

## TEMPERATURE TO VOLTAGE CONVERTERS STU (0 to 10 V)



### DESCRIPTION AND APPLICATION

Converters STU and STUD are intended for converting the signal of the Ni 1000/6180, Pt 100/3850 or Pt 1000/3850 resistance-type temperature sensing elements to a unified signal 0 to 10 V. These converters can be utilised in any control system compatible with 0 to 10 V voltage output. The case is provided by the console for wall-mounting or a bracket for mounting to the DIN rail. Their standard measuring ranges are listed in the specifications table, Their operating temperature range is -30 to 70 °C. These limits must not be exceeded even for a short time.

The sensors are designed to be operated in a chemically non-aggressive environment. Two variants exist regarding to the design of the converter case:

- 1. STU Pt and STU Ni:** the plastic case is made of POLYAMIDE material, and is identical to, for example, the connection head of S 120 sensors. It is provided with a wall bracket or with a clip for attaching to a DIN rail. The terminal board casing meets the IP 65 ingress protection in accordance with EN 60529 standard.
- 2. STUD Pt and STUD Ni:** the plastic box is made of TARFLON - IRY 2200, which meets requirements of UL 94 V-0 standard. It is intended for installation to a switch board on a DIN rail.



### DECLARATION, CERTIFICATES, CALIBRATION

Manufacturer provides **EU Declaration of Conformity**.

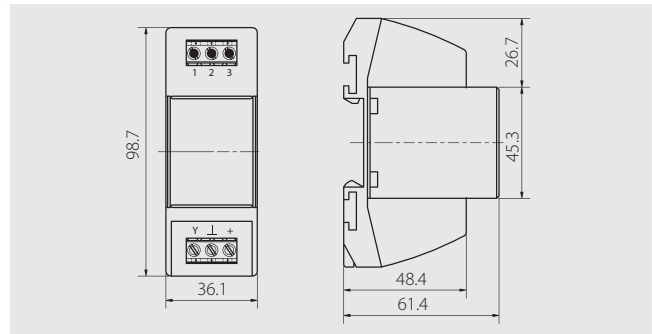
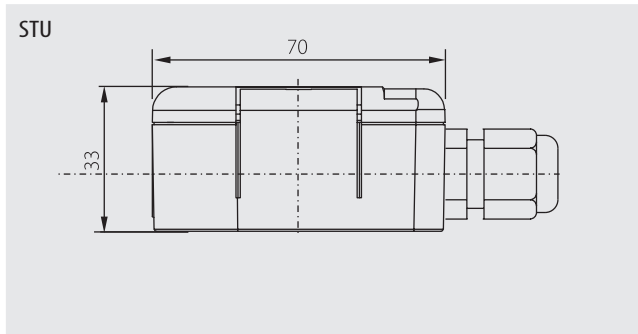
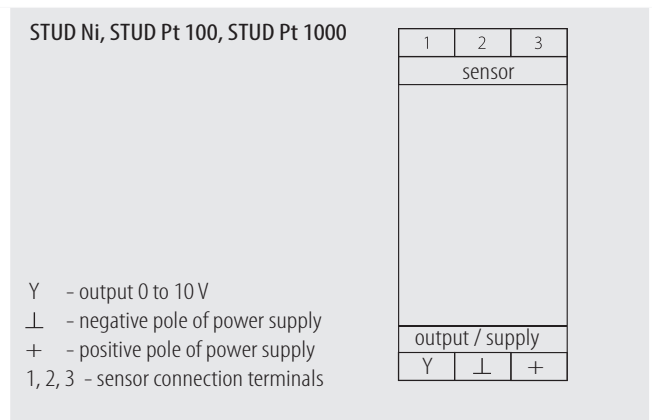
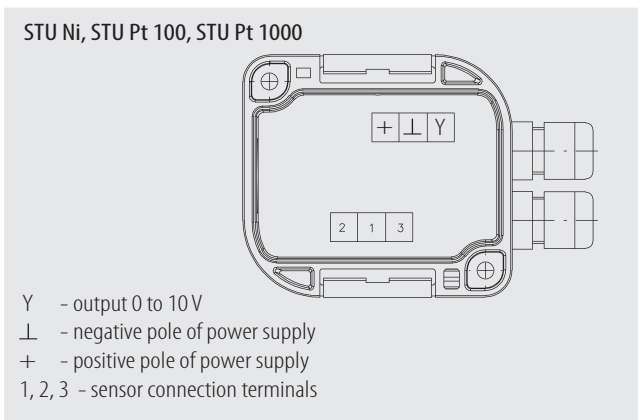
**Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard) or in an Accredited laboratory.

### SPECIFICATIONS

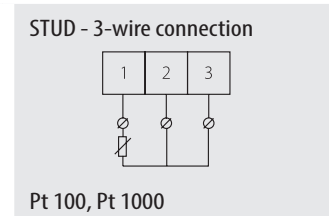
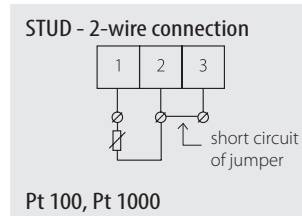
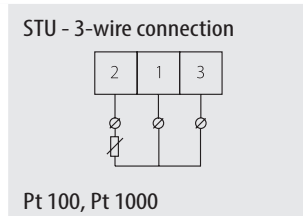
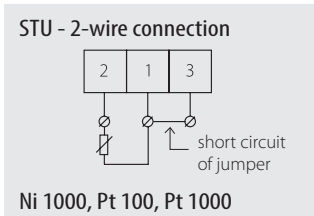
Converter type	STU Ni STUD Ni	STU Pt 100 STUD Pt 100	STU Pt 1000 STUD Pt 1000
Input signal	Ni 1000/6180	Pt 100/3850	Pt 1000/3850
Output signal	0 to 10 V		
Power supply (U)	15 to 30 V DC (recommended value 24 V DC)		
Measuring ranges*)	-30 to 60 °C	-30 to 60 °C	-30 to 60 °C
	0 to 35 °C	0 to 35 °C	0 to 35 °C
	0 to 100 °C	0 to 100 °C	0 to 100 °C
	0 to 150 °C	0 to 150 °C	0 to 150 °C
	0 to 200 °C	0 to 200 °C	0 to 200 °C
	0 to 250 °C	0 to 250 °C	0 to 250 °C
		0 to 400 °C	0 to 400 °C
STU and STUD ingress protection	STU: IP 65 in accordance with EN 60529 STUD: IP 20 (plastic case) / IP 00 (terminal board) in accordance with EN 60529		
Ambient temperature	-30 to 70 °C		
Measurement error	< 0.6 % of the measuring range, minimum 0.5 °C		
Load resistance	min 10 k Ω		
Current consumption	< 8 mA		
Sensing element break	> 14 V		
Sensing element short	~ 0 V		
Sensor connection	according to the wiring diagram		
Recommended wire cross section	STU: 0.35 to 1.5 mm <sup>2</sup> STUD: 0.35 to 2.5 mm <sup>2</sup>		
Material of the case	STU: POLYAMIDE STUD: TARFLON - IRY 2200 - meets requirements of UL 94 V-0		
Weight	0.15 kg		

\*) According to the customer's requirement, it is possible to provide a customized measuring range from -40 to 150 °C; the minimum span of the range must be 35 °C (e.g. -20 to 15 °C; -30 to 80 °C)

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**DIMENSIONAL DRAFT**

**WIRING DIAGRAM**


CONVERTERS



Note: for 2-wire connection must be short circuit of jumper between terminals 1 and 3 plugged in.

Note: for 2-wire connection must be short circuit of jumper between terminals 2 and 3 plugged in.

**CONVERTOR INSTALLATION AND SERVICING**
**Variant STU**

Before connecting the lead-in cable, open the plastic head. Use a flat screwdriver into the first and the second lid grooves and release the lid by deflecting the handles. Attach the supply cable from the power source and the RTD Pt 100/3850, Pt 1000/3850 or Ni 1000/6180 to the terminals through the grommet according to the diagram. To ensure tightness after connecting the supply cable, always tighten the grommet. According to type, attach the transducers on either DIN rail terminals or on a flat surface with two mounting screws or 4 mm bolts, placed in the inner holes in the head of the transducer. The length of mounting bolts or screws for fastening has to be chosen with respect to the depth of inner holes of the plastic head, which is 13 mm. After attaching the sensor, close the head by replacing the cover. When closing the head, handles have to click into the original position.

**Variant STUD**

Attach the transducer to the DIN rail using a clamping rail, which is a part of the box. Attach the lead-in cable from the power source and the RTD Pt 100/3850, Pt 1000/3850 or Ni 1000/6180 to the terminals through the grommet according to the diagram. After installing and connecting to the electrical measuring equipment, the converter is ready for use. The converter does not require any special servicing or maintenance.