TMCON®

THW18 Series

Online Infrared Temperature Sensor

User Manual

1 Introduction

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

THW18 series of online infrared thermometer is integrated infrared temperature sensors Its sensors, optical systems and electronic circuits are integrated in stainless steel shell, THW18 series is easy to install since its standard thread on the metal shell can be quickly connected to the installation site; At the same time THW18 series also has various types of components (such as purifier, mounting bracket, adjustable mounting bracket, purifier protective cover and etc) to meet the requirements of various working conditions.

2 Parameter Description

A. Basic performance

Protection grade	IP65(NEMA-4)
Ambient temperature	0~60℃
Storage temperature	-20~80 ℃
Relative Humidity	10-95%(No Dew)
Material	Stainless Steel
Cable length	1.5 m (standard) or customized

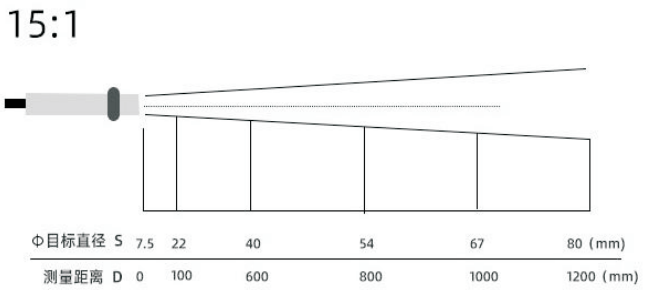
B. Electrical parameters

Working power	6~32 VDC
Output signal	0~5V/0~10V/4~20mA/K tc/RS485

C. Measurement parameters

Spectral range	8~14μm
Optical resolution	15:1
Response time	300 ms (95%)
Temperature range	0~100 ℃ /0~200 ℃ /0~300 ℃ /0~400 ℃ /0~500 ℃ /0~600 ℃ /0~800 ℃ /0~1000 ℃ /0~1200℃
Measuring accuracy	±2% or ±2℃ of the measured value, and the large value is taken
Repeat accuracy	±1% or ±1℃ of the measured value, and the large value is taken
Dimension	113mm×ϕ18mm(Length * Diameter)
Launch rate	pre-set 0.95(adjustable by software)

D. Light path diagram(15:1)



3 Working Principles and Attentions

A. Principle of infrared temperature measurement

Any object radiates infrared energy outward, and the radiation intensity varies with temperature. Infrared thermometers generally use infrared radiation energy with a wavelength of 0.8μm-18μm.

Infrared temperature sensor is a kind of optoelectronic sensor, which receives infrared radiation and converts it into electrical signal, which is displayed or output temperature by electronic circuit amplifier, linearization, signal processing.

B. Max distance and size of the measured point.

The size of the measured target and the optical characteristics of the infrared thermometer determine the maximum distance between the measured target and the measuring head. In order to avoid the measurement error, the target should be filled with the field of view of the probe as far as possible. Therefore, the measured point should always be smaller than the measured object or at least the same size as the target.

C. Ambient temperature

THW18 series of infrared temperature sensors can work in ambient temperature 0-60℃. Otherwise, please choose the cooling protection sleeve.

D. Lens cleaning

The lens of the instrument must be kept clean to avoid the measurement error or even damage to the lens due to the adhesion of dust, smoke and other pollutants. If the lens adheres to dust, the mirror paper can be wiped with anhydrous alcohol.

E. Electromagnetic interference

In order to prevent electromagnetic interference, please ensure the following measures:

Please keep the infrared temperature sensor away from the electromagnetic field source (such as motor, high power cable, etc.) when installing. Add metal casing when necessary.

4 Installation

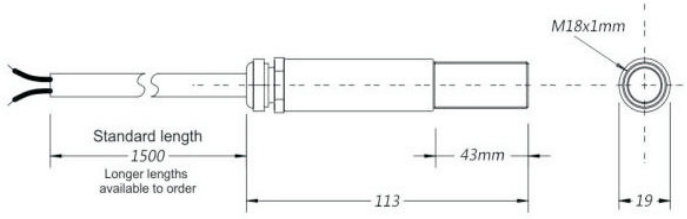
A. Mechanical installation

THW18 series has M18×1 thread, which can be used for direct installation or installing by mounting bracket. Choosing adjustable mounting bracket can make the adjustment of the measuring head more convenient. When adjusting the measured target and the measuring head, it is necessary to ensure that the optical path is unobstructed.

B. Electrical installation/wiring

Type	Line colour	Function
Current output 4～20mA	Red Line	DC power +6~32 V
	Black Line	Signal output 4~20 mA+
	Transparent Line	Shielding wire (non-polar output, red and black lines are interchangeable)
Voltage output 0~5V/ 0~10V/ K tc	Red Line	DC power +6~28 V/(11 V~28))
	Black Line	DC Power Ground
	Green Line	Signal Ground
	Yellow Line	Signal output
	Transparent Line	Shielding wire
Communication Output RS485	Red Line	DC power +6~32 V
	Black Line	DC Power Ground
	Green Line	D+/A
	Yellow Line	D-/B
	Transparent Line	Shielding wire

5 Dimensions



6 Packing List

Standard Accessories: THW18 series online infrared thermometer (including 1.5m long cable), fixed nut and user manual.