

Model TIR-12/35 Infrared Temperature Sensor



Model list

Model	Field of View	Output signal	Temperature range of target
TIR-12NA	12 °	4 mA to 20 mA DC	0 °C to 60 °C
TIR-12WA			-20 °C to 150 °C
TIR-12NV		1 V to 5 V DC	0 °C to 60 °C
TIR-12WV			-20 °C to 150 °C
TIR-35NA	35 °	4 mA to 20 mA DC	0 °C to 60 °C
TIR-35WA			-20 °C to 150 °C
TIR-35NV		1 V to 5 V DC	0 °C to 60 °C
TIR-35WV			-20 °C to 150 °C

Application

- Food temperature control
- Temperature control in factories
- Temperature control for painting
- Temperature control in asphalt
- Temperature control for resin molding

Features

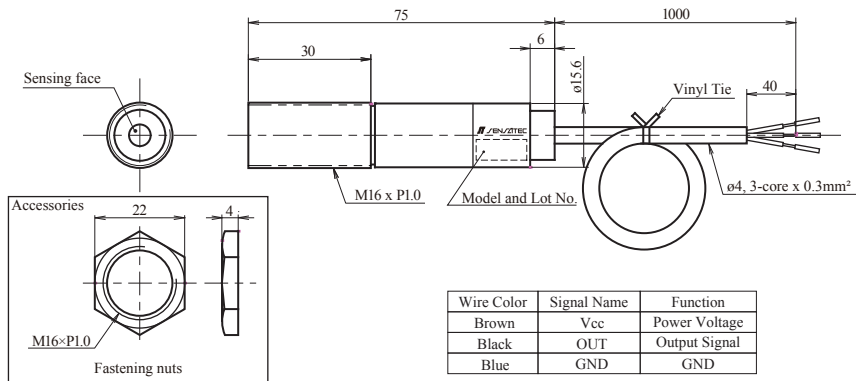
- Low-price non-contact temperature sensor with high-accuracy.
- Non-contact temperature measurement ensures hygienic use.
- Regardless of distance, non-contact temperature measurement enables instantaneous measurement.
- Outputs of 4 mA to 20 mA DC as well as 1 V to 5 V DC are available signals for instrumentation.
- Rugged enclosure ensures reliable use in environments exposed to water droplets and dust particles.

Rating/Performance

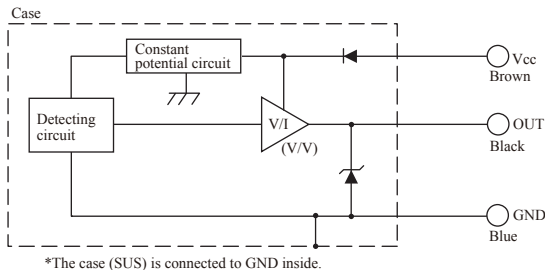
Model	TIR-12*A	TIR-12*V	TIR-35*A	TIR-35*V
Detection sensor	Thermopile			
Wavelength	2.5 to 14 μm		5.5 to 14 μm	
Object-Temperature Range	-20 °C to 150 °C			
Temperature Accuracy	-20 °C to 0 °C : ± 2 °C , Ta = 25 °C 0 °C to 60 °C : ± 1 °C , Ta = 25 °C 60 °C to 150 °C : ± 2.5 °C , Ta = 25 °C			
Emissivity	0.95 fixed			
Field of View	12 ° FOV		35 ° FOV	
Response Time	150 ms			
Power Voltage	12 V to 24 V DC (Operating voltage range: 10 V to 30 V DC)			
Power Consumption	450 mW max		450 mW max	
Current Consumption		7 mA DC max		7 mA DC max
Output Signal	4 mA to 20 mA DC	1 V to 5 V DC	4 mA to 20 mA DC	1 V to 5 V DC
Load Resistance	300 Ω max	100 kΩ min	300 Ω max	100 kΩ min
Ambient Temperature Range	-10 to 70 °C (Storage: -20 to 70 °C) (Without dew condensation or freezing)			
Humidity Range	35 to 85% RH or less (Storage: 85% RH or less) (Without dew condensation)			
Vibration Resistance	Durability: 10 to 55 Hz, Double amplitude: 1.5 mm in X-, Y-, and Z-direction, each 2 hours (Device not powered)			
Shock Resistance	Durability: 500 m/s ² (Approx. 50 G) in X-, Y-, and Z-direction, each 3 times (Device not powered)			
Ingress Protection	IP65			
Case Material	Case: SUS, Cable lead-out portion: PC			
Cable	ø4, 3-core round cable (oil/heat resistant), Conductor cross section: 0.3 mm ² , Length: 1 m			
Weight	Approx. 80 g (without accessories)			
Accessories	Hexagonal nuts SUS x 2 pcs			

Model Designation	TIR - 12 N A 	Output signal	A : Current output (4 mA to 20 mA) V : Voltage output (1 V to 5 V DC)
		Temperature range of target N	N : 0 to 60 °C W : -20 °C to 150 °C
	Field of View	12 : 12 ° 35 : 35 °	

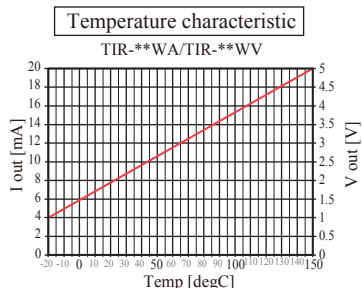
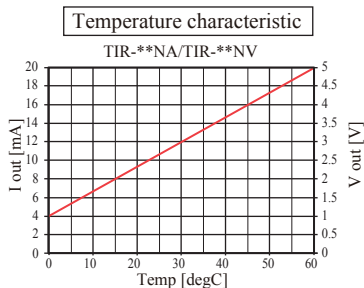
Dimensions



Output Circuit



Graph Plots of Characteristics (typical examples)



Precautions during use

1. Infrared emissions can be seen radiating from many objects according to their temperature. Apart from the temperature, the energy intensity of the thermal emission depends also on the emissivity specific to the object. Standard emissivity is fixed at 0.95. While this can be used for general applications, if a temperature measurement needs to be performed more precisely, the emissivity can be customized. Please consult us for further information.
2. The size of the measurement target needs to be larger than the field of view of the sensor. If the target size is less than the field of view, correct measurement cannot be performed because peripherals areas will also be measured as part of the target.
3. If sensing face is contaminated with dirt, water or dust or scratches, correct measurement of temperature may not be possible.
4. Avoid contact with the measurement target.
5. For other details, refer to the general precautions on the use of infrared temperature sensors.

*For a detailed specification of the other, please refer to specifications.