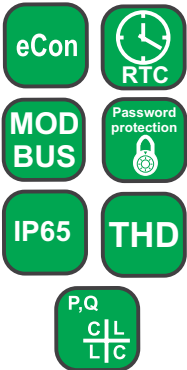


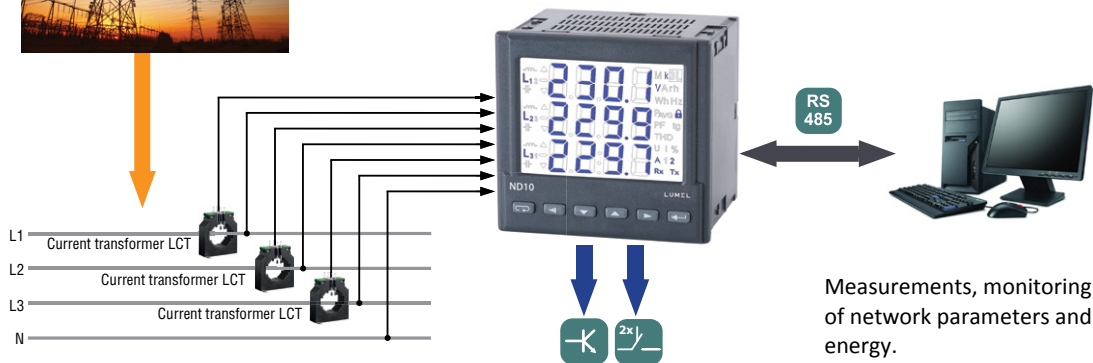
# ND10 METER OF NETWORK PARAMETERS

## FEATURES:



- Meter supply from measurement circuit
- Measurement of basic power quantities:  
 $U_{L-L}$ ,  $U_{L-N}$ ,  $I_n$ ,  $f$ ,  $P$ ,  $Q$ ,  $S$ ,  $PF$ ,  $tg\phi$ ,  $cos\phi$ ,  $\phi$ ,  $E_{p+}$ ,  $E_{p-}$ ,  $E_{qL}$ ,  $E_{qC}$ , 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

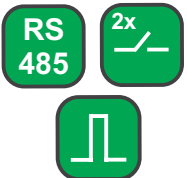


Measurements, monitoring of network parameters and energy.

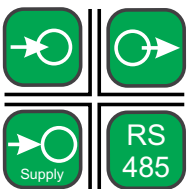
## INPUT:



## OUTPUTS:



## GALVANIC ISOLATION:



## MEASURED QUANTITIES AND MEASURING RANGES

Measured value	Indication range	Measuring range	L1	L2	L3	$\Sigma$	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 $\phi$	-1.2 ... 0 ... 1.2	-1.2...0...1.2	•	•	•	•	$\pm 1\% r$
Cosine $\phi$	-1...1	-1...1	•	•	•	•	$\pm 1\% r$
$\phi$	-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

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## 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, monochromatic with backlight	
Weight	< 0.3 kg	
Overall dimensions	96 × 96 × 77 mm	panel cut-out: 92 <sup>+0,6</sup> × 92 <sup>+0,6</sup> mm
Protection grade (acc. to EN 60529)	from frontal side: IP65	from terminal side: IP20

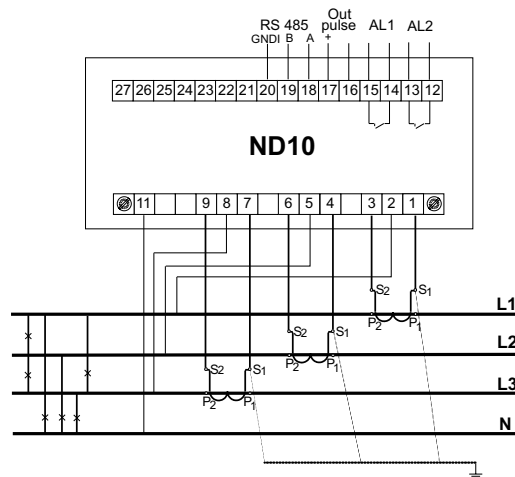
## RATED OPERATING CONDITIONS

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 ≤ 0.05 VA - in voltage circuit L3 ≤ 3 VA - in current circuits ≤ 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	X	XX	X	X
<b>Current input In:</b>							
1 A (X/1)		1					
5 A (X/5)		2					
<b>Voltage input (phase/ phase-to-phase) Un:</b>							
3 x 57.7/100 V		1					
3 x 230/400 V		2					
3 x 290/500 V		3					
<b>Digital output:</b>							
without RS485 interface		0					
with RS485 interface		1					
<b>Version:</b>							
standard					00		
custom-made*					XX		
<b>Language:</b>							
Polish						P	
English						E	
other*						X	
<b>Acceptance tests:</b>							
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](http://www.lumel.com.pl)

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