Infrared Thermometer

VTIR0812

VTIR0812

VTIR1816

VTIR2816

VTIR3816

VTIR4816

VTIR5816

VTIR6816

VTIR8816

VTIR0812 Infrared Thermometer

Features

- Low-cost, small size, embedded application
- Less than ±1℃ repeatability
- 8-14μm spectral response
- ±2℃ or ±2% accuracy
- 0.1℃ resolution
- 100~500ms response time
- Full temperature calibration & compensation
- SPI, RS232 & RS485 output
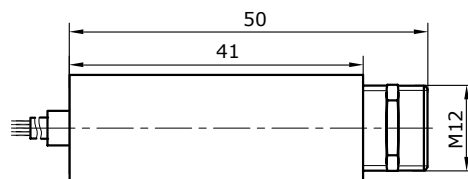- Easy to install & maintain
- Excellent ESD

Description

VTIR0812 industrial infrared temperature probe is a low cost and non-contact product, which can be easily integrated in PDA & handhold instruments, also installed in narrow space for special requirements. Adopted advanced process technology and powerful ASIC, VTIR0812 provided many outputs, such as SPI, RS232, RS485. For power supply, +2.7VDC, +3VDC, +3.3VDC and +5VDC are available to select. Also Vigor can provide special product as clients' request data format, power supply, temperature range, size and so on.

Applications

Various hand-hold instruments & Industrial PDA
Small space temperature monitoring
Portable temperature control equipment

Dimensions (mm)

Wiring

Cable wire color	RS232 output	RS485 output	SPI output
Red	Power +	Power +	Power +
Black	Power -	Power -	Clock "CLK"
Yellow	RS232-RXD	RS485-A	Data "DAT"
Green	RS232-TXD	RS485-B	Select "SEL"
Bare wire	Shield ground	Shield ground	Power-

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Performances

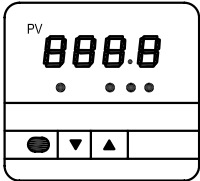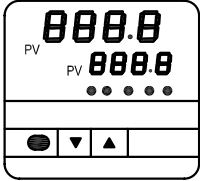| Range	0~300°C, 0~500°C, −20~300°C
Resolution	0.1℃
Accuracy	±2℃ or ±2%, which greater
Repeatability	±1.0℃
Spectral response	8~14μm
Distance to Spot ratio(D:S)	3:1, 5:1, 6:1
Operating temperature range	0~70℃
Storage temperature range	-20~85℃
Relative humidity	10~90%, no condensation
Response time	100~500ms, default 300ms
Emissivity	Default 0.95(Adjustable)
Spot diameter(Min.)	6mm
Measuring distance(Min.)	15mm
Digital output	SPI, RS485, RS232
Power supply	+2.7VDC, +3VDC, +3.3VDC or +5VDC (RS232 or RS485 output, should be +5 VDC)
Current consumption	<25mA
Size	Φ15×50mm
Protection	IP65
Wiring type	Pigtail with 30cm cable (Special demands can be customized)
Weight	20g

Ordering

VTIR0812-	D:S	Range(℃)	Output	/	Cable type	Cable length	Power supply
	1=3:1	1= 0~300	1=SPI		1=Non-shielded	1=0.3m	1=2.7VDC
	2=5:1	2=-20~300	3=RS485		2=Shielded	(Standard)	2=3VDC
	3=6:1	3=0~500	4=RS232		3=Pyrotenax	...	3=3.3VDC
					(up to 250℃)	n= n.0m	4=5VDC

(Note: The power supply should be +5VDC for RS232 or RS485 output.)

For example: VTIR0812—321/253

Means: the VTIR0812 with parameter D:S is 6:1, range -20~300℃ ,SPI output, +3.3VDC power supply, 5 meters shielded cable.

Appendix 1: Display Instrument

Item	Photo	Function
D101		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 display instrument	Single channel, LED display, with RS485 output , without alarm, with 24VDC power supply to thermometer
D105		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 display instrument	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