N14 METER OF NETWORK PARAMETERS

Features:

MOD BUS · Ochrona hasłem · eCon · P,Q

Input:

AC

Output:

RS 485

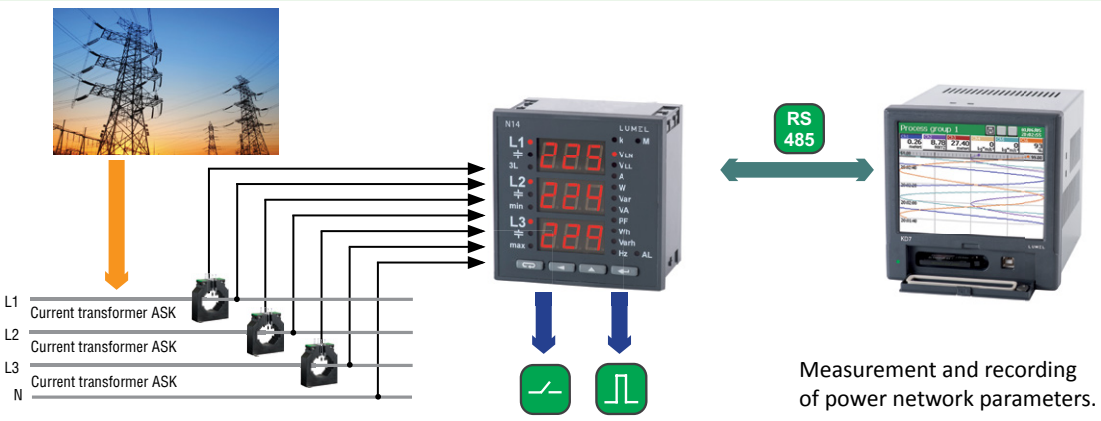
Galvanic isolation:

Zasilanie · RS 485



- Measurement of power network parameters in 3 or 4-wire balanced or unbalanced systems.
- Tetraquadrantic measurement of power and energy (P+, P-, QL, QC).
- Indications taking into consideration values of programmed ratios.
- Measurement of 15-minutes' mean power.
- Digital transmission to the Master system through the RS-485 interface (MODBUS).
- Configurable alarm output and current and voltage ratios.
- Programmable parameters using pushbuttons or through the RS-485 interface using the free eCon program.
- Impulse output of OC type for the retransmission of 3-phase active energy.
- Battery support of configuration data and state of watt-hour meters at supply decays.
- Detection and signalling of incorrect phase sequence.

Example of application



Measurement and recording of power network parameters.

Measured quantities and measuring ranges

Measured quantity	Indication range Ki; Ku ≠ 1	Measuring range Ki; Ku = 1	L1	L2	L3	Σ	Intrinsic error
Current 1/5 A L1 .. L3	0.00 .. 9.99 kA	0.02 .. 6 A~	•	•	•		± 0.5%
Voltage L-N	0.0 .. 289 kV	2.9 .. 480 V~	•	•	•		± 0.5%
Voltage L-L	0.0 .. 500 kV	10 .. 830 V~	•	•	•		± 1%
Frequency	45.0 .. 70.0 Hz	45.0 .. 100.0 Hz	•	•	•		± 0.2%
Active power	-999 MW .. 0.00 W .. 999 MW	-2.64 kW .. 1.4 W .. 2.64 kW	•	•	•	•	± 1%
Reactive power	-999 Mvar .. 0.00 var .. 999 Mvar	-2.64 kvar .. 1.4 var .. 2.64 kvar	•	•	•	•	± 1%
Apparent power	0.00 VA .. 999 MVA	1.4 VA .. 1.64 kVA	•	•	•	•	± 1%
PF factor	-1 .. 0 .. 1	-1 .. 0 .. 1	•	•	•	•	± 2%
Tangens φ	-1.2 .. 0 .. 1.2	-1.2 .. 0 .. 1.2	•	•	•	•	± 2%
Angle between U and I	-180 .. 180°	-180 .. 180°	•	•	•		± 0.5%
Input active energy	0 .. 99 999 999.9 kWh					•	± 1%
Output active energy	0 .. 99 999 999.9 kWh					•	± 1%
Inductive reactive energy	0 .. 99 999 999.9 kVarh					•	± 1%
Capacitive reactive energy	0 .. 99 999 999.9 kVarh					•	± 1%

Ku - voltage transformer ratio: 1 .. 4000; Ki - current transformer: 1 .. 10000

Caution! - for a correct measurement, the presence of a voltage value higher than 0.05 Un is required, at least in one of the phase.

Outputs

Kind of output	Properties
Relay output	NOC contacts, load capacity: 250 V a.c./ 0.5 A a.c.
Pulse energy output	• OC type, passive of class A, acc. to EN 62053-31 • supply voltage: 18 .. 27 V, current 10 .. 27 mA • impulse constant: 5000 imp./ kWh, independent on Ku, Ki ratios

Digital interface

Interface type	Transmission protocol	Mode	Rate
RS-485	MODBUS RTU	8N2, 8E1, 8O1, 8N1	4.8; 9.6; 19.2 kbit/s

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N14 METER OF NETWORK PARAMETERS

EXTERNAL FEATURES

Readout field	3 x 3 LED digits	red colour, 14 mm
Dimensions	96 × 96 × 78,5 mm	cut-out: $91^{+0.5} \times 91^{+0.5}$ mm
Weight	0.3 kg	
Protection grade	from frontal side: IP40	from terminal side: IP10

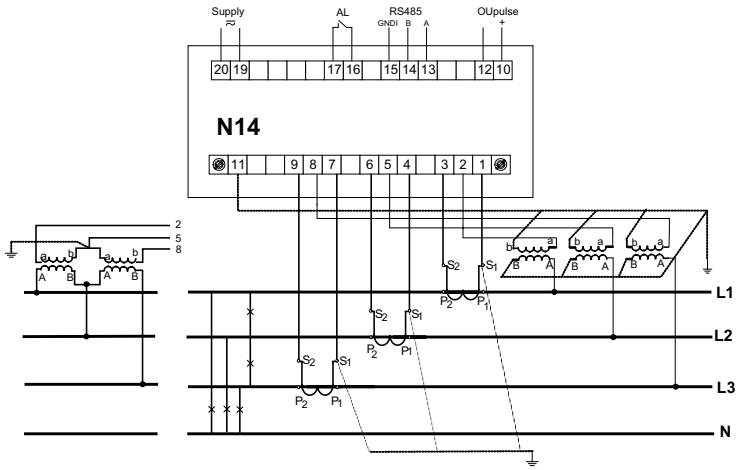
RATED OPERATING CONDITIONS

Supply voltage	85...253 V a.c. (40 .. 400 Hz) or d.c.	power input ≤ 6 VA
Input power	in voltage circuit ≤ 0.05 VA	in current circut: ≤ 0.05 VA
Input signal	• 0 .. 0.005 .. 1.2 In; 0.05 .. 1.2 Un; for measurement of current and voltage; • frequency: 45 .. 65 Hz	• 0 .. 0.1 .. 1.2 In; 0 .. 0.1 .. 1.2 Un; for measurement of Pf, tgφ factors • sinusoidal (THD ≤ 8%)
Power factor	• 0 .. 0.2 cap. ... 1 .. 0.2 ind .. 0	
Temperature	ambient: -25...23...55°C	storage: -30...70°C
Relative humidity	25...95%	condensation inadmissible
Operating position	any	
External magnetic field	0 .. 40 .. 400 A/m	
Short duration overload (5 s)	voltage input: 2Un (max. 1000 V)	current input: 10 In
Admissible peak factor	current intensity: 2	voltage: 2
Preheating time	5 minutes	
Additional errors in % of intrinsic error	from frequency of input signals: < 50%	from ambient temperature changes: < 50%/ 10%

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	acc. to EN 61010-1
Installation category	III	
Maximal phase-to-earth voltage	600 V	
Altitude a.s.l.	< 2000 m	

CONNECTION DIAGRAM



ORDERING

	N14 -	X	X	XX	X
Input current:					
1 A (X/1)		1			
5 A (X/5)		2			
Input voltage (phase/ phase-to-phase) Un:					
3 x 57,7/100 V			1		
3 x 230/400 V			2		
3 x 400/690 V*			3		
Version:					
standard				00	
input voltage 3 x 110/ 190 V				01	
operating temperature -30...50°C				06	
custom-made				XX	
Acceptance tests:					
without extra quality requirements					8
with an extra quality inspection certificate					7
according to custromer's request**					X

Example of order:
The code: **N14 - 2 2 00 7** means:
N14 - meter of N14 type
2 - input current: 5 A
2 - input voltage: 3 x 230/400 V
00 - standard version
7 - with an extra quality inspection certificate

* - version only for direct measurements
** - version code will be established by the manufacturer

SEE ALSO:



Current transformers from 5 A up to 6 kA.



Analysers of network parameters ND40.



P43 - three-phase transducers of power network parameters.



PD10 converter (RS-485/USB).

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Via Lirone 60/i

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