

PROGRAMMABLE TRANSDUCER OF TEMPERATURE AND STANDARD SIGNALS **P11T**

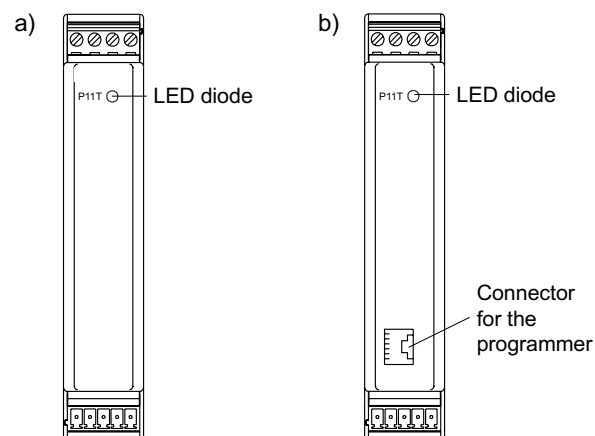


Fig.1 View of the P11T transducer

a) P11T-1
b) P11T-2

2. INSTALLATION

The P11T transducer is designed to be installed on a 35 mm DIN rail acc. DIN EN 50 022-35. On the external side of the transducer there are screw or self-locking terminal strips enabling the connection of 2.5 mm² external leads (supply and output) and up to 1.5 mm² leads (input).

The lighted diode situated on the upper front of the transducer signals the connection of this transducer to the mains.

EXTERNAL AND ASSEMBLY DIMENSIONS

1. APPLICATION

The P11T transducer is destined to the conversion of temperature, resistance, voltage from the shunt and standard signals into a d.c. current and voltage standard signal.

The output signal is galvanically isolated from the input signal and the supply.

The P11T transducer is offered in two basic versions:

- P11T-1, with programmed parameters by the producer acc. the ordered execution code.
- P11T-2, with programmed parameters by the producer acc. the ordered execution code and with the possibility to change the parameters by the user by means of a computer through the PD11 programmer.

The PD11 programmer is a universal device serving to programme all the P11 and P12 series.

The P11T-2 transducer realises also following functions:

- conversion of the measured value into an optional output signal on the base of the individual linear characteristic.
- switching on or off the automatic compensation. Possibility to introduce a manual correction.
- storage of maximal and minimal values.
- programming of the measurement averaging time.
- blocking of the parameter introduction by means of a password.

Using the PD11 programmer, one can read out in any time from the P11T-2 transducer:

- the measured value,
- the maximal and minimal value, the signal on the analogue output in percentage of the range

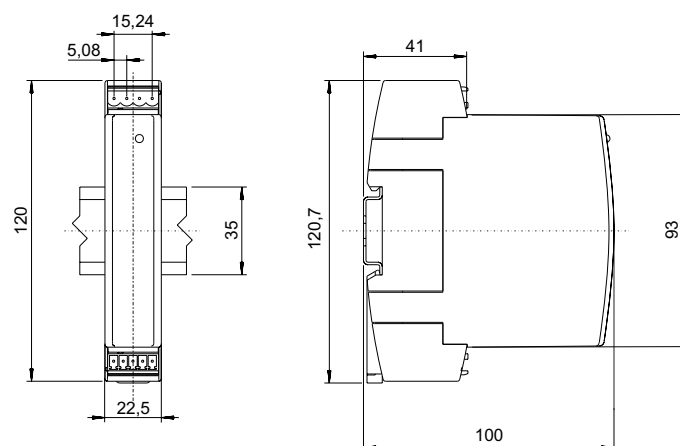


Fig.2 Overall dimensions and fixing way of the P11T transducer

3. DIAGRAMS OF EXTERNAL CONNECTIONS

The P11T transducer has two sockets of terminal strips and two connectors are included, a screw plug or a self-locking plug depending on the chosen type by the user in the order code.

The fig.3 shows the connection way of external signals.

Measured signal	Thermocouple or voltage -10...+70 mV	Resistance thermometer in a 2-wire system or resistance measurement	Resistance thermometer in a 3-wire system	Voltage 0... 3 V 0... 10 V	Current 0... 5 mA 0... 20 mA
Connection way					

Fig. 3 Description of terminal strips of the P11T transducers.

The P11T-1 transducer works with programmed parameters acc. the execution code and there is no possibility to change these parameters. In case of P11T-2 transducers there is the possibility to change these parameters by means of a P11 programmer and a computer (see fig. 4).

4. CHANGE OF PARAMETERS IN THE P11T-2 TRANSUDCER

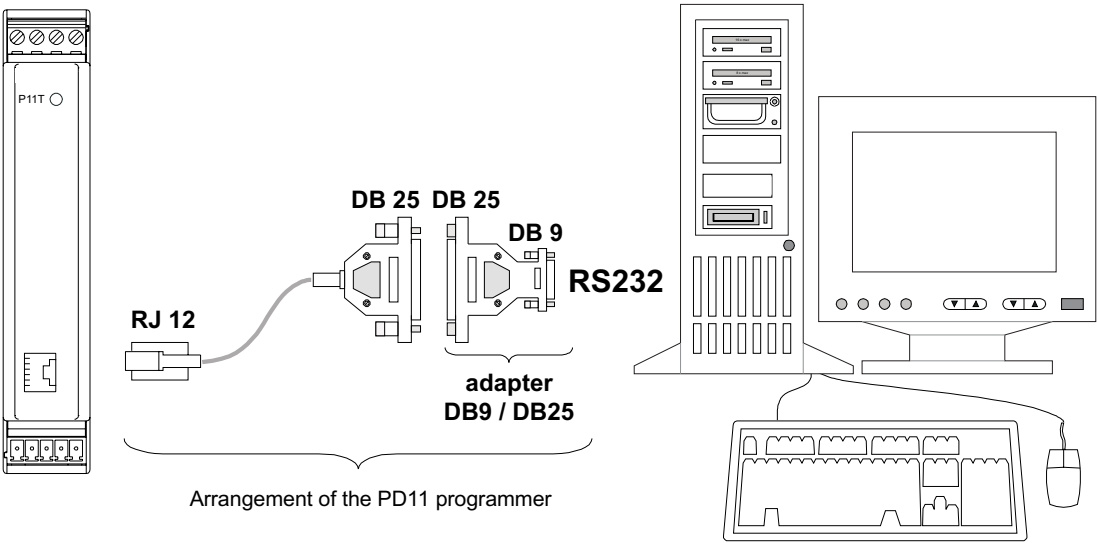


Fig.4 Connection way of the P11T-2 transducer with a computer.

The programming of parameters is possible after the introduction of the correct password.

5. TECHNICAL DATA

Basic parameters:

- input signals:	
Pt100	-50... +250°C
Pt500	-50... +250°C
Pt1000	-50... +250°C
Cu100	-50... +180°C
Ni100	-60... +180°C
J (Fe-CuNi)	-100... +1200°C
K (NiCr-NiAl)	-100... +1370°C
N (NiCrSi-NiSi)	-100... +1300°C
E (NiCr-CuNi)	-100... +900°C
R (PtRh13-Pt)	0... +1760°C
S (PtRh10-Pt)	0... +1760°C
T (Cu-CuNi)	-100... +400°C
resistance measurement	0... 200 Ω
resistance measurement	0... 2000 Ω
voltage measurement	-10... 70 mV
voltage measurement	0...3 V, input resistance >1 MΩ
voltage measurement	0...10 V, input resistance >1 MΩ
current measurement	0...5 mA, input resistance < 4 Ω
current measurement	0...20 mA, input resistance < 4 Ω

thermocouple characteristics acc. EN-60584-1

resistance thermometer characteristics acc. EN 60751+A2:1997

- analogue output galvanically isolated with a resolution 0.01% of the range	
- current programmable 0/4...20 mA	load resistance < 500 Ω
- voltage programmable 0...10 V	load resistance ≥ 500 Ω
- accuracy class	0.2
	0.3 for Cu100 and Ni100;
	minimal subrange in P11T-2:
	4 times smaller than the full range
- additional error from the ambient temperature change	± (0.1% of the range/10 K)
	± (0.2% of the range/10 K)
	for resistance thermometers and thermocouples of T type

- conversion time:	
- P11T-1	< 200 ms
- P11T-2	min 200 ms (averaging time
	min 100 ms + output
	response time 100 ms)
- power input	≤ 3 VA
- current intensity flowing through the resistance thermometer	< 0.4 mA
- resistance of leads connecting the resistance thermometer with the transducer	< 20 Ω/1 lead
- preheating time of the transducer	10 min.

Nominal operating conditions:

- supply voltage depending on the execution code	85... <u>230</u> ...253 V a.c./d.c.
	20... <u>24</u> ...50 V a.c./d.c.
- frequency of the supply a.c. voltage	40... <u>50</u> ...440 Hz
- ambient temperature	-25... <u>23</u> ...55°C
- storage temperature	-25°C ...+85°C
- air relative humidity	< 95% (condensation inadmissible)
- working position	assembling on a 35 mm DIN rail

Sustained overload:

- thermocouples, resistance thermometers	1%
- measurement of voltage, current and resistance	20%

Short duration overload (3 sec):

- inputs of sensors and voltage	30 V
- current input	10 In

Communication parameters with the computer (only in P11T-2):

- interface:	RS232, 8N1 mode
- data bit	8
- even parity	none
- stop bit	1
- baud rate	9600 bit/s
- flow control	none

Ensured protection degree:

- for P11T-1 execution	IP 50
- for P11T-2 execution	IP 40
- from the terminal side	IP 20

Dimensions

22.5 x 120 x 100 mm

Weight

125 g

Fixing

on a 35 mm DIN rail

Current decay immunity

acc. EN 50082-2

Electromagnetic compatibility:

- immunity	EN 50082-2
- emission	EN 50081-2

Security requirements acc. EN 61010-1:

- installation category	III
- pollution level	2
- maximal working voltage in relation to earth	300 V a.c.

6. EXECUTION CODES

Execution codes of the P11T transducer

TRANSDUCER	P11T-	X	XX	X	X	X	XX	X
Kind of transducer:								
programmed by the producer	1							
programmable*	2							
Input signal								
Pt100 (-50...+250)°C	00							
Pt500 (-50...+250)°C	01							
Pt1000 (-50...+250)°C	02							
Cu100 (-50...+180)°C	03							
Ni100 (-60...+180)°C	04							
Thermocouple J - (Fe-CuNi) (-100...+1200)°C	05							
Thermocouple K - (NiCr-NiAl) (-100...+1370)°C	06							
Thermocouple N - (NiCrSi-NiSi) (-100...+1300)°C	07							
Thermocouple E - (NiCr-CuNi) (-100...+900)°C	08							
Thermocouple R - (PtRh13-Pt) (0...+1760)°C	09							
Thermocouple S - (PtRh10-Pt) (0...+1760)°C	10							
Thermocouple T - (CuCu-Ni) (-100...+400)°C	11							
Measurement of resistance up to 200 Ω (0...+200) Ω	12							
Measurement of resistance up to 2 kΩ (0...+2000) Ω	13							
Measurement of voltage -10...70 mV (-10...+70) mV	14							
Measurement of voltage 0...3 V (0...3) V	15							
Measurement of voltage 0...10 V (0...10) V	16							
Measurement of current 0...5 mA (0...5) mA	17							
Measurement of current 0...20 mA (0...20) mA	18							
on order	XX							
Output signal:								
voltage, 0... 10 V	1							
current, 0... 20 mA	2							
current, 4... 20 mA	3							
current, 0... 5 mA	4							
on order	9							
Supply:								
85... 253 V a.c./d.c.	1							
20... 50 V a.c./ d.c.	2							
Kind of terminals:								
socket - screw plug	0							
socket - self-locking plug	1							
Execution:								
standard	00							
custom-made**	XX							
Acceptance tests:								
without a quality inspection certificate	0							
with a quality inspection certificate	1							
acc. user's agreement***	X							

* The programmable transducer has a universal input.
When ordering one must give the code of the output signal which will be to programmed.

** After agreeing by the producer

** The producer will establish the execution code number

Coding example:

The **P11T-1-00-1-1-0-00-0** code means: the execution of a P11T transducer programmed by the producer without the possibility to re-programme it by the user, with an input signal: PT100 resistance thermometer, voltage output signal: 0 -10 V, supply voltage: 85...250 V a.c./d.c., with a socket-screw plug, standard execution, without a quality inspection certificate.