PROGRAMMABLE TRANSDUCER OF 3-PHASE POWER

P43 NETWORK PARAMETERS

ADEL INSTRUMENTATION

FEATURES

MOD BUS

RTC

LPConfig Program

P,Q

INPUT:

AC

OUTPUTS:

-20...20 mA

RS 485

USB

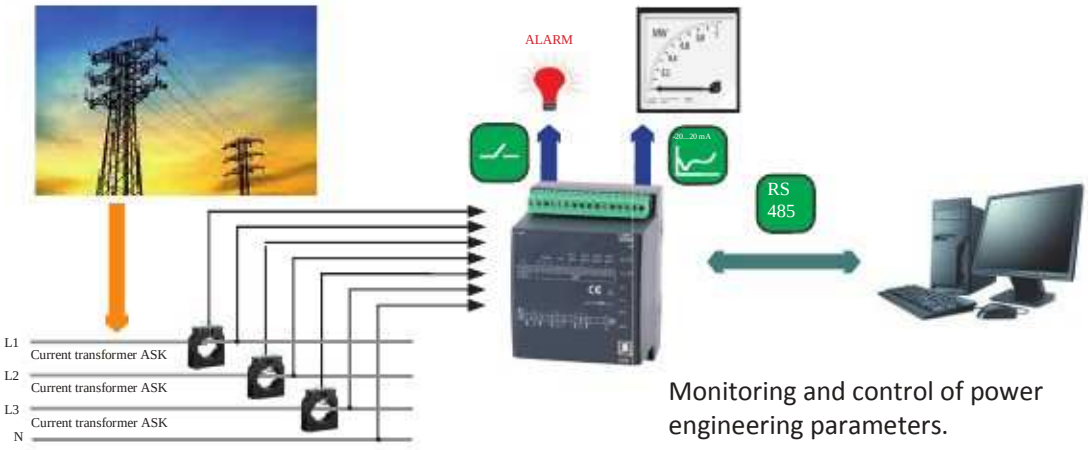
GALVANIC ISOLATION:

Supply

RS 485

- Measurement and conversion of power network parameters in 4-wire balanced or unbalanced systems.
- Tetraquadrantic energy measurement (Ep+, Ep-, EQL, EQc).
- Measurement of 15, 30 or 60 minutes' mean active power (synchronization by an internal clock or a walking window) with the archiving function of 1000 last samples.
- Programmable current and voltage transformer ratios.
- Programmable parameters through the RS-485 interface or USB when using the free LPCon program.
- RS-485 communication interface with MODBUS protocol.
- Detection and signalling of incorrect phase sequence.
- THD measurement.

Example of Application



Monitoring and control of power engineering parameters.

Measured quantities and measuring ranges

Measured value	Measuring range	L1	L2	L3	□	Basic error
Current 1/5A L1...L3	0.02...6 A a.c.*	□	□	□		±0.2%
Voltage L-N	2.9...276 V a.c.*	□	□	□		±0.2%
Voltage L-L	10...480 V a.c.*	□	□	□		±0.5%
Frequency	47.0...63.0 Hz	□	□	□		±0.2%
Active power	-1.65 kW...1.4 W...1.65 kW*	□	□	□		±0.5%
Reactive power	-1.65 kvar...1.4 var...1.65 kvar*	□	□	□		±0.5%
Apparent power	1.4 VA...1.65 kVA*	□	□	□	□	±0.5%
Tangens □	-1.2...0...1.2	□	□	□	□	±1%
Power factor PF	-1...0...1	□	□	□	□	±0.5%
Input active energy	0 .. 99 999 999.9 kWh*				□	±0.5%
					□	
Output active energy	0 .. 99 999 999.9 kWh*				□	±0.5%
Inductive reactive energy	0...99 999 999.9 kvarh*				□	±0.5%
Capacitive reactive energy	0...99 999 999.9 kvarh*				□	±0.5%
THD	0...100%	□	□	□		5%

* - for ratio Ki=Ku=1. Current ratio Ki programmable in the range 1...1000. Voltage ratio Ku programmable in the range 1...4000

Outputs

Type of output	Properties
Relay output	0, 2 or 4 relays, voltageless NO contacts, load: 250 V a.c./ 0.5 A a.c.
Impulse energy output	O/C passive, acc. to EN 62053-31, impuls constant: 5000..20000 imp/kWh programmable, independent on Ki, Ku ratio settings
Analog output	0, 2 or 4 programmable outputs: -20...0..20 mA, Rload = 0...250 □, accuracy 0.2%

Digital Interface

Type of interface	Transmission protocol	Mode	Rate
RS-485 Modbus	MODBUS RTU	8N2, 8E1, 8O1, 8N1	4.8; 9.6; 19.2; kbit/s
USB 1.1/ 2.0	MODBUS RTU	8N2	9.6 kbit/s

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External Features

Overall dimensions	96 □ 120 □ 100 mm	fixing on a 35mm DIN rail
Weight	0.3 kg	
Protection grade	for casing: IP40	for terminals: IP10

Rated Operating Conditions

Supply voltage	85 .. 253 V a.c. , 40 .. 400 Hz, 90 .. 320 V d.c. or 20 .. 40 V a.c., 40 .. 400 Hz, 20 .. 60 V d.c.	Power input □ 6 VA
Power input	in voltage circuit □ 0.05 VA	in current circuit □ 0.05 VA
Input signal	□ 0 .. 0.005 .. 1.2 In; 0.05 .. 1.2 Un for the measurement of current and voltage; □ 0 .. 0.1 .. 1.2 In; 0 .. 0.1 .. 1.2 Un or the measurement of coefficients Pfi, tgφi -1 .. 0 .. 1	□ signal frequency 47 .. 63 Hz □ sinusoidal signal (THD □ 8%)
Power factor	-24 .. -20 .. 0 .. 20 .. 24 mA	
Analog outputs	ambient: -10...23...55°C	
Temperature	25 .. 95%	storage: -30...70°C
Humidity		inadmissible condensation
Additional error (in % of the intrinsic error)		from ambient temperature changes < 50%/ 10%
Operating position	from output signals frequency < 50%	
External magnetic field	any	
Short duration overload (5 s)	0 .. 400 A/m	
Admissible peak factor	voltage input: 2 Un (max. 1000 V) current intensity: 2	current input: 10 In voltage: 2

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 level	2	
Installation category	III	
Maximal phase-to-earth voltage	300 V	acc. to EN 61010-1
Altitude a.s.l.	< 2000 m	

Additional errorsin% of the intrinsic error

From frequency of input signals	< 50%
From ambient temperature changes	< 50%/ 10%
For THD > 8%	< 100%

Connection diagram

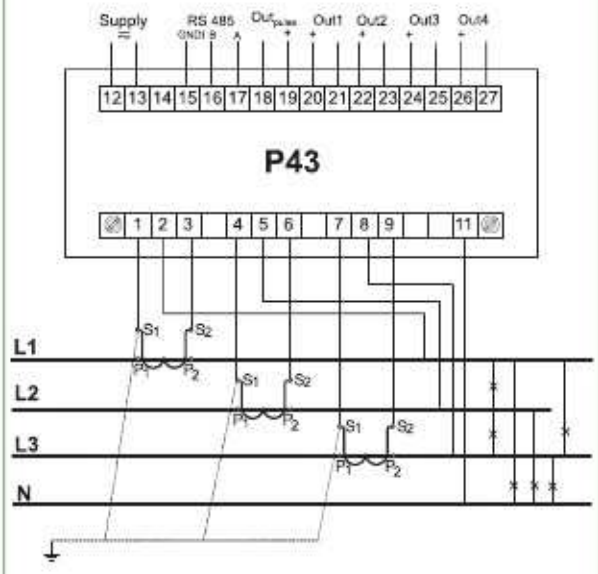

Fig. 1 Exemplary connection diagram for 4-wire network.

Ordering

	P43	X	X	X	XX	X	X
Current input In:								
1 A (X/1)		1						
5 A (X/5)		2						
Voltage input (phase/phase-to-phase) Un:								
3 x 57.7/100 V			1					
3 x 230/400 V			2					
Supply voltage:				1				
85..253 V a.c., 90..320 V d.c.				2				
20..40 V a.c., 20..60 V d.c.								
Output type:					1			
without analog outputs, 4 relays					2			
2 analog outputs, 2 relays						1		
4 analog outputs, without relays						2		
Version:						3		
standard							00	
custom-made*							XX	
Language:								
Polish								0
English								1
other								X
Acceptance tests:								
without extra quality requirements								P
with an extra quality inspection certificate								E
acc. to customer's requirements*								X

* version code will be established by the manufacturer

Example of order:
The code: **P43 - 2 2 1 3 00 E 7** means:
P43 - transducer of P43 type
2 - input current: 5 A
2 - input voltage: 3 x 230/400 V
1 - supply voltage: 85..253 V a.c., 90..320 V d.c.
3 - 4 analog outputs, without relays
00 - standard version
E - English language
7 - with an extra quality inspection certificate.

SEE ALSO:


Current transformers.


Analysers of network parameters ND1 .


Meter of network parameters N13.

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