

## NON-CONTACT TEMPERATURE MEASUREMENT / DATA SHEET

# SS203-04

## Online Infrared Temperature Sensor

Non-contact online infrared thermometer for remote measurement of difficult-to-reach, high-voltage, high-speed or extreme-temperature targets.

### Overview

- Converts infrared radiation into an electrical temperature signal through infrared detectors.
- Non-contact measurement does not change the target temperature, supporting reliable results.
- Fast response and high sensitivity support difficult-to-reach or moving targets.



| Measurement Range                                                                                                                                                                                                                                                                                                                                                                                               | Accuracy      | Spectral Range                                                                                                                                                                                                                                                   | Response Time |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 0–1200 °C                                                                                                                                                                                                                                                                                                                                                                                                       | ±2% / ±2.5 °C | 8–14 μm                                                                                                                                                                                                                                                          | 300 ms (95%)  |
| <b>Key Advantages</b> <ul style="list-style-type: none"> <li>• Non-contact measurement keeps the target undisturbed.</li> <li>• Fast response, high sensitivity and high accuracy.</li> <li>• For high/low temperatures, high voltage and high-speed operations.</li> <li>• 2-wire, 3-wire and 4-wire output/power configurations.</li> <li>• Easy installation; range and output can be customized.</li> </ul> |               | <b>Application Scenarios</b> <ul style="list-style-type: none"> <li>• Power equipment.</li> <li>• Modern medical field.</li> <li>• Food industry.</li> <li>• Chemical industry.</li> <li>• Construction industry.</li> <li>• Machining control field.</li> </ul> |               |

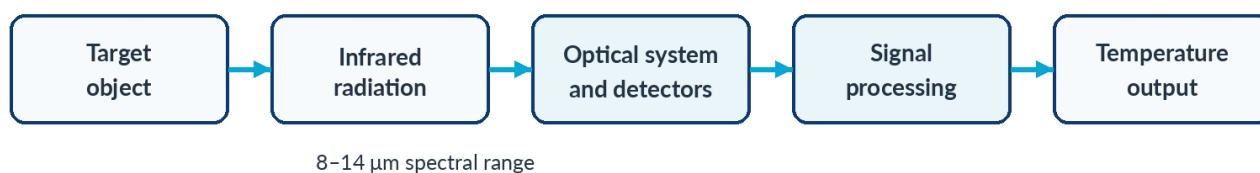
### MEASUREMENT PRINCIPLE

## Measurement Principle

### INFRARED RADIATION MEASUREMENT

The infrared thermometer measures infrared radiation energy through infrared detectors, including thermal and photoelectric detectors. The optical system, detectors, signal amplifiers and signal-processing section convert the radiation signal into temperature according to the basic law of radiation.

### Non-contact infrared measurement path



Principle reconstructed from the supplied source description; no additional sensing equation is inferred.

## SYSTEM DATA

### Technical Specifications

| Item                             | Specification                                                     |
|----------------------------------|-------------------------------------------------------------------|
| Temperature Measurement Range    | 0–1200 °C, customizable                                           |
| Temperature Measurement Accuracy | $\pm 2\%$ of measured value or $\pm 2.5$ °C, whichever is greater |
| Spectral Range                   | 8–14 $\mu\text{m}$                                                |
| Ambient Temperature              | 0 to +60 °C                                                       |
| Storage Temperature              | –40 to +85 °C                                                     |
| Response Time                    | 300 ms (95%)                                                      |
| Distance-to-Spot Ratio (D:S)     | 20:1                                                              |
| Protection Level                 | IP65                                                              |
| Material                         | 304                                                               |

### Output and Communication

The supplied source specifies analog current output, analog voltage output and RS485 communication. A custom output can also be requested according to the source configuration table. Select the signal-line arrangement and power supply that match the ordered version.

| Signal Line | Output Signal  | Supply Voltage |
|-------------|----------------|----------------|
| 2-wire      | 4–20 mA        | 10–30 V DC     |
| 3-wire      | 0–5 V / 0–10 V | 15–30 V DC     |
| 4-wire      | RS485          | 5–30 V DC      |

## ORDERING INFORMATION

### Product Selection

| Code     | Description                                                                      |
|----------|----------------------------------------------------------------------------------|
| SS203-04 | Model                                                                            |
| 5        | Accuracy code: $\pm 2\%$ or $\pm 2.5$ °C of measured value, whichever is greater |
| 0        | 0–10 VDC output / 15–30 VDC supply                                               |
| 2        | 4–20 mA output / 10–30 VDC supply                                                |
| 4        | RS485 output / 5–30 VDC supply                                                   |

| Code | Description                       |
|------|-----------------------------------|
| 2    | Direct lead electrical connection |

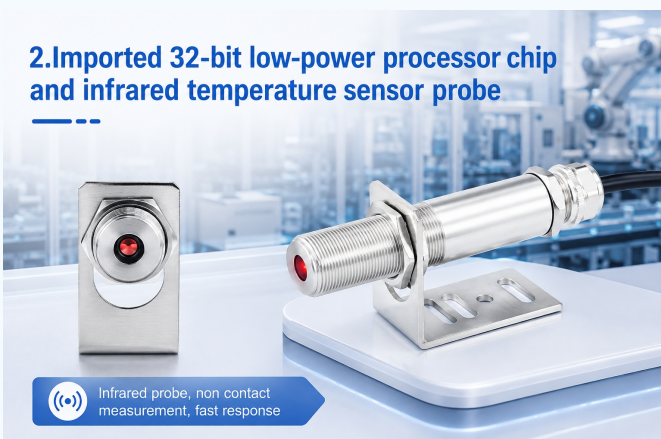
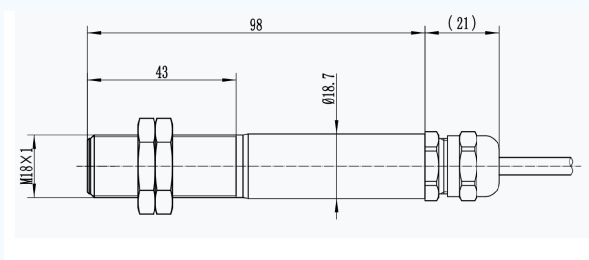
#### SELECTION NOTE

The source specification lists 0–5 V as a 3-wire voltage output, while the supplied ordering table provides the shown 0, 2 and 4 output/power codes. Confirm the final code and line arrangement against the actual order.

#### MECHANICAL DATA

### Mechanical Dimensions & Structure

The supplied mechanical drawing shows a threaded optical head with dimension figures 98, 43, (21), M18×1 and Ø18.7. These figures are reproduced from the source drawing without adding unprovided dimensional interpretation.

|                                                                                                                                                                                                    |                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Product view</b></p>  <p>Online infrared temperature sensor with threaded optical head and cable lead.</p> | <p><b>Mechanical dimensions</b></p>  <p>Source dimension drawing retained; dimension figures are listed below.</p> |
| <p>Supplier logo, old model and supplier contact information are not retained in the product view.</p>                                                                                             | <p>Source dimension figures: 98, 43, (21), M18×1 and Ø18.7, as shown in the supplied drawing.</p>                                                                                                     |

#### ELECTRICAL CONNECTION

### Wiring Instructions

The following wiring definitions are transcribed from the supplied source. The specific wiring method is subject to the line standard and the ordered signal-line configuration.

| Signal Output  | Line Color | Definition                   |
|----------------|------------|------------------------------|
| 2-wire current | Red        | +Vcc (positive power supply) |
| 2-wire current | Black      | Iout (output)                |
| 3-wire voltage | Red        | +Vcc (positive power supply) |
| 3-wire voltage | Black      | GND                          |
| 3-wire voltage | Blue       | Vout (output)                |
| 4-wire RS485   | Red        | +Vcc (positive power supply) |
| 4-wire RS485   | Black      | GND (negative power supply)  |

| Signal Output | Line Color | Definition |
|---------------|------------|------------|
| 4-wire RS485  | Green      | RS485 A    |
| 4-wire RS485  | White      | RS485 B    |

#### WIRING NOTE

The source notes that the specific wiring method is subject to the line standard.

## INSTALLATION & OPERATION

### Installation Notes

- The source describes the product as easy to install but does not provide a detailed mounting procedure.
- Use the supplied mechanical dimensions and install the sensor according to the actual ordered configuration and line standard.
- Maintain the required non-contact relationship between the optical head and the measured target during operation.



### Measurement & Configuration Summary

- Non-contact measurement supports high/low temperatures, high voltage, high-speed operations and difficult-to-reach targets.
- 2-wire 4–20 mA, 3-wire 0–5 V / 0–10 V and 4-wire RS485 configurations are listed in the source.
- The source specifies a customizable 0–1200 °C range, 8–14  $\mu$  m spectral range and IP65 protection level.
- Confirm the selected output, supply voltage and wiring method against the actual order and line standard.

## CONTACT / SUPPORT

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