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Two-Color Portable Infrared Thermometer

IRP 1R/2R

Features

- Two Color/ Ratio Infrared temperature measurement techniques
- No influence of window glass material, changes in surface finish/ emissivity (due to degree of oxidation), smoke, steam/ water vapor, and dust on the measured temperature value
- Visual, focusable optical aiming viewfinder with measured target area indicated by a circle, easy to use
- With a high D:S ratio of 250:1, the small target can be accurately measured
- 1000 with data storage capabilities, USB interface to download data
- Display with backlight enables use at night
- 5 measurement modes (Real, Max., Avg., Min. & Dif.)

Introduction

For Single color Infrared Thermometers to measure temperature correctly, the hot object being measured must fill the target area i.e. there should be no obstruction in the conical field of view and correct emissivity must be set. However, the readings may still be incorrect due to:

1. Small objects (do not fill the target area completely).
2. Dust, Smoke, Water vapor/ Steam, or glass windows obscure the line of sight.
3. Windows in the process get dirty and are difficult to keep clean.
4. Emissivity of the product changes (due to changes in surface conditions or Alloy composition).

A Two-Color or Ratio IR Thermometer solves these problems as it uses two, separate but close wavelengths, both seeing the same hot target simultaneously and the ratio of the Radiant Energy in these two wavelengths is used to compute the Temperature. Normally any obstruction will reduce the Radiant energy in both wavelengths equally, hence the ratio of the remaining energy reaching the detector will remain the same, enabling correct temperature measurement. TIPL Two-color thermometer is provided with Through-the-lens sighting optics which enables the operator to look through an eyepiece and see the hot target (See diagrams below). This allows the eye actually to see the area the detector is measuring. Also, focusable optics enable maintaining the same D:S ratio for the entire Measuring distance compared to IR Thermometers with fixed focus where the D:S ratio is valid only at the focal distance and at other distances the D:S ratio is much lesser, and for the spot diameters at other distances, one has to refer an “Optical Resolution” diagram.

Application

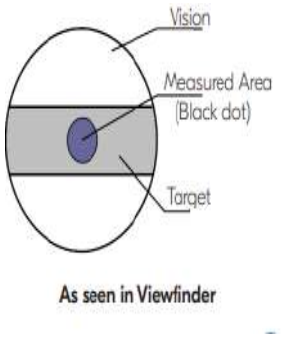
Aerospace, scientific research, iron and steel metallurgy, casting, forging, industrial furnace, vacuum furnace, single crystal furnace, polycrystalline furnace inspection. It may also be used to verify other online instruments.

Technical specifications

Parameter	Two-Color Portable IR Thermometer			
	IRP1RVFDUOM	IRP1RVFEUOH	IRP2RVFDUOM	IRP2RVFBUOH
Temperature Range	600 ℃ ~ 1800 ℃	1000 ℃ ~ 3000 ℃	400 ℃ ~ 1200 ℃	
Accuracy	Below 1000 ℃: ±6 ℃; 1000 - 1500 ℃: ± 0.6% tm; 1500 - 2000 ℃: ±1.2% tm; More Than 2000 ℃: ±2.4%tm (tm= measured value)			
Repeatability	±1 ℃			
Response Time	0.1 sec			
Display resolution	1 ℃			
Wavelengths	0.96µm / 1.06µm		1.36µm / 1.60µm	
Slope (Emissivity Ratio) Emissivity	0.80 to 1.30 (Two Color Mode) 0.10 to 1.30, color (Single Color Mode)			
Measurement mode	Real-time, maximum, average difference			
Operation & display	Six Keys Operation: Trigger; Digital display: LCD			
Storage	1000 data (temperature and calendar, clock with parameters)			
Status	Measure/ hold state, high/low-temperature alarm with buzzer, battery status			
D:S(Optical resolution)	120:1	250:1	120:1	250:1
Measuring distance	0.6 m ~ ∞			
Min target size	Φ5mm	Φ2.4mm	Φ5mm	Φ2.4mm
Sighting	Visual sighting			
Power Supply	2 AA alkaline batteries			
Power	20mA (max.), min. 50 hours of continuous operation			
Storage temperature	(-)40 ~ 85 ℃			
Ambient temperature	0 ~ 60 ℃			

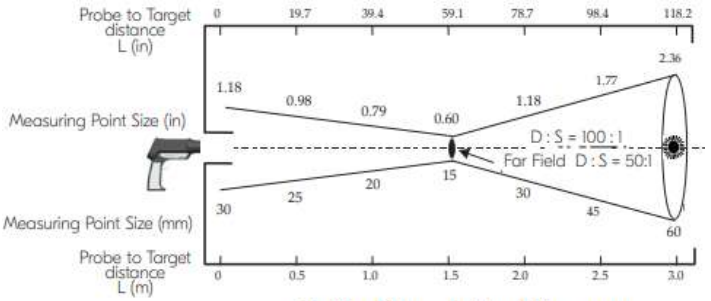
Relative Humidity	0 to 80%, non-condensing
Instrument Size	200 × 173 × 55 mm
Weight	≤510g

Aiming and focusing



As seen in Viewfinder

Focusing schematic



Optical Resolution Diagram
Laser Sighting, Standard Focus, D:S = 100:1

Instrument parts

Order Note:

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Portable Infrared Thermometer Dual Focus Infrared

IROP20

Features

- Temperature ranges from 0°C to 2000°C
- High optical resolutions up to 300:1
- Precise aiming with laser and scope sighting
- Adjustable emissivity from 0.100 - 1.000
- Different spectral responses for a variety of advanced applications
- MAX/MIN function and audible and visible HIGH-/LOW-alarm
- USB interface, free Optris Connect Software
- Data logger for 2000 measured values

Introduction

Depending on the temperature each object emits a certain amount of infrared radiation. A change in the temperature of the object is accompanied by a change in the intensity of the radiation. For the measurement of “thermal radiation” infrared thermometry uses a wavelength ranging between 1 µ and 20 µm. The intensity of

the emitted radiation depends on the material. This material contingent constant is described with the help of the emissivity which is a known value for most materials Infrared thermometers are optoelectronic sensors. They calculate the surface temperature based on the emitted infrared radiation from an object. The most important feature of infrared thermometers enable the user to measure objects contactless. Consequently, these products help to measure the temperature of inaccessible or moving objects without difficulties. Infrared thermometers consist of the following components:

- Lens
- spectral filter
- detector
- electronics (amplifier/ linearization/ signal processing)

The specifications of the lens decisively determine the optical path of the infrared meter, which is characterized by the ratio of distance-to-spot size. The spectral filter selects the wavelength range, which is relevant for the temperature measurement. The detector in cooperation with the processing electronics transforms the emitted infrared radiation into electrical signals.

Application

- General Maintenance
- Process Temperature Measurement
- Electrical Maintenance
- Building Controls

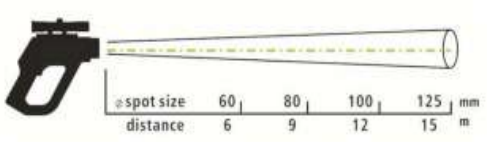
Technical Specifications

Parameter	IROP20 LT	IROP20 1M	IROP20 2M	IROP20 05M
Temperature range	0-1300°C	650-1800 °C	385-1600 °C	1000-2000 °C
Spectral range	8-14 µm	1.0 µm	1.6 µm	525 nm
Response time	300 ms	100ms		
Emissivity (adjustable	0.100 ~ 1.000			
System accuracy (at T = 23 ± 5°C)	±1% or ±2°C	±(0.3% of reading +2°C)		
Repeatability	±0.5% or ±1°C	±(0.1% of reading +1°C)		
Optical resolution	120:1	300:1		150:1
Sighting	Double laser class II (<1 mW)			
Sighting scope	All models			
Signal processing function	MAX/MIN, Scan/Hold function			
Alarm functions	Audible and visible HIGH/LOW alarm			
Data storage	2000 values			
LCD backlight	Three-color alarm indication			
Software	Connect			

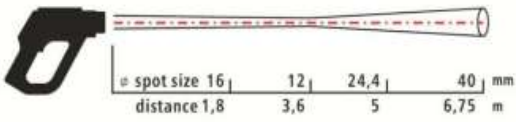
Electrical specification	
Output/digital	USB interface
Power	Ni-MH rechargeable battery
Battery lifetime	5 h laser and backlight on 25 h without laser and backlight
AC Adapter	220 VAC, 50/60 Hz

General specification	
Ambient temperature	0 ~ 50°C
Storage temperature	(-)20 to 60°C (no battery)
Relative humidity	10 - 95%, non-condensing
Size	264 x 204 x 60 mm
Weight	1000g

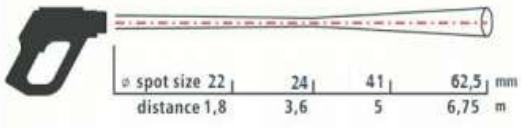
Optical Specification



P20 LT D:S = 120:1



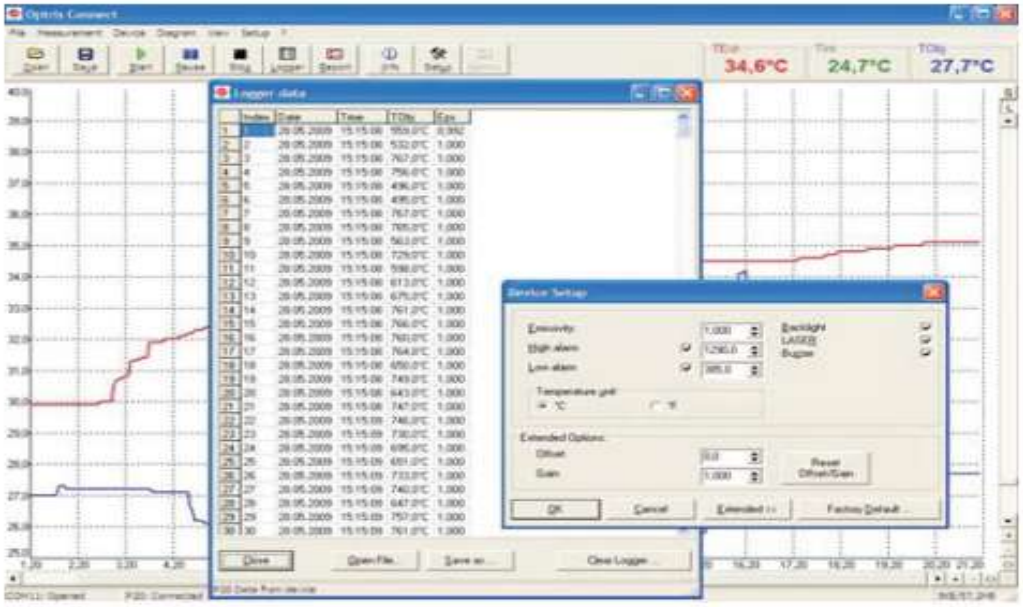
P20 1M/2M D:S = 300:1



P20 LT D:S = 120:1

Display

Connect Reporting Software



- Setup of parameters
- Download of logger data
- Display and record of temperature trends
- Image based report function
- Runs on Windows 8-tablet PCs
- Software included

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Single Color Portable Infrared Thermometer

IRP 1M/2M

Features

- Visual, focusable optical aiming view finder with measured target area indicated by a circle or laser sighting, easy to use
- With a high D:S ratio of 250:1 and variable focus optics, small target can be accurately measured
- Display with backlight, enables use at night
- 5 measurement modes (Real, Max., Avg., Min. & Di.)
- 1000 with data storage capabilities, USB interface to download data
- Compact, easy to carry and make measurement
- Low power consumption, long battery life of continuous work

Introduction

IRP High-Performance Portable Infrared Thermometers have a variety of functions to meet a variety of industrial non-contact temperature measurement applications. Being Single color Infrared Thermometer, to measure temperature correctly, the object being measured must fill the target area i.e. there should be no obstruction in the conical field of view & emissivity set correctly.

Model IRP is provided with two Sighting Options - a) Through-the-lens which enables the operator to look through the eyepiece and allows the eye to see the area being measured or b) Coaxial Laser Sighting - convenient aiming for objects that are indoors/ not brightly illuminated (red hot), The laser points to the center of the spot being measured.

Model IRP is available in two optics - a) Focusable optics, available in both Through-the-lens & Coaxial Laser Sighting and enables maintaining the same D:S ratio for the entire measuring distance and b) Standard focus optics which has a fixed focus where the D:S ratio is valid only at the focal distance and at other distances the D:S ratio is much lesser and for the spot diameters at other distances, one has to refer an “Optical Resolution” diagram.

Application

Aerospace, scientific research, iron and steel metallurgy, casting, forging, industrial furnace, vacuum furnace, single crystal furnace, polycrystalline furnace inspection. It may also be used to verify other online instruments.

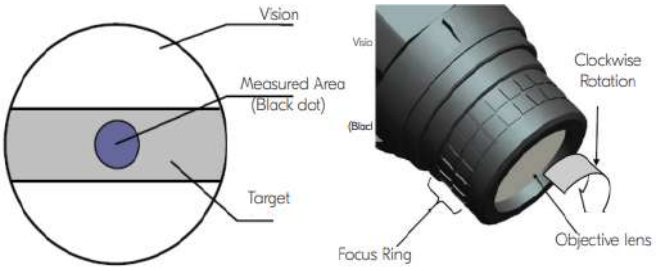
Technical specifications

Parameter	Single Color Portable Infrared Thermometer					
	IRP1MVFCUOM	IRP1MVFCUOH	IRP2MVFAUOM	IRP2MVFAUOH	IRP1MSFCULS	IRP2MSFWULH
Temperature Range	600°C ~ 2000°C		300°C ~ 1400°C		600°C ~ 2000C	300°C ~ 2000°c
Accuracy	Below 1000°C: ±6°C; 1000 - 1500°C: ± 0.6% Tm; 1500 - 2000°C: ±1.2% Tm; (Tm= measured value)					

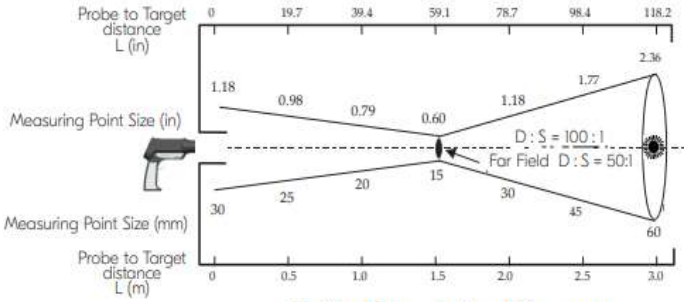
Repeatability	±0.2%tm					
Wavelengths	1µm		1.6µm		1µm	1.6µm
Response time	0.1 sec					
Display resolution	1°C					
Emissivity	0.10 to 1.30, in steps of 0.01					
Measurement mode	Real-time, Max Value, Average Value, Min Value					
Operation & display	Six Key Operation: Trigger; Digital display: LCD					
Storage	1000 data (temperature and calendar, clock with parameter) USB Output					
Status	Measure/ Hold State, High/low-temperature alarm with buzzer, battery status					
D:S(Optical resolutio)	120:1	250:1	120:1	250:1	100:1	250:1
Measuring distance	0.6 m ~ ∞				0 ~ ∞, 1.5m(focal point)	0.6 m ~ ∞
Min target size	Φ5mm	Φ2.4mm	Φ5mm	Φ2.4mm	Φ15mm	Φ2.4mm
Sighting	Visual Sighting, Variable Focus				Laser Sighting Standard Focus	Laser Sighting, Variable Focus
Power supply	2AA alkaline batteries					
Power	20mA (max), min 50 hours of continuous operation					
Storage temperature	(-) 40~85 °C					

Ambient temperature	0~60 °C
Relative humidity	0-80% Non condensate
Instrument size	210x173x55mm
Weight	≤510g

Aiming and focusing



Visual Sighting Model



Optical Resolution Diagram
Laser Sighting, Standard Focus, D:S = 100:1

Instrument parts

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TIPL ONLINE THERMOMETER

IRV Model

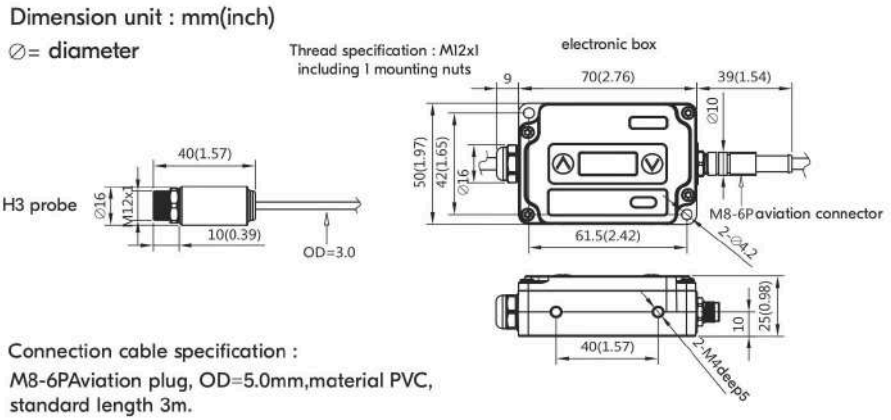
Features

- High performance long wave infrared thermometer.
- Precise non-contact temperature measurement from (-)40°C to 600°C.
- High-quality optical lens, distance coefficient 15:1/10:1/35:1
- 4mA~20mA current analog output.
- RS485 digital communication.
- Separate electronics with easy accessible programming keys and LCD
- backlit display

Technical Specifications

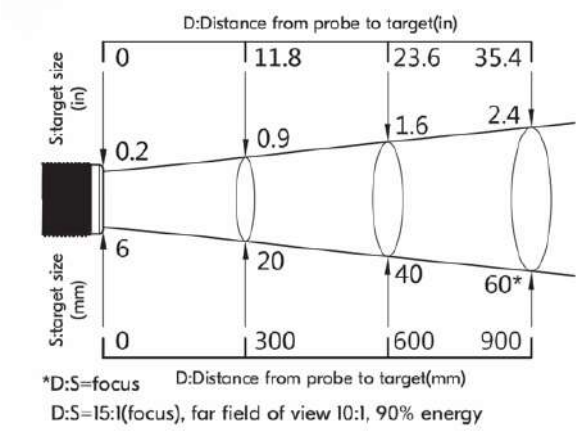
Model	IRVLT	IRV3ML	IRV3MS
Temperature Range	(-)40°C~ 600°C	50°C~ 400°C	100°C~ 600°C (3MS)
Accuracy	±1.5% of reading or ±1.5°C whichever is greater	±0.5% of reading +2°C	
Repeatability	±0.5% of reading or ±1°C whichever is greater	±0.3% of reading +1°C	
Spectral Response	8-14µm	2.3µm	
Optical Resolution	15:1	10 : 1	35:1 (3MS)
Temperature Resolution	0.1°C		
Response Time	150mS	5ms	
Emissivity	0.100-1.000 (adjustable), default 0.950	0.100-1.100 (adjustable), default 1.000	
Display	6-digit LCD		
Analog Output	4mA~20mA		
Digital Output	RS485 (Support Modbus RTU communication protocol)		
Power Supply	24VDC±20%		
Protection	IP65		
Operating Temperature	Probe: -10°C~+120°C, Electronic Box: -10°C~+70°C		
Storage Temperature	-20°C~+80°C		
Humidity	10%~95% (no condensation)		
Exclusive Cable	1m (standard) , refer selection table for optional cable		
Material	Probe:SS304, Electronic Box: Die Cast Zinc alloy		

Dimensions



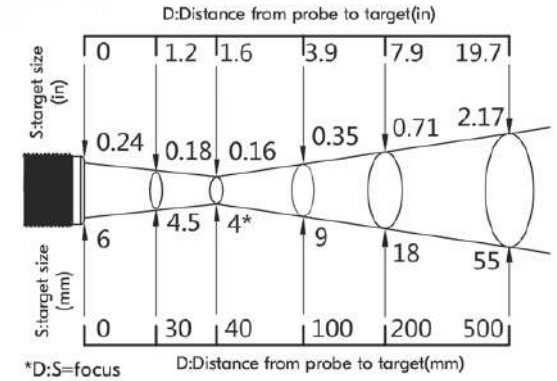
Optical Diagram

IRVLT



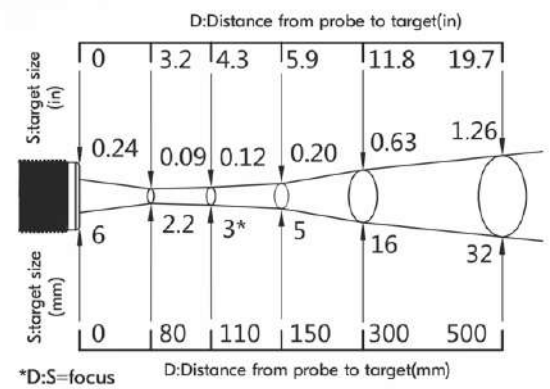
D:S=15:1(focus), far field of view 10:1, 90% energy

IRV3ML:C1



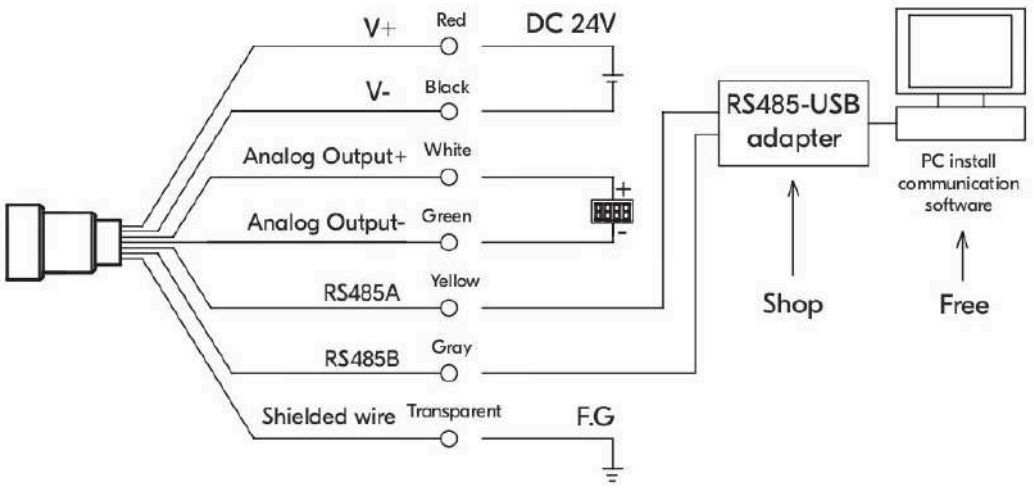
D:S=10:1(focus), far field of view 5:1, 90% energy

IRV3MS:C2



D:S=35:1(focus), far field of view 10:1, 90% energy

Product Wiring Diagram



Selection Table : For IRV

Example:IRVLTSF-CB3

0	Product
IRV	High Performance Online Infrared Pyrometer
10	**Temperature**
LT	-40°C~ 600°C
3ML	50°C~400°C
3MS	100°C~600°C
20	**Focus**
SF	Standard Focus (For LT Model)
C1	Close Focus (For 3ML Model)
C2	Close Focus (For 3MS Model)
30	**Cable length**
CB1	01 Meter
CB3	03 Meter
CB5	05 Meter (available with 3ML & 3MS model)
CB8	08 Meter (available with LT model)

CB10	10 Meter (available with 3ML & 3MS model)
40	**Mounting Bracket**
F	Fixed Mounting Bracket
A	Adjustable Mounting Bracket
50	**Purge Collar**
NC	Without Air Purge Collar
PC	With Air Purge Collar
60	**Protective Enclosure**
N	None
S04	Protective Enclosure without cooling
W04	Protective Enclosure With Air/Water Cooling
XX	Customized Enclosure

Accessories (Order Separately)

Part Number	Description
IRAVFMB	Fixed Mounting Bracket
IRAVAMB	Adjustable Mounting Bracket
IRAVAPC	Air Purge Collar, M48x1.5
IRAVPE	SS Protective Enclosure for IRV - for mechanical protection, no Cooling; Note: Airpurge Collar can be ordered separately
IRAVWCJ	SS Water (or Air) Cooling & Air Purge Jacket for IRM ((upto 120°C (Air)/ 315°C(Water)) Flange Mounting
IRAV7PCB5	7 cores 5m cable with connector for IRV
IRAV7PCB10	7 cores 10m cable with connector for IRV
IRAV7PCB3	7 cores 3m cable with connector for IRV

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TIPL ONLINE THERMOMETER

IRT Model

Features

- High-performance long-wave infrared thermometer.
- Wide temperature measurement range, 0℃~1600℃, suitable for a wide range of applications.
- Aluminum alloy shell, IP65 protection level, suitable for industrial field applications.
- High-quality optical lens, distance coefficient 60:1/140:1/300:1, suitable for long-distance temperature measurement.
- 4mA~20mA current analog output.
- RS485 digital communication.
- Dual laser sighting to accurately indicate measurement targets.
- It has an LCD and keypad, which can easily set parameters and check the temperature.
- Exclusive Cable with connector, convenient for on-site installation and maintenance.

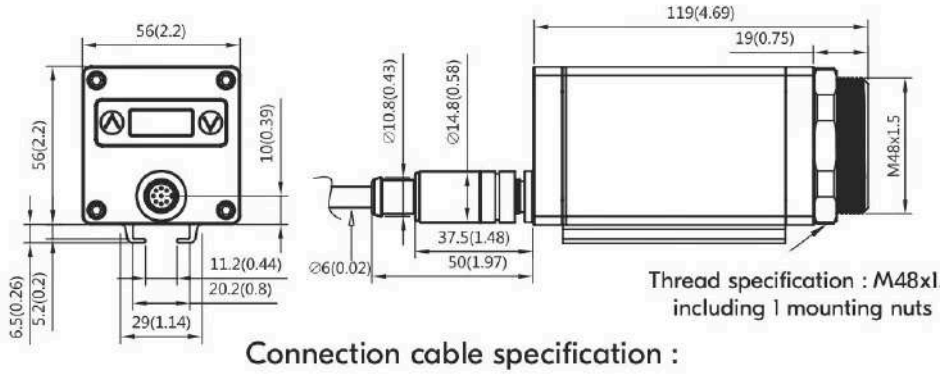
Technical Specifications

Model	IRTLTL	IRTLTS	IRT1M	IRT2M	IRT3M
Temperature Range	0°C~ 900°C	0°C~1300°C	600°C~ 1600°C	300°C~ 1300°C	100°C~ 600°C (3MS) 50°C~ 400°C(3ML)
Accuracy	±1% of reading or ±1.5°C whichever is greater		±0.5% of reading +2°C		
Repeatability	±0.5% of reading or ±1°C whichever is greater		±0.3% of reading +1°C		
Spectral Response	8-14µm		1µm	1.6µm	2.3µm
Optical Resolution	60:1		300: 1	300: 1	140: 1 (3MS) 60:1 (3ML)
Temperature Resolution	0.1°C				
Response Time	< 150mS (95%)		< 5ms (95%)		
Emissivity	0.100-1.000 (adjustable), default 0.950				
Display	6-digit LCD with Keys				
Analog Output	4mA~20mA				
Digital Output	RS485 with Software (Optional), Communicating with PC/ Android Phone				
Laser	Dual Laser Aiming (<1mW 650nm Laser Class II)				
Power Supply	24VDC±20%				
Protection	IP65				
Operating Temperature	-10°C~+70°C				
Storage Temperature	-20°C~+80°C				
Humidity	10%~95% (no condensation)				
Exclusive Cable	3m (standard), 5m & 10m (optional) with Connector				
Material	Aluminum alloy				

Dimensions Details

Dimension unit : mm(inch)

∅= diameter



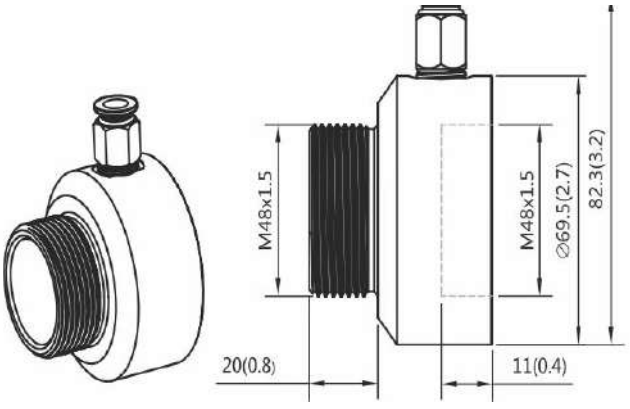
Thread specification : M48xI
including 1 mounting nuts

Connection cable specification :

M12Aviation connector, OD=6.0mm,material PVC, standard length is 3m, 5m and 10m are optional, other length can be customized.

Accessories

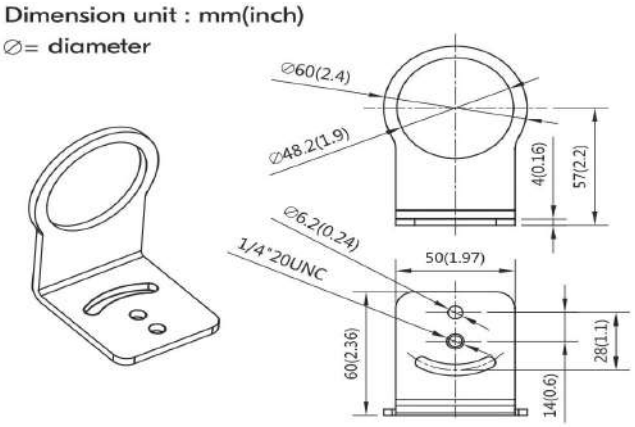
Air purge collar



Fixed mounting bracket

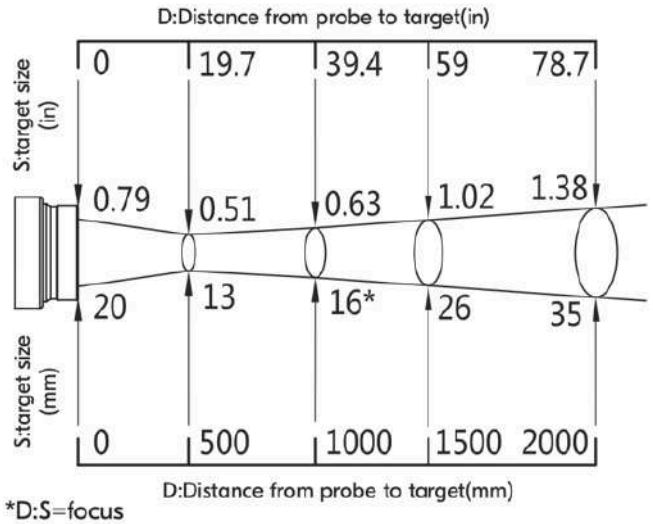
Dimension unit : mm(inch)

∅= diameter



Optical Diagram

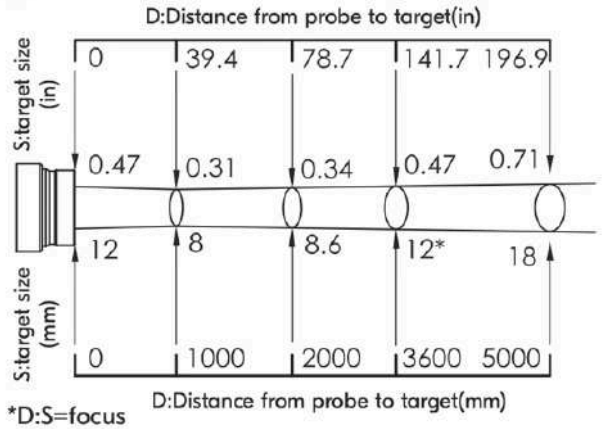
LTL/LTS



*D:S=focus

D:S=60:1(focus), far field of view 40:1, 90% energy

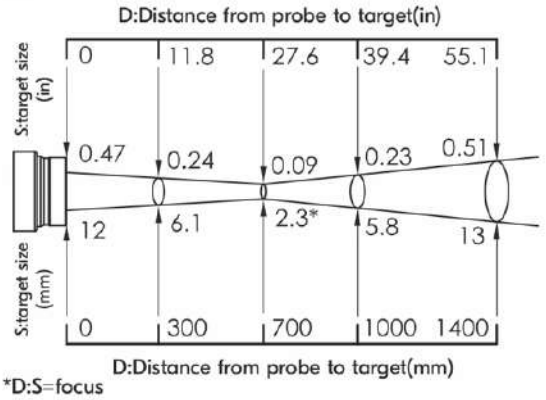
1MS/2MS:FF



*D:S=focus

D:S=300:1(focus), far field of view 200:1, 90% energy

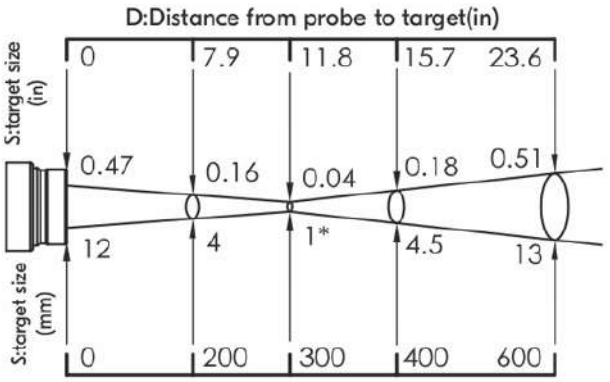
1MS/2MS:SF



*D:S=focus

D:S=300:1(focus), far field of view 50:1, 90% energy

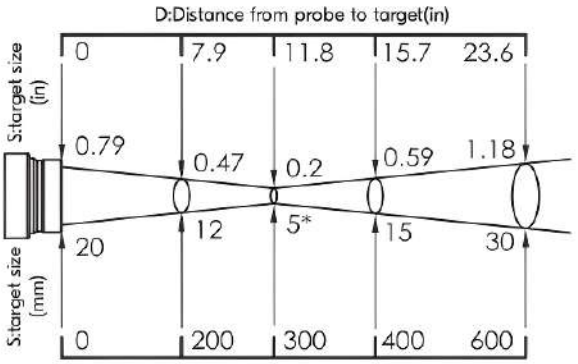
1MS/2MS:C2



*D:S=focus

D:S=300:1(focus), far field of view 20:1, 90% energy

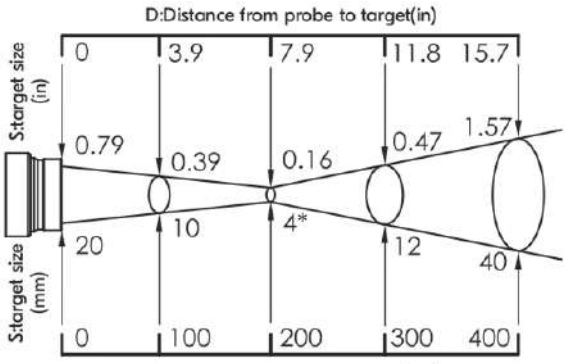
3ML:C2



*D:S=focus

D:S=60:1(focus), far field of view 5:1, 90% energy

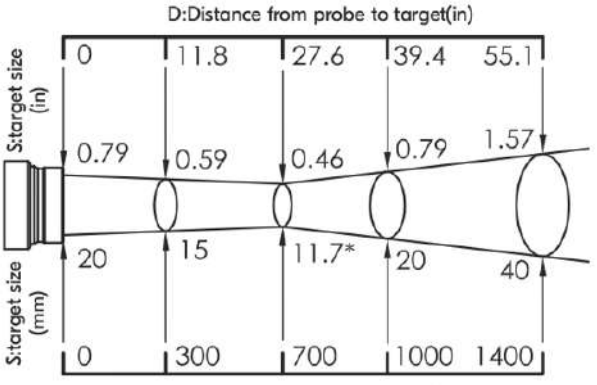
3ML:C1



*D:S=focus

D:S=50:1(focus), far field of view 2:1, 90% energy

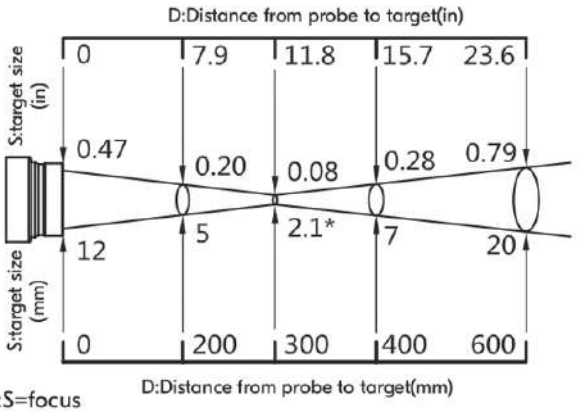
3ML:SF



*D:S=focus

D:S=60:1(focus), far field of view 10:1, 90% energy

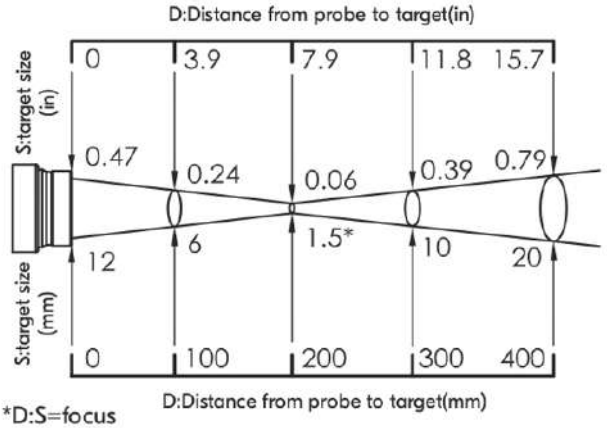
3MS:C2



*D:S=focus

D:S=140:1(focus), far field of view 10:1, 90% energy

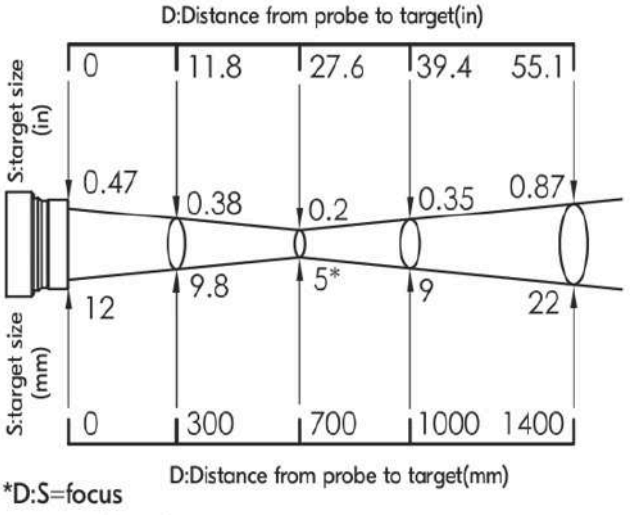
3MS:C1



*D:S=focus

D:S=133:1(focus), far field of view 5:1, 90% energy

3MS:SF



*D:S=focus

D:S=140:1(focus), far field of view 20:1, 90% energy

Selection Table: For IRT

Example:IRTLTLCF-CB3FNCN

0	Product
IRT	High-Performance Online Infrared Pyrometer
10	**Temperature**
LTL	0°C~ 900°C
LTS	0°C~ 1300°C
1MS	600°C~1600°C
2MS	300°C~1300°C
3ML	50°C~400°C
3MS	100°C~600°C
20	**Focus**
SF	Standard Focus
CF	Close Focus (Available with 1MS & 2MS Model)
FF	Far Focus (Available with 1MS & 2MS Model)
C1	Close Focus (Available with 3MS & 3ML Model)
C2	Close Focus (Available with 3MS & 3ML Model)
30	**Cable length**
CB3	03 Meter
CB5	05 Meter
CB10	10 Meter
40	**Mounting Bracket**
F	Fixed Mounting Bracket
A	Adjustable Mounting Bracket
50	**Purge Collar**
NC	Without Air Purge Collar
PC	With Air Purge Collar
50	**Protective Enclosure**
N	None
S04	SS Protective Enclosure without cooling
W04	SS Protective Enclosure With Air/Water Cooling
XX	Customized Enclosure

Accessories (Order Separately)

Part Number	Description
IRATFMB	Fixed Mounting Bracket
IRATAMB	Adjustable Mounting Bracket
IRATAPC	Air Purge Collar
IRATPE	SS Protective Enclosure (Without Cooling)
IRATWCJ	SS Protective Enclosure (With Water/Air Cooling)
IRAT7PCB5	7 cores 5m cable with connector
IRAT7PCB10	7 cores 10m cable with connector
IRAT7PCB3	7 cores 3m cable with connector

Order Note:

1. Consult us by calling us at +91-8448441044 or emailing info@tipl.com for special designs.
2. Evaluate the exact Application, and working conditions at the pressure detection point before ordering to avoid losses due to wrong product selection.
3. TIPL will not be responsible for losses due to the wrong selection of specifications.
4. Customers should ensure power supply grounding and install anti-lightning (surge protection) devices to minimize the chances of product failure.
5. The photos, color, form, and dimensions of the product are indicative and can change based on product selection without prior notice.

FIBER OPTIC IR THERMOMETER

IROCTRF 1M

FEATURES

- Rugged fiber-optic ratio thermometer for non-contact temperature measurement from 450°C to 3000°C
- Adjustable focus from 300 mm to infinity with excellent optical resolution up to 100:1
- Laser sighting for real spot size indication at any distance - green laser for best visibility on glowing objects
- Rugged, electrically isolated sensing head and fiber-optic for ambient temperatures up to 315 °C without cooling
- Two 0/4-20 mA analog outputs (isolated optional)
- Fast measurement with 1 ms response time

MEASUREMENT SPECIFICATIONS

Temperature range	1-Channel 450 ~ 1400°C 650 ~ 2000°C 900 ~ 3000°C	2-Channel 525 ~ 1400°C (1ML) 700 ~ 2000°C (1MH) 1000 ~ 3000°C (1MH1)
Spectral range	0.8 ~ 1.1 µm	
Optical resolution (90 % energy)	38:1 (1ML) 100:1 (1MH / 1MH1)	
Vario focus	300 mm to infinity, infinitely adjustable	
System accuracy[1] (at ambient temp. 23 ± 5°C)	±(0.5 % of reading +2°C)	
Repeatability[1] (at ambient temp. 23 ± 5°C)	±0.3 % of reading	
Temperature resolution	0.1K	
Response time (90% signal)[2]	1ms ~ 10s	
Slope (adjustable via programming keys or analog input)	0.800 ~ 1.200	
Emissivity (adjustable via programming keys or analog input)	0.050 ~ 1.000	
Signal processing (parameter adjustable via programming keys or software / App, respectively)	1 color / 2 color mode; attenuation monitoring / alarms; peak hold, valley hold, average; extended hold function with threshold and hysteresis	
Software / App	Ratio Connect / IRmobile App	

[1] ε = 1, Exposure time 1 s

[2] With dynamic adaptation at low signal levels

ELECTRICAL SPECIFICATIONS

Outputs analog	2x 0/4-20mA (12 bit) / optional: 2x 0/4-20mA (16 bit) isolated
Output impedances max.	500Ω (with 8 ~ 30VDC)
Relay Output (optional)	2 x 60VDC/ 42VAC$_{eff}$; 0.4A; optically isolated
Digital Interface	USB (Micro-USB, USB-C and USB-A cable included)
Digital Interfaces (optional)	RS232, RS485, Ethernet
I/O-Pins	Three programmable in-/outputs; selectable as alarm output (open collector 24V/1A), input for triggered signal output and peakhold function or as analog input for external emissivity or slope adjustment
Fiber cable length	3m (standard), 8m, 15m
Power supply	8 ~ 30VDC or USB powered[1)]
Power consumption	Max. 5 W
Aiming laser	Laser 520 nm, <1 mW, ON/OFF via electronic box or software / App

[1)] The functioning of the LCD Display may be limited in ambient temperatures below 0°C

GENERAL SPECIFICATIONS

Environmental rating	IP 65 (NEMA-4)
Ambient temperature: sensing head + fiber cable electronics	(-)20 ~ 200°C (optional to 315°C) 0 ~ 60°C
Storage temperature: sensing head + fiber cable electronics	(-)40 ~ 200°C (-)40 ~ 85°C
Relative humidity	10 — 95%, non-condensing
Vibration (sensor)	IEC 60068-2-6 (sinus shaped), IEC 60068-2-64 (broad band noise)
Shock (sensor)	IEC 60068-2-27 (25G and 50G)
Weight	210g (fiber cable (3m) with head); 420g (electronics)

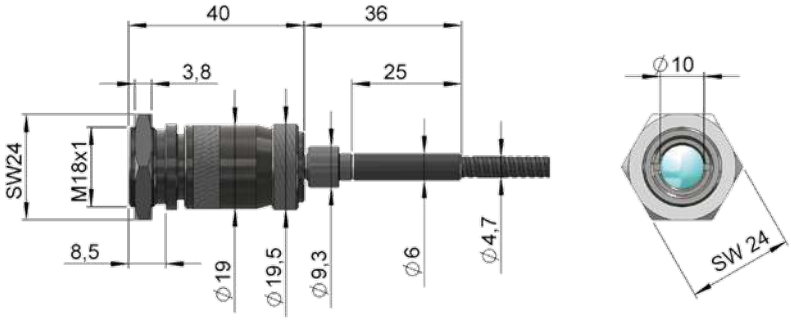
OPTICAL PARAMETERS

The vario optics of the CTratio allows a smooth focusing of the optics to the desired distance.

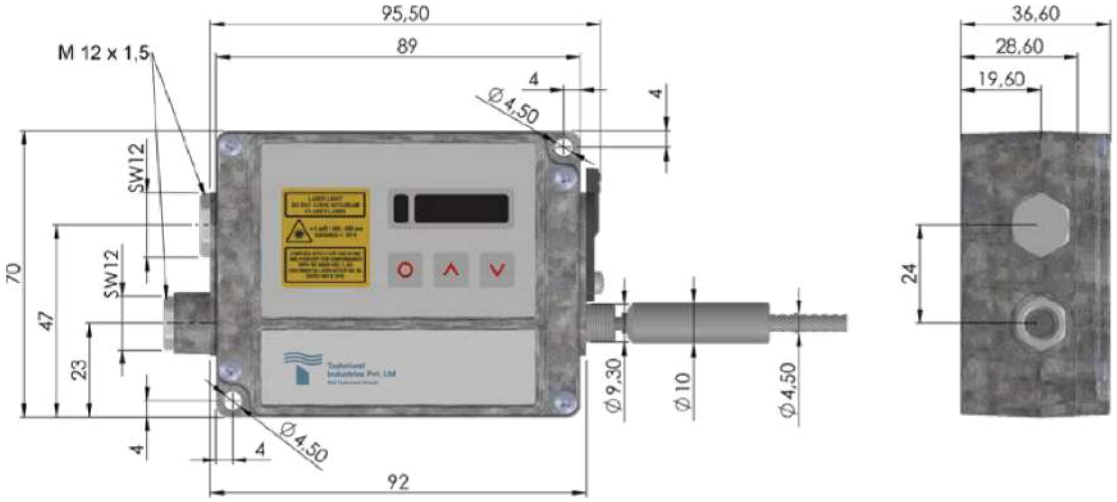
The following tables show examples of measurement distances and the corresponding measurement spot sizes for the standard focus vario optics (SFV) adjustable in the range of 300 mm till infinity.

1ML (D:S = 38:1)									
Spot size	mm	7.9	13.2	19.7	26.3	39.5	52.6	65.8	131.6
Measurement distance	mm	300	500	750	1000	1500	2000	2500	5000
1MH / 1MH1 (D:S = 100:1)									
Spot size	mm	3	5	7.5	10	15	20	25	50
Measurement distance	mm	300	500	750	1000	1500	2000	2500	5000

DIMENSIONS (in mm)



Sensing head



Electronics

SOFTWARE / APP

The built-in USB interface allows an easy programming via IRmobile Android app.

Windows-software: Ratio Connect

ADDRESS : Industrial Estate, Makhupura, Ajmer- 305 002, Rajasthan.
CONTACT US : www.tipl.com I info@tipl.com I +91 844 844 1044
FOLLOW US :

TIPL/FRIM/03/280/092020

INFRARED THERMOMETER

IROCTLT

FEATURES

- Precise non-contact temperature measurement from (-)50°C to 975°C
- One of the smallest infrared sensors worldwide with 22:1 optical resolution
- Rugged and usable up to 180°C ambient temperature without cooling
- Separate electronics with easy accessible programming keys and LCD backlit display
- Selectable analog output: 0/4 ~ 20 mA, 0 ~ 5 V, 0 ~ 10 V, thermocouple type K or J
- Optional USB, RS485, RS232 interface, relay outputs (2 x optically isolated), CAN-Bus, Profibus DP, Ethernet
- Installation of up to 32 sensing heads in Multidrop with RS485

MEASUREMENT SPECIFICATIONS

Temperature range (scalable via programming keys or software)	(-)50°C ~ 975°C (LT22) (-)50°C ~ 600°C (LT15) (-)50°C ~ 600°C (LT02)
Spectral range	8 ~ 14 µm
Optical resolution (90 % energy)	22:1 (precision glass optics) 15:1 (precision glass optics) 2:1 (with flat front window)
CF-lens (optional)	0.6 mm @ 10 mm (with LT22) 0.8 mm @ 10 mm (with LT15) 2.5 mm @ 23 mm (with LT02)
System accuracy [1), 2)] (at ambient temp. 23±5°C)	±1% or ±1°C
Repeatability [1), 2)] (at ambient temp. 23 ±5°C)	±0.5% or ±0.5°C
Temperature resolution (display)	0.1 K
NETD [2), 3)]	0.05 K (LT22 / LT15) 0.1 K (LT02)
Response time	150ms (95%)
Emissivity/ Gain (adjustable via programming keys or software)	0.100 ~ 1.100
Transmissivity/ Gain (adjustable via programming keys or software)	0.100 ~ 1.100
Signal processing (parameter adjustable via programming keys or software, respectively)	Peak hold, valley hold, average; extended hold function with threshold and hysteresis
Software	Compact Connect

[1)] Whichever is greater

[2)] At object temperatures >0 °C, ε = 1

[3)] At time constant 200 ms and TObj 25 °C

ELECTRICAL SPECIFICATIONS

Outputs/analog	Channel 1:0 / 4 ~ 20mA, 0 ~ 5 / 10V, thermocouple J, K Channel 2: sensing head temperature ((-)20°C ~ 180°C as 0 ~ 5 V or 0 ~ 10 V), alarm output
Output / alarm	24V / 50mA (open collector)
Optional	Relay: 2 x 60V DC/ 42V AC_{eff}; 0.4 A; optically isolated
Outputs / digital	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500Ω (with 8 ~ 36 V DC); mV min. 100kΩ load impedance; thermocouple 20Ω
Inputs	Programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)
Cable length	1m (standard), 3m, 8m, 15m
Power Supply	8 ~ 36 V DC
Current draw	Max. 100 mA

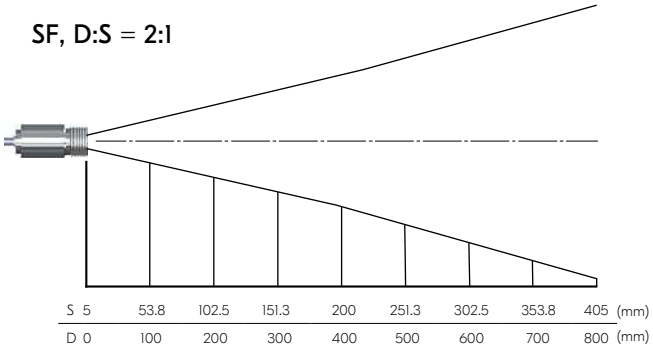
GENERAL SPECIFICATIONS

Environmental rating	IP 65
Ambient temperature[1)]	(-)20°C ~ 180°C (130°C for LT02) (sensing head) (-)20°C ~ 85°C (electronics)
Storage temperature	(-)40°C ~ 130°C (sensing head) (-)40°C ~ 85°C (electronics)
Relative humidity	10 ~ 95%, non condensing
Vibration (sensor)	IEC 68-2-6: 3G, 11 ~ 200Hz, any axis
Shock (sensor)	IEC 68-2-27: 50G, 11ms, any axis
Weight	40g (sensing head) / 420g (electronics)

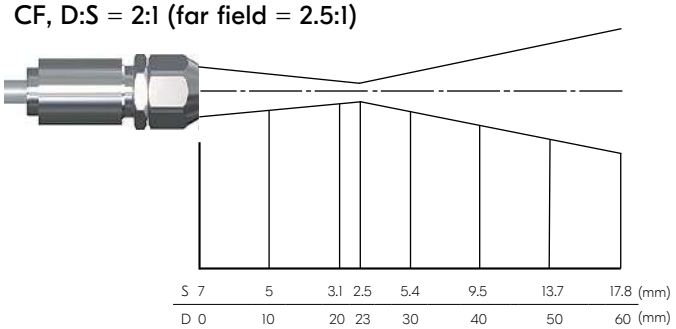
[1)] The LCD displays capacity may be limited at ambient temperatures below 0 °C.

OPTICAL SPECIFICATIONS

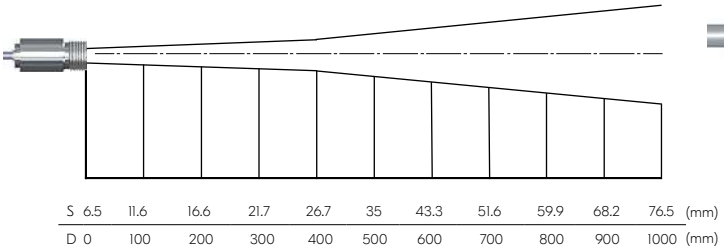
SF, D:S = 2:1



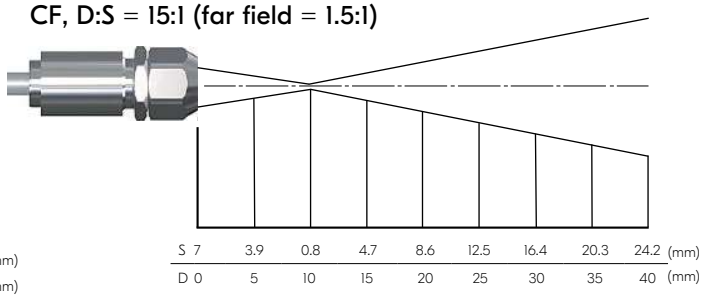
CF, D:S = 2:1 (far field = 2.5:1)



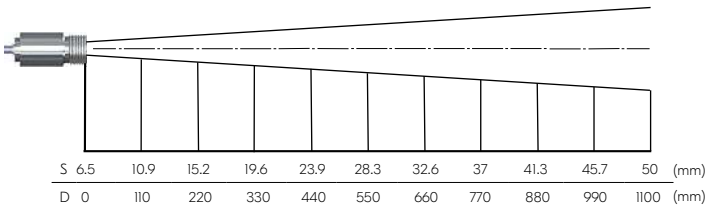
SF, D:S = 15:1



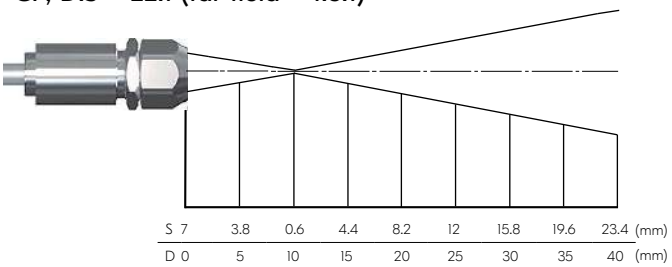
CF, D:S = 15:1 (far field = 1.5:1)



SF, D:S = 22:1

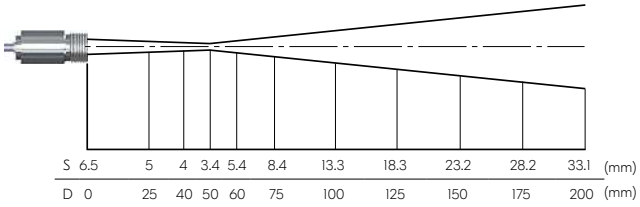


CF, D:S = 22:1 (far field = 1.5:1)

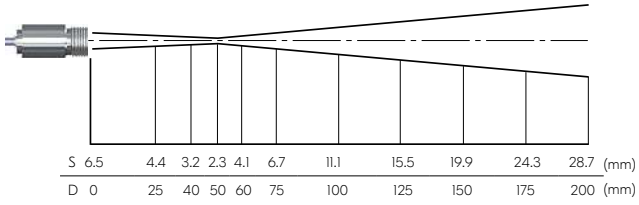


Versions with built-in CF lenses, head length: 32 mm

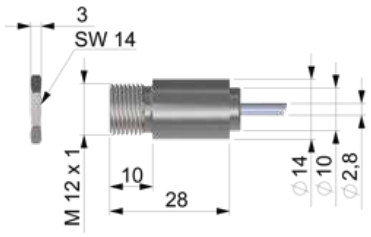
CF, D:S = 15:1 (far field: 5:1)



CF, D:S = 22:1 (far field = 1.5:1)

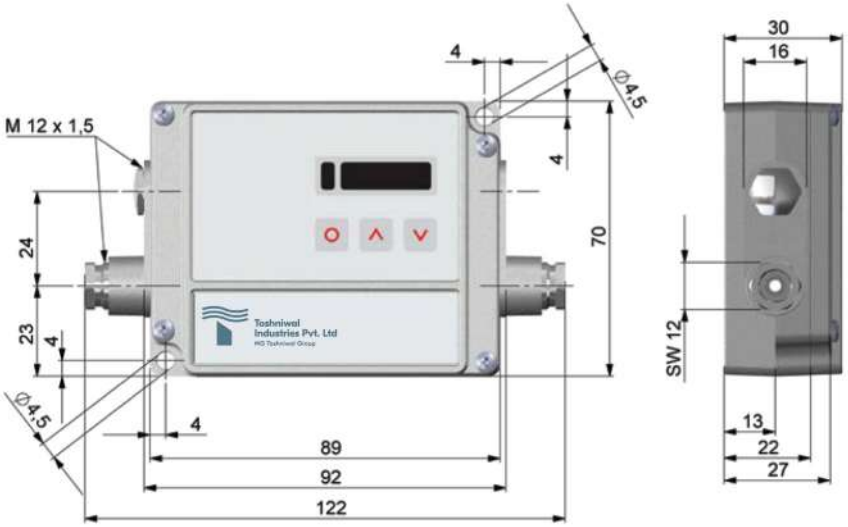


DIMENSIONS



Sensing head (standard)

Sensing head (built-in CF lenses)



Electronics

INFRARED THERMOMETER

IROCTL 1M/2M

FEATURES

- Precise non-contact temperature measurement with precise aiming from 250°C to 2200°C
- Accurate temperature measurements of metals, secondary metal processing and ceramic materials
- Double laser aiming marks real spot location at any distance
- Optical resolution up to 300:1 with selectable focus
- Temperature ranges from 250 °C to 2200 °C, measuring spots up from 0,45 mm and response times up from 1 ms
- Usable up to 85 °C ambient temperature without cooling and automatic laser switch off at 50 °C
- Short measuring wavelength of 1.0 µm or 1.6 µm

MEASUREMENT SPECIFICATIONS

Temperature range (scalable via programming keys or software)	485°C ~ 1050°C (1ML) 650°C ~ 1800°C (1MH) 800°C ~ 2200°C (1MH1) 250°C ~ 800°C (2ML) 385°C ~ 1600°C (2MH) 490°C ~ 2000°C (2MH1)
Spectral range	1.0 µm (1M) / 1.6 µm (2M)
Optical resolution (90 % energy)	150:1 (1ML, 2ML) 300:1 (1MH, 1MH1, 2MH, 2MH1)
System accuracy[1] (at ambient temp. 23 ± 5°C)	±(0.3% of reading +2°C)
Repeatability (at ambient temp. 23 ± 5°C)	±(0.1% of reading +1°C)
Temperature resolution	0.1 K (1ML, 2ML) 0.1 K (1MH, 1MH1, 2MH, 2MH1)
Exposure time[2]	1ms (90%)
Emissivity/Gain (adjustable via programming keys or software)	0.100 ~ 1.100
Transmissivity/Gain (adjustable via programming keys or software)	0.100 ~ 1.100
Signal processing (parameter adjustable via programming keys or software, respectively)	Peak hold, valley hold, average; extended hold function with threshold and hysteresis
Software	Compact Connect

[1] ε = 1, Exposure time 1 s

[2] With dynamic adaptation at low signal levels

GENERAL SPECIFICATIONS

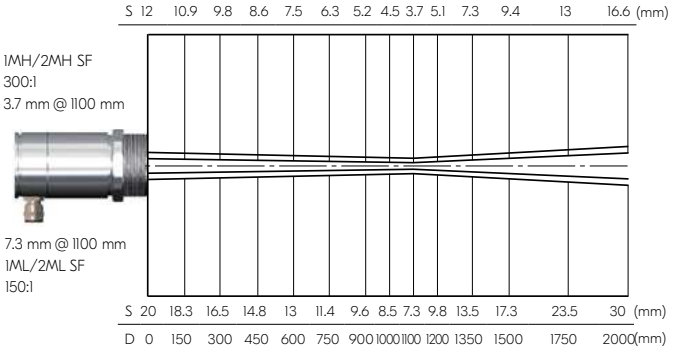
Environmental rating	IP 65 (NEMA-4)
Ambient temperature[1)]	(-)20°C ~ 85°C (sensing head, 50°C with laser ON) (-)20°C ~ 85°C (electronics)
Storage temperature	(-)40°C ~ 85°C (sensing head) (-)40°C ~ 85°C (electronics)
Relative humidity	10 ~ 95%, non-condensing
Vibration (sensor)	IEC 68-2-6: 3 G, 11 ~ 200Hz, any axis
Shock (sensor)	IEC 68-2-27: 50 G, 11ms, any axis
Weight	600g (sensing head) / 420g (electronics)

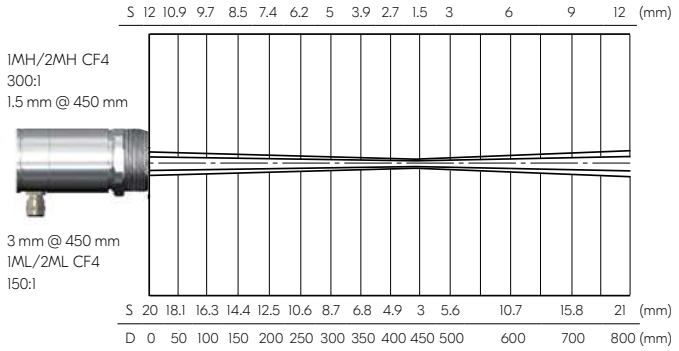
[1)] The functioning of the LCD Display may be limited in ambient temperatures below 0°C

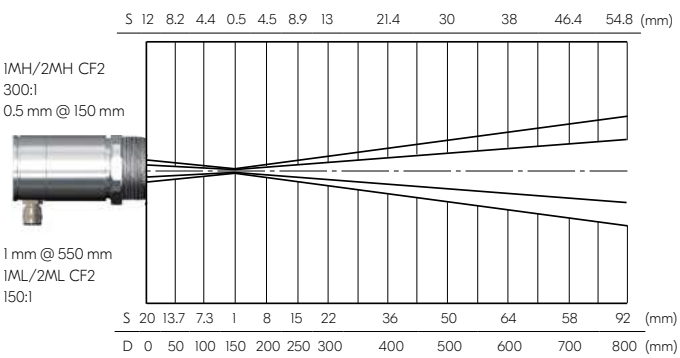
ELECTRICAL SPECIFICATIONS

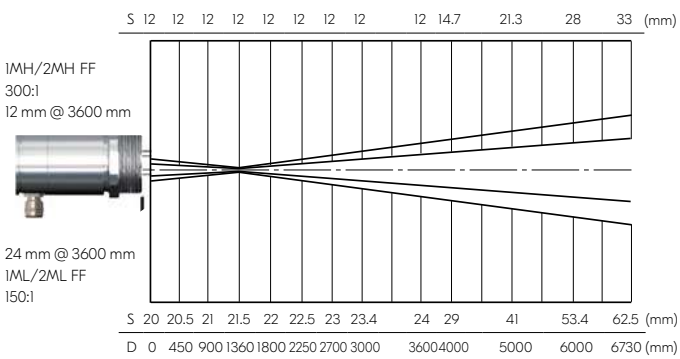
Outputs / analog	0/4 ~ 20 mA, 0 ~ 5/ 10V, thermocouple J, K
Alarm output	24V / 50mA (open collector)
Optional Relay	2 x 60 V DC/ 42 V AC_{eff}; 0.4 A; optically isolated
Outputs / digital	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500Ω (with 8 ~ 36VDC) mV min. 100kΩ load impedance thermocouple 20Ω
Inputs	Programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)
Cable length	3m (standard), 8m, 15m
Power Supply	8 ~ 36 V DC
Current draw Max.	160 mA
Laser 635 nm	1 mW, ON/OFF via electronic box or software

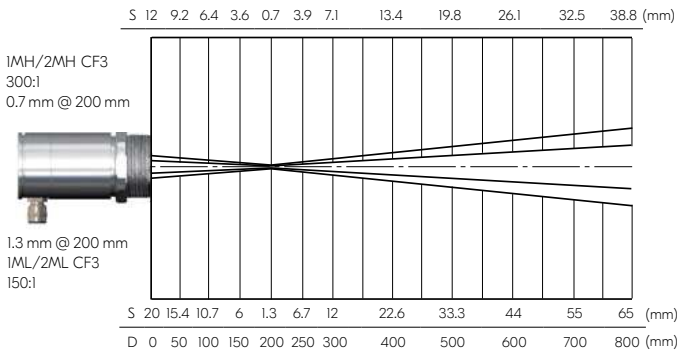
OPTICAL SPECIFICATIONS



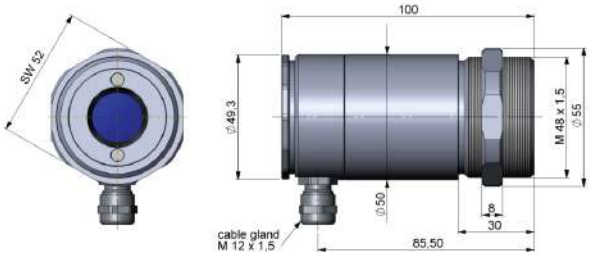




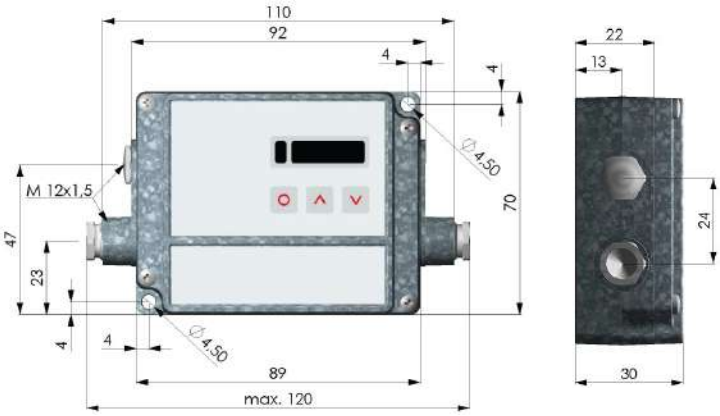




DIMENSIONS



Sensing head



Electronics

ACCESSORIES

Fixed Mounting Bracket

Adjustable Mounting Bracket

Air Purge Jacket

Air Cooling System

A Host of other Accessories like Water Cooling & Air purge jacket, Adjustable Mounting Base etc. are available to meet demanding site conditions - refer separate brochure

ADDRESS : Industrial Estate, Makhupura, Ajmer- 305 002, Rajasthan.
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TIPL/CTLS/03/281/092020

INFRARED THERMOMETER

IROCT 1M/2M

FEATURES

- Precise non-contact temperature measurement from 250°C to 2200°C
- Miniaturized Infrared Thermometer with 1.0 µm or 1.6 µm wave length range for measurements of metals, of secondary metal processing, metal oxides and ceramic materials
- Very small sensing head of 14mm diameter and 28mm length fits everywhere & is usable up to 125°C ambient temperature without cooling
- Temperature ranges from 250°C to 2200°C, measuring spots up from 1.8mm and exposure times up from 1ms
- Short measuring wave length of 1.0µm or 1.6µm reduces error of temperature readings on surfaces with low or unknown emissivity

MEASUREMENT SPECIFICATIONS

Temperature ranges (scalable via programming keys or software)	485°C ~ 1050°C (1ML) 650°C ~ 1800°C (1MH) 800°C ~ 2200°C (1MH1) 250°C ~ 800°C (2ML) 385°C ~ 1600°C (2MH) 490°C ~ 2000°C (2MH1)
Spectral ranges	1.0µm (1M)/ 1.6µm (2M)
Optical resolution 1ML / 2ML (90 % energy)	40:1 (2.7 mm @ 110 mm)
Optical resolution 1MH / 1MH1 / 2MH / 2MH1 (90 % energy)	75:1 (1.5 mm @ 110 mm)
System accuracy[1] (at ambient temp. 23 ± 5°C)	±(0.3% of reading +2°C)
Repeatability (at ambient temp. 23 ± 5°C)	±(0.1 % of reading +1 °C)
Temperature resolution	0.1K
Exposure time[2]	1ms (90%)
Emissivity / Gain (adjustable via programming keys or software)	0.100 ~ 1.100
Transmissivity / Gain (adjustable via programming keys or software)	0.100 ~ 1.100
Signal processing (parameter adjustable via programming keys or software, respectively)	Peak hold, valley hold, average; extended hold function with threshold and hysteresis
Software	Compact Connect

[1] ε = 1, Exposure time 1 s

[2] With dynamic adaptation at low signal levels

ELECTRICAL SPECIFICATIONS

Outputs / analog	0 / 4 ~ 20mA, 0 ~ 5 / 10V, thermocouple J, K, alarm output
Output / alarm	24 V/ 50 mA (open collector)
Optional Relay:	2 x 60 V DC/ 42 V AC_{eff}; 0.4 A; optically isolated
Outputs / digital	USB, RS232, RS485, CAN, Profibus DP, Ethernet (optional)
Output impedances	mA max. 500Ω (with 8 ~ 36VDC) mV min. 100 kΩ load impedance thermocouple 20 Ω
Inputs	Programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)
Cable length	3 m (standard), 8 m, 15 m
Power Supply	8 ~ 36 V DC
Current draw	Max. 100 mA

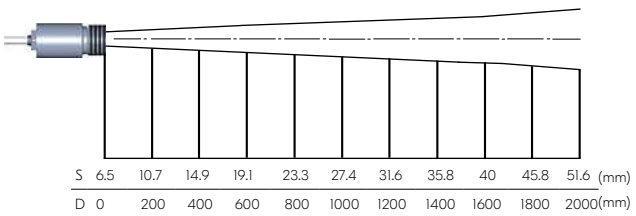
GENERAL SPECIFICATIONS

Environmental rating	IP 65
Ambient temperature	(-)20°C ~ 100°C(1M) to 125°C(2M) (sensing head) 0°C ~ 85°C (electronics)
Storage temperature	Sensing head: (-)40°C ~ 100°C (1M) to 125°C (2M) Electronics: (-)40°C ~ 85°C
Relative humidity	10 ~ 95 %, non condensing
Vibration (sensor)	IEC 68-2-6: 3 G, 11 ~ 200Hz, any axis
Shock (sensor)	IEC 68-2-27: 50G, 11ms, any axis
Weight	Sensing head: 40g / Electronics: 420g

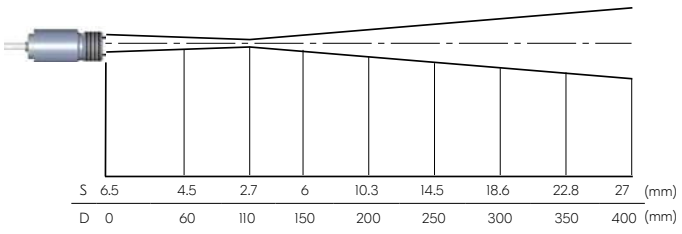
[1] The LCD displays capacity may be limited at ambient temperatures below 0 °C.

OPTICAL SPECIFICATIONS

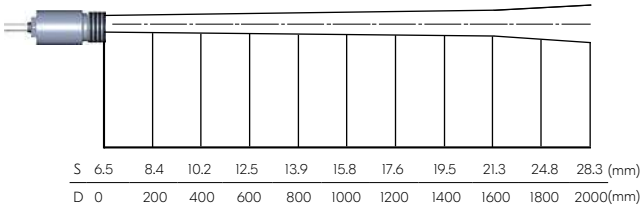
1ML/2ML SF, D:S = 40:1



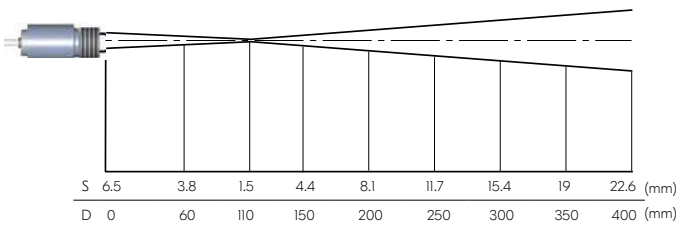
1ML/2ML CF, D:S = 40:1 (Far feild = 12:1)



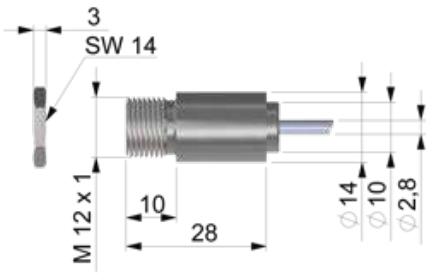
1MH/1MH1/2MH/2MH1 SF, D:S = 75:1



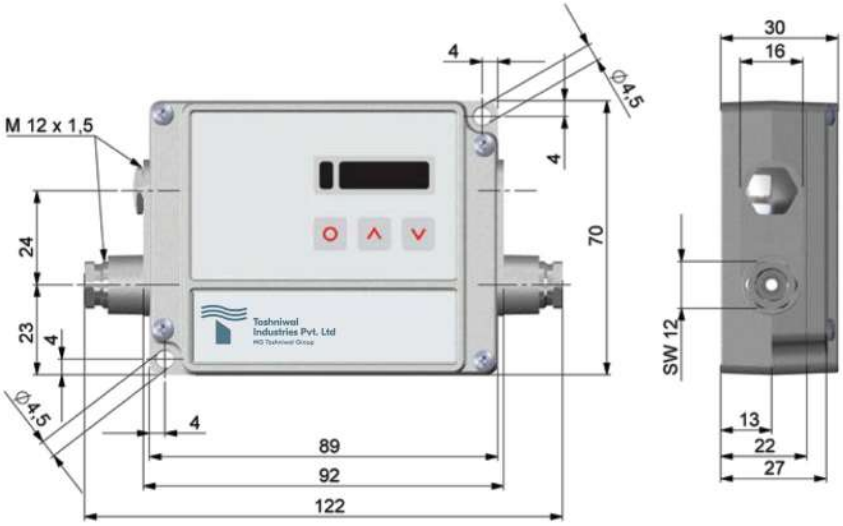
1MH/1MH1/2MH/2MH1 CF, D:S = 75:1 (far field = 14:1)



DIMENSIONS



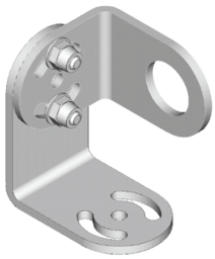
Sensing head



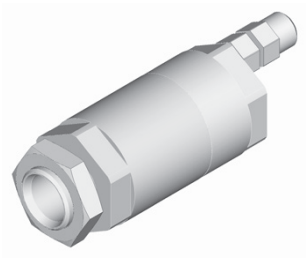
Electronics

ACCESSORIES

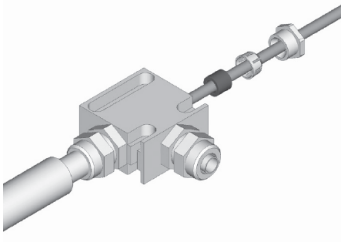
Fixed Mounting Bracket



Adjustable Mounting Bracket



Air Purge Jacket



Air Cooling System

+

=

Laser Sighting tool (20mm above)

IROCT Sensing Head

Mounting bracket, fixed with Mounting for Laser Sighting tool

Laser Sighting Tool

A Host of other Accessories are available to meet demanding site conditions - refer separate brochure

ADDRESS : Industrial Estate, Makhupura, Ajmer- 305 002, Rajasthan.
CONTACT US : www.tipl.com I info@tipl.com I +91 844 844 1044
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TIPL/CI2M/03/279/092020

PORTABLE INFRARED THERMOMETER

IRN

FEATURES

- Models to cover range: (-)30°C ~ 1600°C
- Superior Optical resolution up to 300:1
- Spot sizes down to 1 mm
- 5 ms response time
- Dual laser sighting
- Visual and acoustic HIGH and LOW alarm
- 4 digit backlit LCD display
- Thermocouple K type input
- Digital output and Software
- Suitable for measuring metallic shiny surfaces (3M)

MEASUREMENT SPECIFICATIONS

Temperature Range	LT: (-)30°C ~ 900°C (-22°F to 1652°F) LR: (-)30°C ~ 1300°C (-22°F to 2372°F) 1M: 600°C ~ 1600°C (1112°F to 2912°F) 2M: 300°C ~ 1300°C (572°F to 2372°F) 3M: 100°C ~ 600°C (212°F to 1112°F)
Spectral Response	LT: 8 ~ 14µm LR: 8 ~ 14µm 1M: 1µm 2M: 1.6µm 3M: 2.3µm
Optics Resolution (90% energy)	LT 60 : 1 (SF), 75 : 1 (CF) LR 120 : 1 1M 300 : 1 2M 300 : 1 3M 140 : 1
Accuracy*[1]	LT/LR : ±1% of reading or ±1°C, whichever is greater; (≥ 20°C); ±1.5°C (-20 ~ 19.9°C); ±2.5°C (-30 to -20.1°C) 1M/2M/3M : ±(0.5% of reading +2°C) whichever is greater
Repeatability*[1]	LT/LR: ±0.5% of reading or ±0.5°C, whichever is greater 1M/2M/3M: ±(0.3% of reading +1°C), whichever is greater
Sensor Correction	0 ~ ±10°C
Response Time (95% signal)	LT/LR: 300 ms 1M/2M/3M: 5 ms
Emissivity (adjustable)	0.10 ~ 1.00, in 0.01 increments
Temperature Resolution	0.1°C, (1°C above 1000°C)

*[1] At 23°C ± 5°C, emissivity LT/LR = 0.95, 1M/2M/3M = 1.00

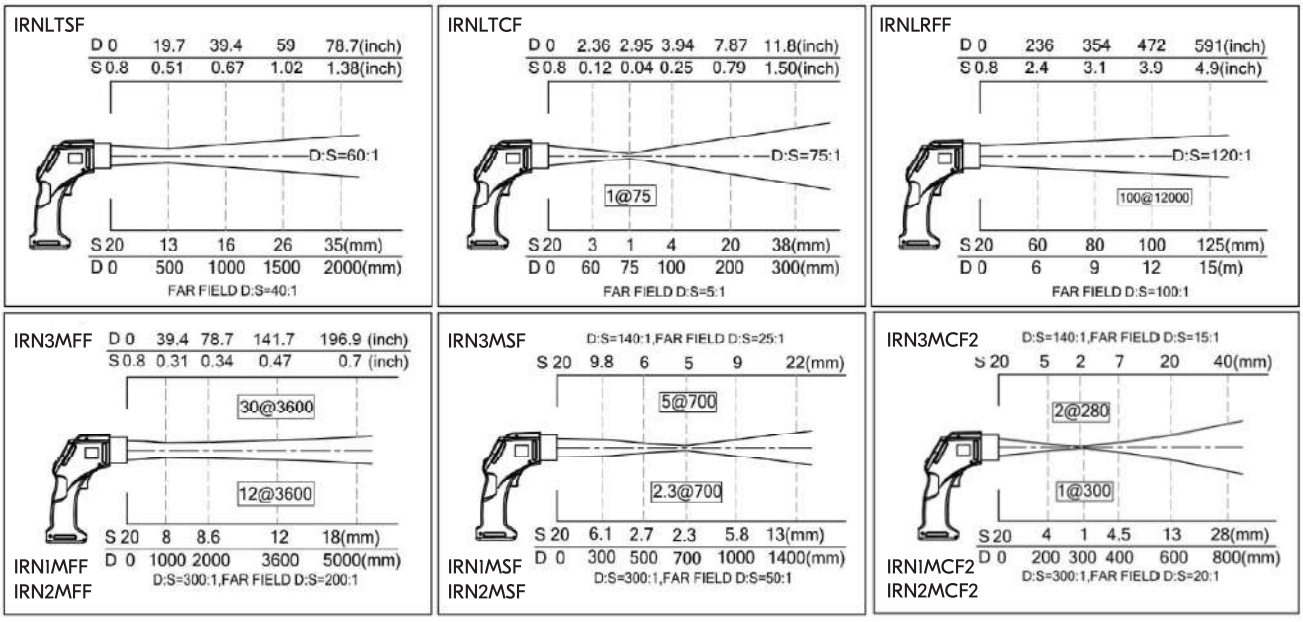
ELECTRICAL SPECIFICATIONS

Display Configurations	Real time / Hold (7 seconds); Min., Max., trigger lock
Alarms	High and Low, Audio and Visual
Digital Output	Mini USB
Input Thermocouple	Type K
Data logger	2,000 points
Laser	IEC Class2/FDA Class II (<1mW)
Display	4 digit backlit LCD display
Power Supply	9V alkaline battery(Or from USB)
Battery life time	10 hours (laser and backlight on)

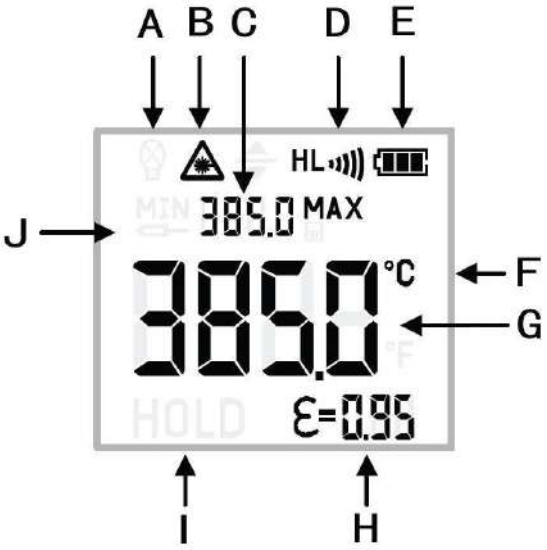
GENERAL SPECIFICATIONS

Ambient Temperature	0°C to 50°C
Storage Temperature	(-)20°C to 60°C, without battery
Relative Humidity	10 to 95%, non-condensing
Dimensions	163.5(L) x 207(H) x 70(W) mm
Weight	470g (battery included)
Tripod Mounting	1/4" - 20 UNC

OPTICAL SPECIFICATIONS



CONTROL PANEL



A: LCD backlight
B: Laser
C: Max/Min
D: High/Low alarm
E: Battery symbol
F: °C/°F unit
G: IR temperature
H: Emissivity
I : Hold mode
J: TCK temperature

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ONLINE INFRARED THERMOMETER

IRDLT Model

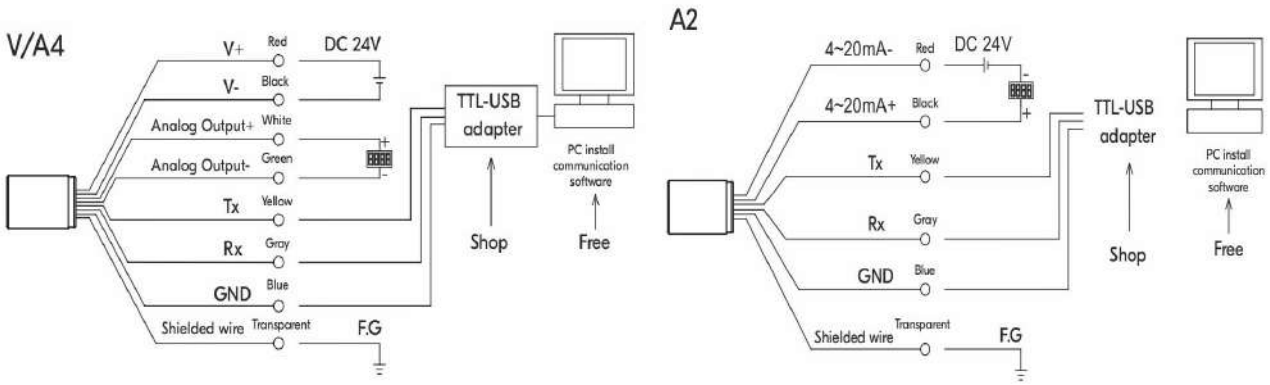
Features

- Temperature range: 0°C -500°C.
- High-quality optical lens, distance coefficient 20:1
- 4mA-20mA current analog output.
- Digital communication.
- Comes with an LCD display and keypad, which can easily set parameters and check the temperature.
- Exclusive Cable with connector, convenient for on-site installation and maintenance.

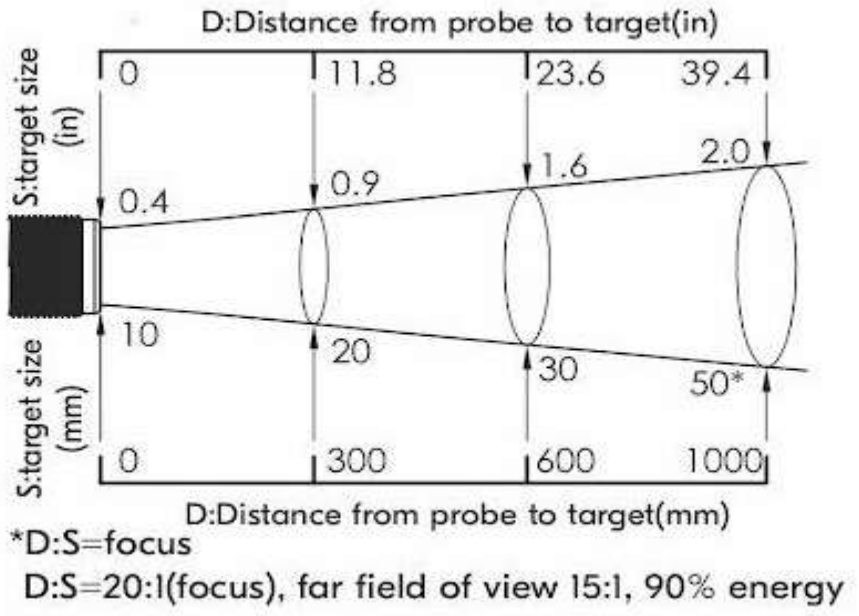
Technical Specifications

Specifications	Parameters	Single Color Infrared Thermometer
Measurement	Temperature Range	0°C -500°C
	Spectral Response	8 -14 µm
	Optics Resolution	20 : 1
	Accuracy	±1.5% of Tm or ±1.5°C, whichever is higher Tm = measured value
	Repeatability	±0.5% of Tm or ±1°C, whichever is higher
	Temperature Resolution	0.1°C
	Response Time (95% signal)	150 ms
	Emissivity (adjustable)	0.100 -1.000, in 0.001 increments
	Signal processing	Peak hold, Valley hold, Averaging functions
General	Environmental Rating	IP65
	Ambient Temperature	(-)10°C to 70°C
	Storage Temperature	(-)20°C to 80°C
	Relative Humidity	10 to 95%, non-condensing
	Cable Temperature	(-)20°C to 80°C
Electrical	Analog Output	0 -5 V or 4 -20mA
	Digital Output	TTL
	Power Supply	24 VDC ± 20%
	Exclusive Cable with Connector	3 Meter (Standard supply); 5 or 10m (Optional)

Connection Diagram



Optical Diagram



Model Selection Table:

IRDLT-10-20-30-40-50-60-70; Example: : IRDLT-SFACB3NNNN

0	Product
IRDLT	High Performance Online Infrared Thermometer Temperature Range: 0-500°C Housing: Die Cast Aluminum With Display and Keypad
10	**Focus & D:S Ratio**
SF	Standard Focus, D:S = 20:1
NF	No Focus, D:S=2:1
20	**Output**
T	4-20 mA, 2 Wire
A	4-20 mA, 4 Wire
30	**Cable length**
CB3	03 Meter (Standard)
CB5	05 Meter
CB10	10 Meter
40	**Mounting Bracket**
N	None (Standard)
F	Fixed Mounting Bracket
A	Adjustable Mounting Bracket
50	**Purge Collar**
N	Without Air Purge Collar (Standard)
P	With Air Purge Collar
60	**Protective Enclosure**
N	None (Standard)
W	SS Protective Enclosure With Air/Water Cooling
S	SS Protective Enclosure without cooling
70	**USB Converter**
N	None (Standard)

A	TTL to USB Converter

Accessories (If ordered separately)

Part Number	Description
Fixed Mounting Bracket	IRADFMB
Adjustable Mounting Bracket	IRADAMB
Air Purge Collar, M20x1	IRADAPC
SS Protective Enclosure for IRD - for mechanical protection, no Cooling	IRADPE
SS Water/Air cooling jacket	IRADWCJ
5 cores 3m cable with connector (For 2-Wire, 4..20mA output with Digital (TTL))	IRAD5PCB3
5 cores 5m cable with connector (For 2-Wire, 4..20mA output with Digital (TTL))	IRAD5PCB5
5 cores 10m cable with connector (For 2-Wire, 4..20mA output with Digital (TTL))	IRAD5PCB10
7 cores 3m cable with connector (For 4-Wire, 4..20mA output with Digital (TTL)))	IRAD7PCB3
7 cores 5m cable with connector (For 4-Wire, 4..20mA output with Digital (TTL))	IRAD7PCB5
7 cores 10m cable with connector (For 4-Wire, 4..20mA output with Digital (TTL))	IRAD7PCB10
Digital (TTL) to USB Converter with Software	IRADUSBC

Order Note:

1. Consult us by calling us on 8448441044 or emailing on info@tipl.com for special designs.
2. Evaluate the exact Application, working conditions at the pressure detection point before ordering to avoid losses due to wrong product selection.
3. TIPL will not be responsible for losses due to wrong selection of specifications.
4. Customers should ensure power supply grounding, and installation of anti-lightning (surge protection) devices to minimize the chances of product failure.

5. The photos, color, form and dimensions of the product are indicative and can change based on product selection without prior notice.

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INFRARED THERMOMETER

Model IRCLT

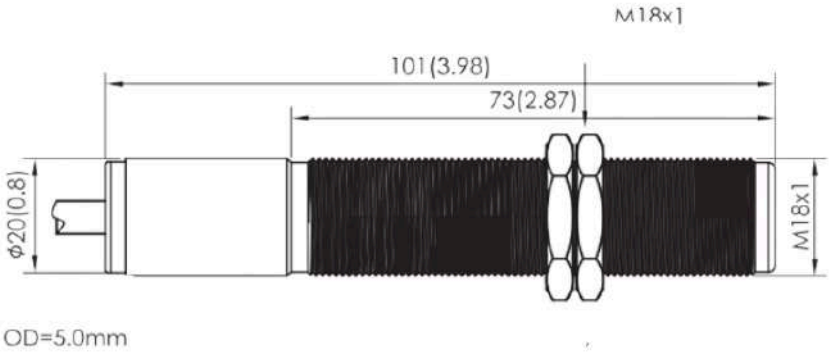
Features

- -20℃ to 500℃, suitable for a wide range of applications.
- High quality optics, D:S 15:1
- Rugged, SS304 stainless steel housing.
- 0 - 5 V, Type J, K output, 4-20mA (4/2 wire).
- RS485 digital communication.

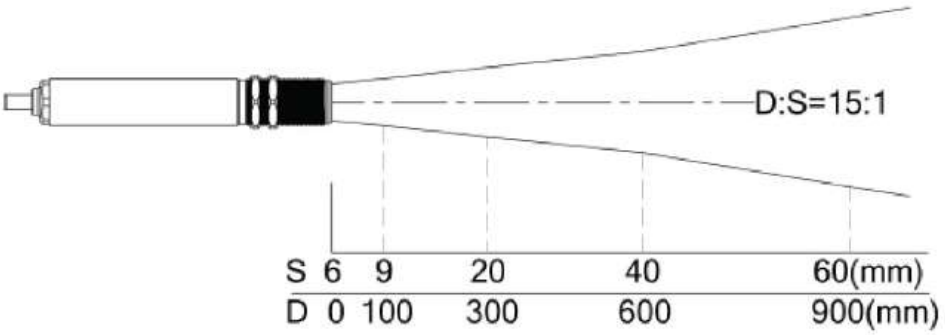
Technical Specifications

Model	IRCLT
Temperature Range	(-)20°C~ 500°C
Accuracy	For V/A: ±1.5% of reading or ±1.5°C whichever is greater For T/C:±1.5% of reading or ±3°C whichever is greater
Repeatability	For V/A: ±0.5% of reading or ±1°C whichever is greater For T/C:±0.5% of reading or ±2°C whichever is greater
Spectral Response	8-14µm
Optical Resolution	15:1
Temperature Resolution	0.1°C
Response Time	150mS
Emissivity	0.100-1.100 (Software adjustable), default 0.950
Transmissivity	0.100-1.100 (Software Adjustable) default 1.000
Analog Output	0 - 5 V, Type J or K output, 4..20mA (4 /2 wire).
Digital Output	RS485 (TTL in 4-20mA, 2-wire)
Power Supply	24VDC±20%
Protection	IP66
Operating Temperature	-10°C...+70°C
Storage Temperature	-20°C...+80°C
Humidity	10%-95% (no condensation)
Exclusive Cable	2m (standard) , refer selection table for optional cable

Dimensions of IRCLT



Optical Diagram



Selection Table : For IRCLT

IRCLT-10-20-30-40-50–60 Example: IRCLTSFKCB2NNN

0	Product
IRCLT	Compact Infrared (IR) Thermometer Temperature Range: (-)20°C to 500°C D:S= 15:1
10	**Focus**
SF	Standard Focus
20	**Output**

V	0-5 VDC
A4	4-20mA (4 Wire)
A2	4-20mA (2 Wire)
J	J Type
K	K Type
30	**Cable length**
CB2	02 Meter (Standard)
CB5	05 Meter
CB10	10 Meter
40	**Mounting Bracket**
N	None (Standard)
F	Fixed Mounting Bracket
A	Adjustable Mounting Bracket
50	**Purge Collar**
N	Without Air Purge Collar (Standard)
P	With Air Purge Collar
60	**USB Converter**
N	NONE
A	TTL to USB Converter (for 4-20mA, 2 wire Only)
B	RS485 to USB Converter

Accessories (if Ordered Separately)

Part Number	Description
IRACFMB	Fixed Mounting Bracket
IRACAMB	Adjustable Mounting Bracket
IRACAPC	Air Purge Collar, M18x1
IRAUSB	RS485 to USB Converter
IRATTL	TTL to USB Converter

Order Note:

The photos, color, form and dimensions of the product are indicative and can change based on product selection without prior notice.

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Dual Color High Performance Online Infrared Pyrometer

IRQ2C

Features

- Anti-smoke and Anti-steam properties due to special system design of optics and use of two color Thermometer.
- Visual sighting with variable focus optics enables aiming target directly and knowing actual size of measured region.
- A 2-color model can get the true temperature of the target without emissivity influence and window absorption.
- Friendly interface to operate easily.
- The calibration of 2 color IR pyrometers is checked on Black Body Furnaces in our inhouse NABL accredited Laboratory & Calibration certificate can be provided as an option. Service /calibration testing facility is also available.
- Output with isolation and power supply with protection which make sensors have excellent reliability and strong resistance to electromagnetic interference.

Introduction

Infrared thermometers are optical-electronic temperature sensors. These sensors are able to detect ”radiation of heat”. Infrared thermometers are made up of a lens, a detector, and an electronic signal processing unit. The detector converts the infrared radiation into an electrical signal. The signal processing electronics analyze the electrical signals and convert it into a temperature measurement. 2-color temperature is dependent on the intensity of the emitted infrared radiation. And the intensity is influenced by the emissivity which is decided by material and its machine finish and oxidation. We can calibrate the influence by setting the emissivity parameter on the sensor.The biggest advantage of the infrared thermometer is its ability to measure temperature without touching an object. Consequently, it is easy to measure the target such as moving objects or charged conductors that are hard to measure by a thermocouple.

Principle

Infrared detection technology uses the principle of being sensitive to temperature/material to detect and convert the infrared radiation energy of objects to form an infrared characteristic digital signal that can be analyzed and calculated, presented in the form of grayscale/pseudocolor images, with long-distance and non-contact capabilities ,high response, real-time area measurement, and other characteristics. The temperature of the object is then calculated through a specific software algorithm.

Theory of Two Color

Two-color ratio technology makes possible accurate and repeatable temperature measurements that are free from dependence on absolute radiated energy. In use,a 2-color sensor determines temperature from the ratio of the energies radiated from two separate wavelength (colors) light. 2-color sensors can get accurate measurements under the following conditions:

When the field of view to the target is partially blocked or obscured.

- When the target is smaller than the sensor’s field of view.
- When target emissivities are low or changing by the same factor in both wavelength bands.

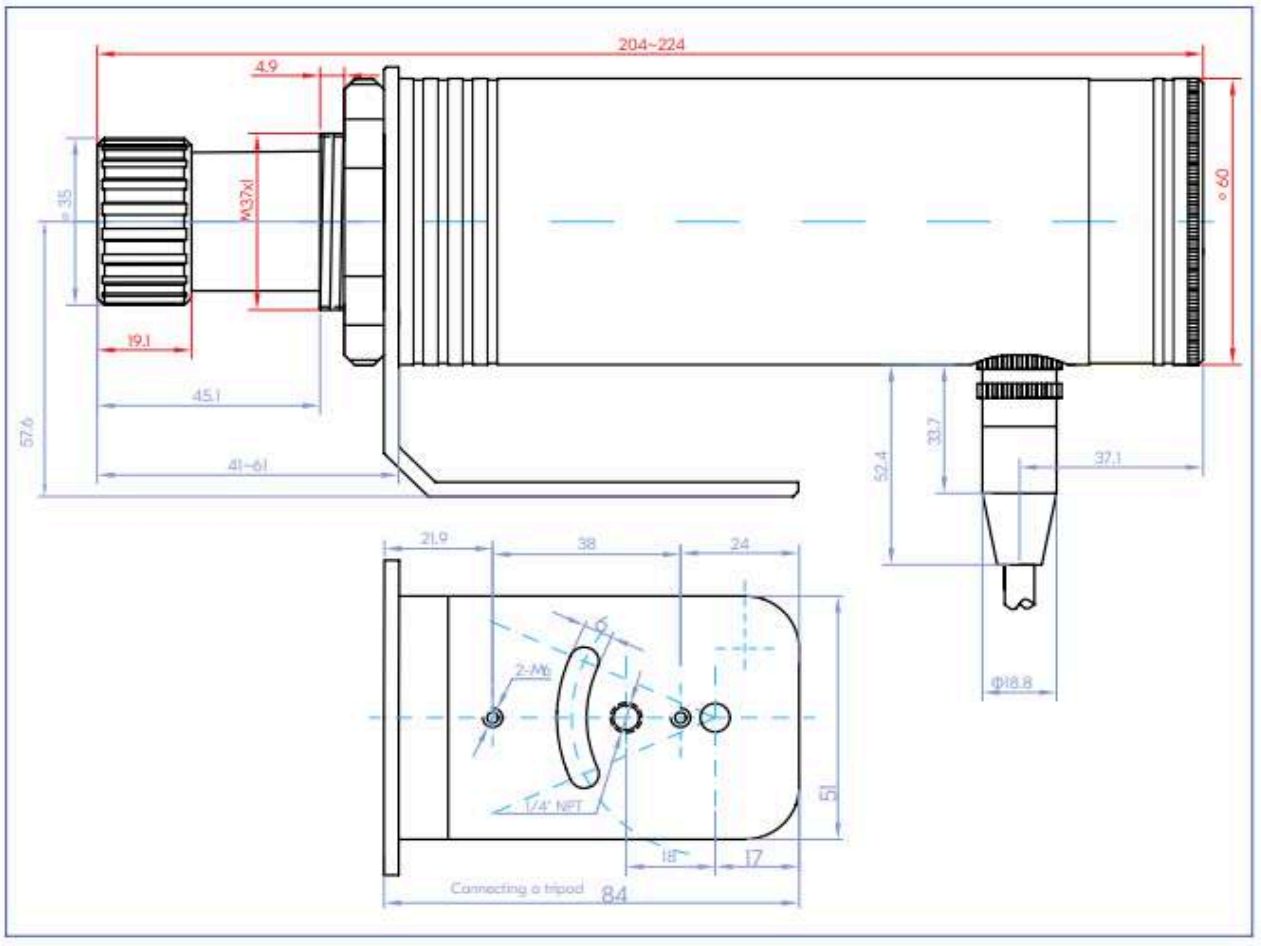
A 2-color sensor can be mounted farther away, even if the target does not fill spot size. The convenience is that you are not forced to install the sensor at some specific distance based upon target size and the sensor's optical resolution.

Technical Specifications

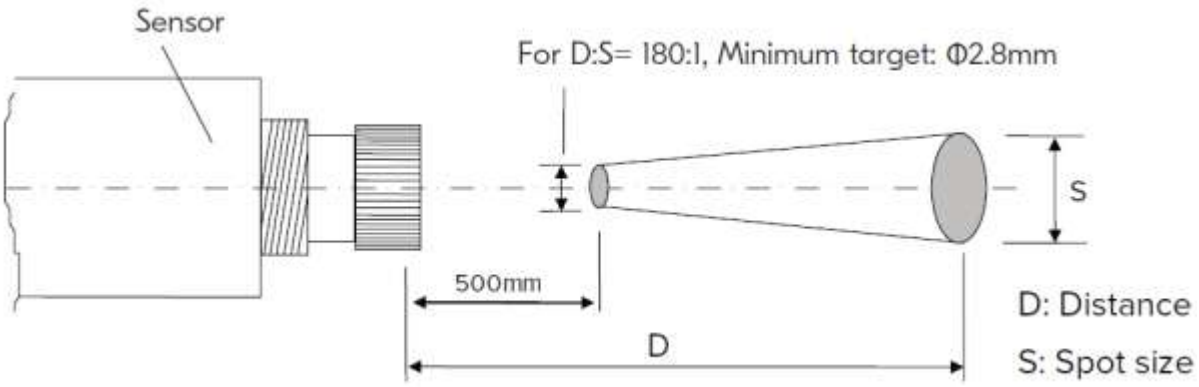
Parameter	2-color Infrared Thermometer
Temperature range	600℃～3000℃
Uncertainty	±0.5% FS
Repeatability	±0.2%FS
Display Resolution	1℃
Output Resolution	0.1℃
Emissivity or Slope	Slope: 0.800~1.200 Step=0.001
Measurement mode	Real-time, Maximum, Average
Operation and display	Three-button control: MOD ▼▲; 4 LED digital display, 5 LED lamp hint
Hint	4～20mA output disconnections hint
D:S (Optical resolution)	120:1 180:1 300:1
Minimum target size	Φ4.2mm (for 120:1) <Φ2.8mm(for 180:1) <Φ1.7mm(for 300:1)
Power	DC18V～24V
Current	150mA
Response Time	50ms(customized 10ms or 1ms)
Output signal	4~20mA (isolation with power input)
Digital communication	RS485(optional)
Storage temperature	-40℃～85℃
Operation temperature	5℃～70℃
Humidity	10～80%, no dew

Sensor Size	60mm dia. X 210mm length
Weight	0.60Kg
Connection	Connector with 5 meter Cable (Standard)

Dimensions



Nominal optical specification



Accessories

IR Sensor With Cable

Adjustable Mounting Bracket

Enclosure For Air Purging &
Air / Water Cooling

Power Supply

Selection Table

IRQ2C	Dual Color High- Performance Online Infrared Pyrometer
10	**Detector**
1	Silicon Cell (0.96µm, 1.06µm, 1.36µm)
2	InGaAs (1.60µm, 2.10µm, 2.40µm)
20	**Range**
MD	Standard Range, 60mm dia Housing
30	**Distance to Spot Ratio**
0	D:S = 120:1
1	D:S = 180:1
2	D:S = 300:1
40	**IR Wavelength**
W01	1.06µm
W23	1.36um/1.6um
W34	1/6um/2.1um
50	**Temperature**
T0618	600-1800 Deg C
T0720	700-2000 Deg C
T0930	900-3000 Deg C
60	**Mounting bracket**
A	Adjustable Mounting Bracket
F	Fixed Mounting Bracket
70	**Purge collar**
NC	None
PC	With Air Purge Collar
80	**Protective Enclosure**
N	None
S04	SS304 Protective Enclosure without cooling
W04	SS304 Protective Enclosure With Air/Water Cooling
90	**Sighting Tube**

N	None
S	with Sighting Tube With Flange Mounting
100	**Sealing Window**
N	None
SW	With sealing Window
110	**Power Supply**
PS	With Power Supply
NPS	Without Power Supply
120	**RS485 Output**
Y	Yes
N	No

Accessories (Order Separately)

Part Number	Description
IRAQAMB	Adjustable Mounting Bracket
IRAXAMB	Adjustable mounting base for SS Water / Air Cooling Jacket or Water Cooling & Air Purging Jacket
IRAQAPC	Air Purge Collar, M37x1
IRAQPE	SS Protective Enclosure for IRQ - for mechanical protection, no Cooling; Note: Airpurge Collar can be ordered separately
IRAQWCJ	SS Water / Air Cooling & Air Purge Jacket for IRQ
IRQ7PCB5	7 cores 5m cable with connector
IRQ7PCB10	7 cores 10m cable with connector

Order Note:

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