

# P30U TRANSDUCER OF TEMPERATURE AND STANDARD SIGNALS



## FEATURES:



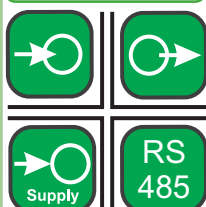
## INPUT:



## OUTPUT:



## GALVANIC ISOLATION:



Export department:  
+48 68 45 75 139/ 305/  
321/ 368  
Fax: +48 68 32 54 091  
e-mail: export@lumel.com.pl

„LUMEL” S.A.  
ul. Słubicka 1  
65-127 Zielona Góra  
POLAND  
WWW.LUMEL.COM.PL

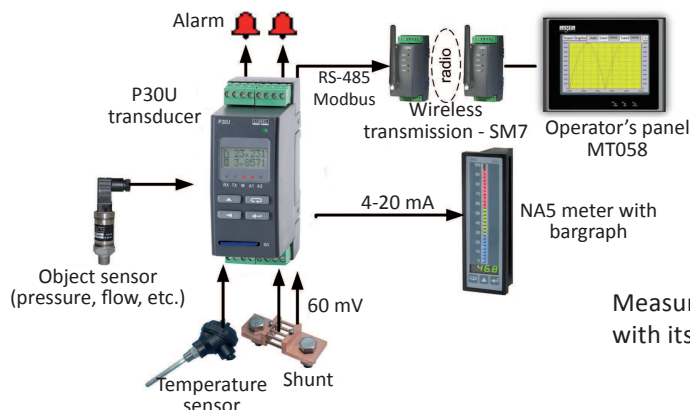


NEW



- Universal measuring input.
- Mathematical functions.
- Individual characteristic (up to 21 points).
- 1 or 2 (option) alarm output.
- Built-in power supply of object transducers 24V d.c. (option).
- RS485 interface Modbus RTU Slave, RTU Master or Monitor.
- Possibility to define the unit by the user.
- Data recording in internal memory, up to 4MB or 4GB in SD/SDHC card.
- Transducer configuration using buttons or RS485 interface and LPConfig software.
- Firmware upgradeable by the user.

## EXAMPLE OF APPLICATION:



Measurement and signal conversion with its visualization and retransmission.

## INPUT

| Input type      | Nominal measuring range Z | Coefficient k * | Input type          | Range          | Minimal sub-range with class preservation |
|-----------------|---------------------------|-----------------|---------------------|----------------|-------------------------------------------|
| Voltage 10 V    | -10...10 V                | 5               | Thermocouple J type | 0...400 °C     | 1                                         |
| Voltage 24 V    | -24...24 V                | 10              | Thermocouple K type | -200...1200 °C | 2                                         |
| Current         | -20...20 mA               | 10              | Thermocouple S type | 0...400 °C     | 1                                         |
| Resistance 400  | 0...400 Ω                 | 4               | Thermocouple N type | -200...1370 °C | 2                                         |
| Resistance 2000 | 0...2000 Ω                | 2               | Thermocouple E type | 0...1760 °C    | 2                                         |
| Resistance 5500 | 0...5500 Ω                | 2               | Thermocouple R type | -20...420 °C   | 1                                         |
| Pt100           | -200...850 °C             | 5               | Thermocouple T type | -200...1300 °C | 1                                         |
| Pt250           | -200...600 °C             | 4               | Thermocouple B type | -40...260 °C   | 1                                         |
| Pt250           | -200...850 °C             | 3               | Thermocouple E type | -200...1000 °C | 2                                         |
| Pt500           | -200...180 °C             | 3               | Thermocouple R type | 0...1760 °C    | 2                                         |
| Pt500           | -200...850 °C             | 3               | Thermocouple T type | -200...400 °C  | 1                                         |
| Pt1000          | -200...250 °C             | 4               | Thermocouple B type | 400...1800 °C  | 1                                         |
| Pt1000          | -200...850 °C             | 2               |                     |                |                                           |
| Ni100           | -60...180 °C              | 1               |                     |                |                                           |
| Ni1000          | -60...150 °C              | 2               |                     |                |                                           |
| Ni100-LG        | -60...180 °C              | 1               |                     |                |                                           |
| Ni1000-LG       | -60...180 °C              | 2               |                     |                |                                           |
| Cu100           | -50...180 °C              | 1               |                     |                |                                           |
|                 | -5...20 mV                | 1               |                     |                |                                           |
| Voltage mV      | -75...75 mV               | 4               |                     |                |                                           |
|                 | -200...200 mV             | 4               |                     |                |                                           |

Accuracy class = 0.1 with the exception of S, R and B thermocouples, where accuracy class = 0.5

k\* coefficient of narrowing the measuring range with keeping the accuracy class.

NOTE: Minimal sub-range with keeping the accuracy class is z/k (it is freely programmable).

Example: 10 Z = -10...10V;

k = 10

Z/k = 2 V, so the minimal sub-range can be e.g. -1...1 V; 0...2 V; 5...7 V

## OUTPUT

| Output type      | Properties                                                                                  | Remarks             |
|------------------|---------------------------------------------------------------------------------------------|---------------------|
| Analog           | Current: 0/4...20 mA, load resistance ≤ 500 Ω<br>Voltage: 0...10 V, load resistance ≥ 500 Ω | accuracy class: 0,1 |
| Relay            | 1 or 2 relays; voltageless contacts – NO – maximum load 5A 30V d.c., 250V a.c.              |                     |
| Supplying output | 24 V d.c. / 30 mA (option)                                                                  |                     |

## DIGITAL INTERFACE

| Interface type | Protocol                                          | Baud rate                                            |
|----------------|---------------------------------------------------|------------------------------------------------------|
| RS-485         | Modbus RTU: 8N2, 8E1, 8O1, 8N1<br>Address 1...247 | 4.8, 9.6, 19.2, 38.4, 57.6, 115.2, 230.4, 256 kbit/s |

## EXTERNAL FEATURES

|                    |                   |                     |
|--------------------|-------------------|---------------------|
| Overall dimensions | 45 x 120 x 100 mm |                     |
| Weight             | < 0.25 kg         |                     |
| Protection grade   | for housing: IP40 | for terminals: IP10 |
| Readout field      | LCD 2 x 8         |                     |

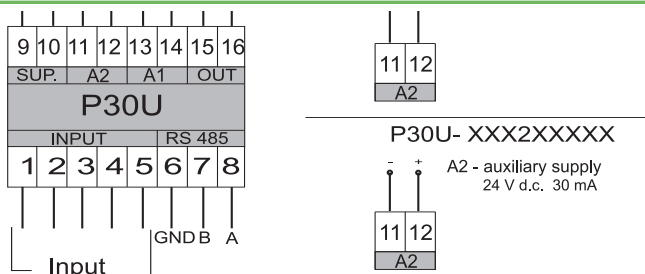
## RATED OPERATION CONDITIONS

|                   |                                                                                                                                                |                           |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Supply voltage    | <ul style="list-style-type: none"> <li>85...253 V d.c. / a.c. (40...400 Hz)</li> <li>20...40 V a.c. (40...400 Hz) or 20...60 V d.c.</li> </ul> | Power consumption < 5 VA  |
| Temperature       | ambient: -25...+55°C                                                                                                                           | storage: -30...+70°C      |
| Relative humidity | 25...95 %                                                                                                                                      | inadmissible condensation |
| Working position  | any                                                                                                                                            |                           |

## SAFETY AND COMPATIBILITY REQUIREMENTS

|                                |                                                                                                              |                   |
|--------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------|
| Electromagnetic compatibility  | noise immunity                                                                                               | acc. EN 61000-6-2 |
|                                | noise emissions                                                                                              | acc. EN 61000-6-4 |
| Isolation between circuits     | basic                                                                                                        | acc. EN 61010-1   |
| Pollution level                | 2                                                                                                            |                   |
| Installation category          | III                                                                                                          | acc. EN 61010-1   |
| Maximal phase-to-earth voltage | <ul style="list-style-type: none"> <li>for supply circuits 300 V</li> <li>for other circuits 50 V</li> </ul> |                   |
| Altitude above sea level       | < 2000 m                                                                                                     |                   |

## CONNECTION DIAGRAM



## ORDERING

| P30U -                                       | X | XX | X | X  | XX | X | X |
|----------------------------------------------|---|----|---|----|----|---|---|
| <b>Analog output:</b>                        |   |    |   |    |    |   |   |
| current (range 0...4...20 mA)                | 1 |    |   |    |    |   |   |
| voltage (0...10 V)                           | 2 |    |   |    |    |   |   |
| <b>SD/SDHC card:</b>                         |   |    |   |    |    |   |   |
| without slot for SC card                     | 0 |    |   |    |    |   |   |
| with slot for SD card                        | 1 |    |   |    |    |   |   |
| <b>Addition output:</b>                      |   |    |   |    |    |   |   |
| NO relay, 5 A 30 V d.c., 250 V a.c.          |   | 1  |   |    |    |   |   |
| supply 24 V d.c. / 30 mA                     |   | 2  |   |    |    |   |   |
| <b>Supply:</b>                               |   |    |   |    |    |   |   |
| 85...253 V a.c./d.c.                         |   |    | 1 |    |    |   |   |
| 20...40 V a.c., 20...60 d.c.                 |   |    | 2 |    |    |   |   |
| <b>Version:</b>                              |   |    |   |    |    |   |   |
| standard                                     |   |    |   | 00 |    |   |   |
| custom-made*                                 |   |    |   | XX |    |   |   |
| <b>Language version:</b>                     |   |    |   |    |    |   |   |
| Polish                                       |   |    |   |    | P  |   |   |
| English                                      |   |    |   |    | E  |   |   |
| <b>Acceptance tests:</b>                     |   |    |   |    |    |   |   |
| without extra requirements                   |   |    |   |    |    | 0 |   |
| with an extra quality inspection certificate |   |    |   |    |    | 1 |   |
| according to customer's request*             |   |    |   |    |    |   | X |

### ACCESSORIES:

| SD CARD  |               |
|----------|---------------|
| Capacity | Ordering code |
| 1 GB     | 0923-611-193  |
| 2 GB     | 0923-611-194  |

### Order example:

Code P30U-111100P0 means transducer execution with current output, SD slot for SD card, with 2 alarm relays, 85...253 V a.c. / d.c. (40...400 Hz) power supply, standard version, Polish language, without extra requirements.

\* after agreeing with the manufacturer.

## SEE ALSO:



Temperature sensors

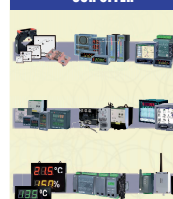


N30U meter



LUMEL - PROCESS software

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### Export department:

+48 68 45 75 139/ 305/  
321/ 368  
Fax: +48 68 32 54 091  
e-mail: [export@lumel.com.pl](mailto:export@lumel.com.pl)

„LUMEL” S.A.  
ul. Słubicka 1  
65-127 Zielona Góra  
POLAND

[WWW.LUMEL.COM.PL](http://WWW.LUMEL.COM.PL)