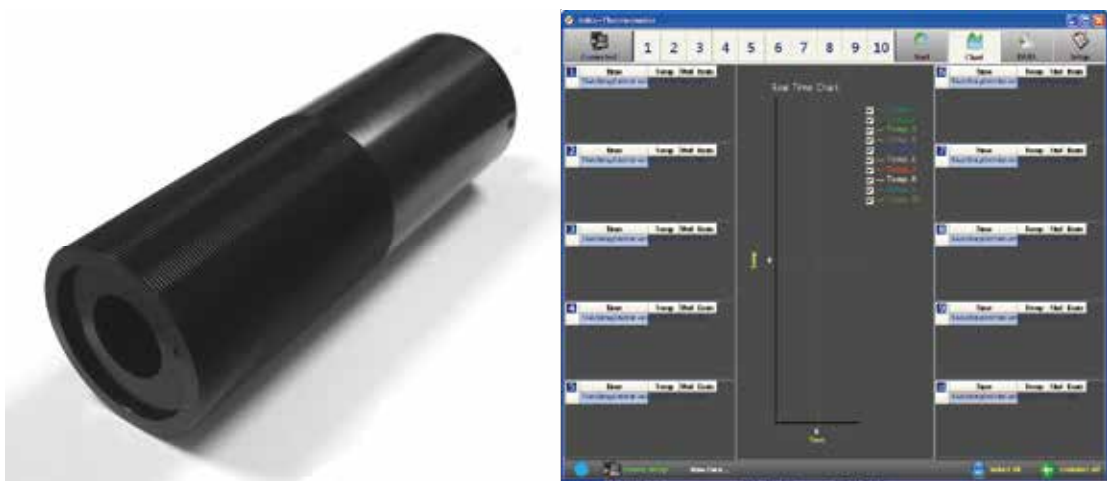


# Non-Contact Infrared Temperature Sensor/Transmitter

## IR-40

Temperature Range: 0~1000°C



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# 1. FEATURES

IR-40 non-contact infrared thermometer measures the infrared wavelength emitted from the target and converts it to standard current signal output (4~20mA) and RS-485 communication signal output.

It can measure from -20 °C to maximum 1000 °C in the distance of 40:1 D:S (Distance to Spot). Emissivity is 0.10 ~ 0.99 adjustable. Two built-in laser pointers can aim at the target.

## ※ Applications:



Plastics, Fluids, Rubber, Coated components, Asphalt, Wood, Paper, Ceramics, Textiles, Glass, Food etc.

# 2. Ordering information

Code Number IR-40-□-□-□

MODEL	Description
IR-40	
Code A	Temperature Range
1	0~700 °C
2	0~1000 °C
3	-20~1000 °C
Z	Other
Code B	Output
M	0~20mA
N	4~20mA
V	Voltage Output(DC 1~5V)
Code C	Cable Length
1	3m Cable
Z	Other

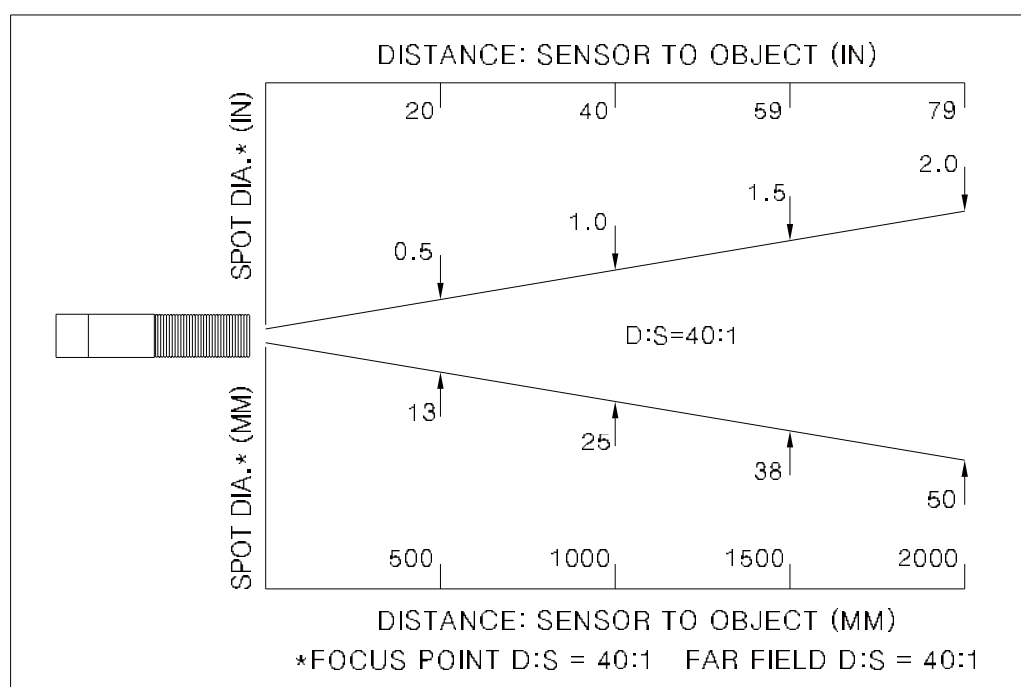
# 3. Accessories

Description	Shape	Usage	Remark
Fixing nut		Mounting sensor	Basic accessory
Mounting bracket		Mounting sensor	Basic accessory

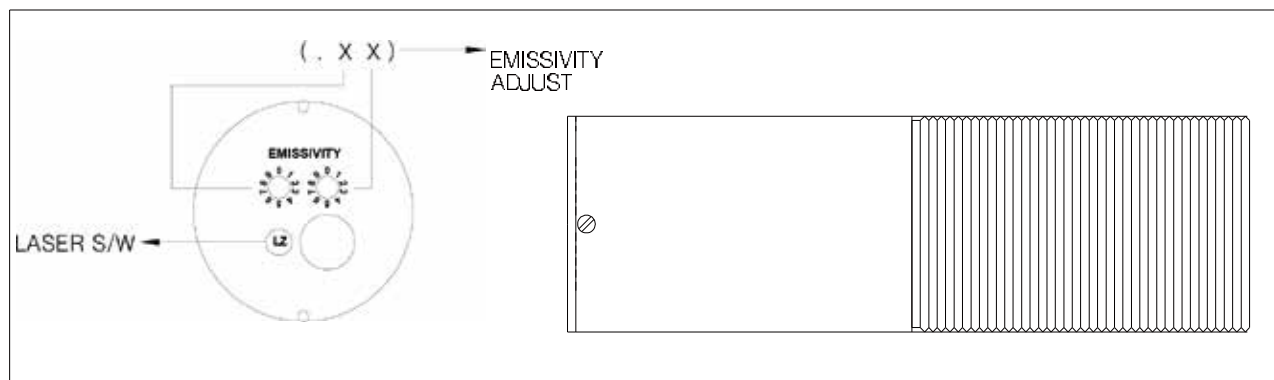
## 4. SPECIFICATIONS

Segment	Specification
Measurement Range	0~1000 °C
Device	Thermopile
Accuracy	±1% / full scale
Repeatability	±1% of reading
Field of View(D:S)	40:1
Optical spectrum wave	8~14 $\mu$ m
Responsive Time	0.5 sec or below
Emissive rate	0.10~0.99
Analog Output	4~20mA, 1~5V(option)
Communication output signal	RS-485 communication signal
Power	DC 20~24V(Max 50mA)
Ambient temperature(no water cooling)	0~70 °C
Temperature Resolution	0.1 °C
Warm up Period	1 to 2 minutes
Operating Relative Humidity	5~90%
Operating Ambient Temperature	-30~85 °C
Waterproof	IP65, NEMA 4
Laser pointer	630~670nm(red)
Dimensions	Ø47 ×172(L)
Signal Cable	4 wire shield type
Casing material	Aluminum Alloy
Weight	430g
Cable length	3m(standard), other(option)

## 5. OPTICAL FIELD OF VIEW (D:S 40:1)



## 6. Laser pointer & Adjust of Emissivity



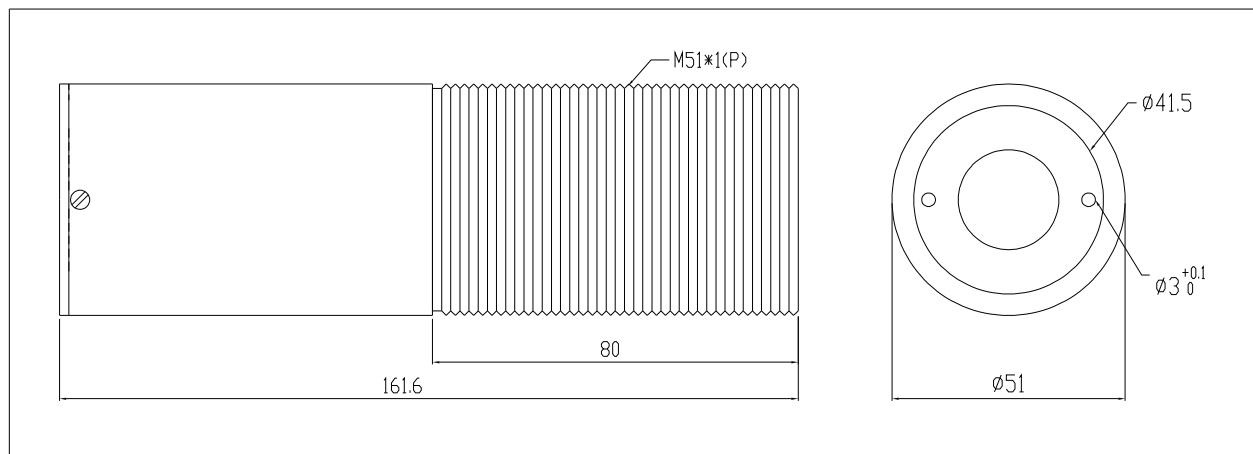
### [ Emissivity adjustment]

Please rotate the emissivity adjustment dial on the back side of sensor to change the emissivity.  
Please refer to 'Emissivity table on page 10.

### [Laser pointer]

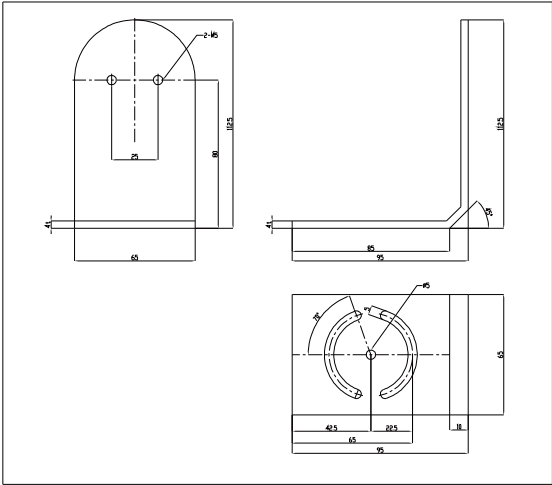
To aim object, Please activate laser pointer.  
Please push laser switch 'LZ' for laser pointers on/off.

## 7. DIMENSION

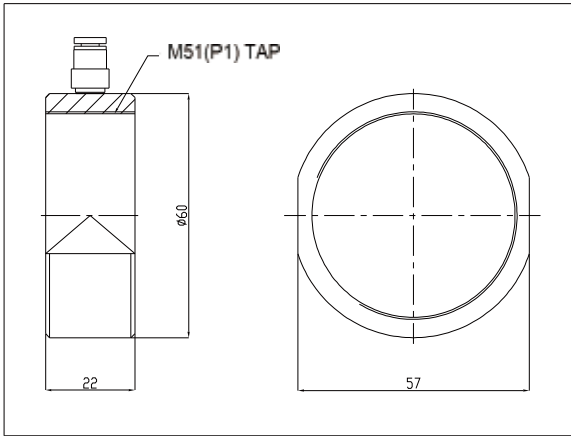


# 8. Accessories / Options

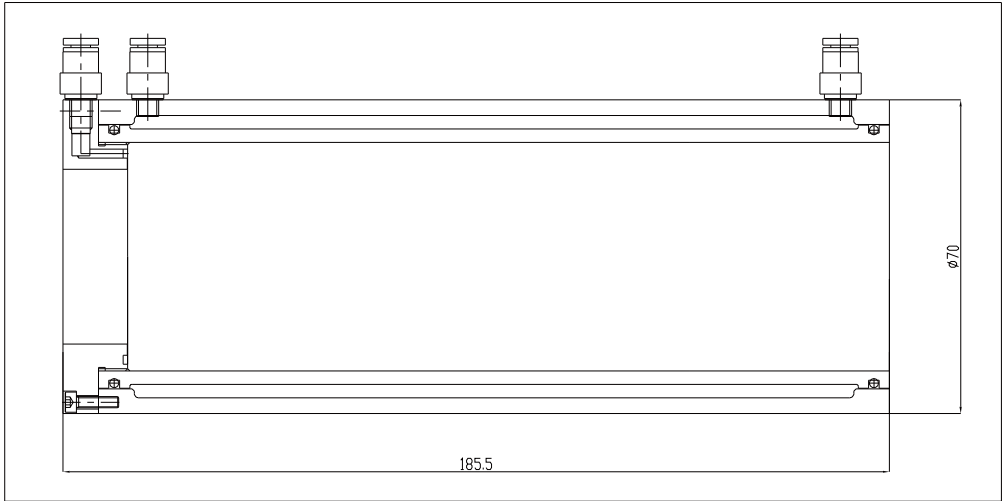
## Adjustable Bracket



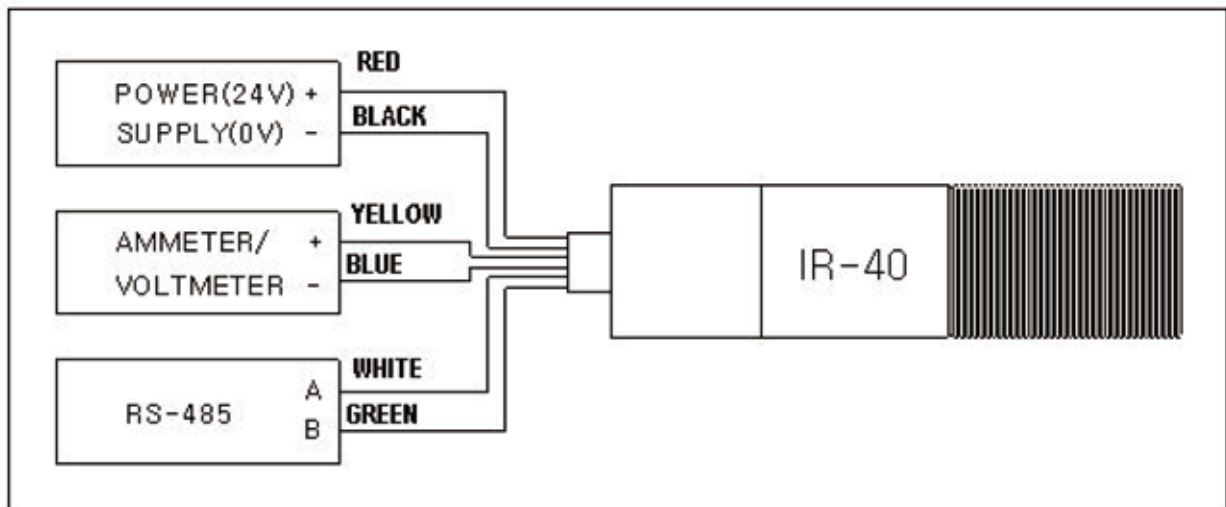
## Air-purge



## Air and Water-cooler housing



## 9. Wiring



No.	Wire color	Usage
1	Red	Power 24VDC(+)
2	Black	Power 0V(-)
3	White	RS485 A
4	Green	RS485 B
5	Yellow	Analogue output(+)
6	Blue	AGND(-)

## 10. COMMUNICATION SPECIFICATION

Serial Interface(Default value)

Baud Rate: 4800 baud

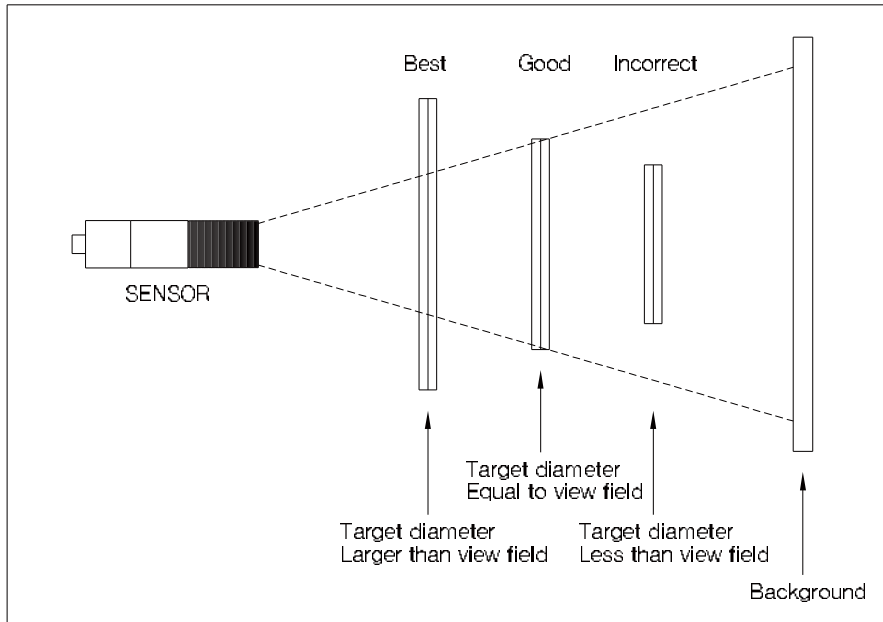
Data bits: 8

Parity: none

Stop bits: 1

## 11. INSTALLATION

- Please make sure the target area is larger than the field of view.

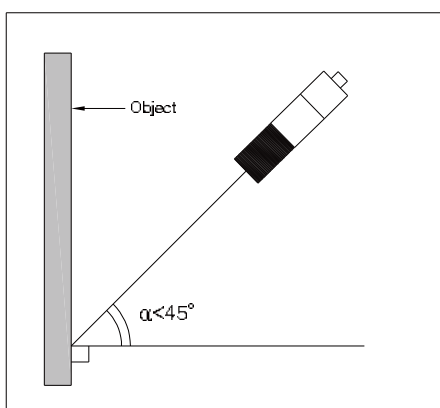


The spot size is decided by the distance from the sensor to the target.

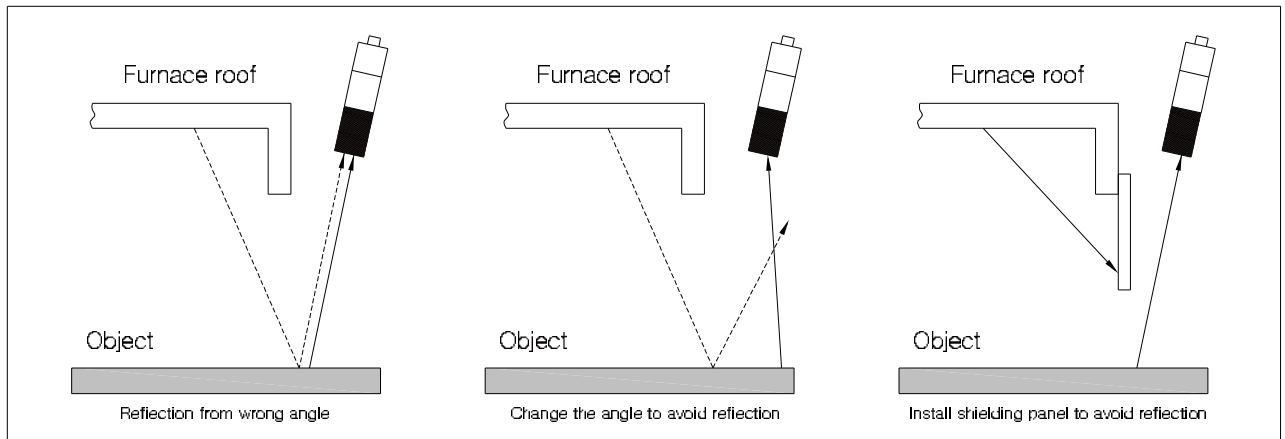
Please refer to the 'section 5. Optical field of view' and make sure your target area is larger than the field of view.

- Please locate the sensor vertical against the target.

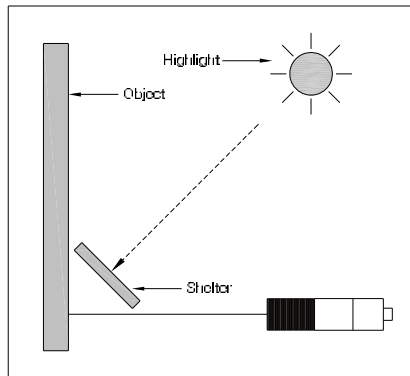
It is the best for you to install the sensor vertical against the target area or object. If it is not available, the sensor should be more than  $45^\circ$  against the target area. Otherwise, it can affect the measuring accuracy.



- Please avoid the heat reflection from other high temperature materials



- Please avoid highlight.



- Please avoid electronic noise.

Please avoid the high frequency or high voltage area such as motor, pump, power line, and so on.

- Check sensor and wiring



## 12. Emissivity Table

### Appendix A – Emissivity Table Metals

Material		Typical Emissivity
Aluminium	Non oxidized	0,02-0,1
	Polished	0,02-0,1
	Roughened	0,1-0,3
	Oxidized	0,2-0,4
Brass	Polished	0,01-0,05
	Roughened	0,3
	Oxidized	0,5
Copper	Polished	0,03
	Roughened	0,05-0,1
	Oxidized	0,4-0,8
Chrome		0,02-0,2
Gold		0,01-0,1
Haynes	Alloy	0,3-0,8
Inconel	Electro polished	0,15
	Sandblast	0,3-0,6
	Oxidized	0,7-0,95
Iron	Non oxidized	0,05-0,2
	Rusted	0,5-0,7
	Oxidized	0,5-0,9
	Forged, blunt	0,9
Iron, casted	Non oxidized	0,2
	Oxidized	0,6-0,95
Lead	Polished	0,05-0,1
	Roughened	0,4
	Oxidized	0,2-0,6
Magnesium		0,02-0,1
Mercury		0,05-0,15
Molybdenum	Non oxidized	0,1
	Oxidized	0,2-0,6
Monel (Ni-Cu)		0,1-0,14
Nickel	Electrolytic	0,05-0,15
	Oxidized	0,2-0,5
Platinum	Black	0,9
Silver		0,02
Steel	Polished plate	0,1
	Rustless	0,1-0,8
	Heavy plate	0,4-0,6
	Cold-rolled	0,7-0,9
	Oxidized	0,7-0,9
Tin	Non oxidized	0,05
Titanium	Polished	0,05-0,2
	Oxidized	0,5-0,6
Wolfram	Polished	0,03-0,1
Zinc	Polished	0,02
	Oxidized	0,1

## Appendix B – Emissivity Table Non-Metals

Material		Typical Emissivity
Asbestos		0,95
Asphalt		0,95
Basalt		0,7
Carbon	Non oxidized Graphite	0,8-0,9 0,7-0,8
Carborundum		0,9
Ceramic		0,95
Concrete		0,95
Glass		0,85
Grit		0,95
Gypsum		0,8-0,95
Ice		0,98
Limestone		0,98
Paint	Non alkaline	0,9-0,95
Paper	Any color	0,95
Plastic >50µm	Non transparent	0,95
Rubber		0,95
Sand		0,9
Snow		0,9
Soil		0,9-0,98
Textiles		0,95
Water		0,93
Wood	Natural	0,9-0,95