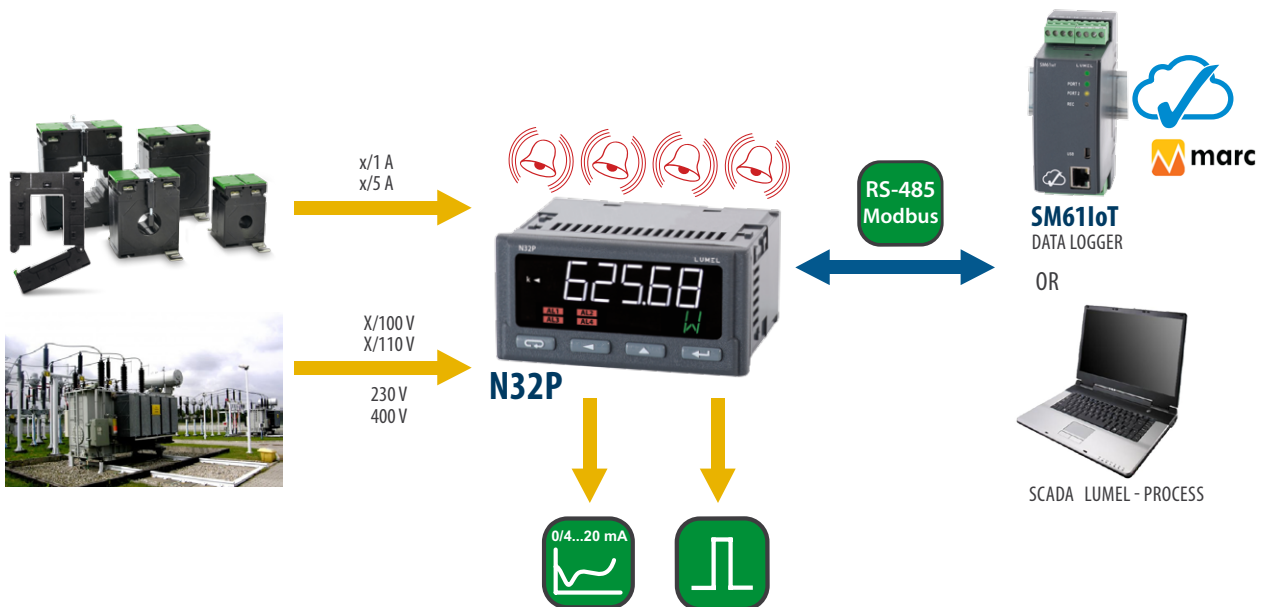




N32P 1-PHASE POWER NETWORK METER

- Measurement of single-phase network parameters: voltage, current, active, reactive and apparent power, $\cos \phi$, $\tan \phi$, frequency, active, reactive and apparent energy, active power 15 minutes, voltage 10 minutes.
- Current and voltage harmonics analysis up to 51st (measurements available via RS-485).
- Two-line LCD display with high contrast and built-in backlighting.
- Possibility of displaying the measured value and time simultaneously or a second measured value or unit (automatically displayed unit of measured quantity).
- Programmable measuring range (current 1 A / 5 A and voltage 100 V / 230 V / 400 V).
- High sampling frequency of measured signals 8 kHz.
- Programming parameters via buttons or RS-485 interface and free eCon software.
- 4 alarm outputs with signaling on led diodes, working in 7 different modes (option).
- Possibility to program each of the alarms to react to a different measurements.
- The function of the switch-on delay and switch-off delay of the alarm with the alarm event memory.
- Pulse output to control energy consumption.
- Conversion of any measured value into an analog signal 0/4...20 mA or 0...10V (option).
- Memory of minimal and maximal values for all measured quantities.
- Choice of period and averaging method with the possibility of synchronizing the average value with the built-in real-time clock.

EXAMPLE OF APPLICATION



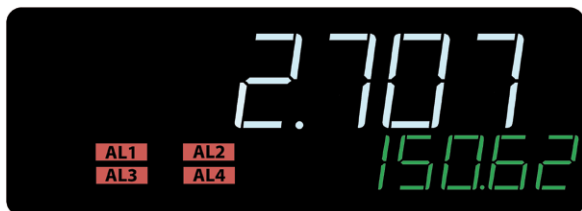
N32P - 1-PHASE POWER NETWORK METER

| FEATURES | INPUTS | OUTPUTS | GALVANIC ISOLATION |
|----------|--------|---------|--------------------|
| | | | |

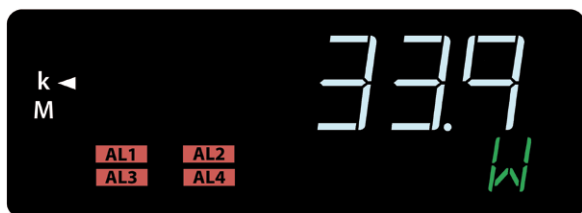
MEASURED QUANTITIES AND CALCULATED BY THE METER

- effective voltage U
- effective current I
- frequency f
- power: active P , reactive Q , apparent S
- power factor $\cos \varphi$
- power tangent $\tan \varphi$
- active energy input/output E_p
- reactive energy input/output E_q
- total apparent energy E_s
- energy meter E
- maximum and minimum values in the given averaging period
- current time

DATA VISUALISATION



or



or



Two-line display.
Simultaneous preview of two measured values e.g. current and power.

Automatically displayed unit of measured value and symbol of multiplier kilo, mega.

Preview of current time on the bottom line of the display.
Real-time clock with automatic winter/summer time change function.

MULTI-PARAMETER MEASUREMENT



Up to 47 parameters can be viewed in one meter. The display can indicate two values simultaneously. All values are available via the RS-485 (Modbus) digital interface.

UNIVERSAL MEASURING INPUT

x/1 A

x/5 A



Universal input for current and voltage measurement directly or indirectly from a current or voltage transformer. The primary and secondary sides of the transformer are separately configurable, which will correspond to the actual values.

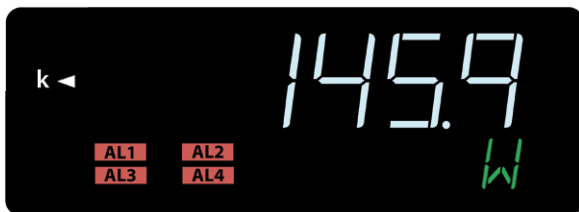
x/100 V

x/110 V



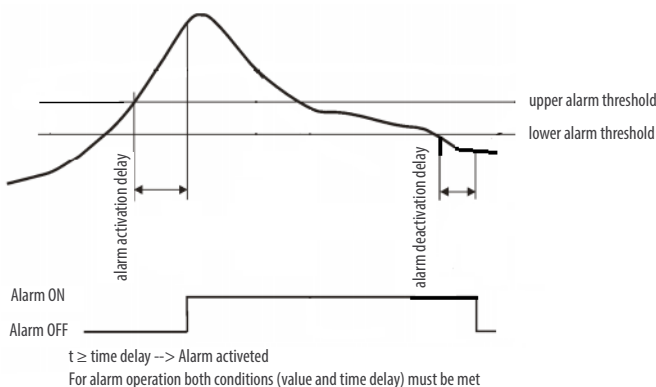
Only one parameter can be measured e. g. only the current, where the operation of the meter is synchronized with the current signal.

ALARM FUNCTIONS



1 or 4 relay outputs with signaling on the display in the form of an active alarm number.

Each of the alarms can be configured to work in one of 7 modes, incl. REG mode for alarm control via RS-485 Modbus.



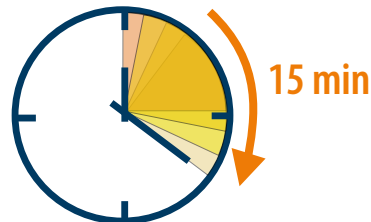
Programmable maintenance of alarm signaling. After the alarm event has ceased, the alarm status marker blinks on the display until it is deleted by the user.

Individually programmable parameters of switching on and switching off the alarm; this feature can be used to prevent „false“ alarms from occurring.

MEASUREMENT AVERAGING ALGORITHM

Average values of voltage, current and power calculated by the walking window method, i.e. continuously updated.

Programmable averaging period of measured parameters in minutes, e.g. active power.



MOVING WINDOW

The average value can be synchronized with the internal time clock, e.g. for the 15-minute setting, the value is updated every quarter of an hour.

Additional measurement of minimum and maximum values during the moving window.

TECHNICAL DATA

INPUTS AND MEASURING RANGES

| Measured quantity | Measuring range (Ku=1; Ki=1) | Class |
|---|---|----------|
| Voltage input 100 V 230 V 400 V | 0.05...1.2 Un | 0.1 |
| Current input 1 A 5 A | 0.05...1.2 In | |
| Frequency | 35...65...100 Hz | |
| Active power | The actual measuring range for active and reactive power: -1.2Ur * 1.2Ir ... 1.2Ur * 1.2Ir. For apparent power: 0... 1.2Ur * 1.2Ir | 0.2 |
| Reactive power | | |
| Apparent power | | |
| cos φ | -1...0...1 | 0.5 |
| tg φ | -999.99...-1.2...0...1.2...999.99 | |
| THD of voltages and currents | 0...100% | |
| Active energy | 0...9 999 999.9 kWh | |
| Reactive power | 0...9 999 999.9 kVarh | |
| Apparent power | 0...9 999 999.9 kVA | |
| Current time | 0.00...23.59 | |
| Ku - voltage ratio; Ki - current ratio; Un - rated voltage; In - rated current; Ur - set voltage measurement range; Ir - set current measurement range; | | ± 20 ppm |

OUTPUTS

| Output type | Properties | Remarks |
|---------------|---|---|
| Relay output | <ul style="list-style-type: none"> 1 NO contact, load capacity 5A / 250V a.c.; 5A / 30V d.c. 3 relays with a changeover contact, load capacity 6A / 250V a.c.; 6A / 30V d.c.; 0,15A / 250V d.c. | |
| Analog output | <ul style="list-style-type: none"> programmable current 0/4...20 mA, load resistive ≤ 500 Ω programmable voltage 0...10V, load resistive ≥ 500 Ω | Analog output error: 0.1% of the set range Additional error from temperature changes: 50% of class/10K |
| OC output | OC type, passive npn, 30V d.c./30 mA | voltage free output |

DIGITAL INTERFACE

| Interface type | Transmission protocol | Mode | Baud rate |
|----------------|-----------------------|--------------------|---|
| RS-485 | MODBUS RTU | 8N2, 8E1, 8O1, 8N1 | 2.4, 4.8, 9.6, 14.4, 19.2, 28.8, 38.4, 57.6, 115.2 kbit/s |

EXTERNAL FEATURES

| | | |
|-------------------------------------|--|--|
| Readout field | 1 row 6-digit; digits height 12.85 mm 2 rows: 5-digit; digits height 7.5 mm | high contrast LCD with backlight and programmable measuring unit |
| Weight | < 0.25 kg | |
| Overall dimensions | 96 x 48 x 93 mm | mounting hole: $92^{+0.6} \times 45^{+0.6}$ mm |
| Protection grade (acc. to EN 60529) | from frontal side: IP65 | from terminal side: IP 10 |

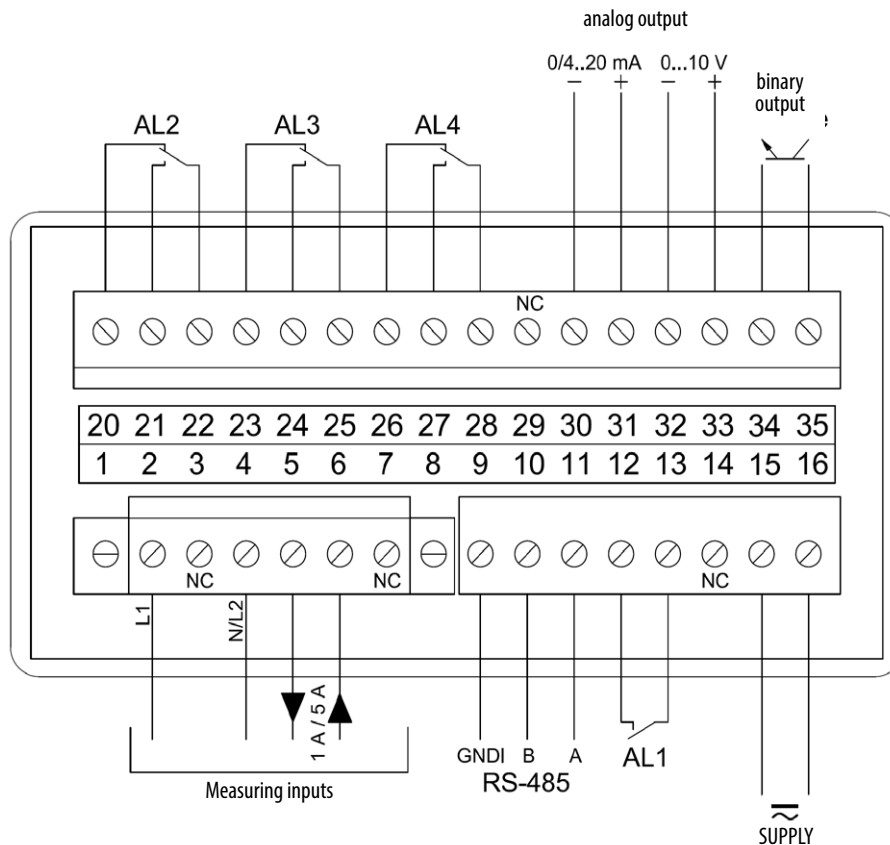
RATED OPERATING CONDITIONS

| | | |
|--------------------|--|--------------------------|
| Supply voltage | 85...253 V a.c. (40...400 Hz), 90...300 V d.c. 20...40 V a.c. (45...65 Hz) / 20...60 V d.c. | power consumption < 6 VA |
| Temperature | ambient: -25...23...55°C | storage: -30...70°C |
| Relative humidity | 25...95% | without condensation |
| Operating position | any | |

SAFETY AND COMPABILITY REQUIREMENTS

| | | |
|--------------------------------|--|----------------------|
| Electromagnetic compatibility | noise immunity | acc. to EN 61000-6-2 |
| | noise emissions | acc. to EN 61000-6-4 |
| Isolation between circuits | basic | acc. to EN 61010-1 |
| Pollution level | 2 | |
| Installation category | III | |
| Maximal phase-to-earth voltage | for measuring, power and alarm circuits: 300 V | |
| | for other circuits: 50 V | |
| Altitude a.s.l. | < 2000 m | |

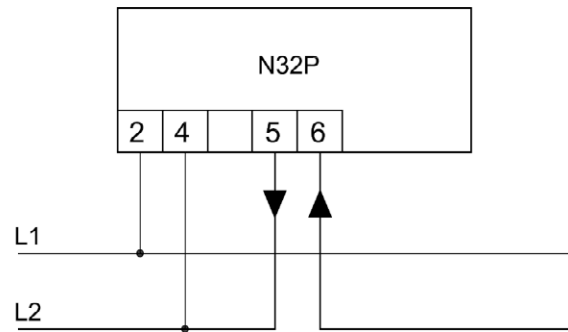
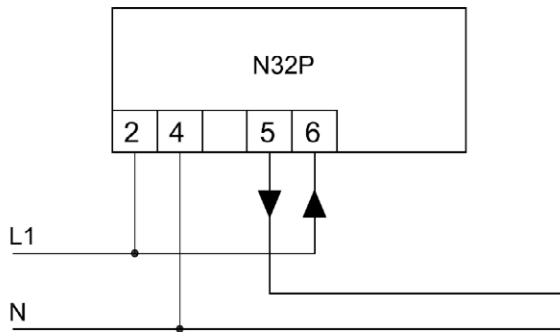
CONNECTION DIAGRAMS



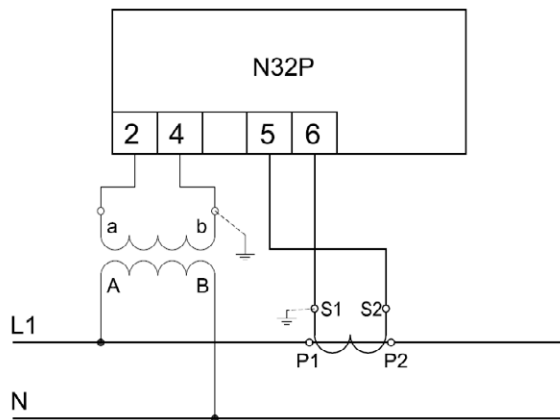
Description of signals on the connection strips

CONNECTION DIAGRAMS

Direct measurement



Indirect measurement



Meter connection

ORDERING CODE

| | | | | | |
|--|---|---|---------|---|---|
| N32P | X | X | XXXXXXX | X | X |
| Supply: | | | | | |
| 85...253 V a.c., 90...300 V d.c. | 1 | | | | |
| 20...40 V a.c./ 20...60 V d.c. | 2 | | | | |
| Dodatkowe wyjścia: | | | | | |
| 1 relay output, RS-485 | 1 | | | | |
| 4 relay outputs, RS-485 | 2 | | | | |
| 4 relay outputs, RS-485, 1 analog output | 3 | | | | |
| Version: | | | | | |
| standard | | | 0000000 | | |
| custom-made* | | | XXXXXXX | | |
| Language: | | | | | |
| Polish/English | | | | M | |
| Acceptance tests: | | | | | |
| without additional quality requirements | | | | | 0 |
| with an extra quality inspection certificate | | | | | 1 |
| with an extra calibration certificate | | | | | 2 |
| acc. to customer's request | | | | | X |

ORDERING EXAMPLE:

N32P13000000M0 means N32P meter with supply 85...253 V a.c., 90...300 V d.c. with 4 relay outputs, RS-485 interface and 1 analog output, in standard version, polish-english language version, without additional quality requirements.

* only after agreeing with the manufacturer

N32P-19_en



LUMEL
EVERYTHING COUNTS

LUMEL S.A.
ul. Słubicka 4, 65-127 Zielona Góra, Poland
tel.: +48 68 45 75 100, fax +48 68 45 75 508
www.lumel.com.pl

Technical support:
tel.: (+48 68) 45 75 143, 45 75 141, 45 75 144, 45 75 140
e-mail: export@lumel.com.pl

Export department:
tel.: (+48 68) 45 75 130, 45 75 131, 45 75 132
e-mail: export@lumel.com.pl

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