

Non-contact Infrared Temperature Sensor

[Type: SEN0256-TS01(0-3V)]

Product Specification

Version Number: V1.0

ShangHai DFRobot Robotics Co.,Ltd

1. Introduction

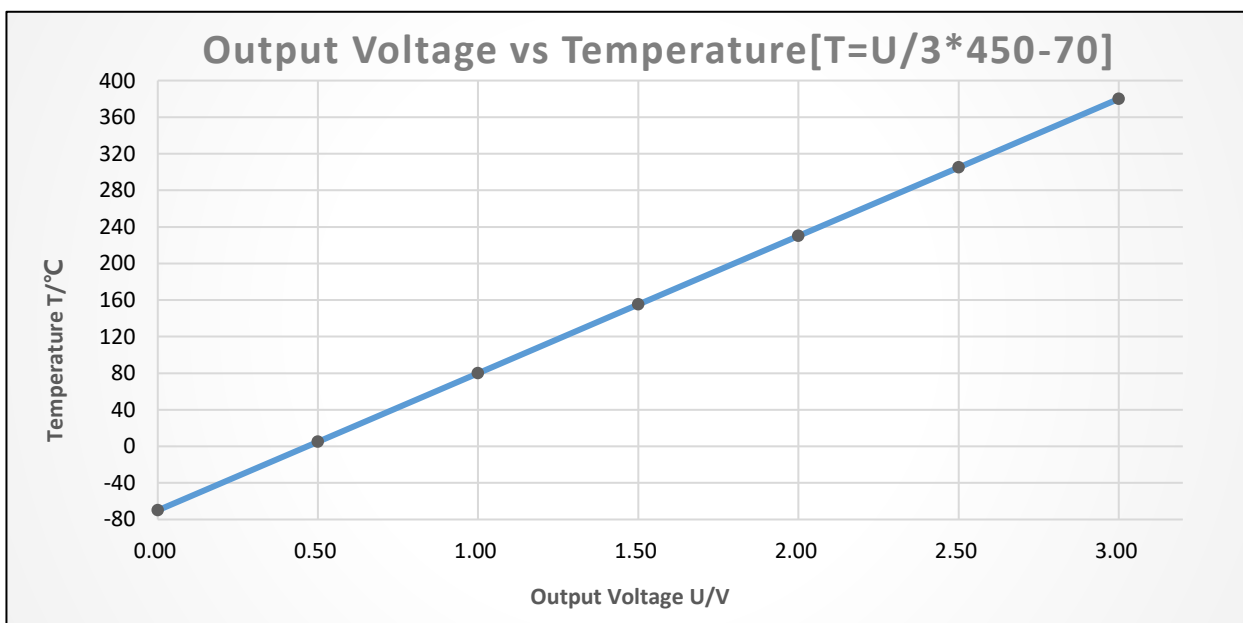
This product is a non-contact infrared temperature sensor. It can be used to detect the infrared intensity of an object so as to calculate its surface temperature without touching, and then convert the temperature value into voltage value and output it.

The sensor's case is made of metal which makes it able to protect against impact, water, dust and so on. Given stable output data, this temperature sensor can exhibit a much better measuring performance than most other similar products on the market.

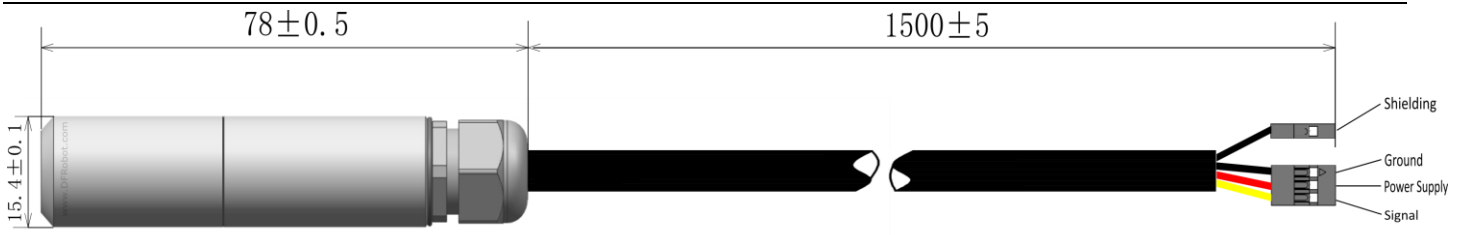
2. Specification

- Operating Voltage: DC 5.0~24.0V
- Operating Temperature Range: -40°C~85°C
- Measuring Range: -70°C~380°C
- Output Signal: 0~3V
- Temperature Resolution: 0.11°C
- Measuring Accuracy: $\pm 0.5^{\circ}\text{C} \sim \pm 4^{\circ}\text{C}$ [see remarks]
- Nominal Operating Current: 20mA
- Field of View(FOV): 5° [see remarks]
- Defense Grade: IP65
- User Interface: DuPont Pin

3. Output Voltage vs Temperature



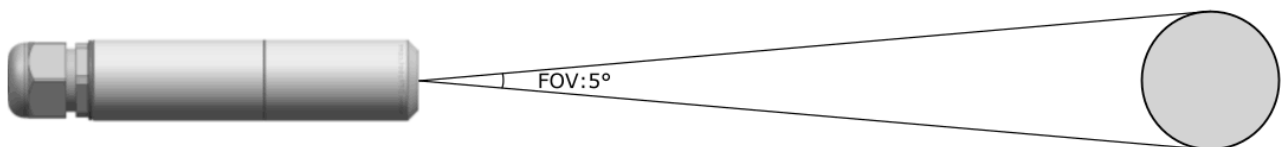
4. Dimension and Interface Description (mm)



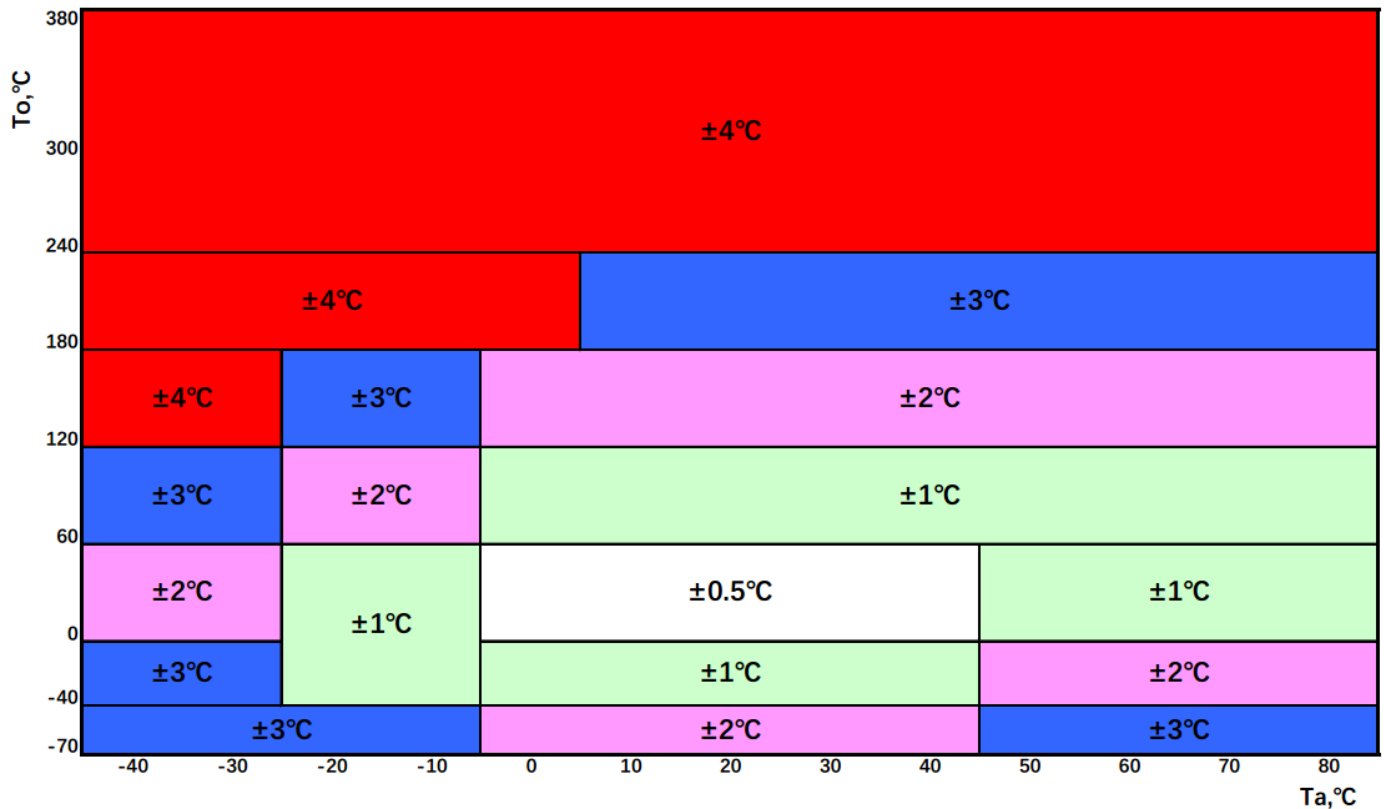
Interface Description	
Name	Description
Power Supply	Positive Pole (Vin)
Ground	Negative Pole(GND)
Signal	Analog Voltage Output (0-3V)
Shielding	Grounding the shielding can help to reduce noise

5. Remarks

- The field of view(FOV) of the sensor is 5°. The target dimension and the optical properties of the IR temperature sensor decided the maximum distance between the target and the probe. The field of view of the sensor is shown below.



- The gradient diagram of measuring accuracy of the sensor is shown below (T_o is the measured temperature; T_a is the temperature of the environment the sensor locates in). Please note that the temperature error only applies to a certain isothermal condition, and it's only valid when the detected object is fully filling in the FOV of the sensor.



- The measured temperature is an average temperature value that belongs to the detected heat source in the FOV of the sensor. If there is a need for accurate measurement, users have to correct the data for the practical using scene.
- Using low-noise power input is helpful to improve the accuracy.
- Do not use the sensor in the condition out of the rated technical parameters in order to avoid device damage.
- The product is equipped with an all-metal case and shielding wires, which can effectively reduce electromagnetic interference. However, for a more stable performance, please try to keep the sensor away from electromagnetic source (such as motor, high-power cable) when installing the device.

6. Shipping List

TS01 Infrared Temperature Sensor (with an 1.5 cable), Certificate, Warranty Card.

Declaration

This document is copyright of ShangHai DFRobot Robotics Co.,Ltd. All rights reserved. Except with our express written permission, you may not copy, translate the document or store it in any other database or other form of electronic retrieval system for commercial purposes. Nor may you transmit it in the form of reproduction, e-book etc.

Thank you for purchasing our products. Our company has been adhering "scientific and technological advance" business philosophy, and constantly devoting to product improvement and technological innovation. For giving you an enjoyable experience to our products and minimizing device damage, please try to read this document carefully and use the product as the way we suggested. Please note that we do not accept any responsibility for the device damage caused by your improper operation, such as removing, dismantling or replacing internal parts of the product, or using the device in the way against the instruction.

Except customized product, the pictures of the color, style and size of the product are for reference only. Information contained herein is subject to change without notice. Please confirm this document's validity when you use it. We warmly welcome users to share any optimized usage of this product according to actual use.

Please keep this Specification well so that you can read it and get help later.