

# P43 TRANSDUCER OF POWER NETWORK PARAMETERS

## FEATURES



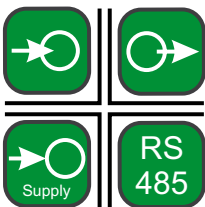
## INPUT:



## OUTPUTS:

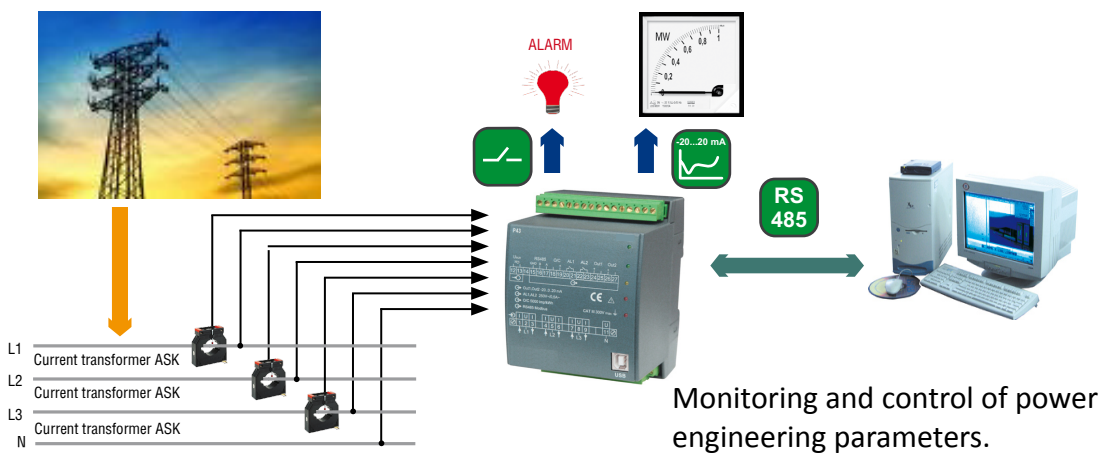


## GALVANIC ISOLATION:



- Measurement and conversion of power network parameters in 3 or 4-wire balanced or unbalanced systems.
- Tetraquadrantic energy measurement ( $E_{p+}$ ,  $E_{p-}$ ,  $E_{QL}$ ,  $E_{QC}$ ).
- 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.

## EXAMPLE OF APPLICATION



## MEASURED QUANTITIES AND MEASURING RANGES

Measured value	Measuring range	L1	L2	L3	$\Sigma$	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	45.0...100.0 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 $\phi$	-1.2...0...1.2	●	●	●	●	±1%
Power factor PF	-1...0...1	●	●	●	●	±0.5%
Angle between U and I	-180° ... 180°	●	●	●		±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%

\* - for ratio  $K_i=K_u=1$ . Current ratio  $K_i$  programmable in the range 1...1000. Voltage ratio  $K_u$  programmable in the range 1...4000

## OUTPUTS

Type of output	Properties
Relay output	2 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 imp/kWh, independent on $K_i$ , $K_u$ ratio settings
Analog output	2 programmable outputs: -20...0...20 mA, $R_{load} = 0...500 \Omega$ , 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) or d.c. or 20 .. 40 V a.c. (40 .. 400 Hz) or d.c.	Power input ≤ 6 VA
Power input	in voltage circuit ≤ 0.05 VA	in current circuit ≤ 0.05 VA
Input signal	<ul style="list-style-type: none"> <li>0 .. 0.005 .. 1.2 I<sub>n</sub>; 0.05 .. 1.2 U<sub>n</sub> for the measurement of current and voltage;</li> <li>0 .. 0.1 .. 1.2 I<sub>n</sub>; 0 .. 0.1 .. 1.2 U<sub>n</sub> or the measurement of coefficients P<sub>f</sub>, tgφ<sub>i</sub></li> </ul>	<ul style="list-style-type: none"> <li>signal frequency 45 .. 66 .. 100 Hz</li> <li>sinusoidal signal (THD ≤ 8%)</li> </ul>
Power factor	-1 .. 0 .. 1	
Analog outputs	-24 .. -20 .. 0 .. 20 .. 24 mA	
Temperature	ambient: -10...23...55°C	storage: -30...70°C
Humidity	25 .. 95%	inadmissible condensation
Additional error (in % of the intrinsic error)	from output signals frequency < 50%	from ambient temperature changes < 50%/ 10%
Operating position	any	
External magnetic field	0 .. 400 A/m	
Short duration overload (5 s)	voltage input: 2 U <sub>n</sub> (max. 1000 V)	current input: 10 I <sub>n</sub>
Admissible peak factor	current intensity: 2	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	600 V	acc. to EN 61010-1
Altitude a.s.l.	< 2000 m	

## ADDITIONAL ERRORS IN % OF THE INTRINSEC ERROR

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

## CONNECTION DIAGRAM

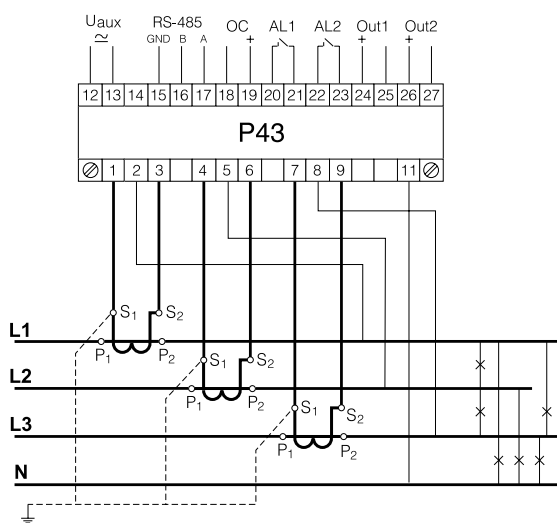


Fig. 1 Exemplary connection diagram for 4-wire network.

## ORDERING

	P43 -	X	X	X	XX	X
<b>Input current:</b>						
1 A (X/1)		1				
5 A (X/5)		2				
<b>Input voltage(phase/phase-to-phase)</b>						
Un:						
3 x 57.7/ 100 V			1			
3 x 230/ 400 V			2			
<b>Supply voltage:</b>						
85...253 V d.c./a.c.				1		
20...40 V d.c./a.c.				2		
<b>Version:</b>						
standard					00	
custom-made*					XX	
<b>Acceptance tests:</b>						
without extra quality requirements						8
with an extra quality inspection certificate						7
according to customer's request*						X

\* version code will be established by the manufacturer

### Example of order:

The code: **P43 - 2 2 1 00 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 d.c./a.c.  
**00** - standard version  
**7** - with an extra quality inspection certificate.

SEE ALSO:



Current transformers.



Analysers of network parameters ND1.



Meter of network parameters N13.