01A Series Infrared Temperature Sensors

INTRODUCTIONS

The 01A series infrared temperature sensor can calculate the surface temperature of an object by measuring the intensity of infrared radiation emitted by the target without touching it. Non-contact temperature measurement is the biggest advantage of infrared thermometer, so that users can easily measure the target that is difficult to approach or move.

The temperature sensor is an integrated infrared temperature sensor, the sensor, optical system and electronics are integrated together in a stainless steel housing; easy to install, the standard threads on the metal housing can be quickly connected to the installation site; there are also various types of options (such as blowers, mounting brackets, adjustable mounting brackets, blow protection sleeve, etc.) to meet the requirements of various working conditions.

Note: Infrared is not visible, you can add a laser sighting.

TECHNICAL SPECIFICATIONS

Basic Parameters

Product name: 01A infrared thermometer

Product Model: ABSD-01A

Technical Parameters

Measurement wavelength: 8~14μm long wave

Discrimination rate: 20:1

Emissivity: 0.95

Measuring distance: within 1m
(the best installation distance of 20~30cm)

Measuring medium: rubber/stone/wood/plastic and other non-metals, ferrous metals

Measurement form: non-contact infrared
(infrared is not visible can add laser targeting)

Measurement range: -30~1300 ℃ segment optional

Measurement accuracy: ± 1% or ± 1.5 ℃, take the larger value

Repeat accuracy: ± 0.5% or ± 1 ℃, take the larger value

Response speed: 150ms (can be customized 50ms)

Environmental Parameters

Working temperature: -20~60℃
(high temperature 120℃ plus cooling blowing set to cool down)

Working humidity: 10~95% (no condensation)

Storage temperature: -20~80℃

Electrical Parameters

Power supply: DC 12~24V, DC 5~24V (RS232)

Threaded interface: M18×1

Cable length: 1.5m (can be customized)

Shell material: 304 stainless steel

Protection grade: IP65 (NEMA-4)

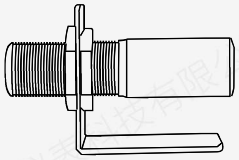
Product size: 113mm×φ18mm(length×diameter)
68mm×φ18mm(length×diameter)

Communication Parameters

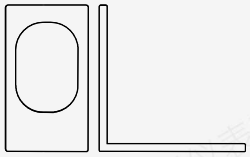
Analog output: 4-20mA (default), 0-5V, 0-10V

Communication output: RS485, RS232, 4G

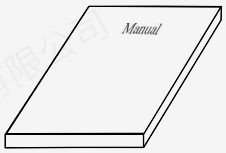
PACKAGE LIST



Temperature Sensor*1



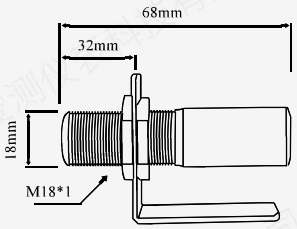
Install Bracket*1



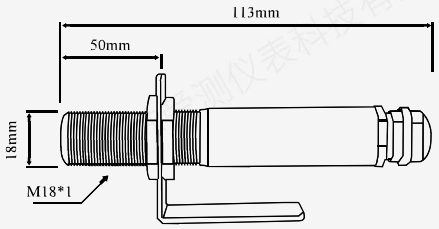
Manual*1

Certificate of Conformity*1

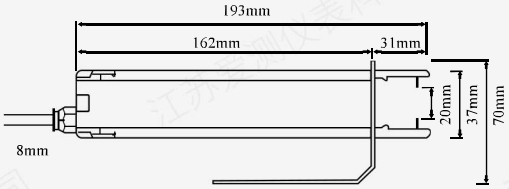
PRODUCT DIMENSIONS(mm)



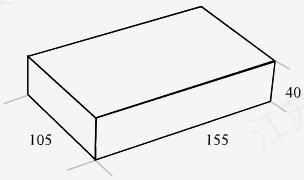
Short Type



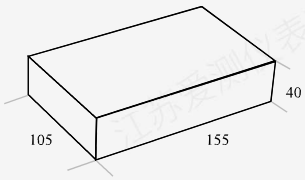
Long Type



Cooling Jacket



Short Type Package：0.2kg



Long Type Package：0.25kg

Model	Code	Notes
ABSD-01A		8~14μm long wave infrared Temperature senser
Product Dimensions	Omission	L113mm, OD18mm, Thread M18×1 (Default)
	S	L68mm, OD18mm, Thread M18×1
Temperature range	A	0~100℃
	B	0~200℃
	C	0~300℃
	D	0~400℃
	E	0~500℃
	F	0~600℃
	G	0~800℃
	H	0~1000℃
	DZ	-20~1300℃ Range can be customized
Output Signal	Omission	4-20mA(Default)
	AO2	0-5V
	AO3	0-10V
	C2	RS232
	C4	RS485(Modbus RTU)

OPERATING PRINCIPLE

Any object radiates infrared energy to the outside, and the intensity of the radiation changes with the change of temperature. Infrared temperature sensors generally use infrared radiation energy with wavelengths in the range of 0.8~18μm. Infrared temperature sensor is an optoelectronic sensor, which receives infrared radiation and converts it into an electrical signal, which is amplified, linearized, and signal processed by an electronic circuit to display or output the temperature.

CAUTIONS

I. Maximum distance and size of the measured point

The size of the measured target and the optical characteristics of the infrared temperature sensor determine the maximum distance between the measured target and the measuring head. In order to avoid measurement errors, the measured target should try to fill the field of view of the probe head. Therefore, the measured point should be kept always smaller than the measured object or at least the same size as the measured target.

II. The ambient temperature

01A series infrared temperature sensor can work in the ambient temperature range of 0~60℃. Otherwise, please choose the cooling jacket.

III. The lens clean

The lens of the instrument must be kept clean to avoid measurement errors or even damage to the lens due to dust, soot and other pollutants, if the lens is stuck with dust, wipe the lens with a wipe paper dipped in anhydrous alcohol.

IV. Electromagnetic interference

In order to prevent electromagnetic interference, please ensure that the following measures. Please try to keep the infrared temperature sensor away from electromagnetic field sources (such as electromotors, motors, high-power cables, etc.) during installation, and add metal sleeves if necessary.

INSTALLATION

I. Mechanical mounting

The 01A series metal housing with M18×1 thread can be used for direct mounting or by using the mounting bracket. The adjustable mounting bracket can make the adjustment of the measuring head more convenient. When adjusting the target to be measured and the measuring head must ensure that the optical path is unobstructed.

II. Wiring definition

Signals	Wiring Methods	Cable Colors	Wiring Definitions
4-20mA	2-wire	Red	24VDC+
		Blue	Current+
	3-wire	Red	24VDC+
		Black, Orange	24VDC-
		Blue	Current+
	4-wire	Red	24VDC+
		Black	24VDC-
		Blue	Current+
		Orange	Current-
0-5V/0-10V	3-wire	Red	24VDC+
		Black, Blue	24VDC-
		White	Voltage+
	4-wire	Red	24VDC+
		Black	24VDC-
		White	Voltage+
		Blue	Voltage-
RS485	4-wire	Red	24VDC+
		Blue	24VDC-
		Green	RS485 A
		White	RS485 B

MAINTENANCE & WARRANTY

I. Maintenance

When you encounter any problems with your 01A series temperature sensor, please contact our service department. Our customer service staff will give you technical support on how to set up the temperature sensor to work, the calibration process, and maintenance.

II. Guarantee

Each instrument goes through a quality inspection process and if any problems occur, please contact the after-sales technical immediately.

The instrument has a warranty period of 12 months from the factory. If there is a problem with the instrument during the warranty period, it can be replaced, calibrated or repaired free of charge, and the shipping costs incurred during this period will be borne by the shipper. The manufacturer has the option to repair the instrument or replace the components. If the failure of the instrument is due to improper use by the user, the user must bear the cost of repair, in which case the user may inquire in advance about the cost of repair.

MODBUS RTU

1. Overview

This protocol complies with the MODBUS communication protocol and uses a subset of the MODBUS protocol in the RTU mode RS485 half-duplex mode of operation.

2. Serial data format

Serial port setting: no parity, 8 bits data, 1 bit stop bit

Example: 9600,N,8,1 Meaning: 9600bps, no parity, 8 bits of data, 1 bit stop

The transmitter supports the following serial baud rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

3. Communication format and register address table (refer to the attachment - communication protocol document)