N30P DIGITAL PANEL METER



- Measurement of single-phase network parameters: voltage, current, active, reactive and apparent power, cosφ, tgφ, φ, frequency, active, reactive and apparent energy, 15 minutes' active power, 10 minutes' voltage, 10 seconds' frequency.
- Three-colour display (14 mm high), in three intervals of the measured value.
- Meter programming from the keyboard or through the RS-485 interface by means of the free delivered eCon program.
- Four alarm outputs with signalling by LED diodes, operating in 6 different modes.
- Storage of minimal and maximal values for all measured quantities.
- Conversion of any measured value into a 0/4...20 mA or 0...10 V analog signal.
- Storage of minimal and maximal values for all measured quantities.
- Firmware updating (option).

FEATURES:

three-colour display | eCon | MOD BUS | RTC | Password protection | IP65

INPUTS:

AC

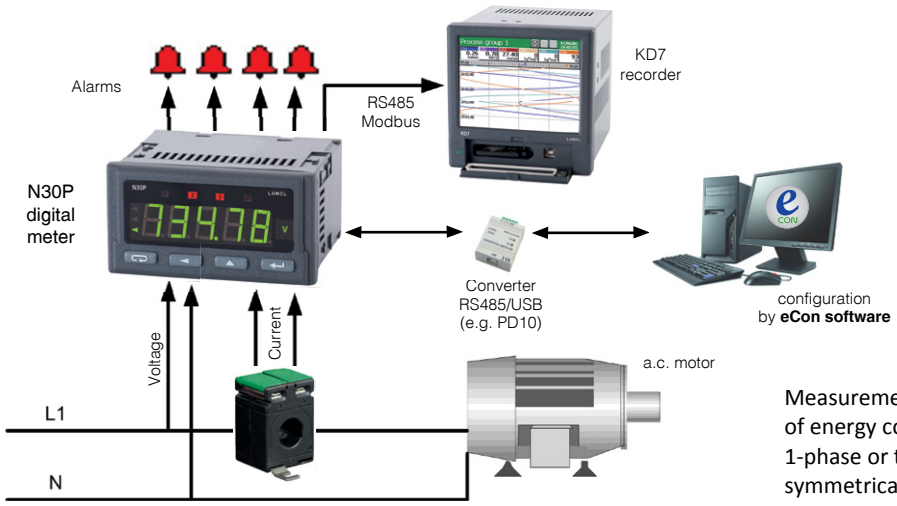
OUTPUTS:

0 .. 20 mA | 0..10 V | 2x | 2x | RS 485

GALVANIC ISOLATION:

Supply | RS 485

EXAMPLE OF APPLICATION



Measurement and recording of energy consumption in 1-phase or three-phase symmetrically loaded network

INPUTS

Input kind	Measuring range	Rated operating conditions	Ratio values
Voltage input	0...100 V or 0...400 V	0.05...1.2 Un	0.1...4000.0
Current input	0...1 A or 0...5 A	0.005...1.2 In	1...10000

MEASURING RANGES

Input kind	Indication range	Measuring range	Basic error
Current 1 A/5 A	0.000...60 kA	0.025...6.000 A a.c.	± 0.2%
Voltage 100 V/400 V	0.0...1.92 MV	2.0...480 V a.c.	± 0.2%
Frequency	45.00...100.00 Hz	45.00...66.00...100.00 Hz	± 0.2%
Active power	-19999...99999 MW	-2.88 kW...1.40 W...2.88 kW	± 0.5%
Reactive power	-19999...0.00...99999 Mvar	-2.88 kvar...1.40 var...2.88 kvar	± 0.5%
Apparent power	0.00...99999 MVA	1.40 VA...2.88 kVA	± 0.5%
Cos φ	-1...0...1	-1...0...1	± 0.5%
Tangens φ	-1.2...0...1.2	-1.2...0...1.2	± 1%
φ	0...359	0...359	± 1%
Active energy	0...9 999 999.9 kWh	0...9 999 999.9 kWh	± 0.5%
Reactive energy	0...9 999 999.9 kVarh	0...9 999 999.9 kVarh	± 0.5%
Current time	0.00...23.59	0.00..23.59	1 sec/ 24 h

OUTPUTS

Output kind	Properties
Relay output	• 2 x relays, voltageless NO contacts, load-carrying capacity 250 V a.c./ 0.5 A a.c. • 2 x relays, voltageless change-over contacts, load-carrying capacity 250 V a.c./ 0.5 A a.c.
Analog output	• current programmable 0/4...20 mA, load resistance ≤ 500 Ω • voltage programmable 0...10 V, load resistance ≥ 500 Ω • resolution 0.01% of the range
Energy pulse output	• OC type output, passive of class A, acc. to EN 62053-31, supply voltage 18...27 V, current 10...27 mA. • Output pulse constant: 5000 imp./kWh, independently of Ku and Ki settings.

DIGITAL INTERFACES

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

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N30P DIGITAL PANEL METER

External Features

Readout field	5 digit LED display - indication range -19999..99999 digit height: 14 mm	three-colour display (colour changes depending on displayed value): red, green, orange
Weight	< 0.2 kg	
Overall dimensions	96 × 48 × 93 mm	Panel cut-out: $92^{+0,6} \times 45^{+0,6}$ mm
Protection grade (acc. to EN 60529)	from frontal side: IP65	from rear side: IP 10

Rated Operating Conditions

Supply voltage	85...253 V a.c. (40...400 Hz) or d.c., 20...40 V a.c. (40...400 Hz) or d.c.	Power consumption: - in supply circuit < 6 VA - in voltage/current circuit < 0.05 VA
Temperature	ambient: -25...23...55°C	storage: -30...70°C
Relative humidity	25...95%	condensation inadmissible
Operating position	any	
External magnetic field	0...400 A/m	
Short duration overload (5 s)	voltage input: 2Un (max. 1000 V)	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
Maximal phase-to-earth working voltage	for the supply circuit: 300 V	
	for the measuring input 600 V for analog input signals - cat. II (300 V - cat. III)	
	for remaining circuit: 50 V	

Connection Diagrams

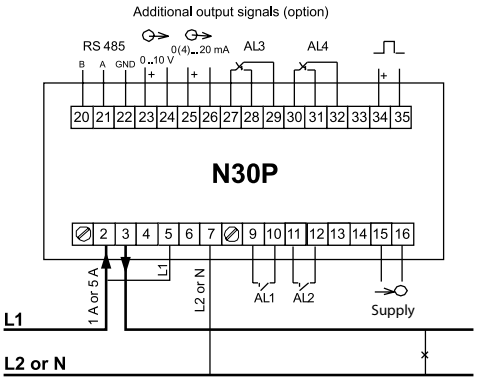


Fig. 1 Electrical connections of the N30P meter for direct measurements.

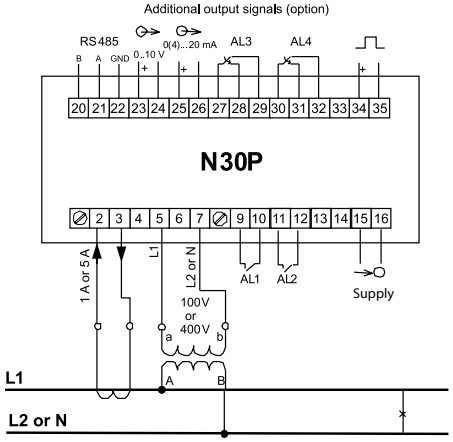


Fig. 2 Electrical connections of the N30P meter for indirect measurements.

Ordering

Table 1. Ordering codes:

	N30P -	X	X	XX	XX	X	X
Supply:							
85...253 V a.c./d.c.		1					
20...40 V a.c./d.c.		2					
Additional outputs:							
lack			0				
pulse output, RS-485, analog outputs			1				
pulse output, RS-485, analog outputs switched-over relay outputs			2				
Unit:							
unit code acc. to the table 2				XX			
Version:							
standard					00		
custom-made*					XX		
Language:							
Polish						P	
English						E	
other*						X	
Acceptance tests:							
without extra requirements							0
with an extra quality inspection certificate							1
acc. to customer's request*							X

Order example: The code **N30P - 1 0 01 00 E 0** means:
programmable N30P panel digital meter, supply: 85...253 V AC/DC, lack of additional outputs, unit "V" acc. to codes tabel 2, standard execution, English language, without extra requirements.

Table 2. Codes of highlighted unit:

Code	Unit	Code	Unit	Code	Unit
00	lack of unit	20	kVAh	40	szt.
01	V	21	MVAh	41	imp
02	A	22	Hz	42	rps
03	mV	23	kHz	43	m/s
04	kV	24	Ω	44	l/s
05	mA	25	kΩ	45	obr/min
06	kA	26	°C	46	rpm
07	W	27	°F	47	mm/min
08	kW	28	K	48	m/min
09	MW	29	%	49	l/min
10	var	30	%RH	50	m^3/min
11	kvar	31	pH	51	obr/h
12	Mvar	32	kg	52	m/h
13	VA	33	bar	53	km/h
14	kVA	34	m	54	m^3/h
15	MVA	35	l	55	kg/h
16	kWh	36	s	56	l/h
17	MWh	37	h	XX	on order*
18	kvarh	38	m^3		
19	Mvarh	39	obr		

* - after agreeing with the manufacturer

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