

Javelin Measures Your Target



Stand Alone Non-Contact
Spot Infrared Thermometer

Javelin™



Big Benefits –



IRCON's Javelin is one of the best little infrared thermometers in non-contact temperature sensing.



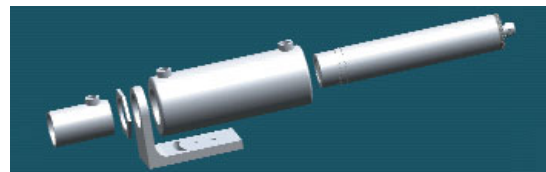
The Javelin non-contact infrared thermometer is a highly versatile, affordable instrument for use within the plastics, paper converting, textiles, glass, and food industries. Javelin combines proven IRCON optics – its sensor has an optical

resolution of D/30 with two focal distances – and IRCON's unique micro-processor digital circuitry for accurate ambient sensor compensation and digital linearization. The Javelin sensor has additional optical resolutions with standard focal distances – and its shatter-proof plastic lens provides solutions for many food and pharmaceutical applications. This series of instruments incorporates the stainless steel housing and a rugged unbreakable plastic lens. Temperature ranges vary from -20 to 200°C (0 to 400°F) and are ideal for measuring food molds, pill coating, plastic films and thermoforming of food containers.

The electronic components of the Javelin sensor are encased in a NEMA 4 (IP65) stainless steel housing. Don't let the slim design fool you, the Javelin is as rugged as any IRCON product. The sleek Javelin – built of stainless steel – is only 7.8 in. (198 mm) in length and 1.5 in. (38 mm) in diameter, and is easily installed on any machine. Optional air purge and air/water cooler accessories provide increased accuracy under adverse conditions.

Javelin comes packed with features that are easily adjusted using two push buttons. The operator can quickly select the peak picker, emissivity, response time, and either one of two outputs that best fits the desired application. Selection is verified on the digital display located inside the housing. Utilize the peak picker for consistent temperature measurement of targets that are intermittent, or that have intermittent interferences such as smoke, steam or dust. Emissivity can be selected from 0.10 to 1.00 in 0.01 increments, and users can choose among five response times: 165 ms; 400 ms; 1 second; 3 seconds; and 10 seconds to 95% of scale.

Javelin provides two different linear outputs, one of which may be used at a time: 0 to 10 Vdc, or 4 to 20 mAdc. Due to the Javelin's repeatable accuracy of $\pm 0.3\%$, you can be confident with the results of your readings. Most impressive is that with all the features to ensure the accuracy of your temperature sensing applications, the Javelin still comes at a price point as small as its compact housing.



Accessories

A separate air purge is available for use with the Javelin. The air purge protects the lens from air borne particles that may otherwise interfere with the accuracy of your readings. It requires a 3.00 cfm flow of clean air. An optional air or water cooler is also available. The air cooler allows the sensor to operate in an environment of 0 to 150°C (-17 to 302°F), while the water cooler allows the sensor to operate in an environment of 0 to 200°C (-17 to 392°F).

Optical Resolution

Standard Focus				Close Focus			
Inches		Millimeters		Inches		Millimeters	
Distance	Spot Diam	Distance	Spot Diam	Distance	Spot Diam	Distance	Spot Diam
8	0.9	200	23	4	0.7	100	17
15	1.1	400	27	6	0.5	150	9
20	1.2	500	29	8	0.3	200	6
30	1.5	700	36	15	0.8	400	19
50	1.9	1000	41	20	1.2	500	30
70	2.4	1500	53	30	2.2	800	60
100	3.3	2000	69	50	4.1	1500	130
150	4.2	3000	84	70	6.2	2000	180
200	5.6	5000	140	100	9.4	2500	240
300	8.5	7000	198				
500	14.4	15000	430				
1000	28.8	20000	560				

Little Package



Optical Resolution for Plastic Lens models

(see note below for distances greater than 18" (457 mm))

Plastic Lens Focus			
Inches		Millimeters	
Distance	Spot Diam	Distance	Spot Diam
0	1.0	0	25
9	1.4	228	35
18	1.8	455	45
24	2.7	610	68
30	3.6	760	91

Note: For distances greater than 18" (457 mm), use this formula to calculate spot size.

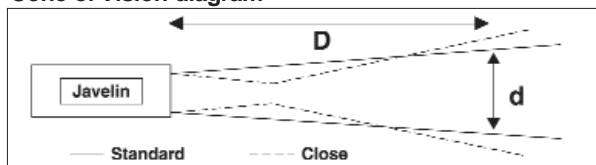
$$d \text{ (in)} = 1.8 + (D/18) 0.15$$

$$d \text{ (mm)} = 46 + (D-460) 3.8$$

Cone of Vision

The diagram below shows the spot sizes as the target moves away from the sensor. The "standard" and "close" resolution is shown in the chart below. The special resolution for the Javelin plastic lens is also available. Note that the target should be at least two times larger than the spot being measured. If the target is smaller than the spot, the sensor has to be brought close enough so that the spot is smaller than the target. The cone of vision must not be obstructed by any object such as the edge of a furnace or mounting bracket. The obstruction can cause an error in the temperature indication.

Cone of Vision diagram



4.8 to 5.2 Micron Emissivity Table

Target Material	Emissivity ϵ
Carbon, Steel, oxidized	0.82
Ceramics	0.98
Clay	0.92
Fabrics, close weave (cotton, wool, synthetic)	0.60 to 0.90
Fiberglass Batts	0.98
Fiberglass, epoxy forms	0.96
Formica	0.95
Glass	0.98
Glass Coated Metal	0.98
Nickel, oxidized	0.85
Plywood	0.75
Rock, crushed	0.93
Roofing, composition	0.95

7.5 to 8.5 Micron Emissivity Table

Target Material	Emissivity ϵ
Fabrics, close weave (cotton, wool, synthetic)	0.90 to 0.95
Glass Coated Metal	0.98
Linoleum	0.96
Nickel, oxidized	0.85
Painted Metal	0.95
Painted Metal	0.90 to 0.97
Painted Wood, plastic	0.96
Plastic Panels	0.96
Plywood	0.96
Recording Tape	0.90
Salt Bath	0.96
Sandpaper	0.96

8 to 14 Micron Emissivity Table

Target Material	Emissivity ϵ
Asphalt, macadam	0.98
Batters	0.98
Bakery Goods	0.98
Candy	0.98
Cardboard	0.88
Carpet (cotton, wool, synthetic)	0.98
Confections	0.98
Dairy Products	0.98
Fabrics, close weave (cotton, wool, synthetic)	0.80 to 0.95
Fiberglass Batts	0.98
Fruits	0.98
Gravel	0.95
Hardboard	0.92
Jellies and Jams	0.98
Leather	0.96
Linoleum	0.96
Liquids	0.98
Meats	0.98
Oils	0.98
Painted Metal	0.75 to 0.95
Painted Wood, plastic	0.96
Paper, bond stationery (0.003y thick)	0.80
Paper, clay-filled (0.012y thick)	0.85
Paper, wood pulp (0.003y thick)	0.80
Plastic Panels	0.96
Plastics	0.95
Plywood	0.90
Rock, crushed	0.95
Roofing, composition	0.95
Rubber cloth	0.96
Sand	0.96
Sauces	0.98
Sugar	0.98
Tiles, ceramic	0.80
Tiles, rubber and plastic	0.95
Vegetables	0.98
Wood, soft or hard	0.90



Stand Alone Non-Contact Spot Infrared Thermometer

SPECIFICATIONS

Dimensions

Length	7.8 in. (198 mm)
Width	1.5 in. (38 mm)

Construction

Sensor	Stainless steel
Sensor Cable	3 Meters (10 feet)
Electronics Housing Rating	NEMA 4 (IP65)

Performance

Detector Type	Thermopile
Optical Resolution	see chart on pgs 2 and 3

Focal Length

Standard	100 in. (2540 mm)
Close	8 in. (203 mm)

Calibration Accuracy

(whichever is greater)	±1% of reading, or ± 2°C (4°F)
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Repeatability ± 0.3% of reading or ± 1.5°C (3°F)

Emissivity * 0.10 to 1.00 in 0.01 increments

Response Time * 0.165; 0.40; 1.0; 3.0; 10 seconds
* digitally adjustable

Peak Picker * On/Off; Decay rate: 0.1; 0.4; 1.0; 3.0; and 10 (°C or °F) per second

Electrical

Power	12 to 26 Vdc at 70 mA
Voltage Output	0 to 10 Vdc, minimum load impedance; 500 K ohms
Current Output	4 to 20 mAdc, maximum loop impedance; 500 ohms

Environmental

Operating Ambient	0 to 60°C (without cooling)
Temperature Range	0 to 150°C (with air cooling) 0 to 200°C (with water cooling)
Relative Humidity	10 to 95%, non-condensing

ORDERING INFORMATION

Model No.	Spectral Range (μ)	Resolution and Focus	Temperature Range
JAVS005C	4.8 to 5.2 μ	Standard	150 to 750°C
JAVC005C	4.8 to 5.2 μ	Close	150 to 750°C
JAVS005F	4.8 to 5.2 μ	Standard	300 to 1350°F
JAVC005F	4.8 to 5.2 μ	Close	300 to 1350°F
JAVL1005C	4.8 to 5.2 μ	0.1" @ 2.5" (2.54 mm @ 63.5 mm)	300 to 800°C
JAVL1005F	4.8 to 5.2 μ	0.1" @ 2.5" (2.54 mm @ 63.5 mm)	600 to 1500°F
JAVRL1005C	4.8 to 5.2 μ	0.6" @ 19.7" (15 mm @ 500 mm)	300 to 1300°C
JAVRL1005F	4.8 to 5.2 μ	0.6" @ 19.7" (15 mm @ 500 mm)	600 to 2400°F
JAVRG1005C	4.8 to 5.2 μ	15mm @500mm	300 to 800°C
JAVRG1005F	4.8 to 5.2μ	0.6" @ 19.7"	600 to 1500°F
JAVS079C	7.5 to 8.5 μ	Standard	50 to 600°C
JAVC079C	7.5 to 8.5 μ	Close	50 to 600°C
JAVS079F	7.5 to 8.5 μ	Standard	125 to 1200°F
JAVC079F	7.5 to 8.5 μ	Close	125 to 1200°F
JAVS814C	8 to 14 μ	Standard	-20 to 550°C
JAVC814C	8 to 14 μ	Close	-20 to 550°C
JAVS814F	8 to 14 μ	Standard	0 to 1000°F
JAVC814F	8 to 14 μ	Close	0 to 1000°F
JAVS814CP **	8 to 14 μ	1.8" @ 18" (45 mm @ 457 mm)	-15 to 200°C
JAVS814FP **	8 to 14 μ	1.8" @ 18" (45 mm @ 457 mm)	0 to 400°F

** Special plastic lens for food and pharmaceutical applications.

ACCESSORIES

Model No.	Description
JAV000AP	Air Purge
JAV00AWC	Air/Water Cooler
JAV000MB	Mounting Bracket
JAV00LAD	Laser Aiming Device

Note: Specifications subject to change without notice.



NIST Calibration Provider



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