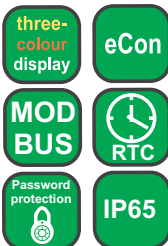


# N30P DIGITAL PANEL METER

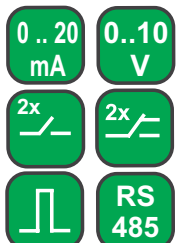
## FEATURES:



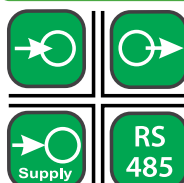
## INPUTS:



## OUTPUTS:

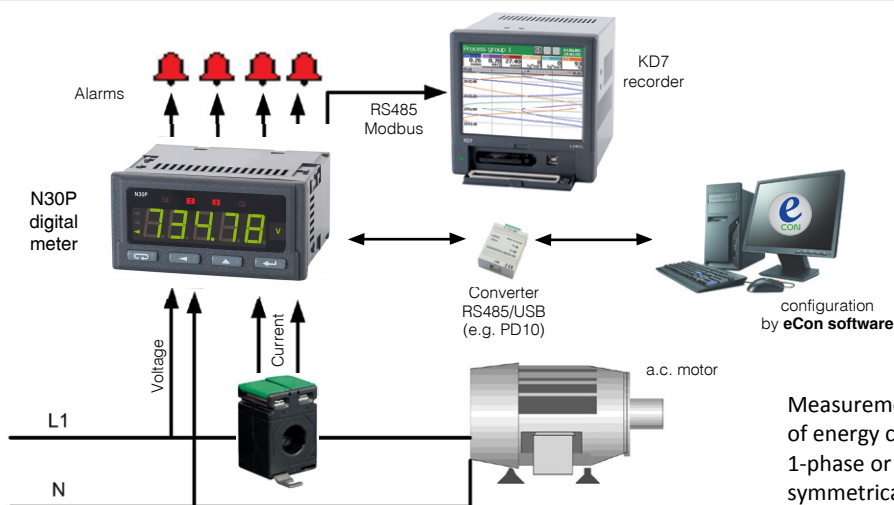


## GALVANIC ISOLATION:



- Measurement of single-phase network parameters: voltage, current, active, reactive and apparent power,  $\cos\phi$ ,  $\tan\phi$ ,  $\phi$ , 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).

## EXAMPLE OF APPLICATION



## INPUTS

| Input kind    | Measuring range        | Rated operating conditions | Ratio values |
|---------------|------------------------|----------------------------|--------------|
| Voltage input | 0...100 V or 0...400 V | 0.05...1.2 $U_n$           | 0.1...4000.0 |
| Current input | 0...1 A or 0...5 A     | 0.005...1.2 $I_n$          | 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.              | $\pm 0.2\%$ |
| Voltage 100 V/400 V | 0.0...1.92 MV              | 2.0...480 V a.c.                  | $\pm 0.2\%$ |
| Frequency           | 45.00...100.00 Hz          | 45.00...66.00...100.00 Hz         | $\pm 0.2\%$ |
| Active power        | -19999...99999 MW          | -2.88 kW...1.40 W...2.88 kW       | $\pm 0.5\%$ |
| Reactive power      | -19999...0.00...99999 Mvar | -2.88 kvar...1.40 var...2.88 kvar | $\pm 0.5\%$ |
| Apparent power      | 0.00...99999 MVA           | 1.40 VA...2.88 kVA                | $\pm 0.5\%$ |
| $\cos\phi$          | -1...0...1                 | -1...0...1                        | $\pm 0.5\%$ |
| Tangens $\phi$      | -1.2...0...1.2             | -1.2...0...1.2                    | $\pm 1\%$   |
| $\phi$              | 0...359                    | 0...359                           | $\pm 1\%$   |
| Active energy       | 0...9 999 999.9 kWh        | 0...9 999 999.9 kWh               | $\pm 0.5\%$ |
| Reactive energy     | 0...9 999 999.9 kVarh      | 0...9 999 999.9 kVarh             | $\pm 0.5\%$ |
| Current time        | 0.00...23.59               | 0.00...23.59                      | 1 sec/ 24 h |

## OUTPUTS

| Output kind         | Properties                                                                                                                                                                                                                                                                   |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relay output        | <ul style="list-style-type: none"> <li>• 2 x relays, voltageless NO contacts, load-carrying capacity 250 V a.c./ 0.5 A a.c.</li> <li>• 2 x relays, voltageless change-over contacts, load-carrying capacity 250 V a.c./ 0.5 A a.c.</li> </ul>                                |
| Analog output       | <ul style="list-style-type: none"> <li>• current programmable 0/4...20 mA, load resistance <math>\leq 500 \Omega</math></li> <li>• voltage programmable 0...10 V, load resistance <math>\geq 500 \Omega</math></li> <li>• resolution 0.01% of the range</li> </ul>           |
| Energy pulse output | <ul style="list-style-type: none"> <li>• OC type output, passive of class A, acc. to EN 62053-31, supply voltage 18...27 V, current 10...27 mA.</li> <li>• Output pulse constant: 5000 imp./kWh, independently of <math>K_u</math> and <math>K_i</math> settings.</li> </ul> |

## 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 |

# 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 <sup>+0,6</sup> × 45 <sup>+0,6</sup> 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:<br>- in supply circuit < 6 VA<br>- 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                    |                                                                                                                                                     |                      |
| Maximal phase-to-earth working voltage | for the supply circuit: 300 V<br>for the measuring input 600 V for analog input signals - cat. II (300 V - cat. III)<br>for remaining circuit: 50 V | acc. to EN 61010-1   |

## CONNECTION DIAGRAMS

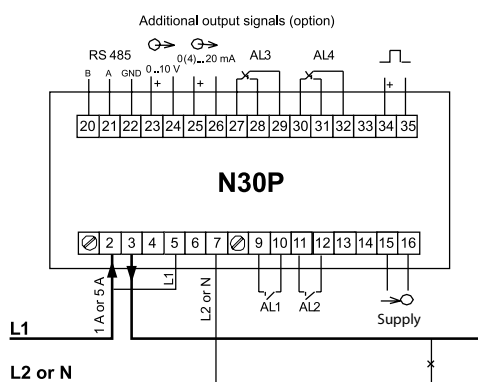


Fig. 1 Electrical connections of the N30P meter for direct measurements.

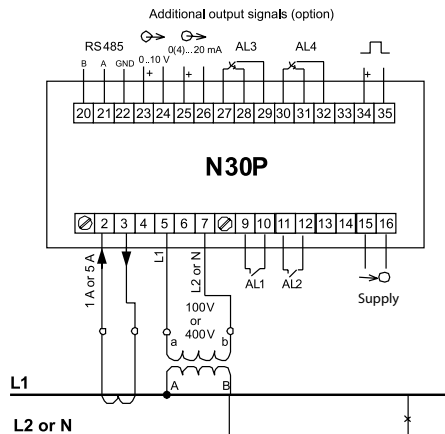


Fig. 2 Electrical connections of the N30P meter for indirect measurements.

## ORDERING

TABLE 1. ORDERING CODES:

| N30P -                                       | X | X | XX | XX | X | X |
|----------------------------------------------|---|---|----|----|---|---|
| <b>Supply:</b>                               |   |   |    |    |   |   |
| 85...253 V a.c./d.c.                         | 1 |   |    |    |   |   |
| 20...40 V a.c./d.c.                          | 2 |   |    |    |   |   |
| <b>Additional outputs:</b>                   |   |   |    |    |   |   |
| lack                                         |   | 0 |    |    |   |   |
| pulse output, RS-485, analog outputs         |   | 1 |    |    |   |   |
| pulse output, RS-485, analog outputs         |   | 2 |    |    |   |   |
| switched-over relay outputs                  |   |   |    |    |   |   |
| <b>Unit:</b>                                 |   |   |    |    |   |   |
| unit code acc. to the table 2                |   |   | XX |    |   |   |
| <b>Version:</b>                              |   |   |    |    |   |   |
| standard                                     |   |   |    | 00 |   |   |
| custom-made*                                 |   |   |    | XX |   |   |
| <b>Language:</b>                             |   |   |    |    |   |   |
| Polish                                       |   |   |    |    | P |   |
| English                                      |   |   |    |    | E |   |
| other*                                       |   |   |    |    | X |   |
| <b>Acceptance tests:</b>                     |   |   |    |    |   |   |
| 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   | m³/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   | m³/h      |
| 15   | MVA          | 35   | l    | 55   | kg/h      |
| 16   | kWh          | 36   | s    | 56   | l/h       |
| 17   | MWh          | 37   | h    |      |           |
| 18   | kvarh        | 38   | m³   | XX   | on order* |
| 19   | Mvarh        | 39   | obr  |      |           |

\* - after agreeing with the manufacturer