P12P TRANSDUCER OF SINGLE-PHASE NETWORK PARAMETERS

LUMEL

- Measurement and conversion of single-phase network parameters.
- Configurable analog and alarm outputs.
- Parameters programmable by using the RS-485 interface or PD14 programmer using the PD11 program.
- Outputs:
  - 2 relay outputs,
  - 1 analog output,
  - digital output RS-485 (MODBUS).
- Signalling of alarms on the display.s
- Recording of any quantity in programmed time segments or recording of events (750 samples).
- Memory of watt-hour meter states at supply decays.
- Memory of maximal and minimal values.

FEATURES:

MOD BUS · LCD Display · Linear charac. · RTC · PD14 Programmer · PD11 program · Password protection

INPUT:

AC

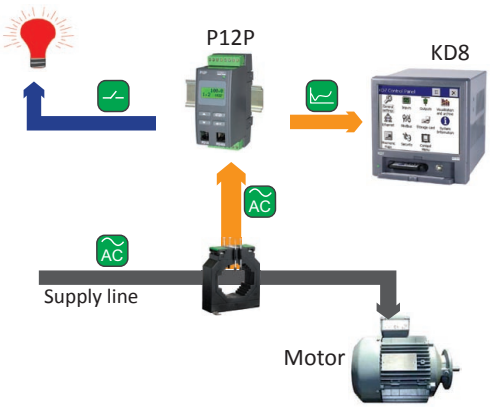
OUTPUTS:

Analog outp. · RS 485

GALVANIC ISOLATION:

Supply · RS 485

EXAMPLE OF APPLICATION



Conversion and recording of the motor load current.

INPUTS

Kind of input	Indication range**	Intrinsec error (% of range)
Rms voltage range 400 V	4 V...99 999 MV	0.2 %
Rms voltage range 100 V	1 V...99 999 MV	0.2 %
Rms current range 1A	0.01 A...99 999 MA	0.2 %
Rms current range 5A	0.05 A...99 999 MA	0.2 %
Frequency	20...500 Hz	0.1 %
Active power*	-99 999...99 999 GW	0.5 %
Reactive power*	-99 999...99 999 Gvar	0.5 %
Apparent power*	0...99 999 GVA	0.5 %
Balanced 3-phase active power*	-99 999...99 999 GW	0.5 %
Balanced 3-phase reactive power*	-99 999...99 999 Gvar	0.5 %
Balanced 3-phase apparent power*	0...99 999 GVA	1 %
Active power factor*	-1...1	1 %
Reactive/active power factor*	-100...100	1 %
Phase shift angle*	0...359.9°	0.5 %
Active energy*	-99 999...99 999 GWh	0.5 %
Reactive energy*	-99 999...99 999 Gvarh	0.5 %
Apparent energy*	0...99 999 GVAh	0.5 %
Balanced 3-phase active energy*	-99 999...99 999 GWh	0.5 %
Balanced 3-phase reactive energy*	-99 999...99 999 Gvarh	0.5 %
Balanced 3-phase apparent energy*	0...99 999 GVA	0.5 %

* the transducer preserves its class over 10% of the current and voltage range, ** ratios have been taken into consideration in indication ranges

OUTPUTS

Output type	Properties	Remarks
Analog	- 0..20 mA, 4 ..20 mA (R_{load}= 0..500 Ω) - 0..5 mA (R_{load}= 0..2000 Ω) - 0..10 V (R_{load} ≥ 500 Ω)	- stabilization time of output signal (0/90%) ≤ 0,3s - limitation of output current: 28 mA ± 10%
Relay	2 relays, voltageless, NO contacts	Load capacity: - voltage 250 V a.c., 150 V d.c., - 5 A 250 V a.c., 5 A 30 V d.c. - resistant load 250 VA, 150 W

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DIGITAL INTERFACE

Interface type	Properties	Remarks
RS-485 Modbus	ASCII mode (8N1, 7E1, 7O1) and RTU (8N2, 8E1, 8O1, 8N1)	transmission bauds: 2.4, 4.8, 9.6 kbit/s maximal response time: 300 ms
RS-232	RJ-11 socket for PD14 programmer	rate 9.6 kbit/s; RTU 8N1

EXTERNAL FEATURES

Readout field	LCD display 2 x 8	
Overall dimensions	45 × 100 × 120 mm	
Weight	0.3 kg	
Protection grade	for casing: IP40	for terminals: IP20

RATED OPERATING CONDITIONS

Supply voltage	85 .. 253 V d.c./a.c. (40 .. 50 .. 400 Hz) or 20 .. 24 .. 50 V d.c./a.c. (40 .. 50 .. 400 Hz)	input power: ≤ 5 VA
Temperature	ambient: -20...23...55°C	storage: -25...85°C
Relative humidity	0 .. 95%	inadmissible condensation
Additional error	for ambient temperature changes: ± 0.1% of range / 10 k	k - index of accuracy class
Operating positions	any	
Conversion time	min 600 ms	(sampling time: min 500 ms + response time of output: 100 ms)
Preheating time	10 min.	
Short duration overload (1s)	voltage input: 2 Un (< 1000 V)	current input: 10 In
Sustained overload	voltage input: 1.2 Un	current input: 1.2 In

SAFETY AND COMPATIBILITY REQUIREMENTS

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

ORDERING

P12P -	X	X	XX	X	X	X	XX	X
Kind of transducer:								
without display	1							
with display	2							
Input range:								
100 V, 1 A		1						
100 V, 5 A		2						
400 V, 1 A		3						
400 V, 5 A		4						
as per order[2]		X						
Programmed converted parameter[1]:								
with the code from table 1			XX					
Output signal:								
voltage: 0...10 V				1				
current: 0...20 mA				2				
current: 4...20 mA				3				
current: 0...5 mA				4				
Supply:								
85...253 V d.c./a.c.					1			
20...50 V d.c./a.c.					2			
Kind of terminals:								
socket-screw plug						0		
Version:								
standard							00	
custom-made[2]							XX	
Acceptance tests:								
without extra quality requirements								8
with an extra quality inspection certificate								7
according to customer's requests[2]								X

1) - The change of the converted parameters is possible from the keyboard (P12P-2) through PD14 or RS-485. One must give in the order, the code of converted parameter wich has to be programmed.

2) - After agreeing with the manufacturer.

The transducer preserves its class to the four-fold decrease of the basic input signal range. In the P12P-1 transducer, besides the basic range, one must give the required sub-range in remarks. In case, when the given sub-range is smaller than the basic range divided by 4, one must mark the input signal: XX in te order.

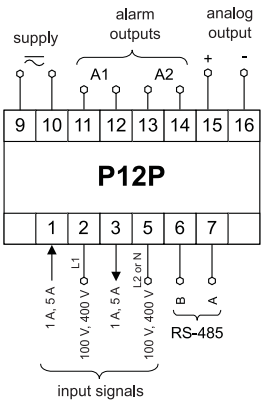
Example of order:

the code: **P12P-2-1-03-3-1-0-00-8** means: P12P transducer with a display, for basic range: 1 A, 100 V, programmed for the active power conversion into a current output signal: 4 .. 20 mA, supply voltage: 85 .. 253 V d.c./a.c., socket-screw plug terminals, standard version, without extra quality requirements.

TABLE 1.

Programmed converted parameter:	Code
voltage	00
current	01
frequency	02
active power	03
reactive power	04
apparent power	05
3-phase active power	06
3-phase reactive power	07
3-phase apparent power	08
cos φ	09
tg φ	10
φ	11
active energy	12
reactive energy	13
apparent energy	14
3-phase active energy	15
3-phase reactive energy	16
3-phase apparent energy	17
as per order[2]	XX

CONNECTION DIAGRAM



SEE ALSO:

PD14 programmer.

Current transformers.

Transducer of network parameters P43.

Analyser of network parameters ND1.

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

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