

LUMEL

RMS CURRENT OR ALTERNATING VOLTAGE TRANSDUCER

P11Z



SERVICE MANUAL

CE

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1. APPLICATION

The **P11Z** transducer is destined to a continuous conversion of the rms current value or alternating rms voltage without the constant component into a standard d.c. current or d.c. voltage signal.

The transducer output signal is galvanically insulated from the input signal and the supply.

The **P11Z** transducer is adapted to be installed on a 35 mm rail acc. EN 60715 standard. The transducer housing is made of a self-extinguishing plastic. On the external side of the transducer there is a screw or self-locking terminal strip (depending on the execution and the order) which enables the connection of external leads with a maximal 2.5 mm² cross-section.

2. BASIC REQUIREMENTS, OPERATIONAL SAFETY

P11Z transducers are destined to be mounted on a rail DIN.

In the range of operational safety they are in conformity with the IEC 1010-1 + A1 standard requirements.

- The installation and transducer connection should be operated by a qualified personnel.
- One must take into consideration all accessible protection requirements.
- Before switching the instrument on, one must check the correctness of the network lead connection, IEC 1010 -1 p.6.10. and p. 6.11. 2.
- In case of the protection terminal connection with a separate lead one must remember to connect it before the connection of network leads.
- Do not connect the converter to the network through an auto-transformer.
- Before taking the converter housing out one must turn the supply off.
- The removal of the converter housing during the guarantee contract period may cause its cancellation.

Symbols located in this service manual mean:



Especially important. One must acquaint with this before connecting the transducer . The non-observance of notices marked by this symbol can occasion the damage of the transducer.



One must take note of this symbol when the transducer is working inconsistently to the expectations.

3. SET OF THE P11Z TRANSDUCER

With the transducer we deliver:

- Service manual 1 pc
- Guarantee card 1 pc

When unpacking the transducer, please check whether the type and execution code on the data plate correspond to the order.

4. INSTALLATION

4.1. Fitting of the P11Z transducer

The P11Z transducer is adapted to be installed on a 35 mm rail acc. EN 60715 standard. The transducer housing is made of a self-extinguishing plastic. On the external side of the transducer there is a screw or self-locking terminal strip (depending on the execution and the order) which enables the connection of external leads with a maximal 2.5 mm² cross-section.

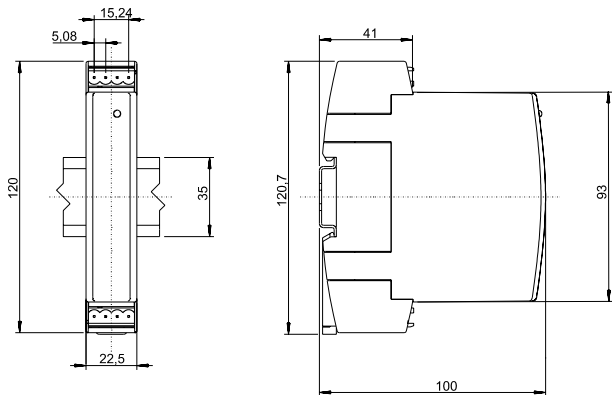
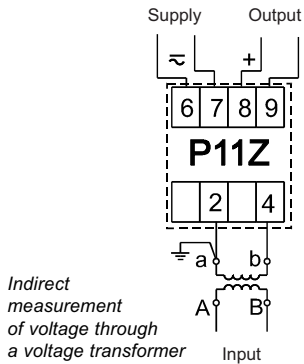
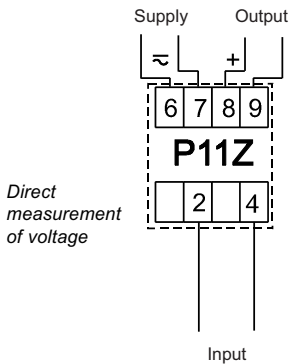


Fig.1. Overall dimensions and fixing way of the P11Z transducer

4.2. External connection diagrams



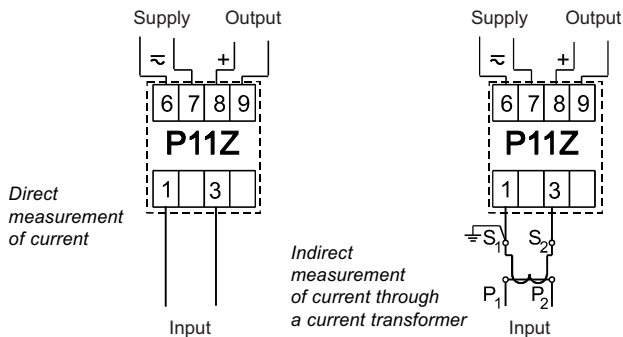


Fig.2 External connection diagrams of the P11Z transducer. Different measurement modes.

5. DESCRIPTION OF P11Z TRANSDUCER OPERATION

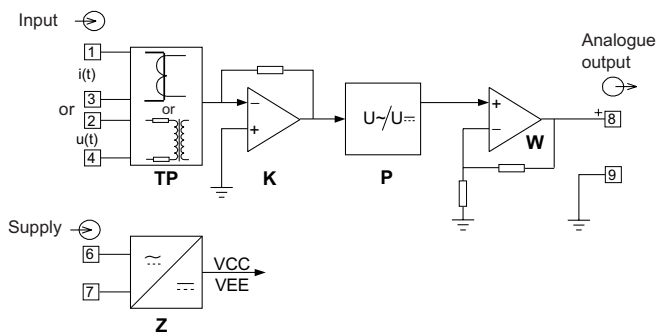


Fig.3 Transducer block diagram.

The input signal of the P11Z transducer is separated by means of the TP current transformer (current or voltage transformer), and then through the K current converter, changed into a voltage signal. The P system realises the conversion function of the RMS a.c. voltage into d.c. voltage. The W output system standardises the output signal of the transducer. The Z pulse feeder delivers necessary voltages.

6. TECHNICAL DATA

● Basic parameters

- input voltage	60, 100, 150, 250, 400, 500, 600 V a.c.
- input current	1 A (x/1 A), 5 A (x/5 A)
- output signal	0...5 mA, R load = 0...2000 Ω 0...20 mA, R load = 0...500 Ω 4...20 mA, R load = 0...500 Ω 0...10 V, R load ≥ 500 Ω
- accuracy class	0.2
- transducer pre-heating time	15 min

● Consumption

- in the supply circuit	≤ 4 VA
- in the voltage circuit	≤ 0.6 VA
- in the current circuit	≤ 0.1 VA

● Voltage supply

85...250 V or 18...40 V d.c. or a.c.

● Protection level ensured:

- by the housing	IP 50
- from the terminal side	IP 20

● Insulation test voltage

3.25 kV a.c.

● Weight

125 g

● Overall dimensions

22.5 × 120 × 100 mm

● Fixation

on a 35 mm DIN rail

- **Maximal lead cross-section for executions:**

- socket-screw plug	2.5 mm ²
- socket-self-locking plug	2.5 mm ²
- inseparable screws	1.5 mm ²

- **Reference and rated service conditions:**

- input signal	0... <u>0.01</u> ... <u>1.2</u> I _n , 0... <u>0.01</u> ... <u>1.2</u> U _n
- frequency of the input signal	45... <u>65</u> ...500 Hz
- ambient temperature	-20... <u>23</u> ...55°C
- air relative humidity	25...95% (condensation inadmissible)
- supply	85...253 V d.c. or a.c., 40...400 Hz 18...40 V d.c. or a.c. 40...400 Hz
- acceptable peak factor:	
- current	2
- voltage	2
- storage temperature	-25...+ 85°C
- external magnetic field	<u>0</u> ... <u>40</u> ...400 A/m.
- short duration overload capacity (5 s)	
- voltage input	2 U _n (max 1000 V)
- current input	10 I _n
- work position	any

- **Additional errors: (in multiplication factor of the class index)**

- from the ambient temperature changes	< 0.5 k /10 K
- from the magnetic field	< 2 k

● **Standards fulfilled by the transducer:**

- electromagnetic compatibility:
 - immunity EN 61000-6-2
 - emission EN 61000-6-4
- security requirements acc. EN 6010-1:
 - insulation ensured by the housing double
 - insulation between circuits basic
 - pollution level 2
 - for work voltage in respect to the earth:
 - up to 300 V installation category III
 - up to 600 V installation category II

7. EXECUTION CODES

TRANSUCER P11Z	XX	X	X	X	XX	X
Input range:						
0... 60 V	01					
0... 100 V	02					
0... 150 V	03					
0... 250 V	04					
0... 400 V	05					
0... 500 V	06					
0... 600 V	07					
0... 1 A	08					
0... 5 A	09					
on order*	99					
Output range:						
0... 5 mA	1					
0... 20 mA	2					
4... 20 mA	3					
0... 10 V	4					
on order*	9					
Supply voltage:						
85... 253 V a.c./d.c.	1					
18... 40 V a.c./d.c.	2					
on order*	9					
Kind of terminals:						
inseparable screws	1					
socket-screw plug	2					
socket-self-locking plug	3					
Execution:						
standard	00					
custom-made	XX					
Acceptance tests:						
without a quality inspection certificate	0					
with a quality inspection certificate	1					
acc. user's agreements**	X					

* After agreeing by the producer

** The producer will settle the execution code number

Coding example:

The **P11Z 09 3 1 1 00 0** code means: the execution of a P11Z transducer with an input signal: 5 A (x/5 A), output signal: 4...20 mA, supply voltage: 85...253 V a.c./d.c., with inseparable screws, standard execution, without a quality inspection certificate.

8. MAINTENANCE AND GUARANTEE

The P11Z transducer does not require any periodical maintenance.

In case of some incorrect unit operations:

1. In the period given in the guarantee card and from the date of purchase:

One should take the transducer down from the installation and return it to the Manufacturer's Quality Control Dept.

If the unit has been used in compliance with the instructions, the Manufacturer guarantees to repair it free of charge.

2. After the guarantee period:

One should turn over the transducer to repair in a certified service workshop.

The disassembling of the housing causes the cancellation of the granted guarantee.

Spare parts are available for the period of ten years from the date of purchase.

The Manufacturer reserves the right to make changes in design and specifications of any products as engineering advances or necessity requires.

June 2003



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