

# ***Infrared Thermometer***

## ***Ga Ufh=F!16***



# Ga Ufh=F!%6 Infrared Thermometer

## Features

- Advanced digital design
- Various analog & digital signal output
- Repeatability:  $\pm 1^{\circ}\text{C}$
- Advanced mechanism of diaphragm
- Spectrum response:  $8\text{-}14\mu\text{m}$
- Accuracy:  $\pm 2.0\%$  or  $\pm 2.0^{\circ}\text{C}$
- Resolution:  $0.1^{\circ}\text{C}$
- Less than 500ms response time
- Factory calibration with temperature compensation
- Wide range of operating temperature
- Easy to install and maintain, low cost



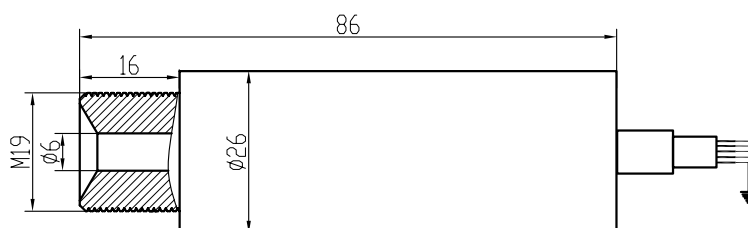
## Description

Smart IR-16 is composed of metal housing, optical component and special integrated circuit, can be used for the temperature measurement in electric power, metallurgy, petrification and other industry.

Smart IR-16 shell head has mounting thread, which can be easily used with fixed frame and customer system bolt hole, for installation and system integration, and it provides options.

Smart IR-16 meets industry requirements such as firmness, durability, anti-shock and anti-vibration. IP65 protection housing and good sealed cable connecting can avoid corrosion and damage caused by the water mist, grease or dirt.

## Dimensions (mm)



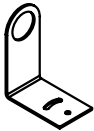
## Wiring

Cable wire color	RS232 output	RS485 output	4~20mA output	Voltage output
Red	Power+	Power+	Power+	Power+
Black	Power-	Power-	Power-	Power-
Yellow	RS232-RXD	RS485-A	$I_{\text{out}+}$	$V_{\text{out}+}$
Green	RS232-TXD	RS485-B	$I_{\text{out}-}$	$V_{\text{out}-}$
Bare wire	Shield ground	Shield ground	Shield ground	Shield ground

## Performances

Range	0~300°C, 0~500°C, -20~300°C, 0~800°C
Resolution	0.1°C
Accuracy	±2.0% of reading or ±2.0°C, which greater
Repeatability	±1.0°C
Spectrum response	8~14μm
Distance to Spot ratio(D:S)	3:1, 5:1, 8:1
Operating temperature range	0~70°C
Storage temperature range	-20~85°C
Relative humidity	10~90%, no condensation
Response time	100~500ms, default 300ms
Emissivity	Default 0.95(Adjustable)
Spot diameter (Min.)	Φ6mm
Measuring distance (Min.)	10mm
Analog output	4~20mA, 0~5VDC, 10mV/°C
Digital output	RS485, RS232
Power supply	12VDC, 24VDC, 18~30VDC
Size	Φ26×86mm
Protection	IP65
Weight	150g

## Options

Item	Photo	Function
38A-03	 <p>L mounting bracket</p>	Easy to install and adjust.

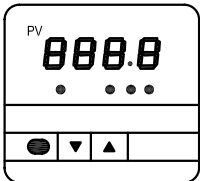
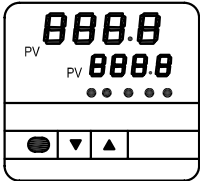
## Ordering

.....=F!%*	D:S	Range(°C)	Output	Cable type	Cable length	Power supply
	1=3:1 2=5:1 3=8:1	1= 0~300 2=-20~300 3= 0~500 6= 0~800	3=RS485 4=RS232 5=4~20mA 6=0~5VDC 7=10mV/°C	1=Non-shielded 2=Shielded 3=Pyrotenax (up to 250 °C)	1=1.0m (Standard) ... n= n.0 m	7=12VDC 8=24VDC 9=18~30VDC

For example: Smart IR-16- 113/259

Means: The Smart IR-16 with parameter D:S is 3:1, range 0~300°C, RS485 output, 18~30VDC power supply, 5 meters shielded cable.

## Appendix 1: Display Instrument

Item	Photo	Function
D101	 <p>Single channel display instrument</p>	Single channel , LED display, without alarm, with 24VDC power supply to thermometer
D102		Single channel , LED display, with alarm, with 24VDC power supply to thermometer
D103		Single channel , LED display, with PID control & alarm, with 24VDC power supply to thermometer
D104		Single channel, LED display, with RS485 output , without alarm, with 24VDC power supply to thermometer
D105	 <p>Double channel display instrument</p>	Double channel, LED display, without alarm, with 24VDC power supply to thermometer
D106		Double channel, LED display, with alarm with 24VDC power supply to thermometer
D107		Double channel, LED display, with PID control & alarm, with 24VDC power supply to thermometer
D108		Double channel, LED display, with RS485, without alarm, with 24VDC power supply to thermometer

## Appendix 2: Emissivity Table

Typical emissivity values for metals

Material		Emissivity
Aluminum	Unoxidized	0.02-0.10
	Oxidized	0.20-0.40
Alloy A3003	Oxidized	0.30
	Roughened	0.10-0.30
Brass	Burnished	0.30
	Oxidized	0.50
Haynes	Alloy	0.30-0.80
Inconel	Oxidized	0.70-0.95
	Sandblasted	0.30-0.60
Iron	Oxidized	0.50-0.90
	Un oxidized	0.05-0.20
	Rusted	0.50-0.70
Iron, cast	Oxidized	0.60-0.95
	Un oxidized	0.20
Iron, Wrought	Dull	0.90
Lead	Rough	0.40
Molybdenum	Oxidized	0.20-0.60
Nickel	Oxidized	0.20-0.50
	Electrolytic	0.05-0.15
Platinum	Black	0.90
Steel	Cold-rolled	0.70-0.90
	Ground sheet	0.40-0.60
	Polished sheet	0.10
	Oxidized	0.70-0.90
	Stainless	0.10-0.80
Titanium	Oxidized	0.50-0.60

Typical emissivity values for non-metals

Material		Emissivity
Asbestos		0.95
Asphalt		0.95
Basalt		0.7
Carbon	Un oxidized	0.80-0.90
	Graphite	0.70-0.80
	Carborundum	0.90
	Geramic	0.95
	Clay	0.95
	Concrete	0.95
	Cloth	0.95
	Class-plate	0.85
	Gravel	0.95
	Gypsum	0.80-0.95
	Ice	0.98
	Limestone	0.98
	Paint(non-al.)	0.90-0.95
	Paper(any color)	0.95
	Plastic	0.95
	Rubber	0.95
	Sand	0.90
	Snow	0.90
	Soil	0.90-0.98
	Water	0.93
	Wood, natural	0.90-0.95

