

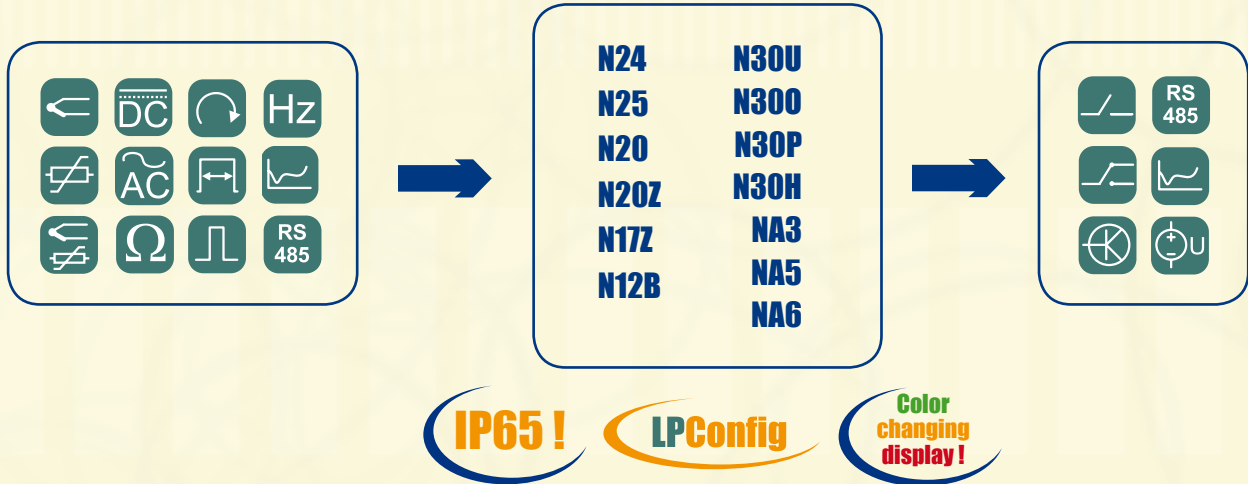


# DIGITAL METERS



## Applications:

- power industry (substations, generators, turbines)
- heat engineering (heat and power plants, boiler plants)
- food industry (dairies, bakeries, food storage)
- pharmaceutical industry (drug storage)
- plastics processing industry
- wood industry (furnaces, drying plants)
- chemical industry
- pumping stations and sewage plants (visualization of flow, pressure and level in tanks)
- breweries, distilleries
- synoptic panels



## Functionality:

- **programmable measuring inputs** – simple service and universality
- **IP65 protection rating** – dustproof and waterproof front panel, ensuring reliable operation and safe service under severe conditions
- **wide supplying voltage range** – applied in both dc and ac supplying systems
- **supplying output** – for external object transducers
- **3-color display** – intuitive readings, display color programmable separately for three subranges of measured value
- **retransmission outputs** – analog signal for recording and further processing of measured values
- **alarm outputs** – two-state outputs operating in several modes for diagnostics and alarming
- **digital output** – RS485 interface for communication with operator panels, PLC controllers and SCADA software

## N24 and N25 meters

IP65!

### N24 and N25 - NEW!

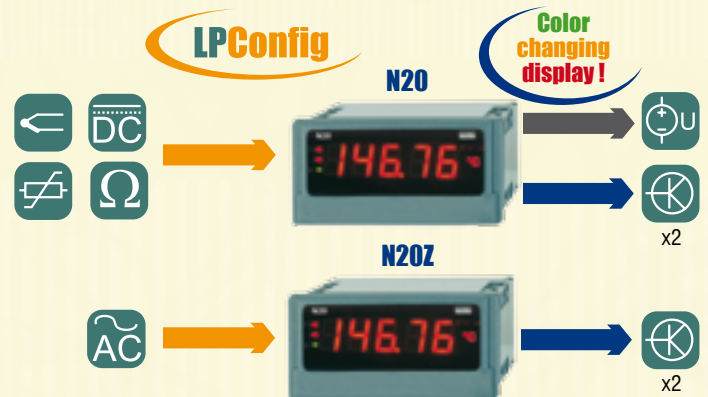
- 4 digit 20mm high (N24), 5 digit 14mm high (N25)
- red colour
- programmable through the PD14 programmer and free LPConfig program



## N20 and N20Z meters

IP65!

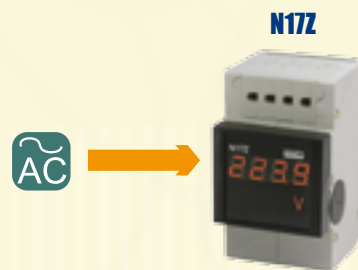
- 5-digit 14mm high display with highlighted unit
- red, orange or green display – depending on the measured value's level
- 2-point rescaling (individual characteristic)
- programmable decimal point
- programmable through the PD14 programmer and free LPConfig program



## Rail-mounted meter

### N17Z

- 4-digit 10mm high display with highlighted unit or 3-digit 14mm high display with highlighted unit
- red or green display
- mounted on a DIN-rail



## Meters for mimic panels

IP65!

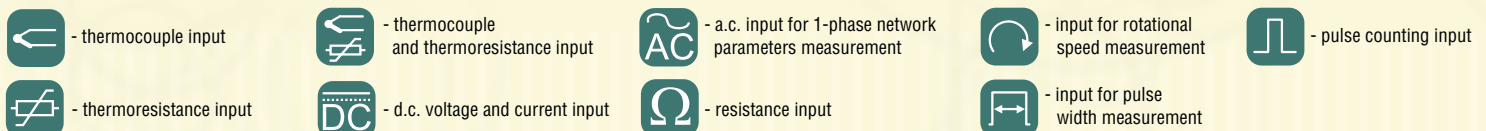
### N12B

- 5-digit 14mm high display with highlighted unit or 4-digit 20mm high display
- red or green display
- displays value received through digital interface
- 2 alarm outputs (NO relays)
- retransmission output 0/4...20mA or 0...10V
- 2-point rescaling
- programmable decimal point
- alarm delay function
- alarm hold function



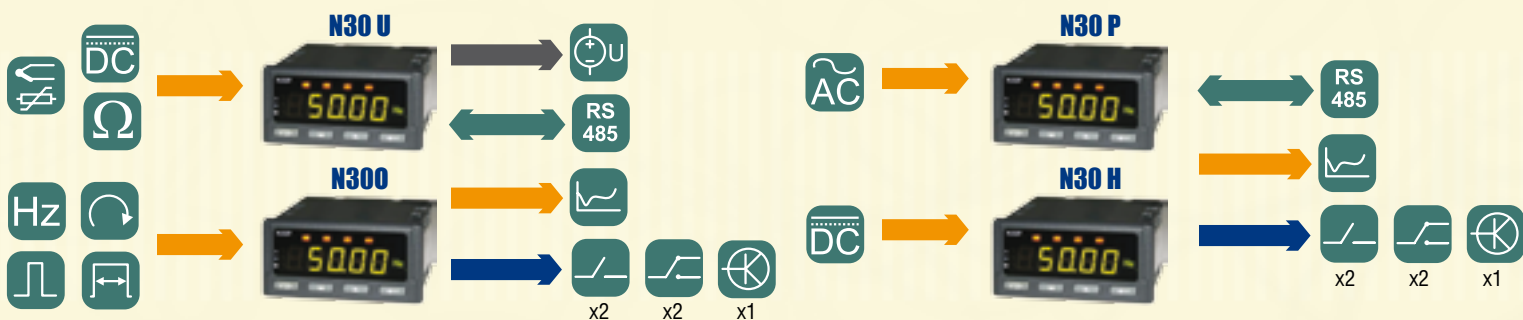
### Description

- **N24** – measurements: temperature (Pt100, J, K), a.c. voltage, a.c. current, d.c. voltage, d.c. current, 4 digit display.
- **N25** – measurements: temperature (Pt100, J, K), a.c. voltage, a.c. current, d.c. voltage, d.c. current, 5 digit display.
- **N20** – measures: temperature (Pt100, J, K), d.c. voltage or current; 2 alarm outputs (OC); 24V d.c. supplying output for object transducers.
- **N20Z** – measures: a.c. voltage, current or frequency; True RMS measurement; 2 alarm outputs (OC).
- **N17Z** – measures: a.c. voltage, current or frequency; True RMS measurement.
- **N12B** – 3 operation modes: displays values sent to the meter by other (Master) devices through RS485 MODBUS (Slave mode); displays value obtained (requested) from another device (Master mode); displays value sent between two other devices (capture mode).



### N30U, N30P, N300 and N30H

- 5-digit 14mm high display with highlighted unit
- red, orange or green display – depending on the measured value's level
- programmable measuring input
- alarm outputs (relays): 2 NO + 2 CO (change-over)
- RS485 MODBUS digital interface
- retransmission output 0/4...20mA or 0...10V
- 24V d.c. supplying output for object transducers (N30U, N300)
- galvanic isolation between external circuits
- 21-point rescaling (2-point rescaling for N30P) (individual characteristic)
- alarm delay and hold functions
- minimal and maximal values memory
- real time clock (battery supported in N30U, N30H, N300)
- automatic decimal point
- programming through RS 485 and LPConfig software



### Bargraph meters

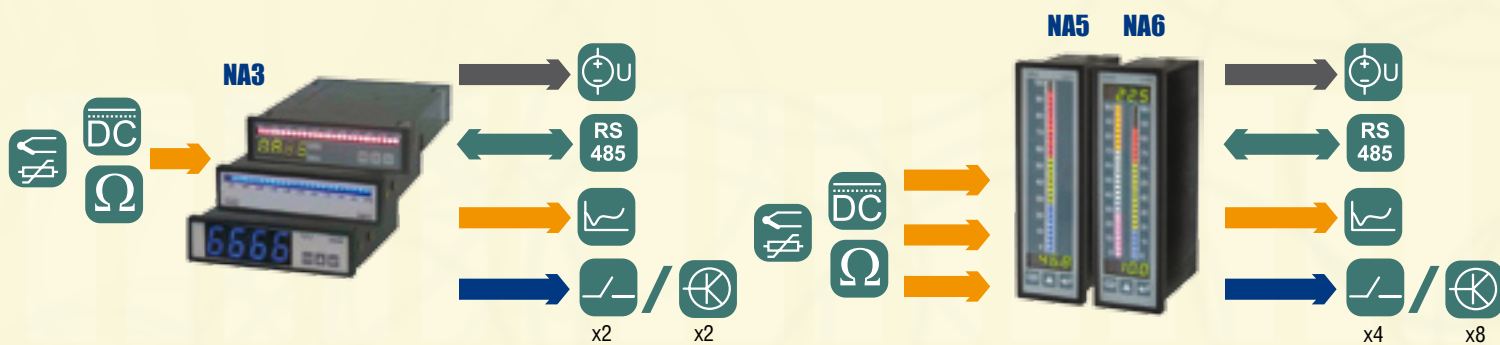
#### NA3

- 4-digit 7mm high red, green or blue numerical display and 3- or 7-colour bargraph (NA3F)
- only 3- or 7-colour bargraph (NA3B)
- only 4-digit 14mm high red, green or blue numerical display (NA3D)
- minimal and maximal value memory
- measured value logging with programmable interval (750 samples)

#### NA5 and NA6

- NA5 – 4-digit 7mm high red, green or blue numerical display and 3- or 7-colour bargraph
- NA6 – 2 x 4-digit 7mm high red, green or blue numerical display and 2 x 3- or 7-colour bargraph
- minimal and maximal value memory
- measured value logging with programmable interval (750 samples)
- mathematical operations between channels (NA6 only)

**NA21 and NA22** – please check our website for more details



### Description

- **N30U** – measures: temperature (Pt100, Pt500, Pt1000, J, K, N, E, R, S), standard d.c. signals and resistance; OC output indicating input range exceeding.
- **N300** – 1 pulse input + 2 logic inputs; measures: pulses, frequency, rotational speed, period, working time and encoder's position; additional inputs controlling meter's operation; OC output indicating input range exceeding.
- **N30P** – measures 1-phase network parameters: a.c. voltage and current, active, reactive and apparent power, power factor,  $\text{tg}\phi$ ,  $\phi$ , frequency, active, reactive and apparent energy, 15-minute active power, 10-minute voltage and 10-second frequency; programmable transformer ratios; pulse output for energy (OC).
- **N30H** – measures: d.c. voltage and current; OC output indicating input range exceeding.
- **NA3, NA5 and NA6** – universal measuring input; measures: temperature (Pt100, Pt500, Pt1000, J, K, N, E, R, S, T), resistance, d.c. voltage and current; alarm outputs: 2 relays or 2 OC outputs (NA3) and 4 relays or 8 OC outputs (NA5 and NA6); RS485 MODBUS digital interface; retransmission output 0/4...20mA or 0...10V; 24V d.c. supplying output for object transducers.
- **NA21, NA22** – please check our website for more details.

**Hz** - frequency input

- 24V d.c. supplying output for object transducers

- CO (change-over) relay output

**RS 485** - RS485 Modbus interface

- temperature and humidity measurement

- analog input/output (0...10V, 0/4...20mA)

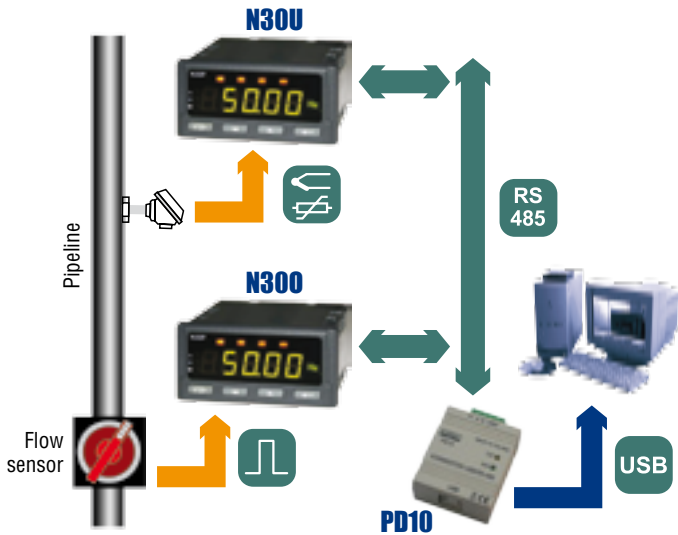
- NO (normally-open) relay output

- voltage-free transistor output (OC)

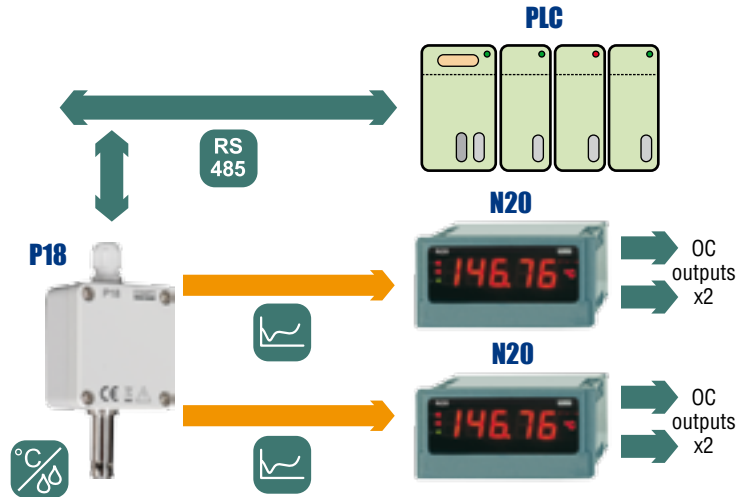
**USB** - USB interface

# APPLICATIONS

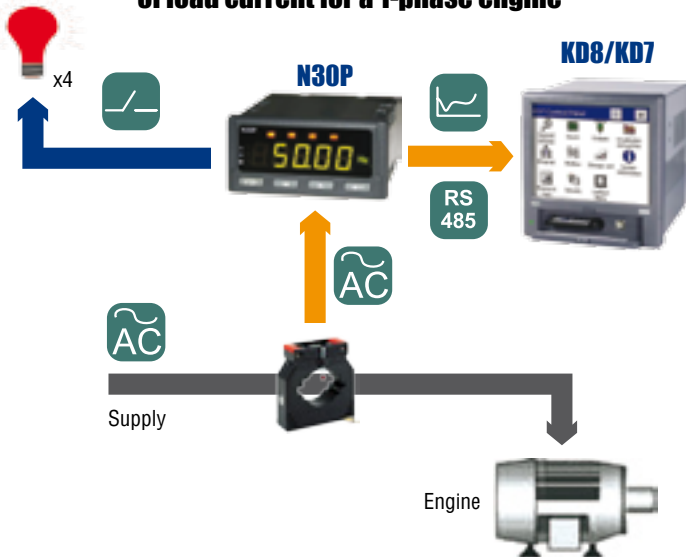
## Temperature and flow measurement in a pipeline



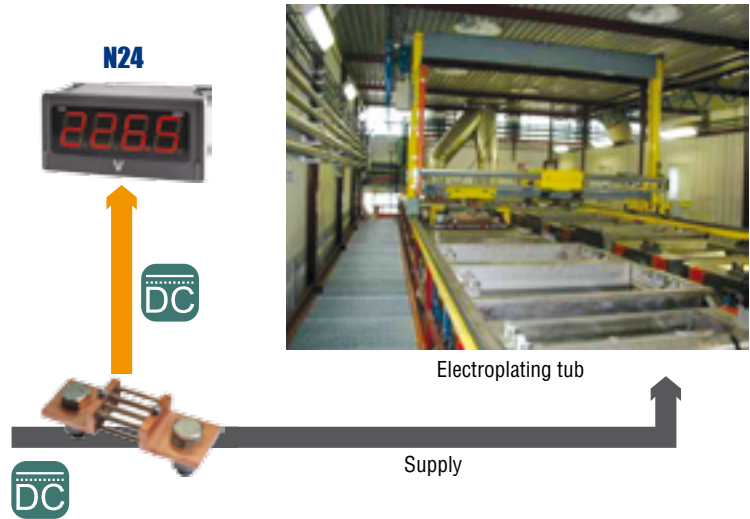
## Air temperature and humidity measurement



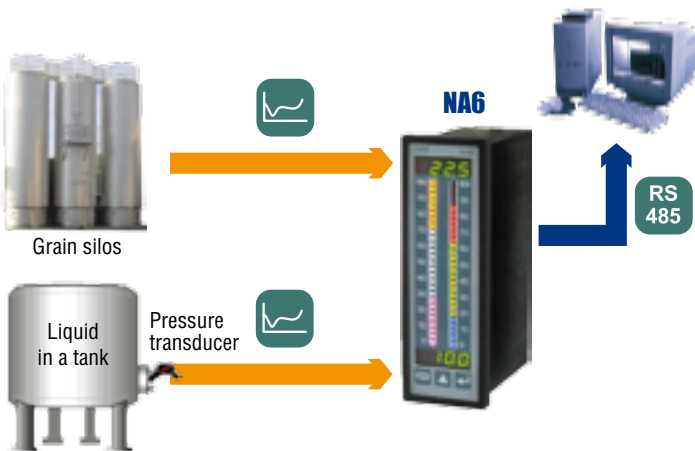
## Measurement, alarming and logging of load current for a 1-phase engine



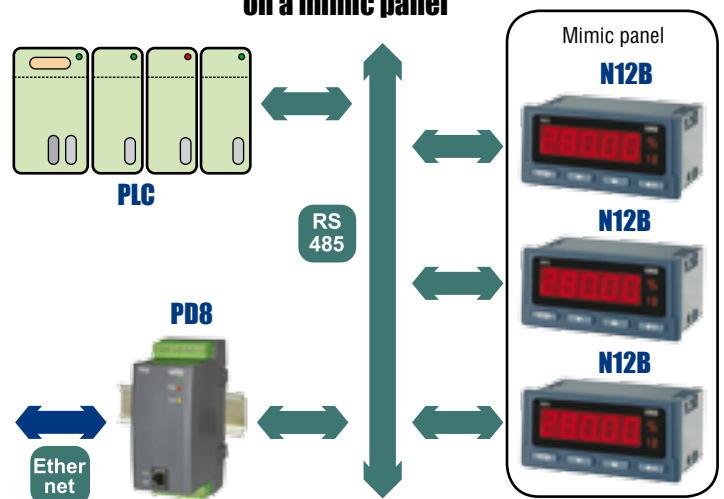
## Current measurement in an electroplating plant



## Liquid level and pressure measurement in tanks



## Capturing data from a RS485 bus and displaying on a mimic panel



LUMEL S.A.; ul. Sulechowska 1, 65-022 Zielona Góra, POLAND  
 Export Dep. +48 68 / 32 95 302; 32 95 305; 32 95 233  
 e-mail: export@lumel.com.pl

## N24 AND N25 METERS

**TABLE 1. N24 ORDERING CODES:**

N24 -	X	X	X	XX	XX	X	X
<b>Kind of input signal:</b>							
standard: voltage, current	S						
temperature: thermocouples, resistance thermometers	T						
a.c. signals	Z						
d.c. signals: high voltage and high current	H						
<b>Input signal:</b>							
see table 3	X						
<b>Supply:</b>							
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			
<b>Unit:</b>							
see table 4					XX		
<b>Version:</b>							
standard						00	
non-standard setting						NS	
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

**TABLE 2. N25 ORDERING CODES:**

N25 -	X	X	X	XX	XX	X	X
<b>Kind of input signal:</b>							
standard: voltage, current	S						
temperature: thermocouples, resistance thermometers	T						
a.c. signals	Z						
d.c. signals: high voltage and high current	H						
<b>Input signal:</b>							
see table 3				X			
<b>Supply:</b>							
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		
<b>Unit:</b>							
see table 4						XX	
<b>Version:</b>							
standard							00
non-standard setting							NS
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

**TABLE 3. METER TYPE**

Nr	N24S/N25S	N24T/N25T
1	0...20 mA	Pt100: -50...150°C
2	4...20 mA	Pt100: -50...400°C
3	0...60 mV	Thermocouple J
4	0...10 V	Thermocouple K
5	± 60 mV	
6	± 10 V	
7		
Nr	N24Z/N25Z	N24H/N25H
1	100 V a.c.	±100 V d.c.
2	250 V a.c.	±250 V d.c.
3	400 V a.c.	±400 V d.c.
4	1 A a.c.	±1 A d.c.
5	5 A a.c.	±5 A d.c.
6	20...500 Hz	0...100 V d.c.
7		0...250 V d.c.

**TABLE 4. CODES OF PRINTED UNITS:**

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

\* - After agreeing with manufacturer  
 \*\* - The output is only in N24S/N25S and N24T/N25T meters

## N30 METER SERIES

**TABLE 5. N30U ORDERING CODES:**

N30U -	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		
OC output, RS-485, analog outputs				1		
OC output, RS-485, analog outputs and change-over relay outputs				2		
<b>Unit:</b>						
unit code acc. to the table 9					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

**TABLE 6. N30H ORDERING CODES:**

N30H -	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	
OC output, RS-485, analog outputs					1	
OC output, RS-485, analog outputs and change-over relay outputs					2	
<b>Unit:</b>						
unit code acc. to the table 9						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

**TABLE 7. N30P 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	
OC output, RS-485, analog outputs					1	
OC output, RS-485, analog outputs and change-over relay outputs					2	
<b>Unit:</b>						
unit code acc. to the table 9						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

**TABLE 8. N30O ORDERING CODES:**

N30O -	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	
OC output, RS-485, analog outputs					1	
OC output, RS-485, analog outputs and change-over relay outputs					2	
<b>Unit:</b>						
unit code acc. to the table 9						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

**TABLE 9. CODES OF HIGHLIGHTED UNIT:**

Code	Unit	Code	Unit
00	without unit	29	%
01	V	30	%RH
02	A	31	pH
03	mV	32	kg
04	kV	33	bar
05	mA	34	m
06	kA	35	l
07	W	36	s
08	kW	37	h
09	MW	38	m³
10	var	39	turns
11	kvar	40	pcs
12	Mvar	41	imp
13	VA	42	rps
14	kVA	43	m/s
15	MVA	44	l/s
16	kWh	45	turns/min
17	MWh	46	rpm
18	kvarh	47	mm/min
19	Mvarh	48	m/min
20	kVAh	49	l/min
21	MVAh	50	m³/min
22	Hz	51	pcs/h
23	kHz	52	m/h
24	Ω	53	km/h
25	kΩ	54	m³/h
26	°C	55	kg/h
27	°F	56	l/h
28	K	XX	on order*

\* - After agreeing with manufacturer

