PROGRAMMABLE PANEL METER

N11P Type

1. APPLICATION

N11P programmable digital meters are destined to measure single-phase parameters: a.c. voltages and a.c. currents, active, reactive and apparent power, power factor cosφ, ratio of the reactive power to the active power, phase angle, frequences, active, reactive and apparent energy, 15 minutes' active power, 10 minutes' voltage, 10 seconds' frequency.

Additionally, the meter enables the indication of the current time. A 5 or 4-digit display field (14 or 20mm high digits) in red or green colour ensures a good readability at a long distance.

They realized other additional functions as:

- signalling the set alarm value exceeding,
- signalling the measuring range exceeding,
- automatic set - up of the decimal point,
- programmable measurement repetition rate,
- programmable averaging type: arithmetic mean, steeping window,
- programming of the voltage and current ratio,
- programming of the alarm and analogue output with the reaction to an optional measured quantity, independently of currently displayed values,
- storage of maximal and minimal values of all input quantities,
- resetting of counters: active, reactive and apparent energy,
- synchronization of 15 minutes' power, 10 minutes' voltage,
- monitoring of set parameters values,
- monitoring of all measuring quantities,
- blocking of the parameter introduction by means of a password,
- conversion of the measured quantity into any quantity on the base of an individual linear characteristic,
- highlighting of any measuring quantity according to the order,
- storage of counter states.

TECHNICAL DATA

Panel meter dimensions	96 × 48 × 84 mm
Protection index ensured by the housing	IP 50
Protection index ensured from the terminal side	IP 20
Rated operating conditions:	
- supply voltage depended on the execution code	85...230...253 V a.c. d.c. 20...24...40 V a.c. d.c.
- supply voltage frequency	40...50...440 Hz
- ambient temperature	0...23...50°C
- air relative humidity	< 75% (water vapour condensation inadmissible)
Power consumption	max 5 VA
Storage temperature	-20... + 85°C
Display field:	
N11P4	four 7-segment LED displays and two alarm diodes
N11P5	five 7-segment LED displays two alarm diodes, and two diodes to the unit highlighting
Indication range of the digital display:	
N11P4	-1999...9999
N11P5	-19999...99999
Servicing	four keys:

Relay outputs:

- programmable alarm thresholds,
- three types of alarms (see chapter 6),
- hysteresis defined by means of the lower and upper alarm thresholds,
- signalling of alarm action by means of diodes,
- programmable delay of the alarm operation,
- two relay outputs,
- voltageless - make contacts - maximal load capacity:
  - voltage: 250 V a.c., 150 V d.c.
  - current: 5 A, 30 V d.c., 250 V a.c.
  - resistance load: 1250 VA, 150 W

Fastness against supply decays:

- acc. EN 50082-2,
- all programming parameters storage,
- counter state chosen on a display storage, in any other case the active counter energy is storaged.

Electromagnetic compatibility:

- immunity acc. EN 50082-2
- emission acc. EN 50081-2

Safety requirements:

according EN 61010-1 standard:
- installation category III
- level of pollution 2
- maximal voltage in relation to the earth 600 V

Parameters of the N11P meter:

- prolonged overrunning of the upper range 20%

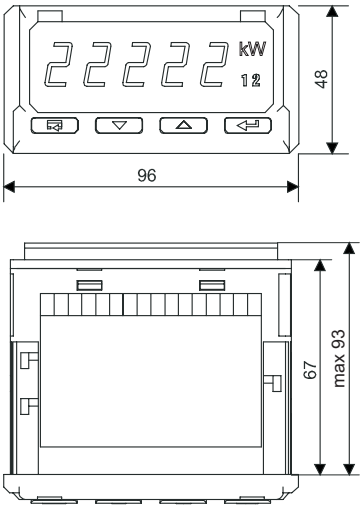
Kind of input	Indication range		Basic error [2]
	5 digits	4 digits	
Rms voltage	1...100.0	1...100.0	±(0.1% ww + 0.2% wm)
Rms voltage	4...400.0	4...400.0	±(0.1% ww + 0.2% wm)
Rms current	0.01...1.000	0.01...1.000	±(0.1% ww + 0.2% wm)
Rms current	0.05...5.000	0.05...5.000	±(0.1% ww + 0.2% wm)
Frequency	10.00...100.00	10.00...99.99	±(0.1% ww + 0.1% wm)
Active power	-19999...19999*	-1999...1999*	±(0.1% ww + 0.5% wm)
Reactive power	-19999...19999*	-1999...1999*	±(0.1% ww + 0.5% wm)
Apparent power	0...19999*	0...1999*	±(0.1% ww + 0.5% wm)
cosφ	-1.000...1.000	-1.000...1.000	±(0.1% ww + 1% wm)[3]
tgφ	-100.0...100.0	-100.0...100.0	±(0.1% ww + 1% wm)[3]
φ	0...359.9	0...359.9	±(0.1% ww + 1% wm)[3]
Active energy	-19999...99999*	-1999...9999*	±(0.1% ww + 0.5% wm)
Reactive energy	-19999...99999*	-1999...9999*	±(0.1% ww + 0.5% wm)
Apparent energy	0...19999*	0...9999*	±(0.1% ww + 0.5% wm)
15 minutes' active power	-19999...19999*	-1999...1999*	±(0.1% ww + 0.5% wm)
10 minutes' voltage	1...100.0	1...100.0	±(0.1% ww + 0.2% wm)
10 minutes' voltage	4...400.0	4...400.0	±(0.1% ww + 0.2% wm)
10 seconds' frequency	10.00...100.00	10.00...99.99	±(0.1% ww + 0.1% wm)
Current time	0.00...23.59	0.00...23.59	1 sekunda/dobę

* The range of the displayed value is equal to the transformation ratio product, maximal voltage rate, maximal current rate (Tru · Tri · Umax · Imax)

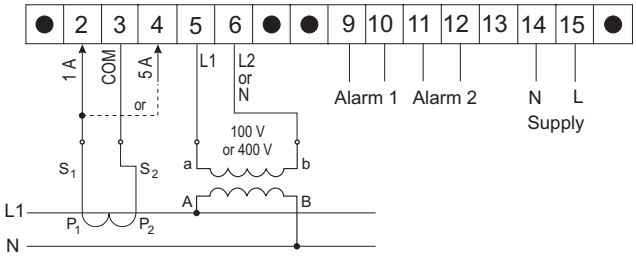
[2] i.v. - indicated value
u.l. - upper limit of the measuring sub-range

[3] error in a range 10...120% of the I, U range

EXTERNAL DIMENSIONS



CONNECTION OF INPUT SIGNALS TO TERMINALS



EXECUTION CODES

N11P METER	X	X	X	X	X	XX	X	XXX
Inputs:								Unit field *)
temperature, programmable input	T							
1 V d.c., 10 V d.c., 20 mA d.c, 200 mA.	S							
600 V d.c. , 1 A d.c. , 5 A d.c.	H							
revolutions, frequency, pulses, period	O							
singla-phase network parameters	P							
indicator for synoptic panels	B							
on order	X							
Number of display:								
4 x 20 mm high digits		4						
5 x 14 mm high digits + unit		5						
Display colour:								
red			0					
green			1					
Supply voltage:								
230 V a.c. d.c.				1				
24 V a.c. d.c.				2				
Kind of terminals:								
socked-plug with screw connections					0			
socked-plug with self-locking connections					1			
Execution:								
standard execution						00		
custom-made execution						XX		
Acceptance tests:								
without a guality inspection certificate							0	
with a guality inspection certificate							1	
acc. customer's agreement							X	

*) - Introduce the unit symbol.

Order example: N11P 5 0 1 0 00 1 kW means: a N11P digital meter of single-phase network parameters, with 5 displays in red colour, voltage supply: 230 V a.c., d.c., kind of terminal: socket-plug with screw connection, standard execution, with a quality inspection certificate, with the highlighted kW unit.

In case of a custom-made execution or need of more detailed technical information please contact our Export Department.

In case of any meter failure one must contact the nearest authorized service workshop.

LUMEL

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