

[The selection is detailed on page 6](#)



# S10-H/R

## Temperature Transmitter

### Working principle

Temperature transmitter adopts thermocouple and thermal resistance as temperature measuring element, the output signal from the temperature measuring element is sent to the transmitter module, after voltage regulation filter, operation amplification, nonlinear correction, V/I conversion, constant current and reverse protection circuit processing, converted into a linear relationship with temperature 4-20mA current signal 0-5V/0-10V voltage signal. RS485 digital signal output.

### Product application

Process industry  
Machinery and equipment manufacturing  
General industrial application

### Product description

These temperature transmitters are widely used in equipment, machinery manufacturing, and the process industry, with high accuracy and excellent electromagnetic interference (EMI) resistance. Parameters can be easily and quickly configured through the temperature transmitter, and the configured parameters can be viewed through a simple preview interface.

Not only can different types of sensors and measurement ranges be selected, but also fault signals, damping, multiple measurement point descriptions and process control can be stored.

In addition, a linear recording function is provided to display a temperature graph of the sensor connected to the S10 temperature transmitter.

### Functional characteristics

Used to connect 2-wire, 3-wire or 4-wire sensors

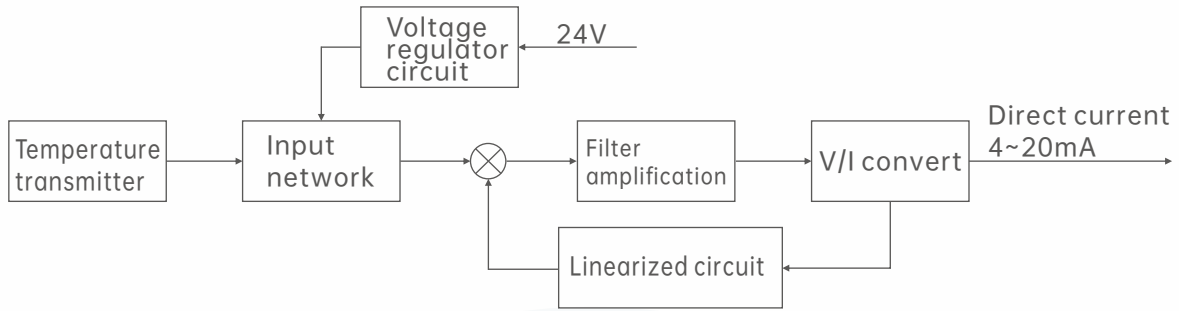
Used to connect a reed switch interlocking device in a potentiometer circuit

The connected terminal can be accessed directly from the outside

Accuracy:  $< 0.2K (< 0.36^{\circ}F)/0.1\%$



### Schematic diagram

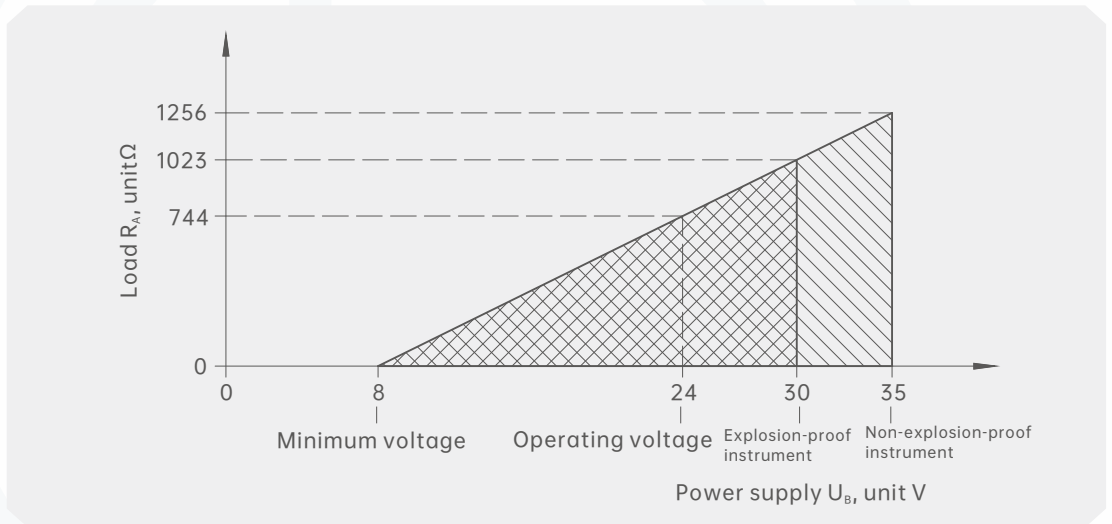


### Technical parameter

Power source	
Power supply $U_B$	DC 8 ... 35 V
Load $R_A$	$R_A \leq (U_B - 8 V) / 0.0215 A$ , The unit of $R_A$ is $\Omega$ , and the unit of $U_B$ is V

### Load diagram

The allowable load depends on the loop supply voltage.



### Terminal name

**input**

Thermal resistance thermometer/resistance sensor

4 Wire system    3 Wire system    2Wire system    potentiometer

**Input 4-20mA loop**

Wiring programming device PU-448

## Technical specification

Temperature transmitter input				
Resistance sensor	Sensor type	Maximum configurable measurement range (MR)	Standard	Minimum measuring range (MS) 10K (50°F) or 3.8Ω (Take a larger value)
	Pt100	-200 ... +850 °C (-328 ... +1,562 °F)	IEC 60751:2008	
	Pt1000	-200 ... +850 °C (-328 ... +1,562 °F)	IEC 60751:2008	
potentiometer <sup>1)</sup>	Reed resistance chain	0 ... 100 % ( Minimum value 1... Maximum value 50 kΩ)		10 % (Minimum value 1kΩ)
The measured current at the time of measurement	Max. 0.2mA (Pt100/Pt1000)			
	Max. 0.1mA (reed)			
Connection mode	1 sensor in 2-wire, 3-wire or 4-wire connection			
Lead resistance	3-wire and 4-wire connections: maximum 50Ω per wire			
	2-wire connection: configurable			

1)  $R_{total} 10 \dots 50 \text{ k}\Omega$

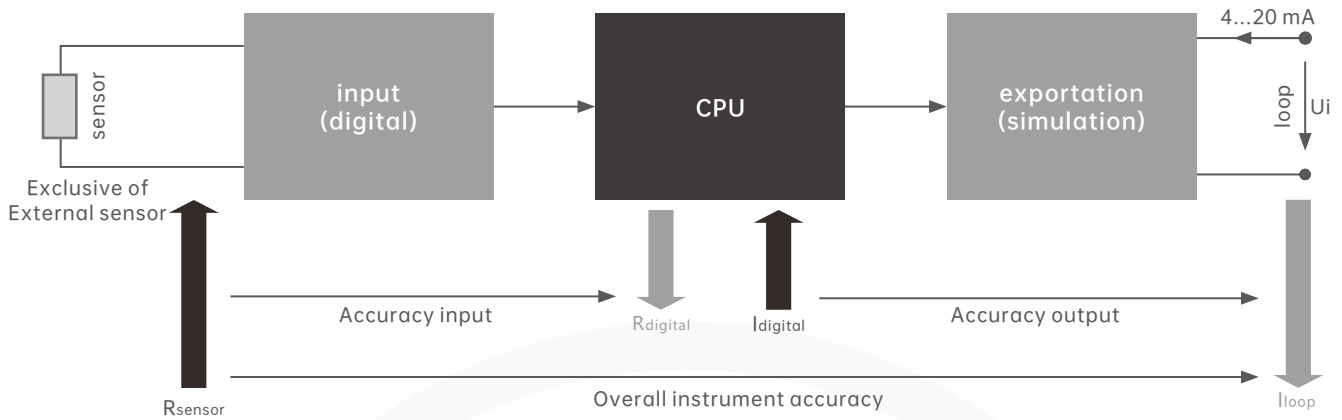
Factory configuration	
sensor	Pt100
Connection mode	3 Wire connection
Measuring range	0... 150°C (32... 300 °F)
Error cue	Tier Down
damping	close

Analog output, output limit, prompt signal	
Analog output, configurable	Linear relationship with temperature, according to IEC 60751
Output limit, according to NAMUR NE43	Lower limit
	3.8mA 20.5mA
Prompt signal current value, configurable according to NAMUR NE43	Downgrade upgrade
	< 3.6mA (3.5mA) > 21.0mA (21.5mA)

Time response	
Turn-on time (time required to obtain the first measurement)	Up to 3 seconds
Preheating time	After up to 4 minutes, the meter will perform the specified functional characteristics (accuracy).
Response time	< 0.6s (typical value < 0.4s) <sup>2)</sup>
damping	It can be configured between 1 and 60 seconds
Typical measurement frequency	Update measurements for 2-wire and 4-wire connections in about 20 seconds
	For a 3-wire connection/potentiometer, about 5 seconds

2) The Pt1000 may deviate in the case of 4-wire connection.

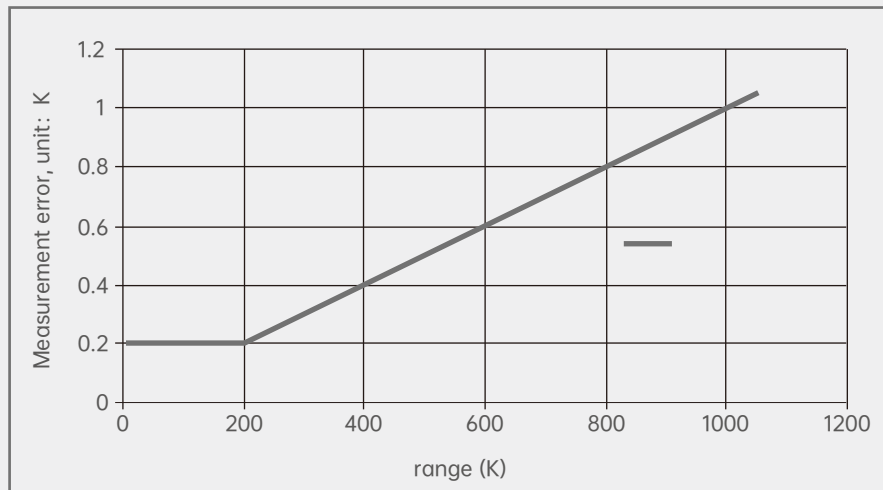
### Accuracy specification



### Measurement error by range

The product specific accuracy specification refers to the accuracy of the overall instrument (overall error = input error + output error).

To measure the overall error, all potential types of error must be considered

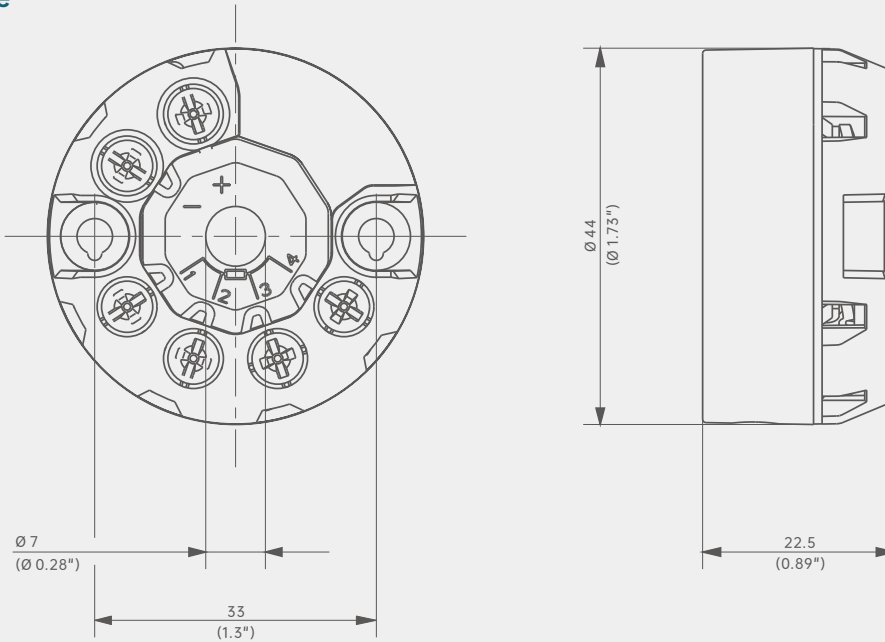


monitor	
Sensor damage monitoring	It can be configured by software Default value: Low gear
Sensor short circuit	It can be configured by software Default: Low gear
Measuring range monitoring	Monitor the upper/lower deviation of the set measurement range Configurable standards: Disabled
Drag pointer (internal temperature of electronics)	Comparative value with respect to the allowable ambient temperature

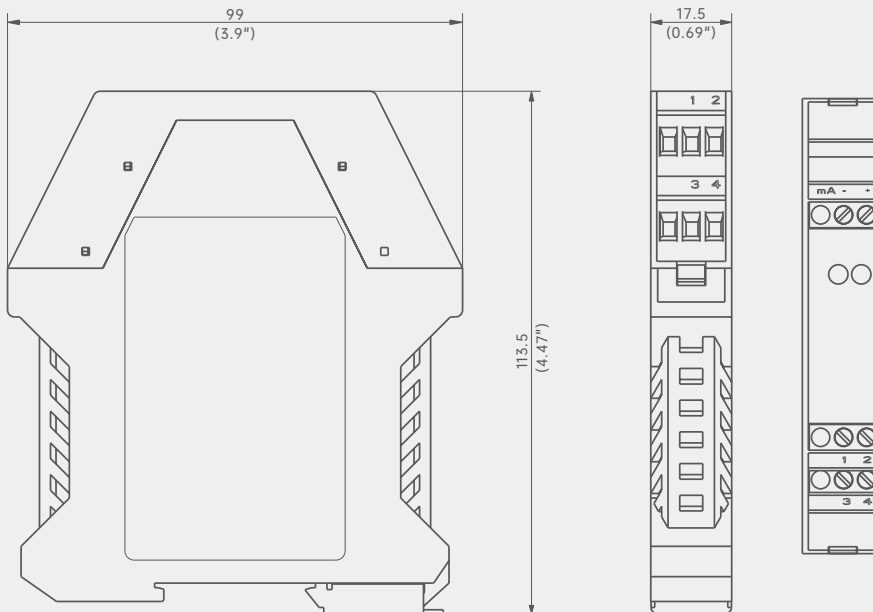
Apply	Ambient temperature range	Temperature class	power Pi
Group II	-40 °C (-40 °F) ≤ Ta ≤ +85 °C (+185 °F)	T4	800 mW
	-40 °C (-40 °F) ≤ Ta ≤ +70 °C (+158 °F)	T5	800 mW
	-40 °C (-40 °F) ≤ Ta ≤ +55 °C (+131 °F)	T6	800 mW
IIIC Group	-40 °C (-40 °F) ≤ Ta ≤ +40 °C (+104 °F)	IIIC	750 mW
	-40 °C (-40 °F) ≤ Ta ≤ +75 °C (+167 °F)	N / A	650 mW
	-40 °C (-40 °F) ≤ Ta ≤ +85 °C (+185 °F)	N / A	550 mW

### Size mm

#### Top mount type



#### Track-mounted type



## S10-Selection composition

Selection example **S10** **A** **D** **G** **O** **0-400**

1.Installation mode	<b>A</b>	Head mounting
	<b>B</b>	Track installation
2.Output mode	<b>D</b>	4...20mA
	<b>E</b>	0...10V
	<b>T( )</b>	Other output modes
3.Input signal	<b>G</b>	Pt100
	<b>H</b>	Pt1000
	<b>I</b>	Type S thermocouple
	<b>J</b>	J-type thermocouple
	<b>K</b>	Type K thermocouple
	<b>T( )</b>	Other measuring elements
4.Wire system	<b>O</b>	2Wire system
	<b>P</b>	3Wire system
	<b>N</b>	4Wire system
5.Temperature range	<b>C( )</b>	Set temperature range (unit: °C)
	<b>F( )</b>	Set temperature range (unit: °F)
6.Additional information	<b>X</b>	Additional information
	<b>N</b>	There is no

## Instructions:

It means that the S10 temperature transmitter is head-mounted, output 4-20mA, input Pt100, three-wire system, temperature range 0-400°C, the sixth item is not required.

## Product Certification

Compliance and approval; Rodewig pressure gauges meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;