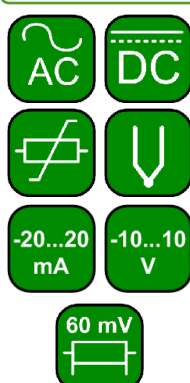


N24 DIGITAL PANEL METERS

FEATURES:



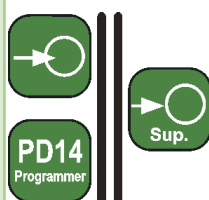
INPUTS:



OUTPUTS:



GALVANIC ISOLATION:

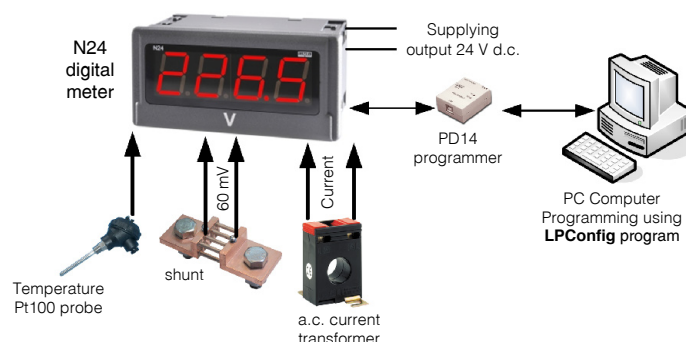


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- Destined for measurement of d.c. voltage or d.c. current, temperature through Pt100 resistance thermometers, J, K thermocouples, a.c. voltage and a.c. current.
- 4 LED digit displays with 20 mm digit high.
- Parameters programable by PD14 programmer:
 - 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 (3s): 10 Un, 10 In Sustained overload: 10%	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					
	-1 V...-0 V...10 V...11 V					
	-11 V...10 V...10 V...11 V					
	-1 mA...0 mA...20 mA...22 mA		Input resistance 10 Ω ±1%			
	3,6 mA...4 mA...20 mA...22 mA		Input resistance 5 Ω ±1%			
N24T	Pt100	-50°C...150°C		Short duration overload (3s) 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).	
		-50°C...400°C				
	Thermo-couple J	-50°C...1200°C				
	Thermo-couple K	-50°C...1370°C				
N24Z	1...100...120 V a.c.		Input resistance > 2MΩ	Short duration overload (3s): 2 Un (< 1000 V), 10 In Sustained overload: 150% Un, 150% 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.					Input resistance 50 mΩ ±10%
	0.05...5...6 A a.c.					Input resistance 10 mΩ ±10%
N24H	-0.5...100...110 V d.c.		Input resistance > 2MΩ	Short duration overload (3s): 2 Un (1000 V), 10 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)	
	-2...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 50 mΩ ±10%
-6...-5...5...6 A d.c.		Input resistance 10 mΩ ±10%				

OUTPUTS

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

Weight	< 0.25 kg	
Dimensions	96 x 48 x 64 mm	
Protection level (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 $\pm$ 10% a.c. (45...65 Hz); 110 V $\pm$ 10% a.c. (45...65 Hz) 110 V $\pm$ 10% a.c. (45...65 Hz); 85...253 V a.c. (45...65 Hz) lub d.c.; 20...40 V a.c. (45...65 Hz) lub d.c.	input power consumption: 6 VA
Temperature	ambient: -10...23...55 °C	storage: -25...85 °C
Relative humidity	$\leq$ 95%	condensation inadmissible
Working position	any	
Preheating time	30 min	
Averaging time	$\geq$ 0.5 s	1 second default set

SAFETY AND COMPATIBILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissio	acc. to EN 61000-6-4
Insulation between circuits	basic	
Polution degree	2	
Installation category	III (for the 400 V option - category II)	
Maximal phase-to-earth working voltage	for the supply circuit: 300 V, for measuring circuits: 600 V	acc. to EN 61010-1
	other circuits: 50 V	
Altitude above sea level	< 2000 m	

CONNECTION DIAGRAMS

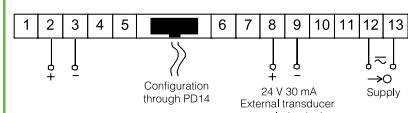


Fig. 1. Electrical connections of the N24S meter

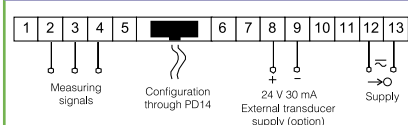


Fig. 2. Electrical connections of the N24T meter

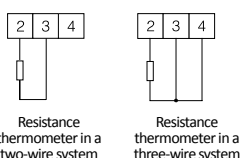


Fig. 3. Connections of N24T measuring inputs



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

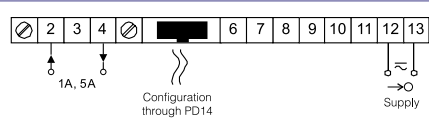


Fig. 5. Electrical connections of N24Z and N24H meters with the current measurement

ORDERING

TABLE 1. EXECUTION CODE:

N24 -	X	X	X	XX	XX	X
Kind of input signal:						
Standard: voltage, current	S					
temperature: thermocouples, resistance thermometers	T					
a.c. signals	Z					
d.c. signals: high voltage and current	H					
Input signal:						
See table 2		X				
Supply voltage:						
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		
Kind of execution:						
standard PL						PL
standard EN						EN
after agreeing with the manufacturer						99
custom-made**						XX
Acceptance tests:						
without extra requirements						8
with an extra quality inspection certificate						7
acc. to customer's agreements						X

* - The output is only in N24S and N24T meters

** - the code will be established by the manufacturer

TABLE 2. METER TYPE

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

TABLE 3. CODES OF HIGHLIGHTED UNIT:

Code	Unit	Code	Unit	Code	Unit
00	lack of unit	06	mA	12	Pa
01	°C	07	kA	13	kPa
02	%	08	kV	14	MPa
03	A	09	turns		
04	V	10	rpm	15	on order
05	mV	11	bar		

TABLE 4. EXAMPLE OF CUSTOMER'S REQUIREMENTS:

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

Order example1 :

The code **N24Z-2.1.04.EN.8** means

N24Z - digital meter for a.c. signal

2 - input signal: 250 V a.c.

1 - supply voltage: 230 V a.c.

04 - unit: V

EN - standard execution with user's manual in English

8 - without extra requirements

Order example2 :

The code **N24S-6.4.02.99.7** means

N24S - digital meter for d.c. signal

6 - input signal: 0...20 mA

4 - supply voltage: 85...253 V a.c.

02 - unit: % and display indications 0.100.0

99 - execution acc. to required customer's settings mentioned in table 4

7 - with an extra quality inspection certificate

SEE ALSO:



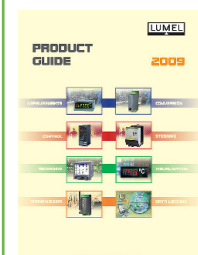
Free LPConfig software for easy programming of LUMEL's products. Available on our website



PD14 programmer - unit for programming LUMEL's products, with USB connection, LPCon compatible. For more details see our DIGITAL METERS catalogue or our website.



N30 digital panel meters with three-colour display. For more details see our DIGITAL METERS catalogue or our website.



For more information about products see our Product Guide 2009 catalogue or visit our website.

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