

N24 DIGITAL PANEL METERS

FEATURES:

- IP65**
- Program LPConfig**
- PD14 Programmer**
- Linear char.**

INPUTS:

- AC**
- DC**
- Temperature Pt100 probe**
- shunt**
- 60 mV**
- 60 mV**
- 20...20 mA**
- 10...10 V**
- 60 mV**

OUTPUTS:



GALVANIC ISOLATION:

- PD14 Programmer**
- Sup.**

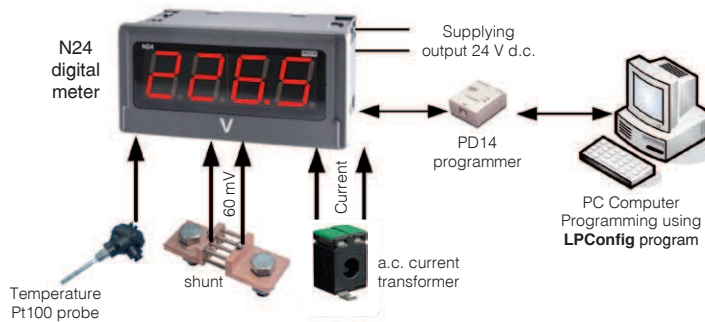
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- Destined for measurement of d.c. voltage or d.c. current, temperature through Pt100 resistance thermometers, J, K thermocouples, a.c. voltage and a.c. current.
- 4 LED digit displays with 20 mm digit high.
- Parameters programmable by PD14 programmer:
 - precision of displayed results (decimal point),
 - measurement averaging time,
 - recounting of indications (individual characteristic),
 - automatic or manual compensation: cold junction temperature for measurement with thermocouples or wire resistance for measurement with Pt100 (N24T).

EXAMPLE OF APPLICATION



Measurement and display:

- temperature
- analog signals
- d.c. current and voltage
- rms current and voltage.

INPUTS

| Type | Measuring ranges | Parameters | Overloads | Errors |
|----------------------------|---|---|---|---|
| N24S | -11 mV...-10 mV...60 mV...66 mV | Input resistance >1 MΩ | Short duration overload (1s): - voltage input: 10 Un - current input: 5 In Sustained overload: 110% Un, 110% In | Basic error: ± (0.2% of range + 1 digit) Additional error from ambient temperature changes: ± (50% of basic error/10K) |
| | -66 mV...-60 mV...60 mV...66 mV | | | |
| | -0.5 V...0 V...10 V...11 V | | | |
| | -11 V...-10 V...10 V...11 V | | | |
| | -1 mA...0 mA...20 mA...22 mA | | | |
| N24T | 3.6 mA...4 mA...20 mA...22 mA | Input resistance 10 Ω ±1% | Short duration overload (1s) Input of sensors: 30 V | Basic error: ± (0.2% of range + 1 digit) Additional errors: • compensation of cold junction temperature changes: ± 0.2% of range, • from ambient temperature changes: ± (50% of basic error/10K). |
| | Pt100 | Current flowing through the sensor: < 300 μA. Resistance of wires connecting RTD with the meter: - max 5 Ω (per wire) for automatic compensation - max 10 Ω (per wire) for manual compensation | | |
| | Thermo-couple J | -50°C...1200°C | | |
| | Thermo-couple K | -50°C...1370°C | | |
| N24Z | 1...100...120 V a.c. | Input resistance > 2 MΩ | Short term overload (1s): voltage input: 2 Un (< 1000V), current input: 10 In Sustained overload: 150% Un (for 400 V input), 120% (for remaining inputs), 120% In | Basic error: • voltage and current: ± (0.5% of range + 1 digit) in frequency range 20...500 Hz • frequency: ± (0.02% of range + 1 digit) Additional error from ambient temperature changes: ± (50% of basic error/10K) |
| | 2.5...250...300 V a.c. | | | |
| | 4...400...600 V a.c. | | | |
| | 20...500 Hz (in voltage range: 24...480 V) | | | |
| | 0.01...1...1.2 A a.c. | | | |
| N24H | 0.05...5...6 A a.c. | Input resistance 2 mΩ ±10% | Short term overload (1s): voltage input: 2 Un (< 1000V), current input: 10 In Sustained overload: 150% Un (for ± 400 V input), 120% (for remaining inputs), 120% In | Basic error: ± (0.2% of range + 1 digit) Additional error from ambient temperature changes: ± (50% of basic error/10K) |
| | 0...100...110 V d.c. | Input resistance > 2 MΩ | | |
| | 0...250...275 V d.c. | | | |
| | -120...-100...100...120 V d.c. | | | |
| | -300...-250...250...300 V d.c. | | | |
| | -600...-400...400...600 V d.c. | | | |
| -1.2...-1...1...1.2 A d.c. | Input resistance 10 mΩ ±10% | | | |
| -6...-5...5...6 A d.c. | Input resistance 2 mΩ ±10% | | | |

OUTPUTS

| | | |
|-------------------|--|------------------|
| For N24S and N24T | Output for supply external transducers | 24 V ± 5%, 30 mA |
|-------------------|--|------------------|

EXTERNAL FEATURES

| | | |
|-------------------------------------|---|--------------------------------|
| Weight | < 0.25 kg | |
| Overall dimensions | 96 x 48 x 64 mm (with terminals) | |
| Protection grade (acc. to EN 60529) | ensured by the housing: IP65 | from the terminal side: IP 20 |
| Display | 4-digit LED display, 20 mm high, red colour | indication range: -1999...9999 |

RATED OPERATING CONDITIONS

| | | |
|--------------------|--|-------------------------------|
| Supply voltage | 230 V ± 10% a.c. (45...65 Hz); 110 V ± 10% a.c. (45...65 Hz) 24 V ± 10% a.c. (45...65 Hz); 85...253 V a.c. (40...400 Hz) or d.c.; 20...40 V a.c. (40...400 Hz) or d.c. | input power consumption: 6 VA |
| Temperature | ambient: -10...23...55°C | storage: -25...85 °C |
| Relative humidity | ≤ 95% | condensation inadmissible |
| Operating position | any | |
| Preheating time | 30 min | |
| Averaging time | ≥ 0.5 s | 1 second default set |

SAFETY AND COMPATIBILITY 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 grade | 2 | |
| Installation category | III (for the 400 V option - category II) | |
| Maximal phase-to-earth operating voltage | for supply circuits: 300 V, for measuring circuits: 600 V - cat. II | |
| | for other circuits: 50 V | |
| Altitude above sea level | < 2000 m | |

CONNECTION DIAGRAMS

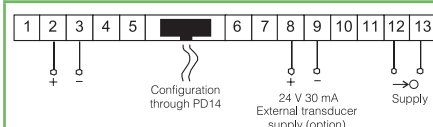


Fig. 1. Electrical connections of the N24S meter

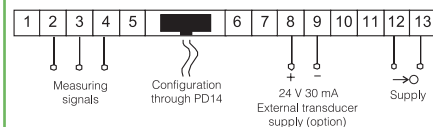


Fig. 2. Electrical connections of the N24T meter.

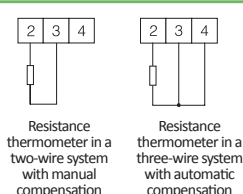


Fig. 3. Connections of N24T measuring inputs

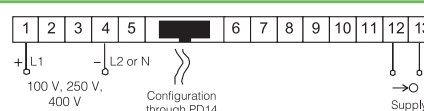


Fig. 4. Electrical connections of N24Z and N24H meters for the measurement of voltage (and frequency only in N24Z)

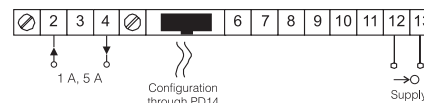


Fig. 5. Electrical connections of N24Z and N24H meters for the current measurement

ORDERING

TABLE 1. ORDERING CODES:

| | N24 - | X | X | X | XX | XX | X | X |
|---|-------|---|---|---|----|----|---|----|
| Input kind: | | | | | | | | |
| standard: voltage, current | | S | | | | | | |
| temperature: thermocouples, resistance thermometers | | T | | | | | | |
| a.c. signals | | Z | | | | | | |
| d.c. signals: high voltage and high current | | H | | | | | | |
| Input: | | | | | | | | |
| see table 2 | | X | | | | | | |
| Supply: | | | | | | | | |
| 230 V a.c. | | | | | | | | 1 |
| 110 V a.c. | | | | | | | | 2 |
| 24 V a.c. | | | | | | | | 3 |
| 85...253 V a.c./d.c. with supply output 24 V/30 mA* | | | | | | | | 4 |
| 20...40 V a.c./d.c. with supply output 24 V/30 mA* | | | | | | | | 5 |
| Unit: | | | | | | | | |
| see table 3 | | | | | | | | XX |
| Version: | | | | | | | | |
| standard | | | | | | | | 00 |
| non-standard settings | | | | | | | | NS |
| 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 |

* - The output is only in N24S and N24T meters
** - After agreeing with the manufacturer

TABLE 2. INPUT SIGNALS

| Nr | N24S | N24T | N24Z | N24H |
|----|-----------|--------------------|-------------|----------------|
| 1 | 0...20 mA | Pt100: -50...150°C | 100 V a.c. | ±100 V d.c. |
| 2 | 4...20 mA | Pt100: -50...400°C | 250 V a.c. | ±250 V d.c. |
| 3 | 0...60 mV | Thermocouple J | 400 V a.c. | ±400 V d.c. |
| 4 | 0...10 V | Thermocouple K | 1 A a.c. | ±1 A d.c. |
| 5 | ± 60 mV | | 5 A a.c. | ±5 A d.c. |
| 6 | ± 10 V | | 20...500 Hz | 0...100 V d.c. |
| 7 | | | | 0...250 V d.c. |

TABLE 3. CODES OF PRINTED UNITS:

| Code | Unit | Code | Unit | Code | Unit |
|------|--------------|------|-------|------|----------|
| 00 | without unit | 06 | mA | 12 | bar |
| 01 | °C | 07 | kA | 13 | kPa |
| 02 | % | 08 | kV | 14 | MPa |
| 03 | A | 09 | Hz | | |
| 04 | V | 10 | turns | XX | on order |
| 05 | mV | 11 | rpm | | |

TABLE 4. EXAMPLE OF NON-STANDARD SETTINGS:

| Parameter | Range/Value |
|--|----------------|
| Decimal point | 000,0 for I, U |
| Averaging time | 1 s |
| Upper measurement overflow | 9999 |
| Lower measurement overflow | -1999 |
| Individual characteristic | enabled |
| Parameter a of the individual characteristic | 5 |
| Parameter b of the individual characteristic | 0 |

Order example 1 :

The code **N24Z-2 1 04 0 E 0** means
N24Z - digital meter for a.c. signals
2 - input: 250 V a.c.
1 - supply: 230 V a.c.
04 - unit: V
00 - standard version
E - English language
0 - without extra requirements

Order example 2 :

The code **N24S-1 4 02 NS E 1** means:
N24S - digital meter for d.c. signals
1 - input: 0...20mA
4 - supply: 85...253 V a.c. with supply output: 24V/30mA
02 - unit: %
NS - non-standard settings, display range: 0...100.0
E - English language
1 - with an extra quality inspection certificate

SEE ALSO:



Free LPConfig software for easy programming of LUMEL's products. Available on our website

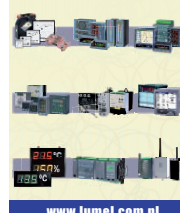


PD14 programmer - unit for programming LUMEL's products, with USB connection, LPCon compatible.



N30 digital panel meters with three-colour display.

OUR OFFER



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