



# TRANSDUCER SUPPLIED FROM A CURRENT LOOP P17 TYPE



**USER'S MANUAL**





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## 1. APPLICATION

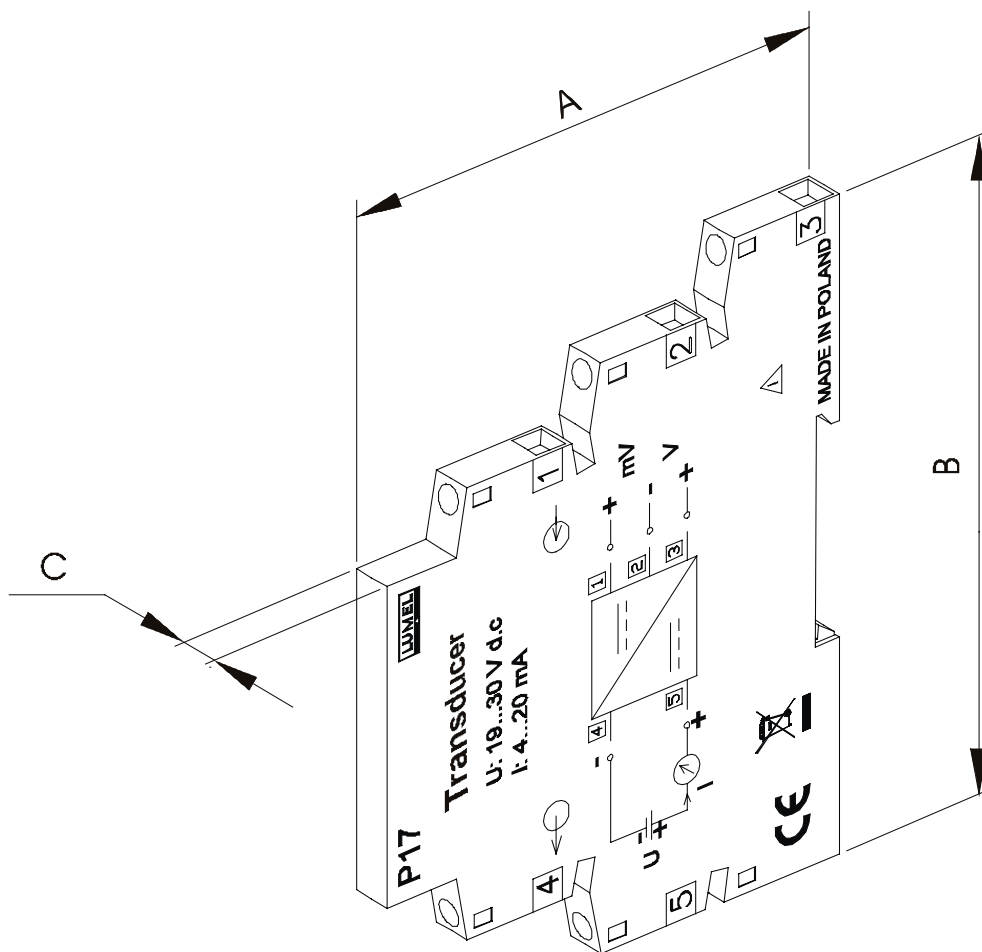
P17 transducer supplied from a current loop, converts the signal from temperature sensors or a standard voltage signal into a 4..20 mA current. Working in such a configuration, the transducer conducts itself as an active load, and consumed current by this load is proportional to the modification of the signal measured on the transducer input.

## 2. TRANSDUCER SET

The set of the P17 transducer is composed of:

- P17 transducer 1 pc.
- user's manual 1 pc.
- guarantee card 1 pc.

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



**Fig.1 View of the P17 transducer.**

### 3. BASIC REQUIREMENTS AND OPERATIONAL SAFETY

Symbols located in this user's manual means:



#### **WARNING!**

Warning of potential, hazardous situations. Especially important. One must acquaint with this before connecting the P17 transducer. The non-observance of notices marked by these symbols can occasion severe injuries of the personnel and the damage of the instrument.



#### **CAUTION!**

Designates a general useful note. If you observe it, handling of the recorder is made easier. One must take note of this, when the instrument is working inconsistently to the expectations.

#### **Possible consequences if disregarded!**

In the security scope the transducer meets the requirements of the EN 61010-1 - standard.



Remarks concerning the operator safety:

#### **3.1. General**

- The P17 transducer is destined to be mounted on a 35 mm DIN rail.
- Non-authorized removal of the required housing, inappropriate use, incorrect installation or operation, create the risk of injury to personnel or damage to equipment. For more detailed information please study this user's manual.
- All operations concerning transport, installation, and commissioning as well as maintenance must be carried out by qualified, skilled personnel and national regulations for the prevention of accidents must be observed.
- According to this basic safety information, qualified, skilled personnel are persons who are familiar with the installation, assembly, commissioning, and operation of the product and who have qualifications necessary for their occupation.

## 3.2. Transport, Storage

Please observe the notes on transport, storage and appropriate handling. Observe the climatic conditions given in technical data.

## 3.3. Installation



- The transducer must be installed according to the regulation and instructions given in this user's manual.
- Ensure proper handling and avoid mechanical stress.
- Do not bend any components and do not change any insulation distances.
- Do not touch any electronic components and contacts.
- Instruments may contain electrostatically sensitive components, which can easily be damaged by inappropriate handling.
- Do not damage or destroy any electrical components since this might endanger your health!

## 3.4. Electrical Connection



- Before switching the instrument on, one must check the correctness of connection to the network.
- In case of the protection terminal connection with a separate lead one must remember to connect it before the connection of the instrument to the mains.
- When working on live instruments, the applicable national regulations for the prevention of accidents must be observed.
- The electrical installation must be carried out according to the appropriate regulations (cable cross-sections, fuses, PE connection). Additional information can be obtained from the user's manual.
- The documentation contains information about installation in compliance with EMC (shielding, grounding, filters and cables). These notes must be observed for all CE-marked products.
- The manufacturer of the measuring system or installed devices is responsible for the compliance with the required limit values demanded by the EMC legislation.

## 3.5. Operation

- Measuring systems including P17 transducers, must be equipped with protection devices according to the corresponding standard

- After the instrument has been disconnected from the supply voltage, live components and power connections must not be touched immediately because capacitors can be charged.
- The housing must be closed during operation.

### 3.6. Maintenance and servicing.

- Please observe the manufacturer's documentation.
- Read all product-specific safety and application notes in this user's manual.
- Before taking the housing out, one must turn the supply off.
- **The removal of the housing during the warranty contract period may cause its cancellation.**

## 4. INSTALLATION

### 4.1. Way of fixing

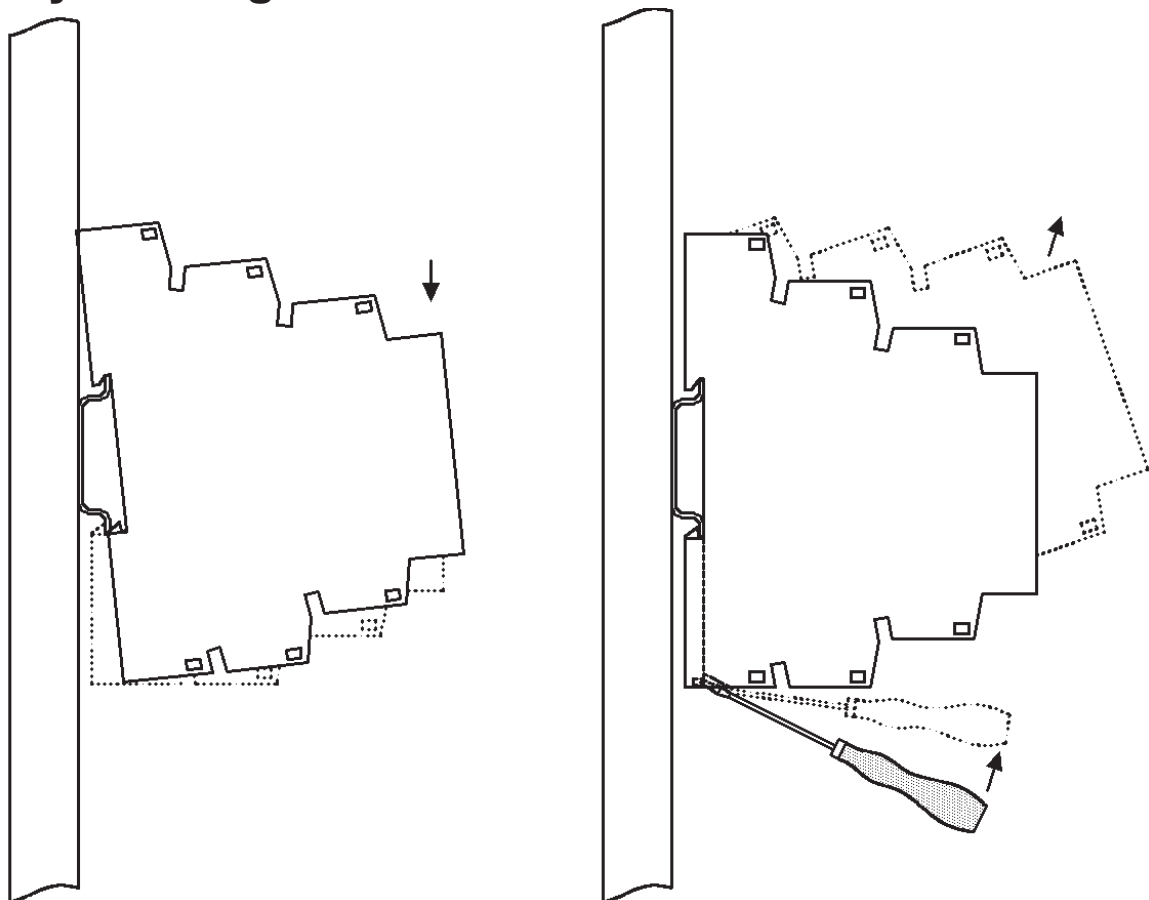
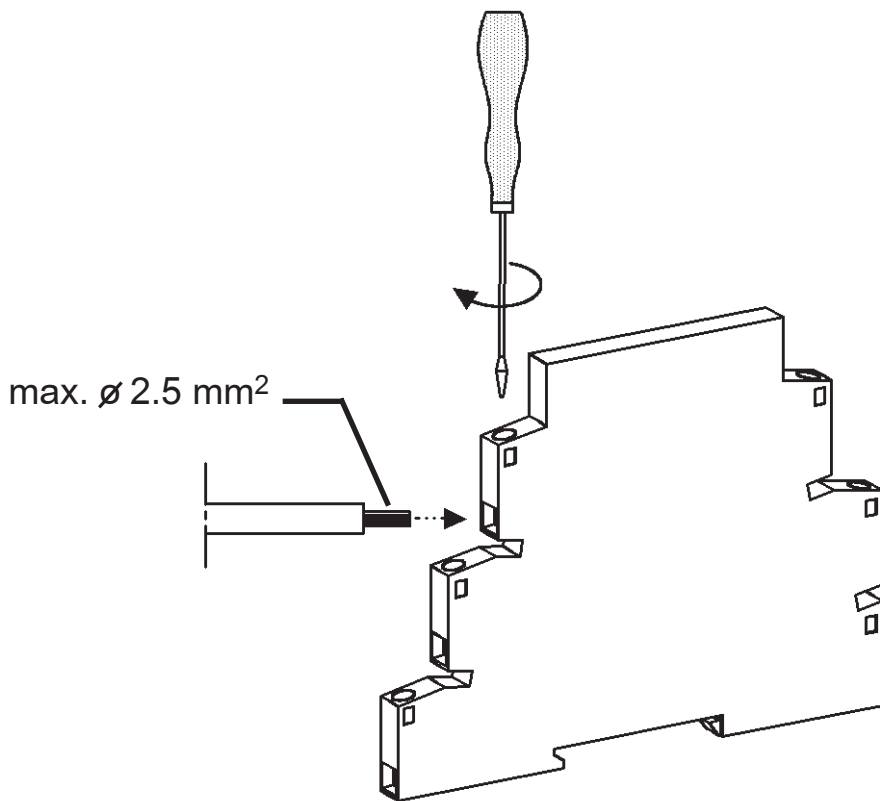
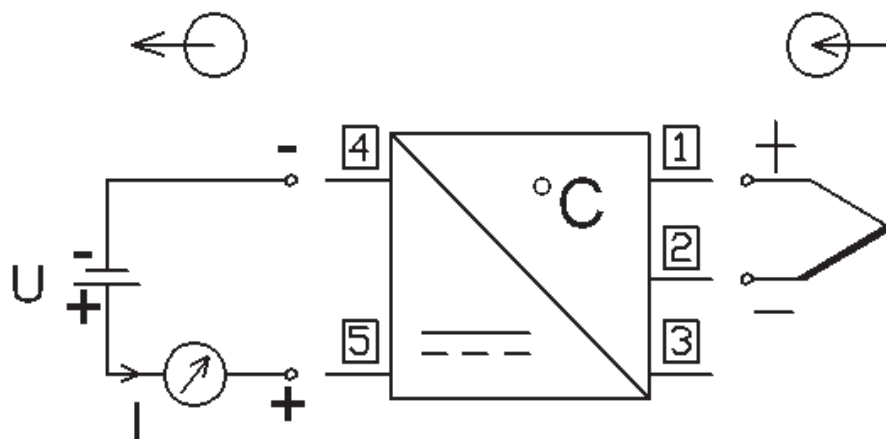


Fig.2. Way of fixing/disassembly on the rail

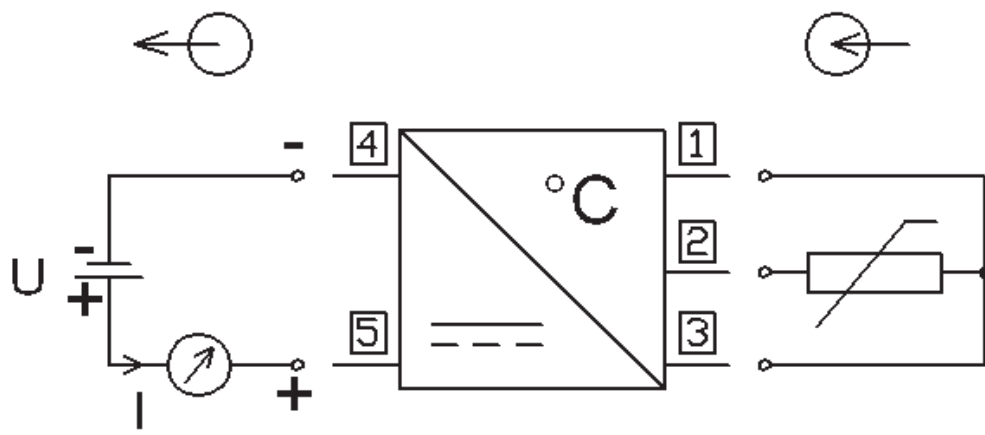


**Fig.3. Way of fixing wires**

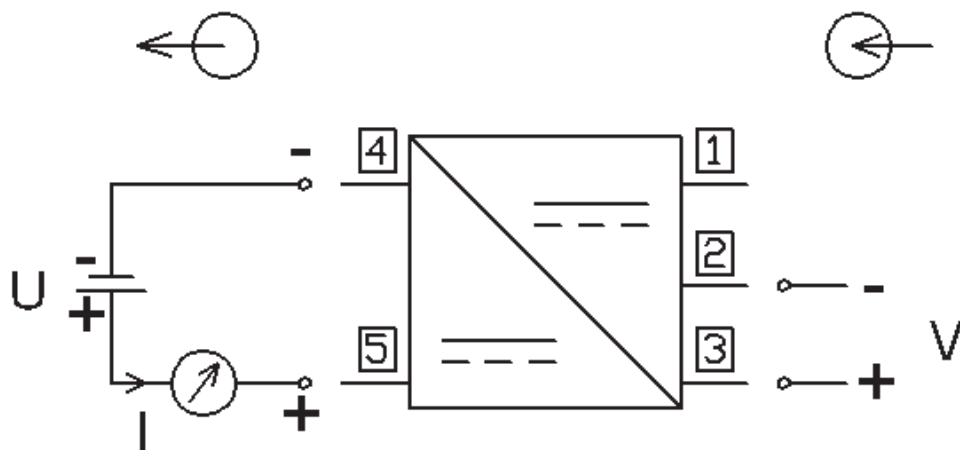
## 4.2. Electrical Connection



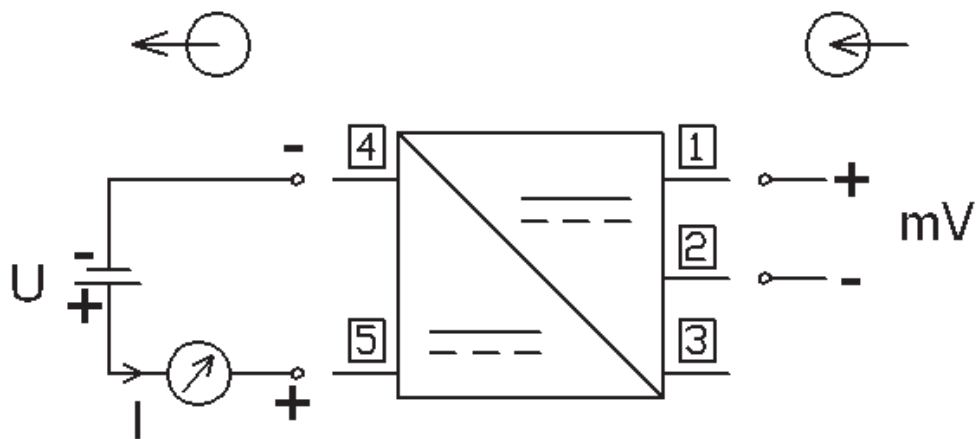
**Thermocouple**



RTD in three-wire system



Voltage 0 .. 10 mV



Voltage 0 .. 60 mV

**Fig.4. Connections of external signals**

In case of the transducer operation in a high interference environment, one must apply shielded wires.

### 4.3. Service

The P17 transducer in versions destined to co-operate with resistance thermometer sensors works with the automatic compensation of wire resistance changes. In case of application in a two-wire system, one must short-circuit the terminal 1 with the terminal 3.

The P17 transducer in versions destined to co-operate with thermocouples works with the automatic compensation of cold temperature changes.

After the connection of external signals and switching the supply on, the transducer is ready to work. The P17 transducer has parameters programmed in accordance with customer's requirements.

## 5. TECHNICAL DATA

### Basic parameter:

- conversion error	$\pm 0.5$ % of the range
- additional error from ambient temperature changes	$\pm (0.25$ % of the range /10K)
- conversion time	1 s
- supply voltage (U)	<u>19...30</u> V d.c. (for $R_{load} \leq 500 \Omega$ )
- power consumption	< 0.7 VA
- transducer preheating time	15 min
- ambient temperature	-20... <u>23</u> ...55°C
- storage temperature	-25...+85°C
- relative air humidity	< 95% (inadmissible condensation)
- operating position	any
- sustained overload capacity	1 % (TC and RTD) 20 % (voltage and resistance)
- momentary overload (3 s)	30 V (input of sensors and voltage)
- guaranteed protection grade	IP50 (housing) IP20 (electrical connections, terminals)
- dimensions (A x B x C)	76.9 x 99.1 x 6.2 mm
- weight	80 g
- fixing	on a rail acc. to EN 60715

**Inputs:** 

- type and input range
- input resistance
  
- current flowing through RTD
- resistance of wires connecting the RTD with the transducer
- characteristics of TC
- characteristics of RTD

acc. to the version code  
> 1 M $\Omega$  for P17-00XXX version  
> 9 M $\Omega$  for other version  
< 400  $\mu$ A  
  
 $\leq$  10  $\Omega$  / wire  
acc. to EN 60584-1  
acc. to EN 60751

**Outputs:** 

- range of analog output (I)
- output definition
- output load ( $R_{load}$ )

4...20 mA  
0.005 mA  
< 500  $\Omega$

**Electromagnetic compatibility:**

- noise immunity
- noise emissions

acc. to EN 61000-6-2  
acc. to EN 61000-6-4

**Safety requirements acc. to EN 61010-1**

- installation category
- pollution grade
- phase-to-earth working voltage

III  
2  
50 V

## 6. ORDER CODES

Table 1 Version codes of the P17 transducer

Transducer supplied from a current loop P17		XX	XX	X
<b>Type and input range:</b>				
voltage	(0 .. 10) V	00		
thermocouple J (Fe-CuNi)	(-100 .. 1200)°C	01		
thermocouple K (NiCr-NiAl)	(-100 .. 1370)°C	02		
thermocouple N (NiCrSi-NiSi)	(-100 .. 1300)°C	03		
thermocouple E (NiCr-CuNi)	(-100 .. 900)°C	04		
resistance thermometer Pt100	(-50 .. 100)°C	05		
resistance thermometer Pt1000	(-50 .. 400)°C	06		
voltage	(0 .. 60) mV	09		
<b>Version:</b>				
standard			00	
on order*			XX	
<b>Acceptance tests:</b>				
without additional requirements				8
with a quality inspection certificate				7
acc. to customer's agreement*				X

\* after agreement with the manufacturer

### ORDERING EXAMPLE:

The code: P17-05-00-8 means a transducer version supplied from a current loop, input signal Pt100 RTD, range -50 .. 100 °C, standard version, without additional quality inspection requirements.

## 7. MAINTENANCE AND GUARANTEE

The P17 transducer does not require any periodical maintenance. In case of some incorrect operations:

### 1. After the dispatch date and within the period stated in the guarantee card.

One should return the instrument to the Manufacturer's Quality Inspection Dept.

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

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

### 2. After the guarantee period:

One should send the instrument to repair it in an authorized service workshop.

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

Our policy is one of continuous improvement and we reserve the right to make changes in design and specifications of any products as engineering advances or necessity requires and revise the above specifications without notice.

## **SALES PROGRAM**

- DIGITAL and BARGRAPH PANEL METERS
- MEASURING TRANSDUCERS
- ANALOG PANEL METERS (DIN INSTRUMENTS)
- DIGITAL CLAMP-ON METERS
- INDUSTRIAL PROCESS and POWER CONTROLLERS
- CHART and PAPERLESS RECORDERS
- 1-PHASE and 3-PHASE WATT-HOUR METERS
- LARGE SIZE DISPLAY PANELS
- ELEMENTS OF INTEGRATION SYSTEMS
- ACCESSORIES for MEASURING INSTRUMENTS (SHUNTS)
- CUSTOM-MADE PRODUCTS ACCORDING CUSTOMER'S REQUIREMENTS

## ***WE ALSO OFFER OUR SERVICES IN THE PRODUCTION OF:***

- ALUMINIUM ALLOY PRESSURE CASTINGS
- PRECISION ENGINEERING and THERMOPLASTICS PARTS

## **QUALITY PROCEDURES:**

According ISO 9001 and ISO 14001 international requirements.

All our instruments have CE mark.

For more information, please write to or phone our Export Department.



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CONTROL  
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