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

LUMEL EVERYTHING COUNTS

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:

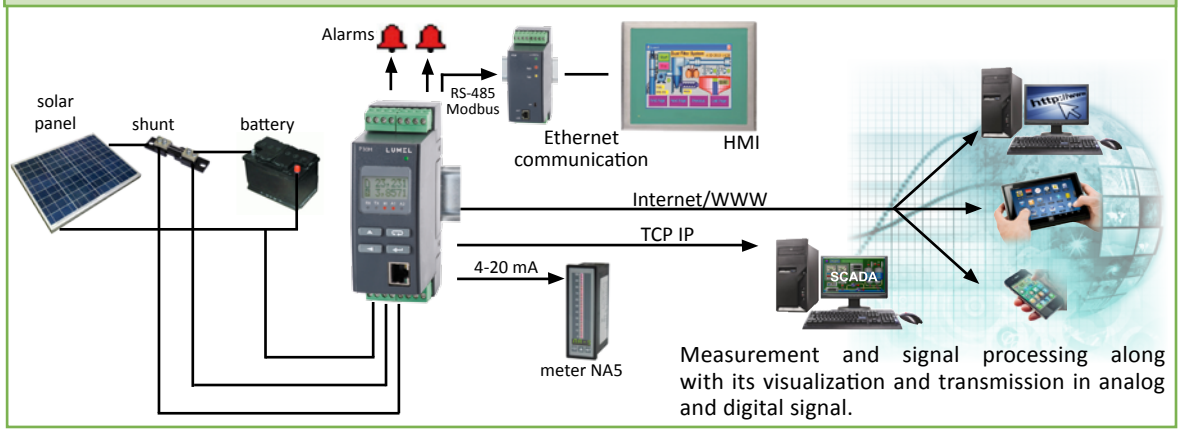
U | RS 485 | CAN

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 inddivudal 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



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

MEASURED AND CALCULATED VALUES BY THE TRANSDUCER

- 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 $E_{P\leftarrow}$
- output energy $E_{P\rightarrow}$
- 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	0.2 + class of additional resistor
	1000V*	-10 . . . 1000 V	-10...1000 V	
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 kAh		±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	0.4 + shunt class + + class of additional resistor
	1000V*	-0,3...15 MW	-0,6...18 MW	
Input energy $E_{P\leftarrow}$ Output energy $E_{P\rightarrow}$		0 ... 99 999 999.9 kWh		±0.5 % + shunt class
Energy sum E_T (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 (Primar . 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 Primar . U, Second . U, Shunt I, Shunt mV).

Technical support:
tel.: (+48 68) 45 75 143, 45 75 141, 45 75 144, 45 75 140
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. Słubicka 4,
65-127 Zielona Góra, Poland
tel.: +48 68 45 75 100,
WWW.LUMEL.COM.PL

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OUTPUTS

Output type	Properties	Remarks
Analog OUT1, OUT2 (1 or 2 outputs - depends on transducer version)	OUT1 current: 0/4...20 mA, load resistance ≤ 500 Ω voltage: 0...10 V, load resistance ≥ 500 Ω	accuracy class 0.1
	OUT2 current: 0/4...20 mA, load resistance ≤ 250 Ω voltage: 0...10 V, load resistance ≥ 500 Ω	accuracy class 0.5
Relay OUT2,OUT3 (1 or 2 outputs - depends on transducer version)	1 or 2 relays; voltageless contacts – NO –maximun 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	

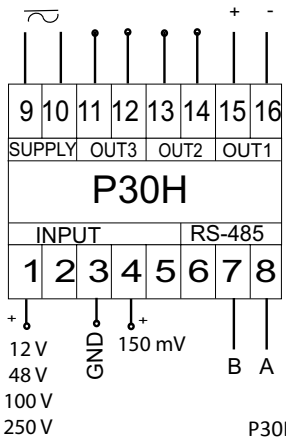
RATED OPERATION CONDITIONS

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

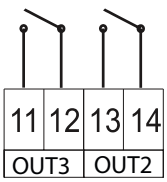
Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation between circuits	basic / reinforced (see user's manual)	acc. to EN 61010-1
Pollution level	2	acc. to EN 61010-1
Installation category	III for input voltage up to 300 V d.c., III for input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

CONNECTION DIAGRAM



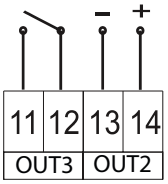
SUPPLY - supply
OUT2 - output no.2 (alarm. wyj analogowe lub interfejsowe CAN)
OUT3 - output no.3 (alarm or supplying output 24V)
OUT1 - main analog output no.1
INPUT - measuring input
RS-485 - interface RS-485

P30H-XX11XXXXX



OUT2 - alarm 1
OUT3- alarm 2

P30H-XX21XXXXX



OUT2 - analog output 2
0/4...20 mA
OUT3- Alarm 2

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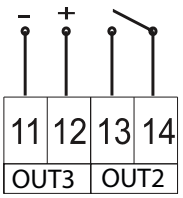
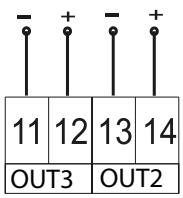
CONNECTION DIAGRAM

P30H-XX12XXXXX



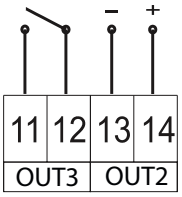
OUT2 - alarm 1
OUT3- supplying output
24 V d.c., 30 mA

P30H-XX22XXXXX



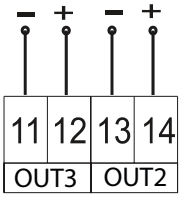
OUT2 - analog output 2
0/4...20 mA
OUT3- supplying output
24 V d.c., 30 mA

P30H-XX31XXXXX



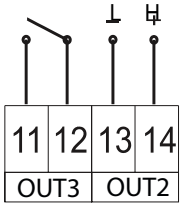
OUT2 - analog output 2
0...10 V
OUT3- alarm 2

P30H-XX32XXXXX



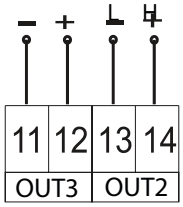
OUT2 - analog output 2
0...10 V
OUT3- supplying output
24 V d.c., 30 mA

P30H-X001XXXXX

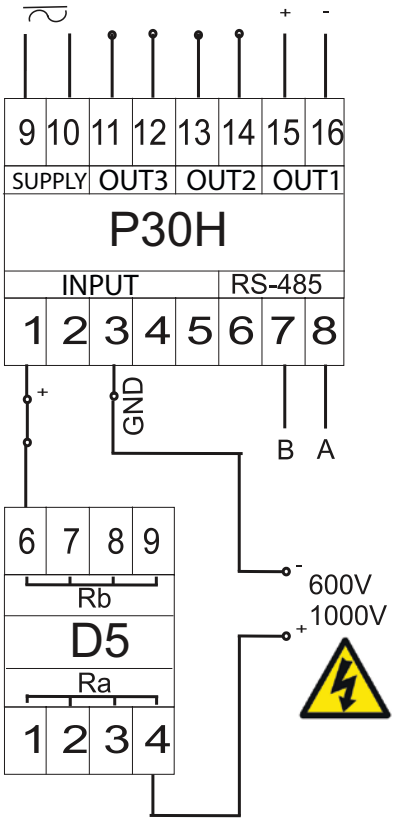


OUT2 - interface CAN
OUT3- Alarm no 2

P30H-X002XXXXX



OUT2 - interface CAN
OUT3- supplying output
24 V d.c., 30mA



indirect voltage measurement 600 V, 1000 V

SEE ALSO:

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ORDERING

Code	Description
P30H 1011100M0	Transducer of d.c. circuit parameters P30H analog output 0/4...20mA; 2 relays, supply 85-253Vac / 85-300Vdc; documentation and descriptions in Polish and English test certificate
P30H 1211100M0	Transducer of d.c. circuit parameters P30H analog output 0/4...20mA; 2 relays, Ethernet and archive file system memory; supply 85-253Vac / 85-300Vdc; documentation and descriptions in Polish and English test 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.

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