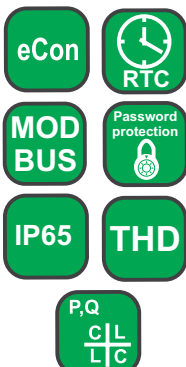


ND10 METER OF NETWORK PARAMETERS

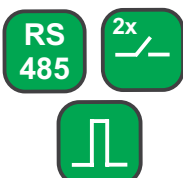
FEATURES:



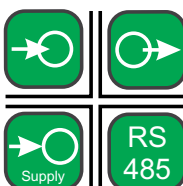
INPUT:



OUTPUTS:



GALVANIC ISOLATION:



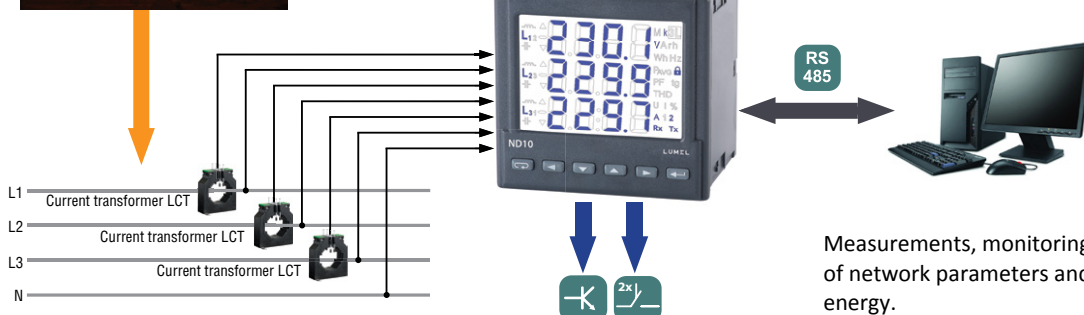
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- Meter supply from measurement circuit
- Measurement of basic power quantities:
 U_{L-L} , U_{L-N} , I_n , f , P , Q , S , PF , $tg\phi$, $\cos\phi$, ϕ , E_{p+} , E_{p-} , E_{qL} , E_{qC} , THD
- 2 alarm outputs
- Pulse output for active energy
- Interface RS485 Modbus Slave (option)
- LCD display 3.5"
- Protection grade from the frontal side IP65

EXAMPLE OF APPLICATION



Measurements, monitoring
of network parameters and
energy.

MEASURED QUANTITIES AND MEASURING RANGES

Measured value	Indication range	Measuring range	L1	L2	L3	Σ	Basic error
Current I_n 1 A 5 A	0.00...1.5 kA 0.00 ... 60 kA	0,005...1,200 A~ 0,025...6,000 A~	•	•	•		$\pm 0.2\%$ r
Voltage L-N 57,7 V 230 V 290 V	0.0 ... 230.8 kV 0.0 ... 1.012 MV 0.0 ... 1.200 MV	50...64 V~ 195...253 V~ 246...300 V~	•	•	•		$\pm 0.2\%$ mv
Voltage L-L 100 V 400 V 500 V	0.0 ... 440 kV 0.0 ... 1.752 MV 0.0 ... 2.000 MV	85...110 V~ 340 ... 440 V~ 425 ... 520 V~	•	•	•		$\pm 0.5\%$ mv
Frequency	47.0 ... 63.0 Hz	47,0...63,0 Hz	•	•	•		$\pm 0.2\%$ mv
Active power	-9999 MW ... 0.00 W ... 9999 MW	-1,52 kW...1,0 W...1,52 kW	•	•	•	•	$\pm 0.5\%$ r
Reactive power	-9999 Mvar ... 0.00 var ... 9999 Mvar	-1.52 kvar...1.0 var...1.52 kvar	•	•	•	•	$\pm 0.5\%$ r
Apparent power	0.00 VA ... 9999 MVA	1.0 VA...1.52 kVA	•	•	•	•	$\pm 0.5\%$ r
Power factor PF	-1 ... 0... 1	-1...0...1	•	•	•	•	$\pm 1\%$ r
Tangent ϕ	-1.2 ... 0 ... 1.2	-1.2...0...1.2	•	•	•	•	$\pm 1\%$ r
Cosine ϕ	-1...1	-1...1	•	•	•	•	$\pm 1\%$ r
ϕ	-180...180	-180...180	•	•	•		$\pm 0.5\%$ r
Imported active energy	0 ... 99 999 999.9 kWh					•	$\pm 0.5\%$ r
Exported active energy	0 ... 99 999 999.9 kWh					•	$\pm 0.5\%$ r
Inductive reactive energy	0 ... 99 999 999.9 kvarh					•	$\pm 0.5\%$ r
Reactive capacitive energy	0 ... 99 999 999.9 kvarh					•	$\pm 0.5\%$ r
THD	0 ... 100%	0 ... 100%	•	•	•		$\pm 5\%$ r

r - of the range
mv - of the measured value

OUTPUTS

Output type	Properties
Relay output	• 2 relays, normally open voltageless contacts, load capacity 250 V~/0,5 A~
Pulse output of active energy	• 1 OC type (NPN), passive class A acc. to EN 62053-31, supply voltage 18...27 V, current 10...27 mA

DIGITAL INTERFACE

Interface type	Transmission protocol	Mode	Baud rate
RS-485	MODBUS RTU	8N2, 8E1, 8O1, 8N1	4.8; 9.6; 19.2; 38.4 kbit/s

EXTERNAL FEATURES

Readout field	LCD 3.5" screen, specialized, monochrome with backlight		
Weight	< 0.3 kg		
Overall dimensions	96 × 96 × 77 mm	panel cut-out: 92 ^{+0,6} × 92 ^{+0,6} mm	
Protection grade (acc. to EN 60529)	from frontal side: IP65	from terminal side: IP20	

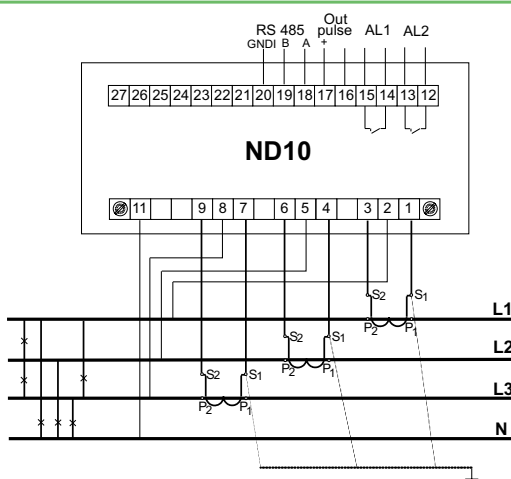
RATED OPERATING CONDITIONS

Supply voltage /from measurement circuit of phase L3/	50...64 V a.c., 195...253 V a.c., 246...300 V a.c.; 47...63 Hz	Power consumption: - in voltage circuit L1,L2 - in voltage circuit L3 - in current circuits	≤ 0.05 VA ≤ 3 VA ≤ 0.05 VA
Temperature	ambient: -20...23...55°C	storage: -30...70°C	
Relative humidity	25...95%	inadmissible condensation	
Operating position	any		
External magnetic field	40...400 A/m		
short duration overload (5 s)	voltage input: 2 Un	current input: 10 In	

SAFETY AND COMPATIBILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Safety requirements		acc. to EN 61010-1

EXAMPLE OF CONNECTION DIAGRAM



ORDERING

ND10 -	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				
3 x 290/500 V	3				
Digital output:					
without RS485 interface	0				
with RS485 interface	1				
Version:					
standard		00			
custom-made*		XX			
Language:					
Polish			P		
English			E		
other*			X		
Acceptance tests:					
without extra quality requirements				0	
with an extra quality inspection certificate				1	
acc. to customer's request*				X	

* - after agreeing with the manufacturer

EXAMPLE OF ORDER:

the code: **ND10 - 2 2 1 00 E 1** means:

- ND10** - meter of network parameters of ND10 type,
- 2** - current input 5 A,
- 2** - input voltage 3 x 230/400 V,
- 1** - with RS485 interface
- 00** - standard version,
- E** - all descriptions and user's manual in English,
- 1** - with extra quality inspection certificate.

SEE ALSO:



Free eCon program for programming LUMEL's products. Available on our internet website.



LCT current transformers from 5 A to 6 kA.



P43 - three-phase transducer of power network parameters.

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

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