P12U

TRANSDUCER OF TEMPERATURE, RESISTANCE, D.C. CURRENT AND D.C. VOLTAGE WITH ANALOG, RELAY AND RS-485 DIGITAL OUTPUTS

LUMEL

FEATURES:

21 points charact. | Password protection | PD14 Compatible | RJ-11 connector | PD11 program

INPUT:

DC

OUTPUTS

0/4...20 mA | 0...10 V | MOD BUS | 2x | RS 485

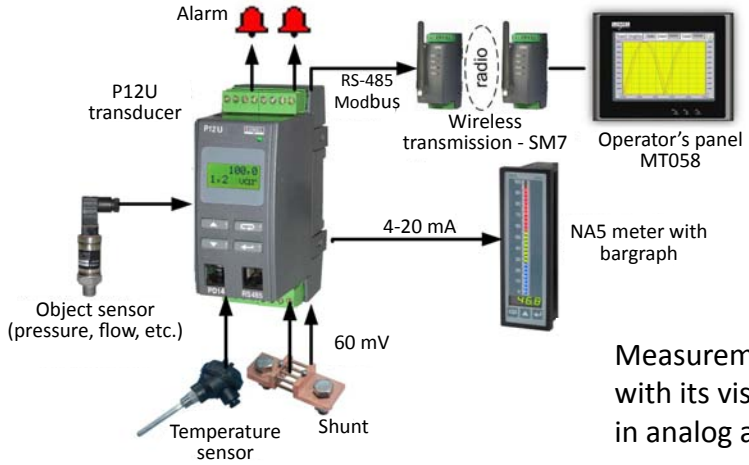
GALVANIC ISOLATION:

Supply | Interface PD14

CE

- Universal programmable measuring input:
  - temperature from resistance thermometers and thermocouples
  - resistance,
  - d.c. voltage and d.c. current.
- Easy to configure through the PD11 program.
- Automatic compensation.
- Individual characteristic (up to 21 points).
- Analog output.
- RS-485 Modbus digital interface.
- 2 alarm relays.
- Backlit display.
- Alarm signaling on the display.
- Internal memory: 750 samples.

EXAMPLE OF APPLICATION



Measurement and signal conversion with its visualization and retransmission in analog and digital form.

INPUTS

Input type	Range	Minimal sub-range with class preservation	Error	Input type	Range	Minimal sub-range with class preservation	Error
Pt100	(-200 .. +850)°C	260 °C	0.2	S (PtRh10-Pt)	(0 .. +1760) °C	880 °C	0.2
Pt100 (option)	(-200 .. +100) °C	100 °C	0.2	T (Cu-CuNi)	(-100 .. +400) °C	250 °C	0.2
Pt250 (option)	(0 .. +150) °C	100 °C	0.2	Resistance	(0 .. 400) Ω	100 Ω	0.2
Pt500	(-200 .. +850) °C	260 °C	0.2	Resistance	(0 .. 4000) Ω	1000 Ω	0.2
Pt1000	(-200 .. +850) °C	260 °C	0.2	Voltage	(-30 .. 150) mV	50 mV	0.2
Pt50 (option)	(-200 .. +850) °C	260 °C	0.2	Voltage	(-10 .. 70) mV	18 mV	0.2
Cu50 (option)	(-50 .. +180) °C	120 °C	0.3	Voltage	(0 .. 3) V	0.75 V	0.2
Cu100	(-50 .. +180) °C	120 °C	0.3	Voltage	(0 .. 10) V	2.5 V	0.2
Ni100	(-60 .. +180) °C	120 °C	0.3	Current	(0 .. 5) mA	1.25 mA	0.2
J (Fe-CuNi)	(-100 .. +1200) °C	330 °C	0.2	Current	(0 .. 20) mA	5 mA	0.2
K (NiCr-NiAl)	(-100 .. +1370) °C	370 °C	0.2	Voltage	(0 .. 200) V	50 V	0.2
N (NiCrSi-NiSi)	(-100 .. +1300) °C	350 °C	0.2	Voltage	(0 .. 600) V	150 V	0.2
E (NiCr-CuNi)	(-100 .. +900) °C	250 °C	0.2	Current	(0 .. 1) A	0.25 A	0.2
R (PtRh13-Pt)	(0 .. +1760) °C	880 °C	0.2	Current	(0 .. 5) A	1.25 A	0.2

OUTPUTS

Output type	Properties	Remarks
Analog 0/4 .. 20 mA	maximal response time: 100 ms	load resistance: ≤ 500 Ω
Analog 0 .. 10 V	maximal response time: 100 ms	load resistance: ≥ 500 Ω
Relay	NOC contacts (normally open)	load capacity: - voltage: 250 V a.c., 150 V d.c., - current: 5 A for 30 V d.c. or 250 V a.c.

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DIGITAL INTERFACE

Interface type	Properties	Remarks
RS-485 Modbus	ASCII modes (8N1, 7E1, 7O1) and RTU (8N2, 8E1, 8O1, 8N1)	transmission rate: 2400, 4800, 9600 bit/s maximal response time: 300 ms
RS-232	programmer socket	rate: 9600 bit/s

EXTERNAL FEATURES

Readout field	display: LCD 2 x 8	indication range: -99999 .. 99999
Overall dimensions	45 × 100 × 120 mm	
Weight	< 0.3 kg	
Protection grade	IP40	
Fixing	on a 35 mm DIN rail	

RATED OPERATION CONDITIONS

Supply voltage	85 .. 230 .. 253 V a.c./d.c. or 20 .. 24 .. 50 V a.c./d.c. (40 .. 50/60 .. 440 Hz)	Input power: < 4 VA
Temperature	ambient: -25...23...55°C	storage: -25...85°C
Relative humidity	< 95%	inadmissible condensation
Operating position	any	
Conversion time	min 100 ms	

SAFETY AND COMPATIBILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation between circuits	basic	acc. to EN 61010-1
Pollution level	2	acc. to EN 61010-1
Installation category	III	
Maximal phase-to-earth voltage	600 V	

ORDERING

P12U -	X	XX	X	X	X	XX	X
Kind of transducer:							
without display	1						
with display	2						
Input signal [1]**:**							
write the signal code from the table 1		XX					
Output signal:							
voltage 0...10V			1				
current 0...20mA			2				
current 4...20mA			3				
current 0...5 mA			4				
as per order [2]			X				
Supply:							
85...253 V d.c./a.c.				1			
20...50 V d.c./a.c.				2			
Kind of terminals:							
socket-plug with screw connections					0		
as per order [3]					X		
Version:							
standard						00	
custom-made [1]						XX	
Próby odbiorcze:							
without extra quality requirements							8
with an extra quality inspection certificate							7
according to customer's request [2]							X

[1] - The transducer has an universal input. One must give in the order, the code of the input signal (table 1) which has to be programmed.
[2] - After agreeing with the manufacturer.
[3] - Possible version with self-locking sockets.

TABLE 1.

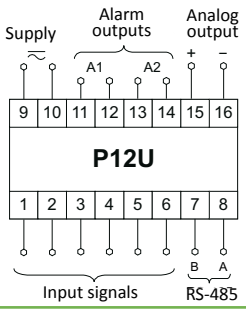
Input signal[1]:	Input signal code
Resistance thermometer Pt100	00
Resistance thermometer Pt500	01
Resistance thermometer Pt1000	02
Resistance thermometer Cu100	03
Resistance thermometer Ni100	04
Thermocouple J (Fe-CuNi)	05
Thermocouple K (NiCr-NiAl)	06
Thermocouple N (NiCrSi-NiSi)	07
Thermocouple E (NiCr-CuNi)	08
Thermocouple R (PtRh13-Pt)	09
Thermocouple S (PtRh10-Pt)	10
Thermocouple T (Cu-CuNi)	11
Resistance up to 400 Ω	12
Resistance up to 4000 Ω	13
Voltage: -10...70 mV	14
Voltage: 0...3 V	15
Voltage: 0...10 V	16
Current: 0...5 mA	17
Current: 0...20 mA	18
Voltage: 0...200 V	19
Voltage: 0...600 V	20
Current: 0...1 A	21
Current: 0...5 A	22
as per order[2]	XX

The transducer maintains its class index up to a fourfold decrease of the basic range input signal. In the P12U-1 transducer order, besides the basic range, one must give the required sub-range. In case when the given sub-range is lower than the basic range, divided by four, one must specify the input signal in the order as XX.

Order example:

The code: **P12U-1.05.1.1.0.00.8 – 0...400 Ω sub-range** means:
P12U transducer without a display, programmed by the manufacturer to co-operate with a thermocouple of J type in the measuring sub-range 0...400ºC, voltage analog output: 0...10 V, supply voltage: 85...253 V a.c./d.c. , socket-plug screw terminals, standard version, without extra quality requirements.

CONNECTION DIAGRAM



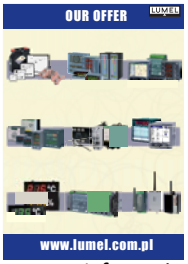
SEE ALSO:

KD7 recorder.

PD14 converter (RS-485/USB).

Programmable meter with multicolour bargraph - NA5 and NA6 .

Digital large displays for external uses - DN.



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