P21Z PROGRAMMABLE TRANSDUCER OF AC CURRENT, AC VOLTAGE AND FREQUENCY

LUMEL EVERYTHING COUNTS

Features:

PD14 Programmer | eCon | MODBUS | Linear chrtcs.

Inputs:

AC

Outputs:

0..10 V | 0 .. 20 mA | 4...20 mA | RS 485

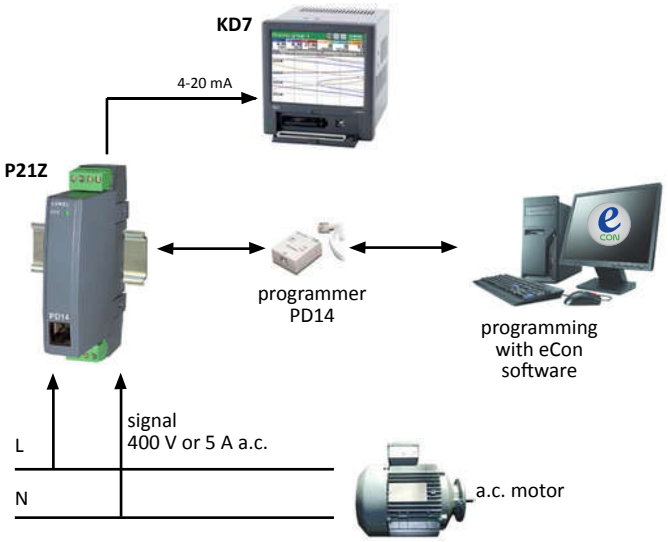
Galvanic isolation:

Supply | Interface PD14



- Continuous conversion of AC current, AC voltage without DC component and frequency.
- Standard DC current or DC voltage output signal or RS-485 interface with Modbus protocol.
- Compact dimensions.
- 0.2 accuracy class.
- Fully programmable parameters by PD14 programmer and free e-Con program:
  – measurement averaging time,
  – conversion characteristic,
  – preservation of the output signal at overflows,
  – RS-485 transmission parameters.

Example of Application



Measurement and archiving of a.c. motor current/voltage work parameters.
Measured data are transmitted to the recorder/data logger.

Outputs

Measuring ranges	Parameters	Overloads	Error
0...1...100...130 V a.c.	input resistance > 2 MΩ	Short duration overload (1s): 2 Un (< 1000V), 10 In Sustained overload: 150% Un (only for Un = 400 V and ±400 V), 120% Un (for other Un), 120% In	**Basic error** (at manufacturer's settings): **± (0.2% of range)** **Additional error** from ambient temperature changes: **± (50% of the basic error/10K)**
0...2,5...250...325 V a.c.			
0...4...400...600 V a.c.			
0...0,01...1,0...1,3 A a.c.	input resistance 10 mΩ ±10%		
0...0,05...5,0...6,3 A a.c.	input resistance 2 mΩ ±10%		
20...500 Hz (in voltage range 24...480)	input resistance > 2 MΩ		**± 0.2% of range**

Outputs

Output kind	Properties	Remarks
0...20...22 mA	R_{load} ≤ 250 Ω	Resolution: 0.01% of the range
4...20...22 mA		
0...10...11 V	R_{load} ≥ 500 Ω	

Digital interface

Interface type	Transmission protocol	Modes	Baud rates
RS-485	MODBUS RTU	8N2, 8E1, 8O1, 8N1	4.8, 9.6, 19.2 kbit/s

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External Features

Weight	< 0.125 kg	
Dimensions	22.5 x 120 x 100 mm	
Protection grade (acc. to EN 60529)	ensured by the housing: IP 40	from the terminal side: IP 20
Fixing	on a 35 mm rail	acc. to EN 60715

Rated operating conditions

Supply	85..253 V a.c. 40..400 Hz; 90..300 V d.c. 20..40 V a.c. 40..400 Hz; 20..60 V d.c.	power consumption: < 3 VA
Temperature	ambient: -20...23...60˚C	storage: -25...85˚C
Relative humidity	< 95%	inadmissible vapour condensation
Operating position	any	
Preheating time	15 min	
Averaging time of the measurement	≥ 0.5 s	1 second set by default

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 grade	2	
Installation category	III (for the 400 V option - category II)	
Maximal phase-to-earth operating voltage	for the supply circuit: 300 V	
	for the measuring input: 600 V cat. II (300 V - cat. III)	
	for the programming input: 50 V	
	for the output: 50 V	
Altitude above sea level	< 2000 m	

Connection diagrams

a) analog output

b) interface RS-485

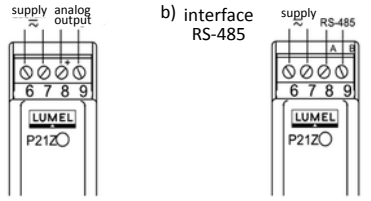

Fig. 1.Electrical connections of P21Z transducer: analog output and supply.

a) indirect measurement of voltage

b) indirect measurement of voltage by means of voltage transformer

c) direct measurement of current

d) indirect measurement of current by means of current transformer

e) indirect measurement of frequency

f) indirect measurement of frequency by means of voltage transformer

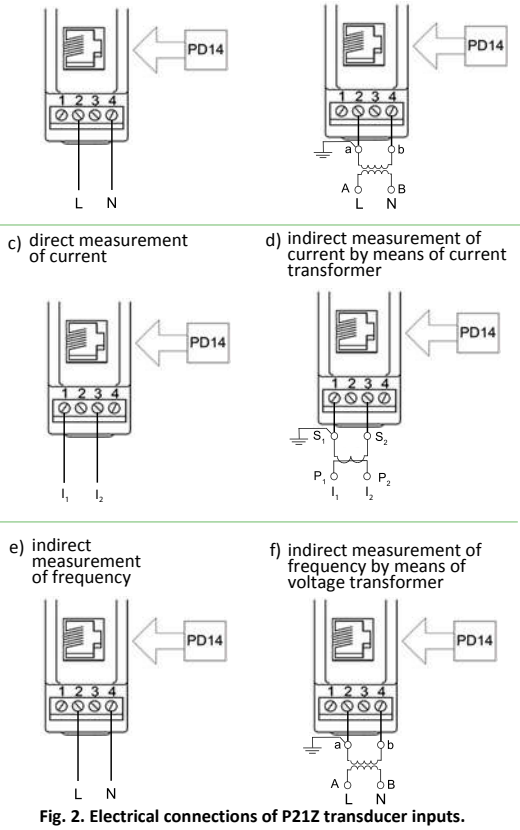

Fig. 2. Electrical connections of P21Z transducer inputs.

Ordering

Ordering codes:

P21Z -	X	X	X	XX	X	X
Input signal:						
100 V a.c.	1					
250 V a.c.	2					
400 V a.c.	3					
1 A a.c.	4					
5 A a.c.	5					
frequency 20...500 Hz	6					
Output:						
0...20 mA		1				
4...20 mA		2				
0...10 V		3				
RS-485		4				
Supply:						
85..253 V a.c. 40..400 Hz; 90..300 V d.c.			1			
20..40 V a.c. 40..400 Hz; 20..60 V d.c.			2			
Version:						
standard				00		
non-standard settings				NS		
custom-made*				XX		
Language:						
Polish					P	
English					E	
other*					X	
Acceptance tests:						
without extra quality inspection requiremnts						0
with an extra quality inspection certificate						1
acc. to customer's request						X

* - after agreeing with the manufacturer

Order example:
The code **P21Z - 1 1 1 00 E 0** means:

P21Z - transducer of a.c. current or a.c. voltage signals
1 - input signal: 1...100 V a.c.
1 - output signal: 0...20 mA
1 - supply voltage: 85..253 V a.c. 40..400 Hz; 90..300 V d.c.
00 - standard version
E - English language
0 - without extra quality inspection requirements

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