

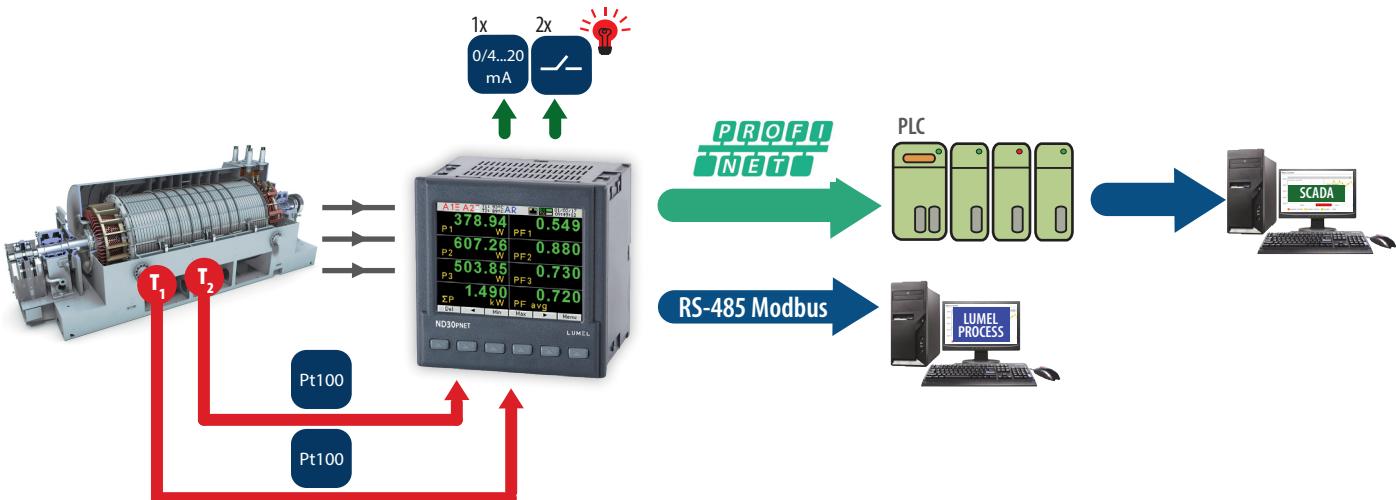


ND30PNET

- METER OF POWER NETWORK PARAMETERS WITH PROFINET

- Measurement of 54 power network parameters, including **current and voltage harmonics up to 63rd**, in 1-phase 2-wire or 3-phase 3 or 4-wire balanced and unbalanced systems.
- High accuracy class (0.2S for active energy).
- Graphical color display: LCD TFT 3.5", 320 x 240 pixels, fully configurable by a user (10 views, 8 parameters in each).
- Additional 2 pages for harmonics presentation and 1 dedicated page for visualization in the form of an analog meter.
- Indications include the values of programmed ratios.
- Memory of minimum and maximum values.
- 2 configurable alarm outputs.
- Optional: analog output 0/4...20 mA and 2 PT 100 inputs (eg. for measurement of transformer temperature), 2 galvanically isolated binary inputs 0/5...24V d.c.
- Archiving of up to 32 measured parameters in the internal memory 8 GB (option).
- Digital output RS-485 - MODBUS protocol.
- Modern and user-friendly Ethernet/Profinet (version 2.2.) interface.
- Programming of parameters using free eCon software.
- Battery backup RTC.
- Overall dimensions: 96 x 96 x 77 mm.

EXAMPLE OF APPLICATION



MEASUREMENT AND VISUALIZATION OF POWER NETWORK PARAMETERS

- phase voltages: U_1, U_2, U_3
- phase-to-phase voltages: U_{12}, U_{23}, U_{31}
- phase currents I_1, I_2, I_3
- active phase powers: P_1, P_2, P_3
- reactive phase powers: Q_1, Q_2, Q_3
- apparent phase powers: S_1, S_2, S_3
- active power factors: PF_1, PF_2, PF_3
- reactive/active power factors: $\text{tg}\varphi_1, \text{tg}\varphi_2, \text{tg}\varphi_3$
- active, reactive and apparent 3-phase power: P, Q, S
- mean 3-phase power factors: $PF, \text{tg}\varphi$
- frequency f
- mean 3-phase voltage: U_s
- mean phase-to-phase voltage: U_{mf}
- mean 3-phase current: I_s
- 15, 30, 60 minutes' mean active power: P_{demand}
- mean apparent power S_{demand}
- average current I_{demand}
- active, reactive and apparent 3-phase energy: EnP, EnQ, EnS
- active, reactive and apparent energy from external counter: $EnPE$
- total harmonic content coefficients for phase voltages and currents $\text{THD}_{U_1}, \text{THD}_{U_2}, \text{THD}_{U_3}, \text{THD}_{I_1}, \text{THD}_{I_2}, \text{THD}_{I_3}$ and for 3-phase voltages and currents $\text{THD}_U, \text{THD}_I$
- harmonics for current and phase voltage up to 63rd!
- temperature (2 x Pt100 input)

FEATURES	INPUTS	OUTPUTS	GALVANIC ISOLATION

TECHNICAL DATA

MEASURING RANGE

Measured value	Measuring range	L1	L2	L3	Σ	Class
Current 1/5 A 1 A~ 5 A~	0.002 .. 0.100..1.200 A 0.010 .. 0.500.. 6.000 A ...100.00 kA ($tr_I \neq 1$)	.	.	.		0.2 (EN 61557-12)
Voltage L-N 57.7 V~ 110 V~ 230 V~ 400 V~	5.700..11.500 ..70.000 V 11.000..22.000 ..132.00 V 23.000..46.000 .. 276.00 V 40.000..80.000 .. 480.00 V ...1920.0 kV		.	.		0.2 (EN 61557-12)
Voltage L-L 100 V~ 190 V~ 400 V~ 690 V~	10.000 ..20.000..120.00 V 19.000 ..38.000..228.00 V 40.000..80.00 .. 480.00 V 69.000..138.00 .. 830.00 V ...1999.0 kV ($tr_U \neq 1$)		.	.		0.5 (EN 61557-12)
Active power P	-19999 MW .. 0,000 W .. .19999 MW ($tr_U \neq 1, tr_I \neq 1$)	.	.	.	.	0.5 (EN 61557-12)
Reactive power Q	-19999 MVar .. 0,000 Var .. .19999 MVar ($tr_U \neq 1, tr_I \neq 1$)	.	.	.	.	1 (EN 61557-12)
Apparent power S	0.000 .. 1999,9 VA .. .19999 MVA ($tr_U \neq 1, tr_I \neq 1$)	.	.	.	.	0.5 (EN 61557-12)
Active energy EnP (imported or exported)	0.000 .. 99 999 999.999 kWh				.	0.25 (EN 62053-22)
Reactive energy EnQ (inductive or capacitive)	0.000 .. 99 999 999.999 kVarh				.	1 (EN 61557-12)
Apparent energy EnS	0.000 .. 99 999 999.999 kWh				.	0.5 (EN 61557-12)
Active power factor PF	-1.00 ..0 ..1.00	.	.	.	.	1 (EN 61557-12)
Coefficient tg (ratio of reactive power to active power)	-999.99...-1.20 .. 0 .. 1.20...999.99	.	.	.	.	1
Frequency f	45.00...65.00...100.00 Hz				.	0.1 (EN 61557-12)
Total harmonic distortion of voltage THDU and current THDI	0.0..100.0 %	.	.	.	.	5 (EN 61557-12)
Amplitudes of the voltage $U_{h2}..U_{h51}$ and current $I_{h2} .. I_{h51}$	0.0..100.0 %	.	.	.		II (IEC61000-4-7)

tr_I - Current transformer ratio = Primary current of the transformer / Current of the current transformer,

tr_U - Transmission of voltage transformer = Primary voltage of the transformer / Secondary voltage of the voltage transformer

ADDITIONAL INPUTS

Input type	Properties
Input Pt100 (T1, T2) - option	2 x Pt100, 2-wire, -50...400°C, basic error 0.5 %
Binary inputs - option	0 V d.c. – binary input inactive, 5...24 V d.c. – binary input active

DIGITAL INTERFACE

Interface type	Transmission protocol	Remarks
RS-485	Modbus RTU 8N2,8E1,8O1,8N1	Address 1..247 baud rate: 4.8, 9.6, 19.2, 38.4, 57.6, 115.2 kbit/s
Ethernet / Profinet	ICMP (Ping) / Profinet version 2.2	

EXTERNAL FEATURES

Readout field	graphic color display LCD TFT 3,5", 320 x 240 pixels	
Overall dimensions	96 x 96 x 77 mm	mounting hole 92.5 x 92.5 mm
Weight	0.3 kg	
Protection grade	from frontal side: IP65	from terminal side: IP20

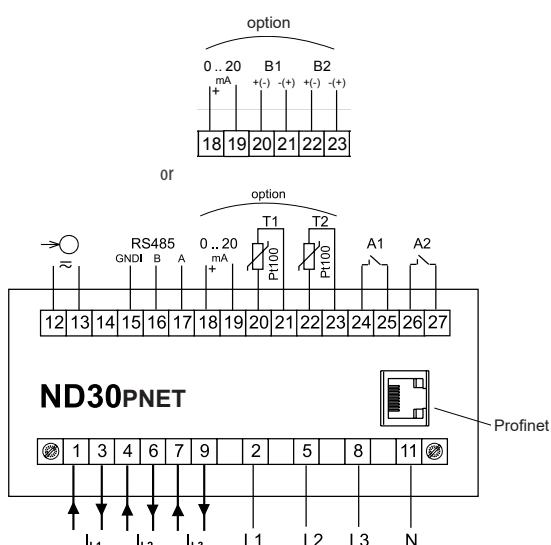
RATED OPERATING CONDITIONS

Supply voltage	→ 85...253 V a.c. (40...50...400 Hz), 90...300 V d.c. or 20...40 V a.c., 20...60 V d.c.	power consumption ≤ 6 VA
Power consumption	in voltage circuit ≤ 0.2 VA	in current circuit ≤ 0.1 VA
Input signal	0...0.1...1.2 In; 0.1...0.2...1.2 Un for current, voltage, PF, tgφ	frequency 45...50...60...100 Hz, sinusoidal (THD ≤ 8%)
Power factor	-1...0...1	
Preheating time	5 min.	
Ambient temperature	-10...+23...+55°C, class K55 acc. to EN61557-12	
Humidity	0...40...65...95%	without condensation
Operating position	any	
External magnetic field	≤ 40...400 A/m d.c.	≤ 3 A/m a.c. 50/60 Hz
Short-term overload	voltage input: 2 Un (5 sec.)	current input 50 A (1 sec.)
Admissible crest factor	current: 2	voltage: 2
Additional error (in % of the intrinsic error)		from ambient temperature change: < 50% / 10°C

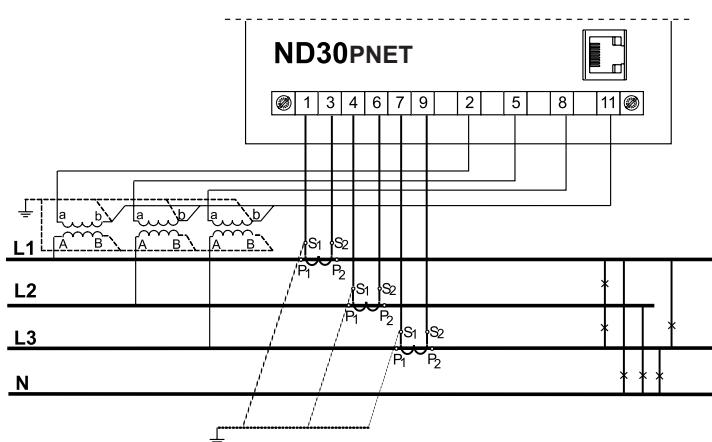
SAFETY AND COMPATIBILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation insured by the casing	double	acc. to EN 61010-1
Isolation between circuits	basic	acc. to EN 61010-1
Polution level	2	acc. to EN 61010-1
Installation category	III	acc. to EN 61010-1
Maximal phase-to-earth voltage	• for supply circuit and relay outputs 300 V • for measuring input 500 V • for circuits of RS-485, Ethernet, pulse input and output, analog outputs, temperature or binary inputs: 50 V	acc. to EN 61010-1
Altitude a.s.l.	< 2000 m	

CONNECTION DIAGRAMS



Description of meter connections strips



Indirect measurement in 4-wire network - connection of input signals

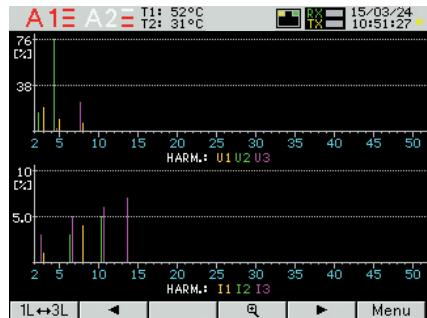
DISPLAYING OF MEASUREMENT PARAMETERS

A1	A2	T1: 52°C T2: 31°C	15/03/24 11:33:16
225.48	1.005	U1 V	I1 A
228.91	2.105	U2 V	I2 A
231.22	1.805	U3 V	I3 A
49.999	1.638	f Hz	I avg A
		Del □ Min □ Max □	Menu □

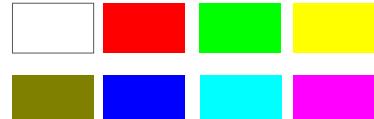
A1	A2	T1: 52°C T2: 57°C	15/03/24 12:02:57
225.48	226.57	U1 V	S1 VA
1.005	0.913	I1 A	PF1
206.88	0.447	P1 W	tg1
92.387	49.999	Q1 var	f Hz
		Del □ Min □ Max □	Menu □

up to 10 programmable screens
(8 parameters per page);
ability to change color for all screens

A1	A2	T1: 49°C T2: 53°C	22/09/24 13:36:31
0.905	0.905	U1 %	I1 %
0.905	0.903	U2 %	I2 %
0.903	0.903	U3 %	I3 %
Har. 5			
50160	◀ ▶ ▲ ▼	Menu	



Available colors for digital indications:



two screens dedicated to harmonics;
indication of individual harmonic
for voltages and currents (up to 51st);
bargraph presentation for all harmonics
with zoom function



presentation in the form of analog
meter view with min/max preview
for display value and zoom function

easy to use and intuitive menu;
information bar with status of: phase
sequence, alarm outputs, temperature
measurements, binary inputs*
and RS-485 interfaces,
time and date

*- availability of feature depends on
hardware version of ND30PNET

METER CONFIGURATION WITH FREE eCON SOFTWARE

The screenshot shows the e-Con Device configurator interface. On the left, there's a sidebar with a 'Select device:' dropdown showing options like N24_N25, N27P, N30H, N30e, N30P, N30U, N43, ND10, ND20, ND30PNET, and S4AO. Below it is a 'Communication' section with fields for Port (set to Serial port), Device ID (1), Baud rate (9600), Mode (RTU 8N2), and Timeout (1000 ms). A checkbox for 'Use the factory settings of the module' is unchecked. The status is shown as 'port disconnected'. The device is identified as 'unknown'. On the right, the main window is titled 'ND30PNET - configuration' and contains sections for 'Meter parameters', 'Alarm 1 configuration', 'Alarm 2 configuration', and 'Analog output'. Under 'Pages display', there's a 'Pages - general settings' panel with tabs for 'Pages selection (on/off)', 'Harm. pages selection (on/off)', 'Display brightness', 'Display dimmer delay', 'Pages color', and 'Reset pages settings'. A 'Save' button is at the bottom. A note at the top right says '[Configuration not downloaded!]'. At the very top, there are language links: EN | PL | ESP | DE | IT.

ability to configure and update ND30PNET
with free eCon software
(via RS-485)

*- availability of feature depends on hardware
version of ND30PNET

ORDERING CODE

ND30PNET	X	X	X	XX	X	X
Input voltage (phase/phase-to-phase) Un:						
3 x 57.7 / 100 V, 3x 230 / 400 V	1					
3 x 110 / 190 V, 3 x 400 / 690 V	2					
Additional outputs /inputs:						
2 relays	1					
2 relays, 1 analog output, 2 inputs PT100	2					
2 relays, 1 analog output, 2 binary inputs (galvanically isolated)	3					
Supply:						
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:						
Polish/ English	M					
other*	X					
Acceptance tests:						
without additional quality requirements	0					
with an extra quality inspection certificate	1					
with calibration certificate	2					
acc.to customer's request*	X					

Order example:

The code: ND30PNET_122100M0 means:

ND30PNET - meter ND30PNET

1 - input voltage 3 x 57.7 / 100 V, 3x 230 / 400 V

2 - 2 relays, 1 analog output, 2 inputs PT100

1 - supply: 85...253 V a.c., 90...300 V d.c.

00 - standard version

M - Polish/English language version

0 - without additional quality requirements.

* only after agreeing with the manufacturer

SEE ALSO:



ND40 - power network analyzer/ recorder



RE92 - dual loop controller



P30U - universal transducer of temperature and standard signals



KS31 - Digital synchronizing unit



N43 - rail mounted 3-phase power network meter



P43 - 3-phase transducer of power network parameters



ND1 - analyser of network parameters



Current transformers from 5 A up to 6 kA

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ND30PNET-19B_en



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EVERYTHING COUNTS

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