Process temperature trannsducer

☐ ***PT 100 ohm input*** ☐ ***thermocouple: J, S , K, B***

INPUT SIGNALS

- ☐ **RTD: PT 100 ohm**
- ☐ **thermocouple: J**
- ☐ **thermocouple: K**
- ☐ **thermocouple: S**
- ☐ **thermocouple: B**

OUTPUT SIGNALS

- ☐ **0 - 20 mA DC**
- ☐ **4 - 20 mA DC**
- ☐ **0 - 10 V DC**

FUNCTIONS

- ☐ **CONVERSION OF SIGNAL from PT 100 and thermocouple to *current* or *voltage* signal**
- ☐ **User SELECTION OF INPUT SIGNAL**
- ☐ **User SELECTION OF OUTPUT SIGNAL**
- ☐ **GALVANIC ISOLATION** of input signal from output signal
- ☐ **TEMP. SCALE ASSIGNED TO OUTPUT SIGNAL by user**
- ☐ **OPTIONAL ERROR INDICATION** of incorrect input signal in thre ways
- ☐ **PRINTING OF CALIBRATIN PROTOCOL** and creating of database of individual calibrations

DESCRIPTION

Process terperature transducers series **P P** are used as an input interface for data acquisition systems,control units and everywhere,where a change of type of signals and a galvanic isolation is demanded.

Transduces PP can deal with following types of input signals:

- signal from RTD **PT 100** ohm **(temp.coef. = 0.00385055 °C $^{-1}$)**
- signal thermocouple **J** /Fe-CuNi/
- signal thermocouple **K** /NiCr-NiAl/
- signal thermocouple **S** /PtRh10-Pt/
- signal thermocouple **B** /PtRh30-PtRh6/

All signals are processed in their entire physical range.

Setting of parameters can be done using PC via RS interf ace (galvanic isolation) and with appropriate communication software (included).

FEATURES:

- three -level isolation - supply and input, supply and output, input and output
- input signal is measured by a 16-bit AD converter, processed by an INTEL microprocessor, galavnically isolated, a digital signal f rom microprocessor is converted back to an unif ied analogue one by 12-bit DA converter.
- user selection of type of input/output signal

SETTING OPTIONS off PP transducer:

- selection of type of temp.sensor: PT 100 ohm or thermocouples
- for RTD PT 100 : cable resistance compensation up to 20 ohm
- for thermocouples: cold end compensation
  - constant terminal temperature
  - actual temp.measured on input terminals from 0-50°C
- selection of output signal and its scaling to tepm.range
- optional limiting of analogue output / e.g. 20 mA, 10VDC
  - if it is not adjusted, max.level of output is 22 mA or 11 VDC
- optional indication of incorrent input signal
  - pulses of output signal between 50% and 100%
  - output signal exceeds max.level up to 110%
  - output signal drops to 2 mA (only for 4-20 mA output)

TECHNICAL DATA

POWER SUPPLY	24 VAC or 24 VDC , **-15% / +20%**
ENERGY INPUT	2.0 VA (units has a fuse T 500 mA)
INPUT SIGNAL linearized acc.to: PT100: IEC 751 thermocouples: IEC 584	PT 100 ohm: -200 - + 850 °C
	thermocouple J: -200 - + 1200 °C
	thermocouple K: -270 - + 1372 °C
	thermocouple S: -50 - + 1767,6 °C
	thermocouple B: 0 - + 1820 °C
Measuring Current	PT 100 ohm: 1,6 mA
Input Resistance	thermocouples: 100 kOhm
MAX INPUT OVERLOAD	PT 100 ohm: 5 VDC / 1 min.
	thermocouples: 32 VDC continuously
DIGITAL RESOLUTION	analog input: 15 bitů
	analogue output : 12 bitů
SAMPLING	3 meas. per second
Meas.Accuracy	0.1 % of full scale
Temp. Coefficient	0.01% of full scale/ °C
Compensation of Input Signal	PT100 ohm: cable resistance up to 20 ohm
	thermocouples: cold end compensation
Output Signal output impedance	0 - 10 VDC: more than1000 ohm
	0/4 - 20 mA: less than 600 ohm
Electrical Strength	510 V rms / 1 min : input / output
	supply / input,output
Analogue Output signal level	max: 22 mA or 11 VDC
	optional limit: 20mA or 10 VDC
Temperature Scale	from d=1°C to max range of sensor:
	recommended minimal range d= 50°C
CALIBRATION	valid 1 year max.
MOUNTING	box on DIN bar
DIMENSIONS	75 H x 22.5 W x 100 D (mm)
ENCLOSURE	IP 20
CONNECTION	**terminal strip: max.cross-section of wires: 2.5**
WEIGHT	150 g
Stabilization Time	5 minutes
Operating Temp.	0 - + 50 °C
Operation mode	continuous

NOTES:

- ☐ power supply is *galvanicallyisolated* from
  - input signal
  - output signal
- ☐ unit can be connected to supply voltage AC or DC without consideration (DC supply connection is independent on polarity)

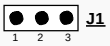
IDENTIFICATION CODE

P P - 0 1
process temperature transducer
P S - 0 1
cable for connecting of PP transducer and computer
K P - 0 1
software for setting of transducer

ORDERING EXAMPLE

a/ PP 01 ..... 10 pcs
PS 01..... 2 pcs
KP 01..... 1 pcs

SETTING OF PP 01 TRANSDUCER



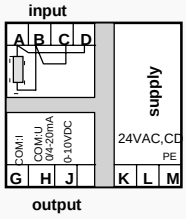
SELECTION of input signal	J1	
	J1 1-2	J1 2-3
PT 100 ohm	ON	OFF
thermocouple	OFF	ON

SELECTION of output signal	J2	
	J2 1-2	
0-10 VDC	ON	
4-20 mA, 0-20 mA	OFF	

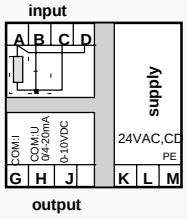
SCHEMATIC DIAGRAM PP 01

Input: PT 100 ohm

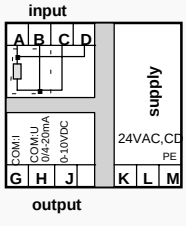
2-wire interconnection



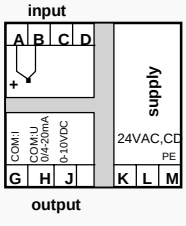
3- wire interconnection



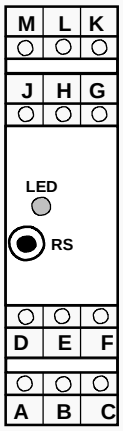
4- wire interconnection



Input: Thermocouple



WIRING DIAGRAM



LEGEND

- term. **A, B, C, D** ..... input signals
- term. **G, H** ..... analogue current output
- term. **H, J** ..... analogue voltage output
- connector **RS** ..... connection to PC
- term. **K, L, M** ..... power supply

M=PE ... terminal for the lowest potencial
(e.g.earth ground)

LOCATION OF JUMPERS ON CIRCUIT