±0.5°C (±1°F) ±1 digit	±0.5% rdg or 0.5°C		1°	1% rdg		OS91: ±0.1°C or F OS92: ±1°F	±0.5 rdg + 1 digit
Emissivity	0.95 fixed OS204, OS205, 0.1 to 1.0	0.95 or adjustable	0.1 to 1.00 or 0.95	0.1 to 1.0 or 0.95	0.95	0.10 to 1.00	Automatic 0.1 to 1.0	0.2 to 1.0
Spectral Response	6 to 14 μ	8 to 14 μ		8 to 14 μ	6 to 14 μ	8 to 14 μ	2 to 20 μ	8 to 14 μ
Response Time	1 sec	500 ms	0.25 sec	1 sec	500 ms	90% 1 sec	50 to 100 msec	1 sec
Outputs				1mV/°C/F				1 mV/°
Display	LCD	LCD	3½ digit LCD	LCD	LCD	Backlit LCD	OS91: LED current, max, min OS92: LED	LCD
Resolution	1°	0.1 up to 200	0.5°C (1°F)	1°C or 1°F		-9.9 to 199.9, 0.1°C/°F	0.1°C, 1°F	1°, 0.1, OS613
Power	9 V battery	2 "AAA" batteries	3 "AAA" batteries	"AAA" alkaline battery	9 V battery	2 "AAA" batteries	9 V battery	9 V battery or 110 Vac adaptor
Battery Life	500 hrs		90 hrs, typ laser off	200 hrs typical	9 hrs	140 hrs, no laser or backlit	Approx 5000 readings	200 hrs
Min. Spot Size vs. Distance	1:1 or 1:8	1:10	15 mm (0.59"), 1:10	3:Ratio	14 mm (0.55") 1:8; 1:10; 1:12	1:30	0.25" when touching	0.25" @ 0.75"
Aiming	Visual	Visual or laser	Circle/Dot laser	Laser or visual	Laser	Laser circle	Visual	Visual
Alarms			Set, Hi, Lo, Beep			✓		
Data Storage			Max, Min				Last reading	
Switchable °F/°C	✓		✓			✓	OS91 only	
Mounting								Tripod Mount
Other Features	Backlit LCD display CE		Pocket hook and magnet hanger CE	Auto power down CE	Series with different features	4 math modes, white LCD light CE	Scan/lock, auto, emissivity comp; audible assist CE	Stand mount general purpose, low temp model, high accuracy

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Model Number	OS651	OS650	OS3750 Series	OS-XL	OS36	OS36-01	OS36-2/5/10	OS36SM	OS37-CF OS38	OS37 10/20/100	OS88000	OS88000-K-1200
Price	\$795	\$1595	\$1425	\$3950	\$225	\$149	\$309	\$99	\$565	\$479	\$260	\$199
Page	J-43	J-44	J-45	J-49	J-61	J-63	J-64	J-68	J-69	J-70	J-71	J-73
Temperature Range	-29 to 1093°C (-20 to 2000°F) 0-1999 BTU/	-29-1093°C (-20 to 2000°F) 600 to 3000°C scan mode; 0 to 199.9 BTU diff mode	300 to 1000°C 600 to 2000°C -50 to 1000°C	0 to 200°C (32 to 392°F)	25 to 250°C (80 to 480°F)	-45 to 290°C (-50 to 550°F)	-45 to 1370°C (-50 to 2500°F)	-18 to 260°C (0 to 500°F)	-18 to 2500°C (0 to 4500°F)	-45 to 2200°C (-50 to 4000°F)	0 to 250°C (-18 to 480°F)	-73 to 650°C (-100 to 1200°F)
Accuracy	±1% rdg +1 digit	±1% rdg +1 digit	6°C (11°F)	2°C	±2% range	±2% range	±2% range	±2% range	±2% range	±2% range	±2% range	±2% rdg or 1°C (±2°F)
Repeatability	±0.5% rdg +1 digit	±0.5% rdg +1 digit	±1°C		±1% rdg	±1% rdg	±1% rdg	±1%	±1% rdg	±1% rdg	±1% rdg	±1% rdg
Emissivity	0.1 to 0.99 in 0.01 steps	0.1 to 0.99 in 0.01 steps	0.1 to 1.000	0.1 to 1.00	0.9	0.9	0.9	0.9	Adjustable	Adjustable	Auto comp. from 0.8 to 1.0	Auto comp. from 0.8 to 1.0
Spectral Response	8 to 14 μ	8 to 14 μ	1.55, 0.9, 2 color	8 to 16 μ	6 to 14 microns	6 to 14 microns	6 to 14 microns	6.5 to 14 μ	2 to 20 microns	2 to 20 microns	6 to 14 μ	6.5 to 14 μ
Response Time	1 sec	1 sec scan mode, 3 sec diff mode	250 msec	visual	80 msec	80 msec	80 msec	150 msec	80 msec	80 msec	80 msec	80 msec
Outputs	0.1 mV/°	0.1 mV/°	RS232	video	J, K, T, E T/C's	J, K, T, E T/C's	J, K, T, E T/C's	K	J, K, T, E T/C's	J, K, R, S T/C's	J, K, T, E, T/C's	K, T/C
Display	LCD	LCD	LCD graphic	TFT color	*						*	*
Resolution	1°	1°, 1 BTU scan mode, 0.1 BTU differential mode	1°	0.1/1°								
Power	9 V battery	9 V battery	2 "AA" batteries	6 "AA" batteries	Self-powered	Self-powered	Self-powered	Self-powered	Self-powered	Self-powered	Self-powered	Self-powered
Battery Life	200 hours	200 hrs temp, 150 hrs heat flow	50 hrs									
Min. Spot Size vs. Distance	1" @ 30"	1" @ 30" temperature, 2" at 36" heat flow	20 mm (0.8") 4 m (13')	image	60°	60°	1:2 to 1:10	2:1	See individual models	0.6° to 6°	60° FOV	60° FOV
Aiming	V groove or laser	V groove	Through lens	image	Visual	Visual	Visual	Visual	Visual	Visual	Visual	Visual
Alarms												
Data Storage			500 points	16 MB								
Switchable °F/°C	↙	↙	↙								↙	
Mounting			Tripod Mount		Mounting bracket or mounting ring	Mounting bracket	Mounting bracket	Mounting bracket or mounting ring	Mounting bracket	Mounting bracket		
Other Features	Laser sighting high accuracy	Heat flow, applications manual	Optional software for PC	64 element array sensor	Self-powered emissivity correction 0.8-1.0	ABS plastic housing low cost self-powered	Self-powered various fields of view; built-in, air purge collar	Self-powered	Built-in air purge	Built-in air purge collar self-powered	Self-powered unique handheld surface probe	Hermetically sealed optics

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Model No.	OS136 OS137	OS101E OS102E	OS550, OS550-BB	OS65	OS66	OS-SYST	OS1551-A OS1552-A	OS1600, OS1700, OS1800	OS1592	OS43	iR2 Series
Price	\$175-\$345	\$245	\$495-\$750	\$395-\$550	\$995	\$2190	\$690	\$780	\$2320	\$1290	\$2995 base
Page No.	J-75	J-79	J-81	J-85	J-88	J-89	J-93	J-95	J-101	J-103	J-125
Temperature Range	-18 to 202°C (0 to 400°F)	-18 to 538°C (0 to 1000°F)	-18 to 1370°C (0 to 2500°F)	-57 to 500°C (70 to 1000°F)	800 to 1500°C (1500 to 3000°F)	-18 to 1370°C (0 to 2500°F)	0 to 1370°C (32 to 2500°F)	-45 to 2500°C (-50 to 4500°F)	260 to 2482°C (500 to 4500°F)	-40 to 1200°C (-40 to 2192°F)	300 to 3000°C (572 to 5432°F)
Accuracy	±3% rdg or 4.4°C	±2% rdg or ±4°F	±1% reading or ±3°F	±1% rdg or ±2°F (1°C)	±1% rdg or or 3°F	±1% of reading	±1% rdg	±0.75% FS	±1% reading or 3°F	±1% full scale or 1°F or °C	±0.2% of full scale
Repeatability	±1% rdg	±1% rdg	±1% reading or ±1 digit	±0.5% rdg ±1 digit	±0.5% rdg ±1 digit		±2°F (1°C)	±0.5% rdg	±0.75% of reading	1°C (±2% °F)	±0.2% of full scale
Emissivity	0.95 in 0.01 steps	0.1 to 1.0 in 0.01 steps	0.10 to 0.99	0.1 to 0.99 0.01 steps	0.1 to 0.99 in 0.01 steps	0.1 to 0.99 in	0.05 to 1.0	0.1 to 0.99 in 0.01 steps	0.1 to 1.0 Analog dial only	0.1 to 0.98 in single:	2-color: N/A  0.1 to 1.0
Spectral Response	5 to 14 μ	5 to 14 μ	8 to 14 μ	8 to 14 microns	0.85 to 0.95 microns	8 to 14 microns	8 to 14 microns	0.8 to 14 microns	0.8 to 1.8 μ	8 to 14 microns	0.85 to 1.15 μ
Response Time	150 msec	150 msec	250 msec	300 msec	300 msec	250 msec	50 msec	0.2 to 5.0 sec adjustable	25 msec	250 msec	10 msec (0 to 63%/final value)
Outputs	K, 10 mV/Deg 0 to 5 V, 0/10 V 4 to 20 mA	mV, μ mA, V	1 mV/° 0 to 5 Vdc 4 to 20 mA	J, K, 1 mV/° 4-20, 0-20 mA 0 to 5 Vdc	R, S, B, 1 mV/°, 4 to 20 mA 0 to 5 Vdc, RS232	RS232, data storage	4 to 20 mA	4 to 20 mA	1 mV/° 4 to 20 mA 0 to 5 Vdc	J, K, T/C 4 to 20 mA 0 to 5V, 1mV/°	2 control, alarm, DC pulse, current, voltage
Display			LCD	LCD			LCD	✓ (OS1800)	LCD		
Resolution		1°	1°		1%	1°		1°	1°	1°	1°
Power	12 to 24 Vdc	12 to 24 Vdc	7 to 24 Vdc	9 to 30 Vdc	9 to 30 Vdc	120 to 240 Vac 50/60 Hz	18 to 40 Vdc	10 to 40 Vdc	18 to 36 Vdc	5 to 26 Vdc	80 to 250 Vac
Min Spot Size vs Distance	1:6	1:6	0.15" at 6"	0.25" @ 0.75"	0.25" @ 8"	0.15" @ 6"	0.69" @ 20"	0.5" @ 7"	0.02" @ 6"	0.03" @ 0.8"	25:1 Adj. focus from 8" to 14"
Aiming	Visual	Laser accessory	Laser accessory	Visual	Visual with optional laser	Laser accessory	Visual laser accessory	Visual		Visual	Built-in laser sighting
Alarms		✓	Visual/audible			✓					✓
Switchable °C/°F		✓	✓		✓	✓			✓	✓	✓
Mounting	Mounting bracket	Mounting bracket	Mounting bracket Din Rail optional	Mounting bracket	Mounting bracket	Mounting bracket	Mounting bracket	Mounting bracket	Mounting bracket	Mounting bracket	Mounting bracket panel mount
Other Features	NEMA 4  CE	NEMA 4 OS102E includes display	RS232 output NEMA 4  CE	RS232, viewing window accessory	Air/water cooling NEMA 4, 12 low cost	Built-in datalogger control option	Optional water cooled shell, 4-wire design	Peak hold Air purge collar Water cooling Adjustable response time	NEMA-4 fiber optic backlit LCD  CE	Wide ambient range without cooling	Fast response controller outputs, signal processing 2-color

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