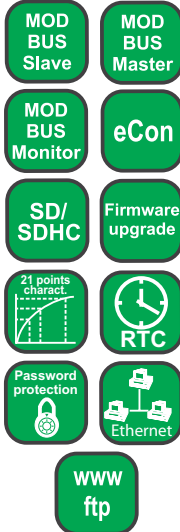


P30U TRANSDUCER OF TEMPERATURE AND STANDARD SIGNALS

FEATURES:



INPUT:



OUTPUT:



GALVANIC ISOLATION:



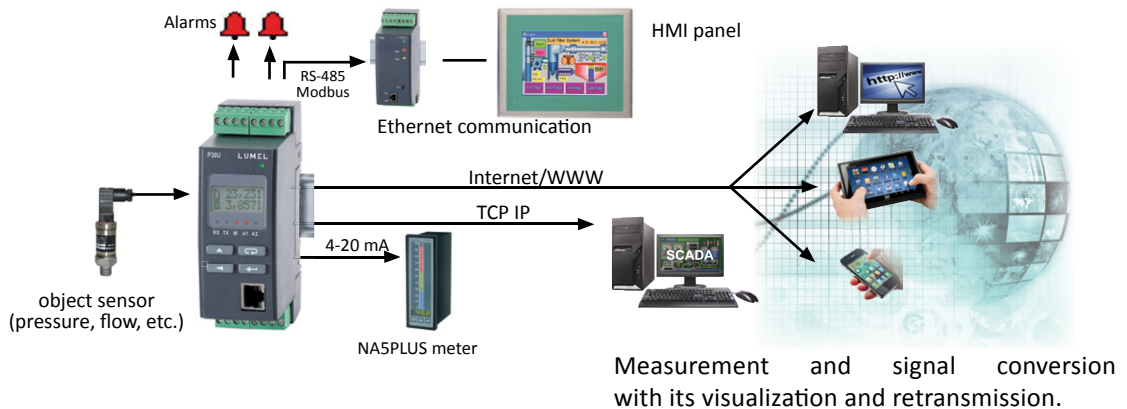
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+48 68 45 75 139/ 233/
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Fax: +48 68 32 54 091
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LUMEL S.A.
ul. Sulechowska 1
65-022 Zielona Góra
POLAND
WWW.LUMEL.COM.PL



- Universal measuring input.
- Version: standard, with SD card, **with Ethernet and internal memory.**
- Mathematical functions, i.a. **median filter function on measured value.**
- Individual characteristic (up to 21 points).
- 1 or 2 (option) alarm output.
- Built-in power supply of object transducers 24V d.c. (option).
- RS-485 interface Modbus RTU Slave, RTU Master or Monitor.
- **Modbus TCP Slave (option).**
- **Possibility to record one measuring value and simultaneously up to 50 read-out/ written values via RS-485 Modbus Master.**
- Data recording in internal memory, up to 4MB or in external SD/SDHC card or **internal file system memory (8 GB) (option).**
- Transducer programmable using buttons, eCon freeware (through RS-485 or Ethernet) or any web browser (through Ethernet).
- Firmware upgradeable by the user.

EXAMPLE OF APPLICATION:



INPUT

Input type	Nominal measuring range Z	Coefficient k *	Input type	Range	Minimal sub-range with class preservation		
Voltage 10 V	-10...10 V	4	Thermocouple J type	0...400 °C	1		
Voltage 24 V	-24...24 V	5		-200...1200 °C	2		
Current	-20...20 mA	10	Thermocouple K type	0...400 °C	1		
Resistance 400	0...400 Ω	4		-200...1370 °C	2		
Resistance 2000	0...2000 Ω	2	Thermocouple S type	0...1760 °C	2		
Resistance 5500	0...5500 Ω	2	Thermocouple N type	-20...420 °C	1		
Pt100	-200...850 °C	5		-200...1300 °C	1		
Pt250	-200...600 °C	4	Thermocouple E type	-40...260 °C	1		
	-200...850 °C	3		-200...1000 °C	2		
Pt500	-200...180 °C	3	Thermocouple R type	0...1760 °C	2		
	-200...850 °C	3	Thermocouple T type	-200...400 °C	1		
Pt1000	-200...250 °C	4	Thermocouple B type	400...1800 °C	1		
	-200...850 °C	2					
Ni100	-60...180 °C	1	RS-485	In the Master mode of RS-485 interface, the transducer can poll up to 50 registers from one device, with implemented Modbus protocol, using RS-485 interface. In this mode, it is not possible to poll the transducer by another Master device.			
Ni1000	-60...150 °C	2					
Ni100-LG	-60...180 °C	1					
Ni1000-LG	-60...180 °C	2					
Cu100	-50...180 °C	1					
Voltage mV	-5...20 mV	1				In the Master mode of RS-485 interface, the transducer can monitor activity of the RS-485 connection and react (accept as a measured value) to the value of the frame of the selected slave device. The transducer can analyze up to 50 registers from one device . In this mode, it is not possible to poll the transducer by another Master device.	
	-75...75 mV	4					
	-200...200 mV	4					

Accuracy class = 0.1 with the exception of N, E and T thermocouples, where accuracy class = 0.2 and 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 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; 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/ IP30	for terminals: IP20
Readout field	LCD 2 x 8	

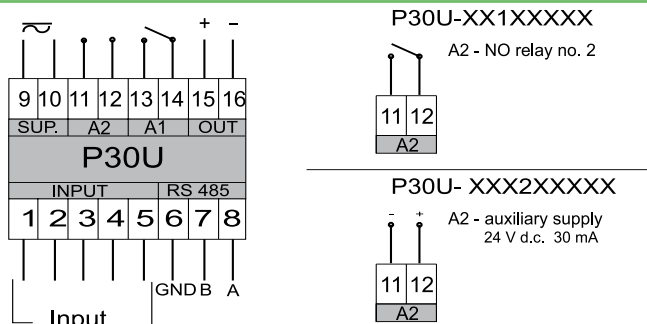
RATED OPERATION CONDITIONS

Supply voltage	<ul style="list-style-type: none"> 85...253 V d.c. / a.c. (40...400 Hz) 20...40 V a.c. (40...400 Hz) or 20...60 V d.c. 	Power consumption < 6 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"> for supply circuits 300 V for other circuits 50 V 	
Altitude above sea level	< 2000 m	

CONNECTION DIAGRAM



ORDERING

	P30U -	X	X	X	XX	X	X
Analog output:							
current (range 0/4...20 mA)		1					
voltage (0...10 V)		2					
Additional equipment:							
without any		0					
with external SD/SDHC slot		1					
with Ethernet interface and internal file system memory		2					
Addition output:							
NO relay, 5 A 30 V d.c., 250 V a.c.			1				
supply 24 V d.c. / 30 mA			2				
Supply:							
85...253 V a.c./d.c.			1				
20...40 V a.c., 20...60 d.c.			2				
Version:							
standard				00			
custom-made*				XX			
Language version:							
Polish					P		
English					E		
other*					X		
Acceptance tests:							
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	20-199-00-00023
2 GB	20-199-00-00025

Order example:

Code P30U-111100P0 means transducer execution with current output, slot for SD/SDHC 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.

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+48 68 45 75 139/ 233/
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Fax: +48 68 32 54 091
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LUMEL S.A.
ul. Sulechowska 1
65-022 Zielona Góra
POLAND
WWW.LUMEL.COM.PL

P300 TRANSDUCER OF PULSES, FREQUENCY, TURNS, OPERATION TIME

FEATURES:

- MOD BUS Slave
- MOD BUS TCP
- HTTP
- FTP
- SD/SDHC
- eCon
- 21 points charact.
- RTC
- Firmware upgrade
- Password protection

2 x UNIVERSAL INPUT:

- Hz
- Value setting

OUTPUT:

- RS 485

GALVANIC ISOLATION:

- Supply
- RS 485

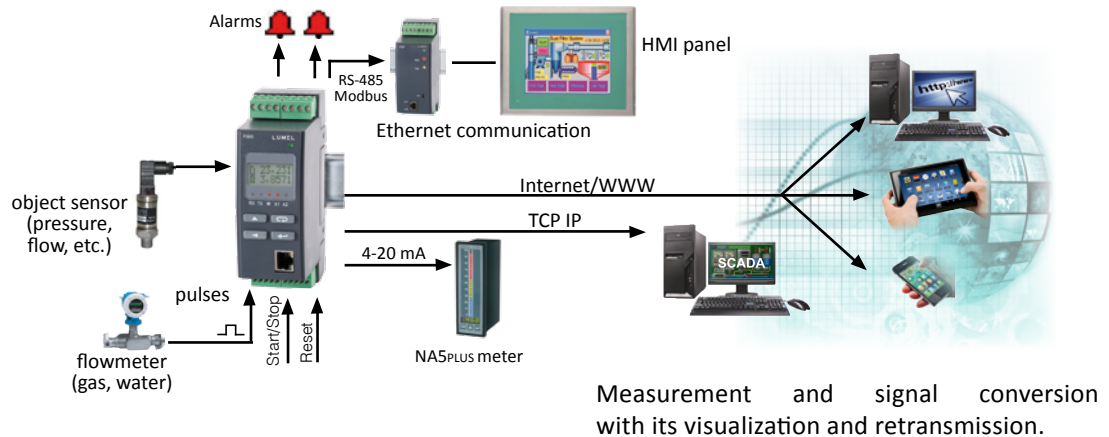
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e-mail: export@lumel.com.pl
Export department:
tel.: (+48 68) 45 75 130, 45 75 132
e-mail: export@lumel.com.pl
Calibration & Attestation:
e-mail: laboratorium@lumel.com.pl

LUMEL S.A.
ul. Stubiicka 4,
65-127 Zielona Góra, Poland
tel.: +48 68 45 75 100,
WWW.LUMEL.COM.PL



- 2 universal pulse inputs.
- Version: standard, with SD card, with Ethernet and internal memory.
- Mathematical functions for each input.
- Individual characteristic (up to 21 points) for each input.
- 1 or 2 (option) alarm output.
- Power supply of object transducers 24V d.c. (option).
- RS485 interface Modbus RTU Slave, Modbus TCP Slave (option).
- Data recording in internal memory up to 4MB, in external SD/SDHC card (option) or internal file system memory (8GB) (option).
- Transducer configuration using buttons, RS485 interface and eCon software, WWW server.
- Firmware upgradeable by the user.

EXAMPLE OF APPLICATION:



MAIN INPUT

Input type No. 1	Nominal range	Maximal range	Class
Number of pulses ¹	-99999...99999	-99999...99999	±1 pulse
Frequency f < 10 kHz ¹	0.05...10000 Hz	0.05...12000 Hz	0.01
Rational speed ¹	0...60000 [Rot/min]	0...72000 [Rot/min]	0.01
Period t < 20s ¹	0.0001...20 [s]	0.0001...21 [s]	0.01
Period t < 1.5 h	0.001...5400 [s]	0.0001...5600 [s]	0.01
Frequency f < 1 MHz	0.1...1000 kHz	0.1...3000 kHz	0.01
Operating time	0...99999 [h]	0...99999 [h]	0.5 sec/ 24h
Current time	00.00 ... 23.59	00.00 ... 23.59	0.5 sec/ 24h
Counter INPUT1 - INPUT2 ¹	-99999...99999	-99999...99999	±1 pulse
Encoder ¹	-99999...99999	-99999...99999	±1 pulse

AUXILIARY INPUT

Input type No. 2	Nominal range	Maximal range	Class
Number of pulses ¹	-99999...99999	-99999...99999	±1 pulse
Frequency f < 10 kHz ¹	0.05...10000 Hz	0.05...12000 Hz	0.01
Rational speed ¹	0...60000 [Rot/min]	0.3...72000 [Rot/min]	0.01
Period t < 20s ¹	0.0001...20 [s]	0.0001...21 [s]	0.05
Period t < 1.5 h	0.001...5400 [s]	0.0001...5600 [s]	0.01
Frequency f < 1 MHz	0.1...1000 kHz	0.1...3000 kHz	0.01
Operating time	0...99999 [h]	0...99999 [h]	0.5 sec/ 24h
Current time	00.00 ... 23.59	00.00 ... 23.59	0.5 sec/ 24h
Setting value	-99999...99999	-99999...99999	-

duration time of control pulse (START/STOP, RESET functions) >10 ms, input and control signals 5...24 V d.c.

¹ Minimal duration time of high or low level signal is 40µs - measured value can be incorrect, if for boundary frequency 10 kHz the pulse duty cycle will be < 30% or greater than 70%

OUTPUTS

Output type	Properties	Remarks
Analog	Current: 0/4...20 mA, load resistance ≤ 500 Ω; 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	Remarks
RS-485	Modbus RTU: 8N2, 8E1, 8O1, 8N1; Address 1...247	Baud rate: 4.8, 9.6, 19.2, 38.4, 57.6, 115.2, 230.4, 256 kbit/s
Ethernet 10/100 Base-T	Modbus TCP, HTTP, FTP	WWW server, FTP server, DHCP client

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

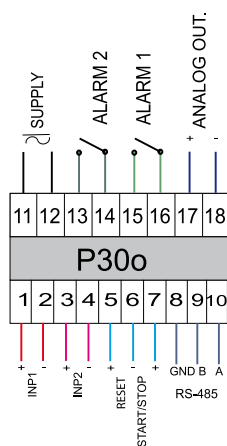
Supply voltage	<ul style="list-style-type: none"> 85...253 V d.c. / a.c. (40...400 Hz) 20...40 V a.c. (40...400 Hz) or 20...60 V d.c. 	Power consumption < 5 VA
Temperature	ambient: -25...23...+55°C	storage: -30...+70°C
Relative humidity	25...95 %	inadmissible condensation
Working position	any	

SAFETY AND COMPATIBILITY REQUIREMENTS

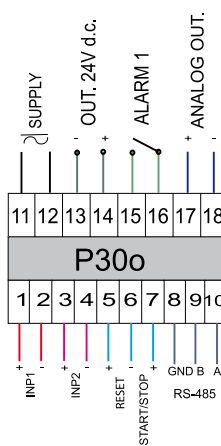
Electromagnetic compatibility	noise immunity	acc. EN 61000-6-2
	noise emissions	acc. EN 61000-6-4
Isolation between circuits	basic	acc. EN 61010-1
Pollution level	2	acc. EN 61010-1
Installation category	III	
Maximal phase-to-earth voltage	<ul style="list-style-type: none"> for supply circuits 300 V for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

CONNECTION DIAGRAM

P30o-XX1XXXXX



P30o-XX2XXXXX



ORDERING

Code	Description
P300 102100M0	Pulse, frequency, running time P300 analog output 0/4...20mA; 1 x relay; supplying output 24V d.c.; supply 85-253V a.c. / 85-300V d.c.; documentation and descriptions in Polish and English, test certificate
P300 122100M0	Pulse, frequency, running time P300 analog output 0/4...20mA; 1 x relay; supplying output 24V d.c.; Ethernet interface and internal file system memory; zasilanie 85-253V a.c. / 85-300V d.c.; documentation and descriptions in Polish and English, test certificate

ACCESSORIES:

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

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Technical support:
tel.: (+48 68) 45 75 143, 45 75 141, 45 75 144, 45 75 140
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e-mail: laboratorium@lumel.com.pl

LUMEL S.A.
ul. Słubicka 4,
65-127 Zielona Góra, Poland
tel.: +48 68 45 75 100,
WWW.LUMEL.COM.PL

P30H TRANSUCER OF D.C. CIRCUITS PARAMETERS WITH DATA RECORD AND ETHERNET

FEATURES:

- MOD BUS Slave
- MOD BUS Master
- MOD BUS Monitor
- eCon Program
- SD/SDHC
- Firmware upgrade
- RTC
- Password protection
- Ethernet
- www ftp
- CAN
- CAN open

INPUT:

- DC
- MOD BUS
- RS 485

OUTPUTS:

- Graph
- Relay
- U
- RS 485
- CAN

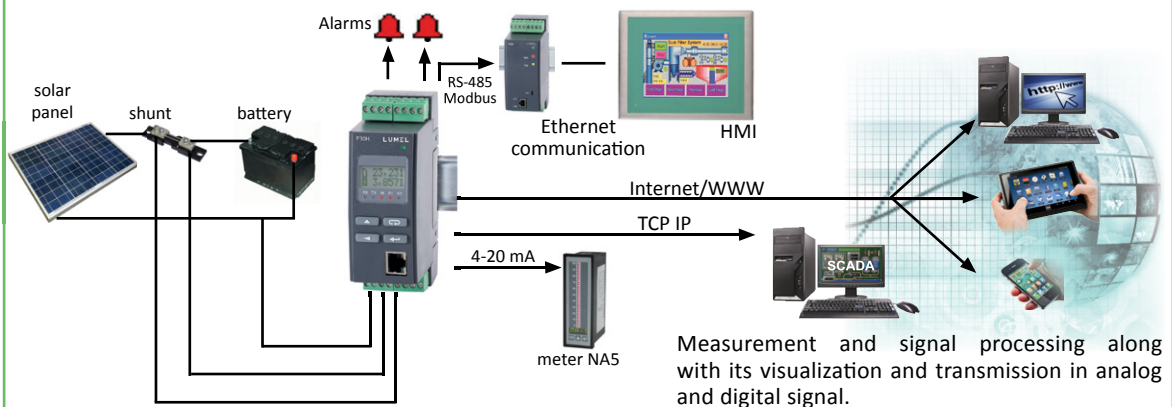
GALVANIC ISOLATION:

- Supply
- RS 485
- Ethernet



- Measurement of voltage, current, power, energy and other parameters in d.c. circuits.
- Conversion of measured value in an output signal on the base of the individual characteristic.
- 1 or 2 alarm relays with NO contact working in 6 modes.
- Additional supplying output 24 V d.c 30 mA switched-on/switched-off (option).
- Recording of input signals in internal memory, on SD/SDHC card (option) or internal file system memory (option).
- Interface RS-485 Modbus RTU.
- RS-485 Master/Monitor mode – possibility to poll 1 device.
- SD/SDHC support (option).
- Interface Ethernet 10/100 BASE-T (option).
 - Protocol: Modbus TCP/IP, HTTP, FTP.
 - Services: www server, ftp server, client DHCP.
- Interface CAN with CANopen protocol.

EXAMPLE OF APPLICATION



MEASURED AND CALCULATED VALUES BY THE TRANSUCER

- d.c. voltage **U** (direct or through additional resistor D5)
- d.c. current **I** (direct through shunt)
- power of d.c. current **P**
- voltage difference in time **dU** (5 s, 30 s, 1 min, 5 min or 15 min)
- current difference in time **dI** (5 s, 30 s, 1 min, 5 min or 15 min)
- voltage averaged over time **U_{AV}** (15, 30 or 60 min.)
- current averaged over time **I_{AV}** (15, 30 or 60 min.)
- power averaged over time **P_{AV}** (15, 30 or 60 min.)
- operating/ measurement time **t [s]**
- operating/ measurement time **t [H.M]**
- load capacity **C**
- input energy **E_{p←}**
- output energy **E_{p→}**
- total energy **E_p** (input+output)
- maximum and minimum values

INPUTS AND MEASURING RANGES

Measured value		Nominal range $K_U=1, K_I=100\ 000$	Measuring range (maximum)	Class
Voltages U, dU, UAV	12V	-4 ... 12 V	-5...15 V	0.2
	48V	-4 ... 48 V	-10...57.6 V	
	100V	-5 ... 100 V	-10...120 V	
	250V	-5 ... 250 V	-10 ... 300V	
	600V*	-10 ... 500 V	-10...600 V	
	1000V*	-10 ... 1000 V	-10...1000 V	0.2 + class of additional resistor
Currents (shunt voltage) I, dI, IAV		-15000 ... 15000 A (-150 ... 150 mV)	-18000 ... 18000 A (-180 ... 180 mV)	0.2+ shunt class (voltage measurement 0.2)
Time counter t [s] t [H. M]		0...999999999 s 0...277777.5 h.m		1s/ 24h, resolution 1 s
Capacity C		-49 999 999 ... 49 999 999 kWh		±0.5 %
Power P, PAV	12V	-60...180 kW	-75...225 kW	0.4 + shunt class
	48V	-60...720 kW	-150...864 kW	
	100V	-0,075...1,5 MW	-0,15...1,8 MW	
	250V	-0,075...3,75 MW	-0,15...4,5 MW	
	600V*	-0,15...7,5 MW	-0,3...9 MW	
	1000V*	-0,3...15 MW	-0,6...18 MW	0.4 + shunt class + + class of additional resistor
Input energy E_{p←} Output energy E_{p→}		0 ... 99 999 999.9 kWh		±0.5 % + shunt class
Energy sum E_p (input and output)		0 ... 199 999 999.9 kWh		±1 % + shunt class

* - version in set with additional resistor D5 ($K_U \neq 1$),

K_U - voltage ratio (Pri mar. U / Second. U),

K_I - current ratio (Shunt I / Shunt mV, $K_I = 100\ 000$ e.g. for shunt 15 000 A/ 150 mV)

The maximum range display of measured values on the LCD display are -99999G ... 99999G. These ranges depend upon the size parameters of the primary and secondary voltage divider and the shunt ratio (parameters Pri mar. U, Second. U, Shunt I, Shunt mV).

Export department:
+48 68 45 75 138/ 233/
321/ 586
Fax: +48 68 32 54 091
e-mail: export@lumel.com.pl

LUMEL S.A.
ul. Sulechowska 1
65-022 Zielona Góra
POLAND
WWW.LUMEL.COM.PL

OUTPUTS

Output type	Properties	Remarks
Analog OUT1, OUT2 (1 or 2 outputs - depends on transducer version)	OUT1 current: 0/4...20 mA, load resistance $\leq 500 \Omega$ voltage: 0...10 V, load resistance $\geq 500 \Omega$	accuracy class 0.1
	OUT2 current: 0/4...20 mA, load resistance $\leq 250 \Omega$ voltage: 0...10 V, load resistance $\geq 500 \Omega$	accuracy class 0.5
Relay OUT2,OUT3 (1 or 2 outputs - depends on transducer version)	1 or 2 relays; voltageless contacts – NO –maximum load 5A 30V d.c., 250V a.c.	
Additional supplying output OUT3	24 V d.c. / 30 mA (option)	
Interface CAN OUT2	only for transducer version P30H X00XXXXXX	

DIGITAL INTERFACE

Interface type	Properties	Remarks
Ethernet 10/100 Baste-T (option)	Modbus TCP/ IP HTTP, FTP	www, ftp server, client DHCP
RS-485	Modbus RTU: 8N2, 8E1, 8O1, 8N1 Address 1...247	baud rate: 4.8, 9.6, 19.2, 38.4, 57.6, 115.2, 230.4, 256 kbit/s
CAN	Protocol: CANopen	baud rate: 20, 50, 100, 125, 250, 500, 1000 kBit/s

EXTERNAL FEATURES

Overall dimensions	45 × 120 × 100 mm	
Weight	< 0.25 kg	
Protection grade	for housing: IP40/ IP30	for terminals: IP20
Readout field	LCD 2 x 8 characters with LED backlight	

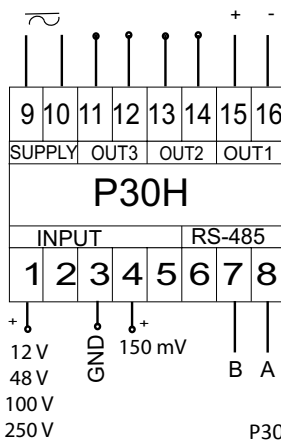
RATED OPERATION CONDITIONS

Supply voltage	• 85...253 V a.c., 85...300 V d.c. • 20...40 V a.c., 20...60 V d.c.	power consumption < 5 VA
Temperature	ambient: -25...23...+55°C	storage: -30...+70°C
Humidity	25...95 %	inadmissible condensation
Working position	any	

SAFETY AND COMPATIBILITY REQUIREMENTS

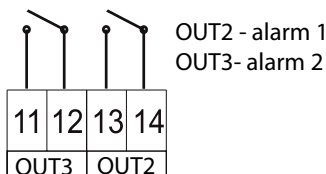
Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation between circuits	basic / reinforced (see user's manual)	acc. to EN 61010-1
Pollution level	2	
Installation category	III for input voltage up to 300 V d.c., III for input voltage 300...600 V d.c. with additional resistance D5, II for input voltage 600...1000 V d.c. with additional resistance D5	acc. to EN 61010-1
Maximal phase-to-earth voltage	• for supply and input circuits 300 V • for other circuits 50 V	
Altitude above sea level	< 2000 m	

CONNECTION DIAGRAM

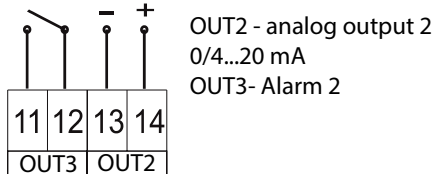


SUPPLY - supply
 OUT2 - output no.2 (alarm. wyj analogowe lub interfejsowe CAN)
 OUT3 - output no.3 (alarm or supplying output 24V)
 OUT1 - main analog output no.1
 INPUT - measuring input
 RS-485 - interface RS-485

P30H-XX11XXXXX



P30H-XX21XXXXX



SEE ALSO:



Screen recorder KD8 with touch panel - 3 or 6 channels - RS-485 interface.



Programmable digital meter of temperature, resistance and standard signals N30U.



Software LUMEL - PROCES.

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 Fax: +48 66 32 54 091
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 65-022 Zielona Góra
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P30H

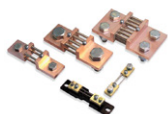
TRANSDUCER OF D.C. CIRCUITS PARAMETERS WITH DATA RECORD AND ETHERNET

CONNECTION DIAGRAM

SEE ALSO:



Temperature and d.c. standard signals universal digital meter with OLED - N21 type.



Shunts class 0.5



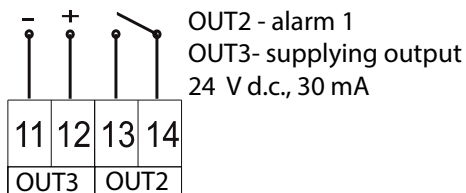
Analog meters

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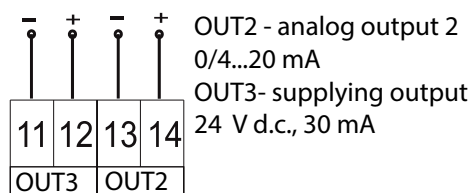
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Fax: +48 68 32 54 001
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ul. Sulechowska 1
65-022 Zielona Góra
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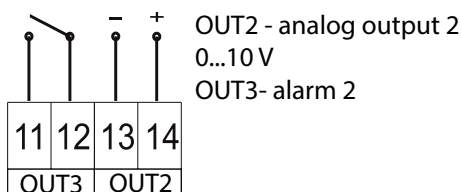
P30H-XX12XXXXX



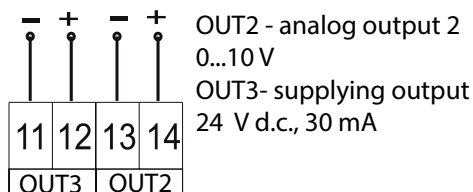
P30H-XX22XXXXX



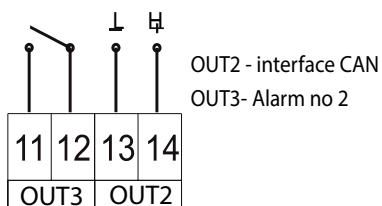
P30H-XX31XXXXX



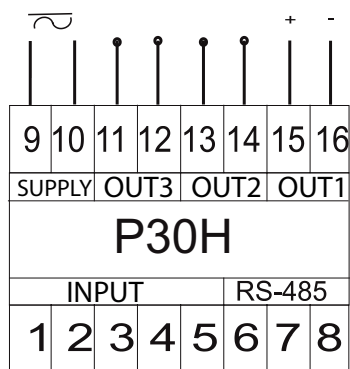
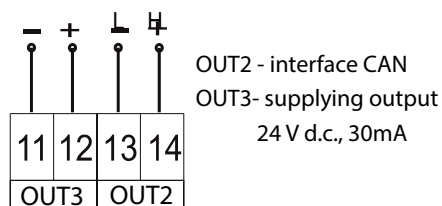
P30H-XX32XXXXX



P30H-X001XXXXX



P30H-X002XXXXX



indirect voltage measurement 600 V, 1000 V

ORDERING

Transducer P30H	X	X	X	X	X	XX	X	X
Analog output OUT1:								
current (0/4...20 mA)	1							
voltage (0...10 V)	2							
Additional equipment:								
without	0							
with external SD/SDHC card	1							
with Ethernet interface and archive file system memory	2							
Output OUT2:								
interface CAN with protocol CANopen**	0							
relay A1, 5 A 30 V d.c., 250 V a.c.	1							
analog current output (0/4...20 mA)	2							
analog voltage output (0...10 V)	3							
Output OUT3:								
relay A2, 5 A 30 V d.c., 250 V a.c.	1							
power output 24 V d.c. / 30 mA	2							
Supply:								
85...253 V a.c., 85...300 V d.c.	1							
20...40 V a.c., 20...60 d.c.	2							
Version:								
standard							00	
with CAN interface							03	
custom-made*							XX	
Language:								
Polish								P
English								E
other*								X
Acceptance tests:								
without extra requirements								0
with an extra quality inspection certificate								1
acc. to customer's request*								X

* after agreeing with the manufacturer

** only in version without additional equipment

Order example:

The code **P30H 111210E1** means transducer in standard version with analog current output, with external SD/SDHC card, with relay alarm no.1, with power output 24 V/30mA, with supply 85...235 V a.c./d.c., in English, with an extra quality inspection certificate.

Additional resistance D5	X	X	X
Measuring range in set with P30H:			
600 V	1		
1000 V	2		
Language:			
Polish			P
English			E
other*			X
Acceptance tests:			
without extra requirements			0
with an extra quality inspection certificate			1
acc. to customer's request*			X

* after agreeing with the manufacturer

Order example:

The code **D5 2E1** means additional resistance D5 with measuring range 1000 V, in English, with an extra quality inspection certificate.

SEE ALSO:



Transducer of 1-phase power network parameters - P30P.



3-phase power network meter - ND20.



Current transformers

For more information about LUMEL products please visit our website: www.lumel.com.pl

Export department:
+48 66 45 75 130/ 233/
321/ 366
Fax: +48 66 32 54 091
e-mail: export@lumel.com.pl

LUMEL S.A.
ul. Sulechowska 1
65-022 Zielona Góra
POLAND
WWW.LUMEL.COM.PL

P30P TRANSDUCER OF 1-PHASE POWER NETWORK PARAMETERS

NEW!



- Measurement of 1-phase power network parameters.
- Conversion of measured value in an output signal on the base of the individual characteristic.
- 1 or 2 alarm relays with NO contact operating in 6 modes.
- Additional supplying output 24 V d.c 30 mA switched-on/switched-off (option).
- Recording of input signals in internal memory, on SD/SDHC card (option) or internal file system memory (option).
- Interface RS-485 Modbus RTU.
- SD/SDHC support (option).
- RS-485 Master mode – possibility to poll 1 device.
 - Protocol: Modbus TCP/IP, HTTP, FTP.
 - Services: www server, ftp server, client DHCP.

FEATURES:

- MOD BUS Slave
- MOD BUS Master
- MOD BUS Monitor
- eCon Program
- SD/SDHC
- Firmware upgrade
- RTC
- Password protection
- Ethernet
- www ftp

INPUT:

- AC
- RS 485
- MOD BUS

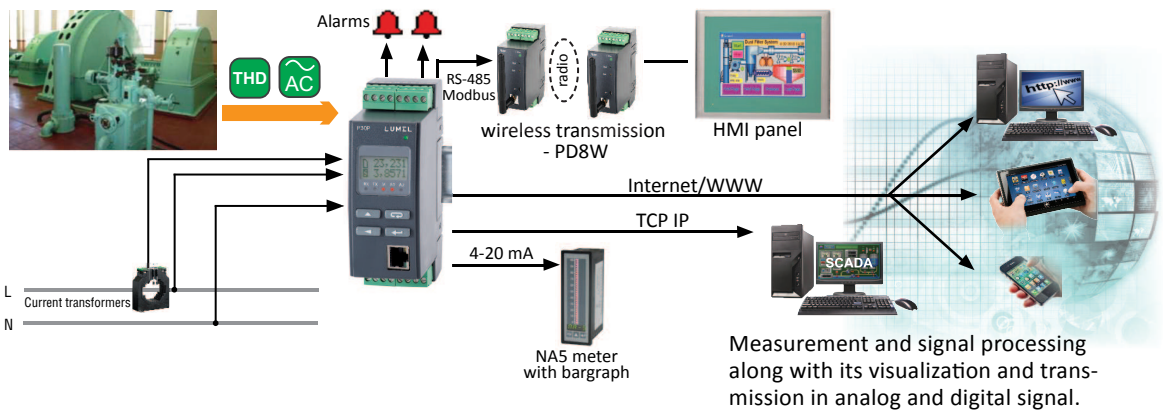
OUTPUT:

- 0/4...20 mA
- RS 485
- MOD BUS
- Ethernet

GALVANIC ISOLATION:

- Supply
- RS 485
- Ethernet

EXAMPLE OF APPLICATION



Measurement and signal processing along with its visualization and transmission in analog and digital signal.

INPUTS AND MEASURING RANGES

Measured value	Nominal range (for direct measurement, for ratios $K_i=K_u=1$)	Class (for averaging 1s)
RMS current I A, Mean RMS current I_{DIT} A	1 A 5 A	$\pm 0.2\%$
RMS voltage U V	100 V (dependent on execution code) 230 V	$\pm 0.2\%$
Frequency f Hz	2...40.0 .. 60.0 .. 100 Hz	$\pm 0.1\%$
Active power P W Mean active power P_{Σ} W	1 A, 100 V 5 A, 100 V 1 A, 230 V	$\pm 0.5\%$ [W]
Reactive power Q var	5 A, 230 V	$\pm 1.0\%$ [var]
Apparent power S VA Apparent mean power S_{Σ} VA	1 A, 100 V 5 A, 100 V 1 A, 230 V 5 A, 230 V	$\pm 0.5\%$
Active power factor (P/S) PF Factor $\cos\phi$		$\pm 0.5\%$
Tangent $\text{tg}\phi$ (Q/P) $\text{tg}\phi$		$\pm 1\%$
Active input/ output energy E_{\pm} Wh E_{\pm} Wh		$\pm 0.5\%$
Reactive inductive/ capacitive energy E_L varh E_C varh		$\pm 1\%$
Apparent energy E_{Σ} VAh		$\pm 0.5\%$
THD $\%U$ $\%I$	0...100%	$\pm 5\%$
Phase angle U, I	$-180^\circ \dots 180^\circ$	$\pm 1\%$ (for $\phi \neq < -5^\circ \dots 5^\circ$. $I > 10\% I_N, U > 10\% U_N$)

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+48 68 45 75 139/ 233/
321/ 386
Fax: +48 68 32 54 091
e-mail: export@lumel.com.pl

LUMEL S.A.
ul. Sulechowska 1
65-022 Zielona Góra
POLAND
WWW.LUMEL.COM.PL

OUTPUTS

Output type	Properties	Remarks
Analog OUT1, OUT2 (1 or 2 outputs - depends on transducer version)	OUT1 current: 0/4...20 mA, load resistance $\leq 500 \Omega$ voltage: 0...10 V, load resistance $\geq 500 \Omega$	accuracy class 0,1
	OUT2 current: 0/4...20 mA, load resistance $\leq 250 \Omega$ voltage: 0...10 V, load resistance $\geq 500 \Omega$	accuracy class 0,5
Relay OUT2,OUT3 (1 or 2 outputs - depends on transducer version)	1 or 2 relays; voltageless contacts – NO – maximum load 5A 30V d.c., 250V a.c.	
Additional supplying output OUT3	24 V d.c. / 30 mA (option)	

DIGITAL INTERFACE

Interface type	Properties	Remarks
Ethernet 10/100 Baste-T (option)	Modbus TCP/ IP HTTP, FTP	www, ftp server, client DHCP
RS-485	Modbus RTU: 8N2, 8E1, 8O1, 8N1 Address 1...247	baud rate: 4,8, 9,6, 19,2, 38,4, 57,6, 115,2, 230,4, 256 kbit/s

EXTERNAL FEATURES

Overall dimensions	45 × 120 × 100 mm	
Weight	< 0.25 kg	
Protection grade	for housing: IP40/ IP30	for terminals: IP20
Readout field	LCD 2 x 8 characters with LED backlight	

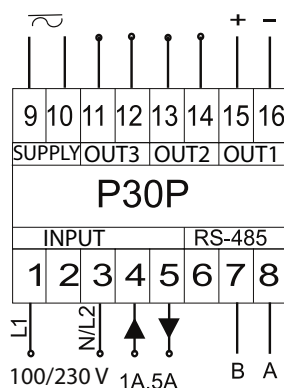
RATED OPERATION CONDITIONS

Supply voltage (depends on execution code)	<ul style="list-style-type: none"> • 85...253 V a.c., 85...300 V d.c. • 20...40 V a.c., 20...60 V d.c. 	power consumption < 5 VA
Temperature	ambient: -25...+23...+55°C	storage: -30...+70°C
Humidity	25...95 %	inadmissible condensation
Working position	any	

SAFETY AND COMPATIBILITY REQUIREMENTS

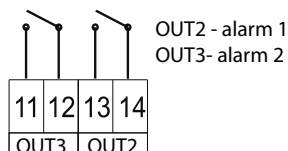
Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation between circuits	reinforced - for input circuits basic - for other circuits	acc. to EN 61010-1
Pollution level	2	
Installation category	III	
Maximal phase-to-earth voltage	• for supply and input circuits 300 V	acc. to EN 61010-1
	• for other circuits 50 V	
Altitude above sea level	< 2000 m	

CONNECTION DIAGRAM

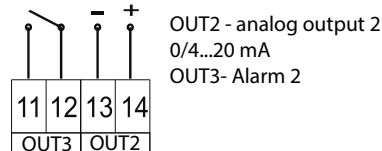


SUPPLY - supply
 OUT2 - output no.2 (alarm or analog output)
 OUT3 - output no.3 (alarm or supplying output 24V)
 OUT1 - main analog output no.1
 INPUT - measuring input
 RS-485 - interface RS-485

P30P-XXX11XXXXX



P30P-XXX21XXXXX



SEE ALSO:



Current transformers



Programmable digital meter of temperature, resistance and standard signals N30U.



LUMEL - PROCESS software.

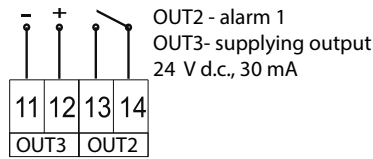
Export department:
 +48 68 45 75 139/ 233/
 321/ 386
Fax: +48 68 32 54 091
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LUMEL S.A.
 ul. Sulechowska 1
 65-022 Zielona Góra
 POLAND
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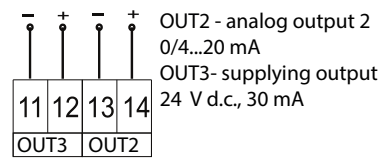
P30P TRANSDUCER OF 1-PHASE POWER NETWORK PARAMETERS

CONNECTION DIAGRAM

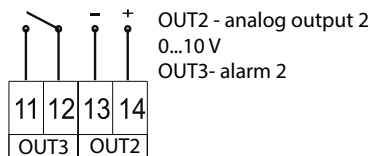
P30P-XXX12XXXXX



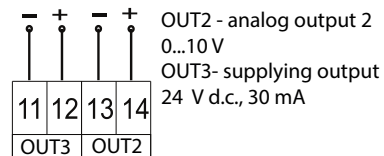
P30P-XXX22XXXXX



P30P-XXX31XXXXX



P30P-XXX32XXXXX



3-phase power network meter/analyzer -ND1.



3-phase power network meter - ND20.



Analog meters

For more information about LUMEL products please visit our website:
www.lumel.com.pl

ORDERING

P30P -	X	X	X	X	X	X	XX	X	X
Inputs:									
voltage 100 V, current 1/5 A	1								
voltage 230 V, current 1/5 A	2								
Analog output OUT1:									
current (0/4...20 mA)	1								
voltage (0...10 V)	2								
Additional equipment:									
without	0								
with external SD/SDHC card	1								
with Ethernet interface and archive file system memory	2								
Output OUT2:									
relay A1, 5A 30V d.c., 250V a.c.	1								
analog current output (0/4...20 mA)	2								
analog voltage output (0...10 V)	3								
Output OUT3:									
relay A2, 5A 30V d.c., 250V a.c.	1								
power output 24 V d.c. / 30 mA	2								
Supply:									
85...253 V a.c., 85...300 V d.c.	1								
20...40 V a.c., 20...60 V d.c.	2								
Version:									
standard	00								
custom-made*	XX								
Language:									
Polish	P								
English	E								
other*	X								
Acceptance tests:									
without extra requirements	0								
with an extra quality inspection certificate	1								
acc. to customer's request*	X								

* after agreeing with the manufacturer

Order example:

P30P-11112100E1 means the transducer P30P in standard version with: input range 100 V and 1/5 A with analog current output 0/4...20 mA, external SD/SDHC card, relay and power output 24 V/30 mA, supply 85...235 V a.c./d.c., user's manual in English and an extra quality inspection certificate.

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ul. Sulechowska 1
65-022 Zielona Góra
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