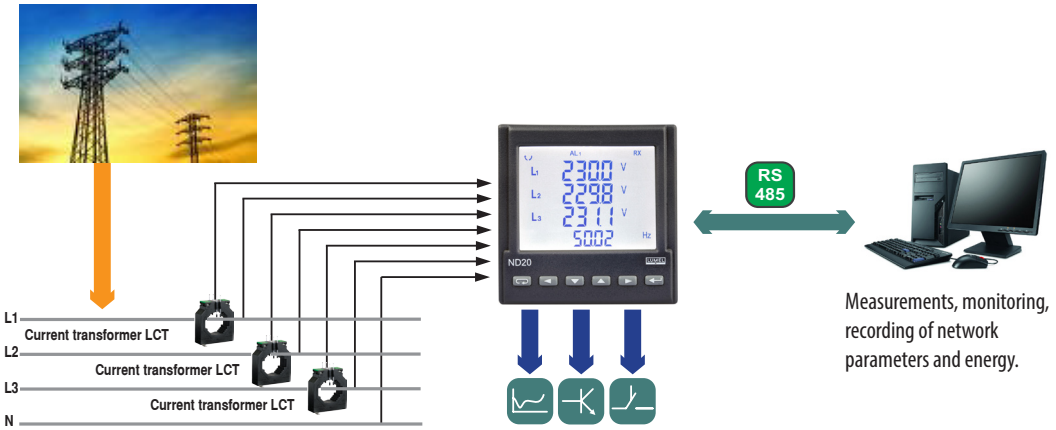
DITEL
Made by LUMEL

ND20 - METER OF NETWORK PARAMETERS

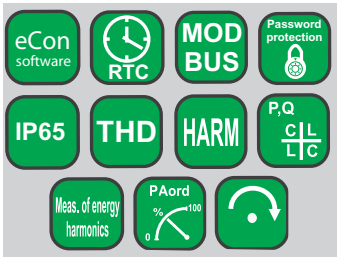
- Measurement of power network parameters in 2,3 or 4- wire balanced and unbalanced systems.
- High accuracy class.
- Indications considering values of programmed ratios.
- Harmonics of voltages and currents (selectively).
- THD factors for currents and voltages.
- Profile of 15, 30, 60-minutes' power (9000 measurements).
- Watt-hour meter for the selected harmonic.
- Backlit LCD 3.5" screen.
- Protection grade from the frontal side: IP65.
- Digital transmission to the master system through the RS-485 interface (MODBUS).
- Configurable analog, alarm and pulse outputs (energy).
- Configuration of displayed pages.

CE

EXAMPLE OF APPLICATION

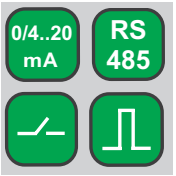


FEATURES

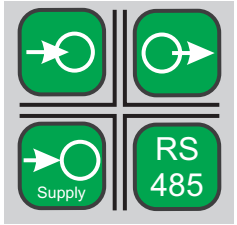


INPUT

OUTPUTS



GALVANIC ISOLATION



MEASURED QUANTITIES AND MEASURING RANGES

Measured value	Indication range*	Measuring range	L1	L2	L3	Σ	Basic error
Current In 1 A	0.00 ... 12 kA	0.002 ... 1.200 A~	•	•	•		±0.2% r
5 A	0.00 ... 60 kA	0.010 ... 6.000 A~					
Voltage L-N							
57,7 V	0.0 ... 280 kV	2.8 ... 70.0 V~	•	•	•		±0.2% r
230 V	0.0 ... 1.104 MV	11.5 ... 276 V~					
Voltage L-L							
100 V	0.0 ... 480 kV	5 ... 120 V~	•	•	•		±0.5% r
400 V	0.0 ... 1.92 MV	20 ... 480 V~					
Frequency	47.0 ... 63.0 Hz	47.0 ... 63.0 Hz	•	•	•		±0.2% mv
Active power	-9999 MW ... 0.00 W ... 9999 MW	-1.65 kW ... 1.4 W ... 1.65 kW	•	•	•	•	±0.5% r
Reactive power	-9999 Mvar ... 0.00 var ... 9999 Mvar	-1.65 kvar ... 1.4 var ... 1.65 kvar	•	•	•	•	±0.5% r
Apparent power	0.00 VA ... 9999 MVA	1.4 VA ... 1.65 kVA	•	•	•	•	±0.5% r
Power factor PF	-1 ... 0 ... 1	-1 ... 0 ... 1	•	•	•	•	±1% r
Tangent φ	-1.2...0...1.2	-1.2 ... 0 ... 1.2	•	•	•	•	±1% r
Cosinus φ	-1 ... 1	-1 ... 1	•	•	•	•	±1% r
φ	-180 ... 180	-180 ... 180	•	•	•		±0.5% r
Imported active energy	0 ... 99 999 999.9 kWh					•	±0.5% r
Exported active energy	0 ... 99 999 999.9 kWh					•	±0.5% r
Reactive inductive energy	0 ... 99 999 999.9 kvarh					•	±0.5%
Reactive capacitive energy	0 ... 99 999 999.9 kvarh					•	±0.5%
THD	0 ... 100%	0 ... 100%	•	•	•		±5%

* Depending on the set tr_U ratio (ratio of the voltage transformer: 0.1...4000.0) and tr_I ratio (ratio of the current transformer: 1...10000)

r - of the range mv - of the measured value

ND20 - METER OF NETWORK PARAMETERS

OUTPUTS

Analog output	1 programmable current output 0/4...20mA
Relay output	programmable relay output, normally open voltageless contacts, 250 V~/0.5 A~
Pulse output of active/reactive energy	1 x OC type, passive

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 backlit	
Weight	< 0.3 kg	
Overall dimensions	96 x 96 x 77 mm	panel cut-out: $92.5^{+0.6}$ x $92.5^{+0.6}$ mm
Protection grade (acc. to EN 60529)	from frontal side: IP65	from terminal side: IP20

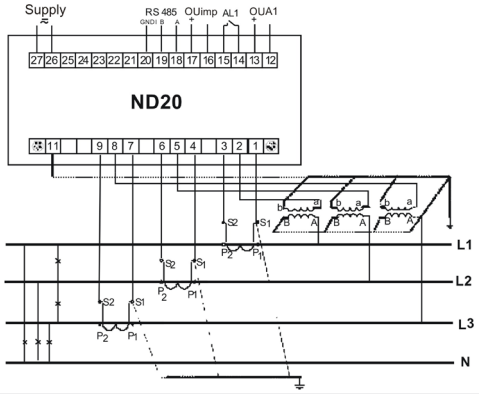
RATED OPERATING CONDITIONS

Supply voltage	85...253 V a.c., 90...300 V d.c., 20...40 V a.c., 20...60 V d.c.	
Temperature	ambient: -25...23...55°C	storage: -30...70°C
Relative humidity	25...95%	inadmissible condensation
Operating position	any	
External magnetic field	0...40...400 A/m	
Short duration overload (1 s)	voltage input: 2Un (max. 1000 V)	current input: 10 In
Power consumption	- in the supply circuit <6 VA, - in the voltage and current circuits < 0.05 VA	

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

ELECTRIC CONNECTIONS



Meter connection diagrams in a 4-wire network.

Connections:
- direct, semi-indirect and indirect one-phase measurement,
- direct measurement in a 3-wire network,
- semi-indirect measurement in a 3-wire network,
- indirect measurement with the use of 3 current transformers and 2 or 3 voltage transformers in a 3-wire network,
- direct measurement in a 4-wire network,
- semi-indirect measurement in a 4-wire network,
- indirect measurement with the use of 3 current transformers and 2 or 3 voltage transformers in a 4-wire network

ORDERING

ANALYSER OF NETWORK PARAMETER ND20 -	X	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					
Analog current output:							
without analog output			0				
with programmable output 0(4) ... 20 mA			1				
Supply voltage:							
85...253 V a.c., 90...300 V d.c.				1			
20...40 V a.c., 20...60 V d.c.				2			
Version:							
standard					00		
custom-made*					XX		
Language:							
Spanish						S	
English						E	
French						F	
Acceptance tests:							
without extra quality requirements							0
with an extra quality inspection certificate							1
acc. to customer's request*							X

EXAMPLE OF ORDER:
The code **ND20 - 2 2 1 1 00 E 0** means:
ND20 - meter of network parameters of ND20 type
2 - current input: 5A (X/5)
2 - input voltage (phase/phase-to-phase) Un = 3 x 230 V/ 400 V
1 - with programmable analog output
1 - supply voltage: 85...253 V a.c./ 90...300 V d.c.
00 - standard version
E - all descriptions and user's manual in English
0 - without extra quality requirements.

* - after agreeing with the manufacturer

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SEE ALSO

eCON

Free **eCON** software

Current transformers.

P43 - three-phase transducer of power network parameters.

For more information about DITEL products please visit our website:

www.ditel.es

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