



**DATASHEET**

Issue 1.0



Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

## ND10

# METER OF NETWORK PARAMETERS

### Features

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

**SUBJECT TO CHANGE WITHOUT NOTICE**

This manual superseded all previous versions – please keep for future reference

**Features**

**Inputs**

**Outputs**

**Galvanic Isolation**

**Example of Application:**

**Measured Quantities & Measuring Ranges**

Measured value	Indication range	Measuring range	L1	L2	L3	Σ	Basic error
Current In 1 A 5 A	0.00...1.5 kA 0.00 ... 60 kA	0,005...1,200 A~ 0,025...6,000 A~	•	•	•		±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~	•	•	•		±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~	•	•	•		±0.5% mv
Frequency	47.0 ... 63.0 Hz	47,0...63,0 Hz	•	•	•		±0.2% mv
Active power	-9999 MW ... 0.00 W ... 9999 MW	-1,52 kW...1,0 W...1,52 kW	•	•	•	•	±0.5% r
Reactive power	-9999 Mvar ... 0.00 var ... 9999 Mvar	-1.52 kvar...1.0 var...1.52 kvar	•	•	•	•	±0.5% r
Apparent power	0.00 VA ... 9999 MVA	1.0 VA...1.52 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
Cosine 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
Inductive reactive energy	0 ... 99 999 999.9 kvarh					•	±0.5% r
Reactive capacitive energy	0 ... 99 999 999.9 kvarh					•	±0.5% r
THD	0 ... 100%	0 ... 100%	•	•	•		±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**

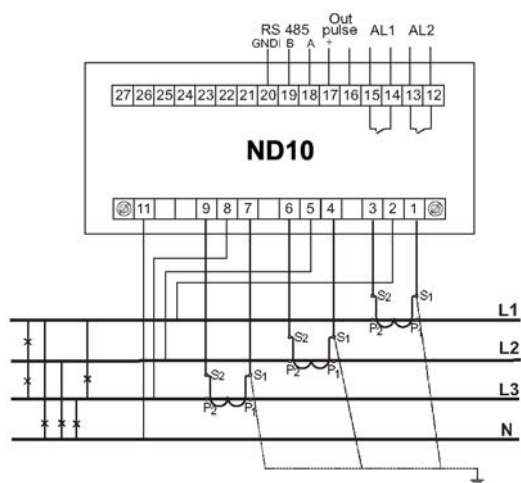
Readout field	LCD 3.5" screen, specialized, monochromatic with backlit	
Weight	< 0.3 kg	
Overall dimensions	96 x 96 x 77mm	panel cut-out: 92+0,6 x 92+0,6mm
Protection grade (acc. to EN 60529)	from frontal side: IP65	from terminal side: IP20

**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...70°C	storage: -30...80°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 noise emissions	acc. to EN 61000-6-2 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>							
English						U	
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 U 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,

**U** - all descriptions and user's manual in English,

**1** - with extra quality inspection certificate.

**Contact**

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