



**Instruction manual**  
**of**  
**Temperature transducer**  
**HISPT100**



## Table of Contents

<b>General description</b> .....	3
<b>Device Installation</b> .....	3
<b>Electrical connection</b> .....	4
<b>Configuration</b> .....	6
<b>Calibration</b> .....	7
<b>Technical Datasheet</b> .....	8

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## General description

The transducers without own temperature sensor are designed for signal conversion from RTD sensor Pt100 to current or voltage output. Sensor can be connected in two ways: two-wire and three-wire. Transducer is connected to other circuitry by means of current or voltage loop.

Minimum and maximum scale of temperature reading can configure on device front panel easily and after that voltage/current output will be generated with linearity proportion to the min and max temperature points.

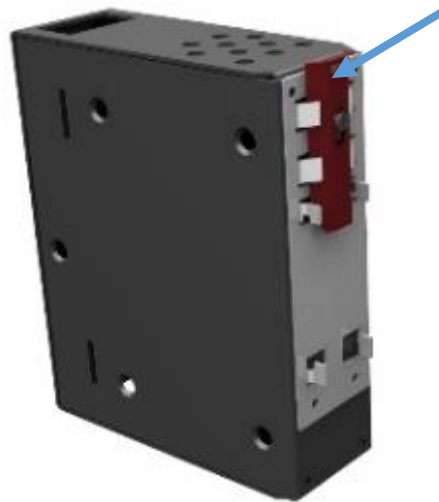
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## Device Installation

His PT100 transducer can easily install on DIN35mm rail due to 3 bellow steps:

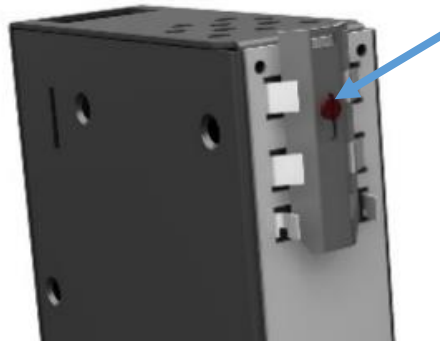
**Step 1:**

Using a Flat head screwdriver, pull the moving piece on the back of the device upwards



**Step 2**

Check the status of the screw of the moving piece on the back of the device and make sure it is slightly free and not too tight

**Step 2**

Place the device on the rail and push the moving piece downwards to complete the installation process.

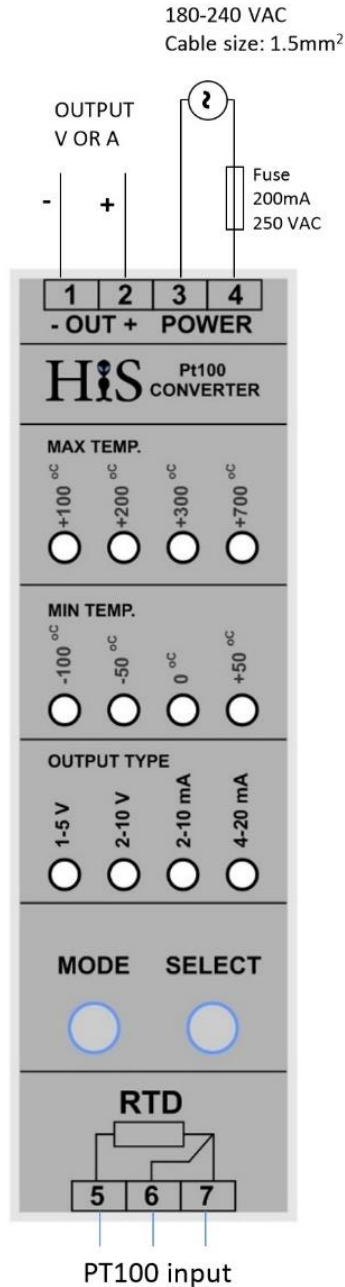


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**Electrical connection**

His PT100 transducer supplied from 230Vac 50Hz normal power source and needs protect from short circuit current with MCB or fast fuse protectors. AC voltage connect to terminals 3 and 4.

Voltage/Current output feeds from terminals 1 and 2. It is recommended to use shielded cable If you choose voltage output type and it is not necessary if you choose current output type, because current signals have more immunity to electromagnetic interferences. The cable should not be led in parallel along power cabling. Safety distance is up to 0.5m otherwise undesirable induction of interference signals can appear.



Connection of external temperature probe is enabled by two ways:

**Two-wire connection** – suitable for short probes (approximately to 1m). With longer probes measurement error increases essentially caused by non-zero resistance of probe leads probes. Optionally temperature dependence of parasite lead resistance can appear.

**Three-wire connection** – used for longer probe leads. This wiring compensates parasite resistance of connected probe leads and its temperature dependence. Necessary condition is parameters of all three leads are identical. It is necessary to use multi-wire (three-wire) cable.

The sensor cable should not be led in parallel along power cabling. Safety distance is up to 0.5 m otherwise undesirable induction of interference signals can appear. Shielding of the sensor cable is connected to proper terminal and should not be connected to any other circuitry or earthing. If connected sensor are equipped with a metal part, it is recommended to make sure that metal part is not electrically connected to shielding of the cable. In other cases, it is necessary to ensure metal part is not electrically connected to any other circuitry.

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## Configuration

There are three rows on HIS PT100 front panel, Min Temp, Max Temp and Output type. Each selected option has indicated by super bright LED.

You can change work situations of transducer (configure it) by bellow steps:

### **Step1:**

Press and hold MODE push button for 5 seconds, all rows LEDs become flashing from up to down. After that release MODE push button.

### **Step2:**

By pushing SELECT push button each time, max temp. value moves one step. So choose your desired maximum temperature (refer to your system or plant datasheet to identify maximum working temperature).

### **Step3:**

Push MODE button one time to move to the next row.

### **Step4:**

Like step2, by help of SELECT push button choose your desired minimum temperature (refer to your system or plant datasheet to identify maximum working temperature).

### **Step5:**

Push MODE button one time to move to the next row.

### **Step6:**

Like step2, by help of SELECT push button choose your desired output type of transducer. (Remember that current output is more suitable for industrial area).

### **Step7:**

Push MODE button one time and all rows LEDs become flashing again from up to down. Now HIS PT100 transducer is configured and selected options wrote on none volatile memory of main processor.

## Calibration

HIS PT100 transducer has been tested and calibrated in factory test laboratory for standard RTD sensor with  $0.00385 \Omega/(\Omega \cdot ^\circ\text{C})$  coefficient. but if needed, you can calibrate HIS transducer by bellow steps:

### Step1:

Press and hold MODE and SELECT push buttons together at the same time for 5 seconds, all LEDs of first row only become flashing. Now release only MODE push button and hold SELECT push button for more 2 seconds. After that flashing stopped and you can release SELECT push button too.

### Step2:

By pushing SELECT push button each time 1 LED of total 12 LEDs will be light up and refer to bellow table you can choose the best positive or negative calibration value:

LED description	Calibration value
+100 <sup>o</sup> C	-5 <sup>o</sup> C
+200 <sup>o</sup> C	-4 <sup>o</sup> C
+300 <sup>o</sup> C	-3 <sup>o</sup> C
+700 <sup>o</sup> C	-2 <sup>o</sup> C
-100 <sup>o</sup> C	-1 <sup>o</sup> C
-50 <sup>o</sup> C	0 <sup>o</sup> C *
0 <sup>o</sup> C	+1 <sup>o</sup> C
+50 <sup>o</sup> C	+2 <sup>o</sup> C
1-5 V	+3 <sup>o</sup> C
2-10 V	+4 <sup>o</sup> C
2-10 mA	+5 <sup>o</sup> C
4-20 mA	+6 <sup>o</sup> C

\* : (default value)

### Step3:

Press MODE push button to save calibration value to none volatile memory.

HIS PT100 transducer can calibrate in the range of -5<sup>o</sup>C to +6<sup>o</sup>C .

## Technical Datasheet

Special data	
Minimum temperature range	-100 <sup>oC</sup> , -50 <sup>oC</sup> , 0 <sup>oC</sup> , +50 <sup>oC</sup> (other ranges on request)
Maximum temperature range	100 <sup>oC</sup> , 200 <sup>oC</sup> , 300 <sup>oC</sup> , 700 <sup>oC</sup> (other ranges on request)
Output type	1-5V, 2-10V, 2-10mA, 4-20mA (MODBUS RTU output on request)
Temperature sensor	Standard RTD (Pt100) with 0.00385 Ω/(Ω·°C) coefficient
Sensor connection	2 wire – 3 wire
Device accuracy	±0.5 <sup>oC</sup> at ambient temperature 25 <sup>oC</sup>
General data	
Power supply voltage	185-240 V AC – 50Hz
Power consumption	<5 W
Storage temperature range	-30 to +70 °C
Storage relative humidity range	0 to 100 %RH (no condensation)
Operating temperature range	-20 to +60 °C
Operating relative humidity range	0 to 100 %RH (no condensation)
Not allowed manipulations	Devices are not designed for installation in potentially explosive atmospheres and for use at aggressive environment.
Weight	Approx.: 300 g
Housing material	Electrostatic powder coated ST12 steel
Dimension	100 x 30 x 90 mm (HxWxD)