Product Features

●Customized Digital/Analog signal output
●Repeatability: <±1℃
●Spectrum response: 8-14μm
●Accuracy: greater of ±2℃ or 2% of reading
●Resolution: 0.1℃
●Response Time: 250-500ms
●Temperature calibrated and compensated
●Factory calibrated with temperature compensation within full scale
●Measurable object distance: 0~15 meters
●Wide operating temperature range
●Easy to install and maintain with low cost

Product Overview

VTIR-series products are industrial temperature measuring devices using in electric power, metallurgy, petrifaction and other related fields. Digitalized circuit, factory calibration with black body, temperature compensation and linearization with MCU ensures the high accuracy and stable output of this IR sensor with the full measuring range. Standard VTIR has 5 different temperature specifications which targets the object of -50°C~300°C. Upon request, we could provide IR sensors with the temperature range up to 1500°C. Working temperature is 0~75°C.

Optical parts adopt imported sensitive thermopile, crystal silicon lens and optimal heat sink. Spectrum response is 8 ~ 14 μm which greatly enhance the accuracy, measurable object distance and output stability of the sensor by cutting down interference of dust, vapor visible light, noise and temperature fluctuation. D:S-5:1, 8:1 and 10:1. Greater ratio (≤200:1) is also available as a special business design.

It provides both digital output like RS232, RS485, I^2C, PWM and SPI and 0 ~ 5VDC, 4~20mA and 10mV/°C analog output. Default power supply is 5VDC, 12VDC and 24VDC (18 ~ 30VDC) and it is also adjustable according to different application or system integration.

Mechanical: stainless steel and other metal part housing facilitates the sensor to field installation to stand shock and vibration. IP65 enclosure enables the sensor dripping-proof and dust-proof. VTIR provides 16.0mmXΦ19.00mm length screw thread for easy system integration and installation as well as other some optional accessories.

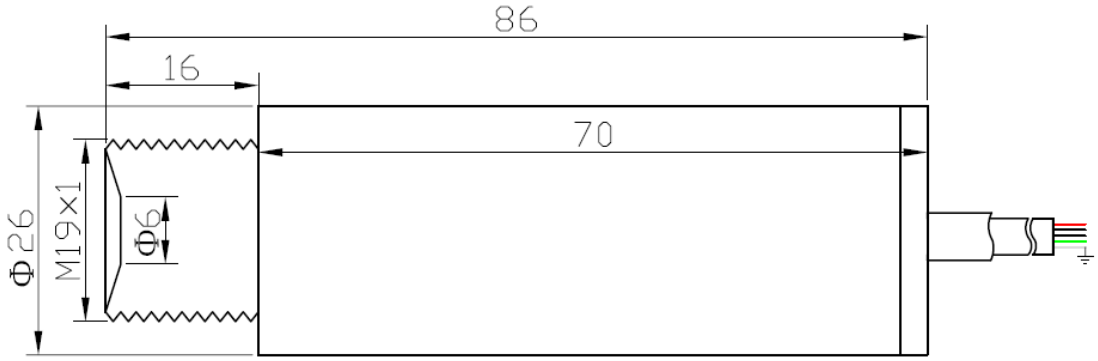
Based on ASIC, VTIR is easy to adapt according to the OEM customers request with below specifications: Temperature Range, Precision, Distance: Spot Ratio, Ambient Temperature, Emissivity, Power Supply, Type of Output and special mechanical configuration.

Specifications

There are five measurement ranges of the VTIR-3816 series: 0~300°C, -20~300°C, 0~500°C, -20~300°C and -50~300°C.

Model	VTIR-1816
Resolution	Typical 0.1°C
Precision	greater of ±2℃ or 2% of reading
Repeatability	±1°C of absolute temperature measured
Spectrum Response	8 ~ 14 μ m
Distance: Spot Ratio	5:1, 8:1, 10:1
Operating Temperature	0 ~ 75°C
Storage Temperature	-20 ~ 85°C
Response Time	250~500ms
Relative Humidity	10-90%,
Emissivity	Default 0.95, adjustable
Object Distance	0~5 m
Housing	IP65
Power Supply	5VDC, 2VDC, 24VDC (18~30VDC)
Analog Output	4~20mA, 0~5 V or10mV/°C
Digital Output	SPI, RS485(With Modebus protocol), I^2C, RS232(With data-building software), PWM

External Dimension



Standard Cable Wiring

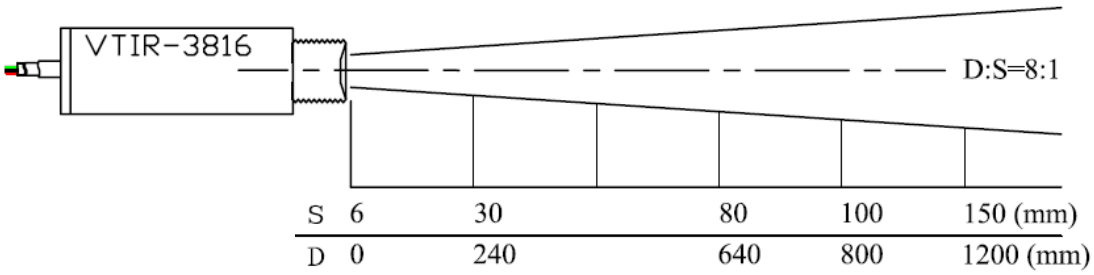
Cable Color	Digital Output	Analog Output
Red	Power Supply +	Power Supply +
Black	Power Supply –	Power Supply –
White	Signal Input	Signal +
Green	Signal Output	Signal -
Bare cable	Shield Ground	Shield Ground

Notes for installation

VTIR series absorb infrared radiation energy emitted from the target and convert it to electric signal or digital signal output, and the installation of the sensor will greatly affects the accuracy, sensitivity and response. Here are some extreme situations to be avoided:

- Ambient temperature changes greatly
- Collision or vibration
- Object emitted infrared ray will go through glass or mist
- Environment with liquid, causticity gas or on the sea shore
- Constant use under high temperature
- Environment with static noise or strong electromagnetic wave
- Environment with heated airflow or air-conditioning

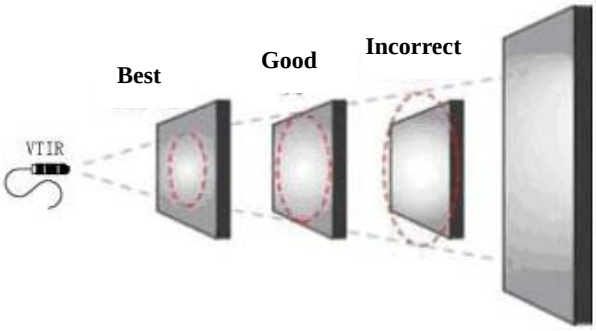
Optical Chart



D-Distance: direct distance between the sensor and the object
S-Spot: diameter of the area on the object that the sensor could measure

Sensor Installation

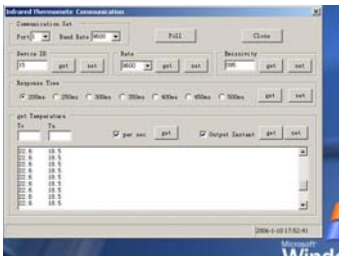
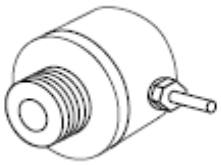
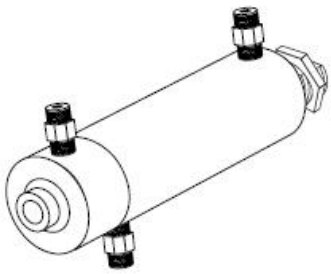
If the target is smaller than the spot size, the output data is the average value of the target and background covered by the sensor. Therefore, before installment, the user should make sure the target is greater than or at least equal to the spot size so as to adjust the position of the sensor.



Mounting Bracket

This bracket is applicable when frequent change of angle between the pyrometer and the object is applied

ACCESSORIES

	**Single or double input display** ➢ Support customized multi-network protocol
	**Single or double relay-control and display** ➢ Power supply 24VDC ➢ Dimension: 160(W) × 80 (H) mm，80(W) × 160(H)mm ➢ Single or double relay output
	**Data-building Software** ➢ Provide long-distance control ➢ Data storing and restoring for future analysis ➢ Set emissivity（ξ） with software ➢ Capable of connecting 32 VTIR in one RS485 network
	**Air Purging** When vapor or moisture around the object covers the lens, the measuring result will be greatly affected. An air purging equipment is available to blow away moisture within the measuring area to guarantee the measuring accuracy. Purging types: laminar flow and upright flow.
	**Air/Water-cooled Housing** When ambient temperature is above 50℃, an air/water-cooled housing is recommended to ensure VTIR to work properly with accurate output.

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How to order

VTIR3816 — □ □ □ / □ □ □

D:S	Range(℃)	Output	Cable type	Cable length	Power supply
1=5:1	1= 0~300	1=RS232	1=non-shielded	1=1.0m	1=5VDC
2=8:1	2=-20~300	2=4~20mA	2=shielded	2=2.0m	2=12VDC
3=10:1	3= 0~500	3= 0~5v	3=high Temp.	3=3.0m	3=24VDC(18--30VDC)
	4=-20~300	4=SPI		4=5.0m	
	5=-50~300	5=RS485		(Adjustable)	
		6=PWM			
		7=10mV/°C			
		8= I^2C			

e.g. VTIR3816－215/ 223

IR sensor with D:S=8:1, measuring range=0 ~ 300℃, RS485 output, 24VDC Power supply, 2.0m shielded cable.

For OEM Client Only

Temperature Range	
Precision	
Distance: Spot Ratio	
Ambient Temperature	
Response Time	
Emissivity	
Power Supply	
Type of Output	

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