N32U
DIGITAL PANEL METER

- Multi-purpose input for measuring: temperature, resistance, standard signals.
- Two-line LCD display with high contrast and built-in backlighting.
- Possibility of displaying the measured value and time simultaneously or an uncalculated quantity or unit (programmable unit of measured quantity).
- Meter programming from keyboard or through the RS-485 interface by means of the free eCon software.
- 4 alarm outputs with signalling on LED diodes, working in 7 different modes (option).
- Conversion of any measured value into an analog signal 0/4...20 mA or 0...10 V (option).
- Storage of minimal and maximal values for all measured quantities.
- Supply of object transducers.
- 32-point individual characteristic for the measured value.
- Mathematical functions for converting the measured value.

FEATURES

- eCon
- MOD BUS
- RTC
- Ch-ka 32-punktowa
- Password protection
- IP65

INPUTS

- -10..10 V
- -20..20 mA
- 60 mV

OUTPUTS

- 0/4...20 mA
- 0..10 V
- U
- 1x
- 3x
- RS 485

GALVANIC ISOLATION
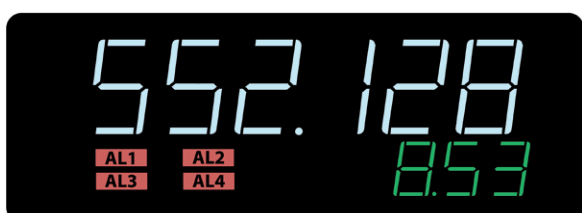
- Supply
- RS 485

DATA VISUALISATION

687.07
13.662
AL1 AL2 AL3 AL4

lub

Two-line display.
Simultaneous preview of the measured value (top line) and the input signal not scaled (bottom line).

33.9
°C
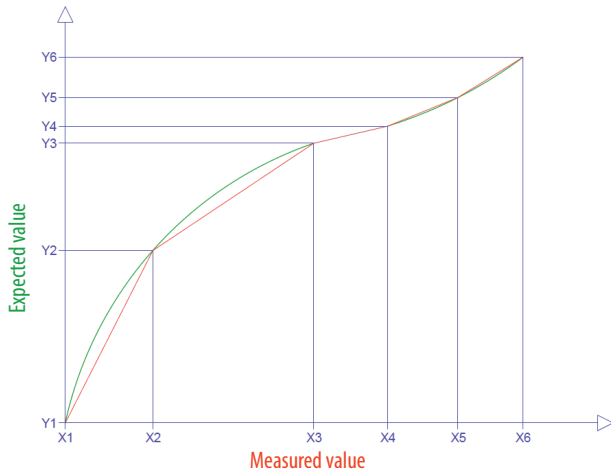AL1 AL2 AL3 AL4

kW
SZt
bAr
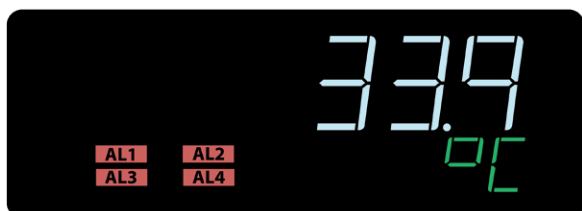
lub

Programmable measurement unit chosen from 56 variants available in the menu.

552.128
8.53
AL1 AL2 AL3 AL4

Preview of current time on the bottom line of the display. Real-time clock with automatic winter/summer time change function.

INPUT SCALING

Expected value / Measured value

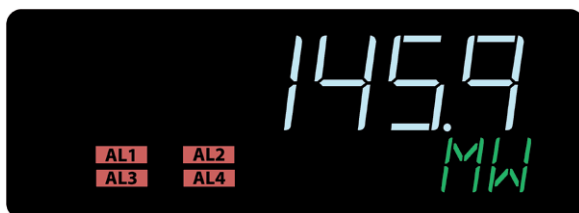Y6, Y5, Y4, Y3, Y2, Y1
X1, X2, X3, X4, X5, X6

Conversion of the measured quantity based on 32-point individual characteristics. It allows for the mapping of signals from objects or sensors with non-linear characteristics.
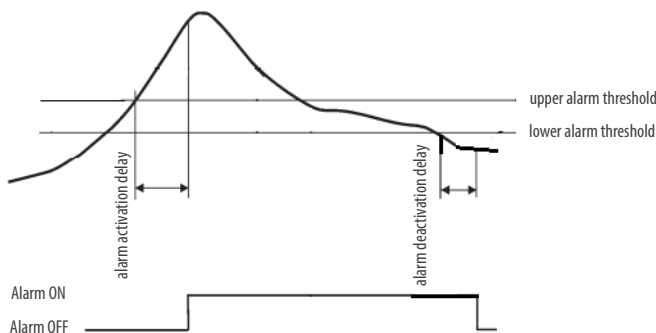
$\sqrt{x}$ x^2 $(1/x)^2$ $\sqrt{(1/x)}$ $1/x$

Conversion of the measured quantity by means of mathematical functions: $\sqrt{x}$, x^2, $1/x$, $(1/x)^2$, $\sqrt{(1/x)}$

ALARM FUNCTIONS

145.9 MW

AL1 AL2
AL3 AL4

1 or 4 relay outputs with the indication on the display as an active alarm number.

Each alarm can be configured to operate in one of 7 modes, including REG mode for alarm control through RS-485 Modbus.
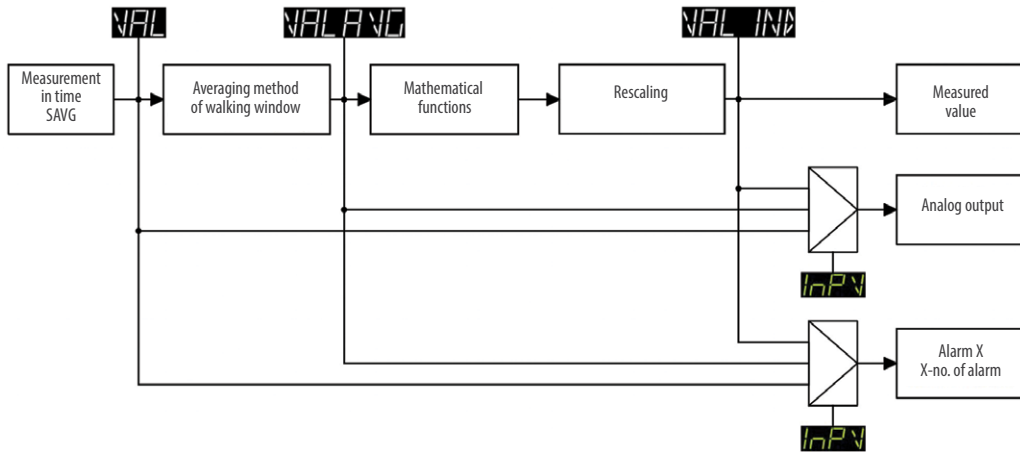
Programmable alarm signal holding. Once the alarm event has ceased, the alarm status marker flashes on the display until it is reset by the user.

upper alarm threshold
lower alarm threshold

alarm activation delay

alarm deactivation delay

Alarm ON
Alarm OFF

t ≥ time delay --> Alarm activeted
For alarm operation both conditions (value and time delay) must be met

Individually programmable parameters for alarm activation and deactivation delay; the function can be used to prevent "false" alarms.

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ADVANCED MEASUREMENT CONVERSION FUNCTION

VAL		VALAVG		VAL IND	

Measurement in time SAVG → Averaging method of walking window → Mathematical functions → Rescaling → Measured value

Analog output

InPV

Alarm X
X-no. of alarm

InPV

The measured value can be converted in series and the result can be displayed. After each conversion step, the signal can be used for retransmission on the analogue output or as an alarm source.

In practical use, the meter can read the value from an object-oriented transmitter and display the actual value within a limited range, e.g. pressure, level, etc. At the same time, the input signal not scaled can be retransmitted to the PLC.

This function can be useful in applications where the signal is dynamic. The display can show the values averaged over time (easier signal observation). On the analogue output instead, you can retransmit the signal without additional delays - this also applies to the alarm outputs.

WALKING WINDOW ALGORITHM
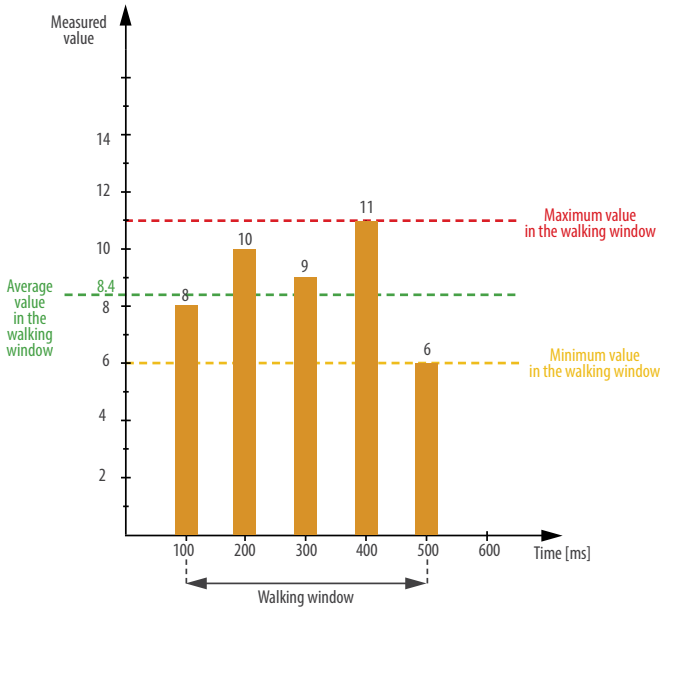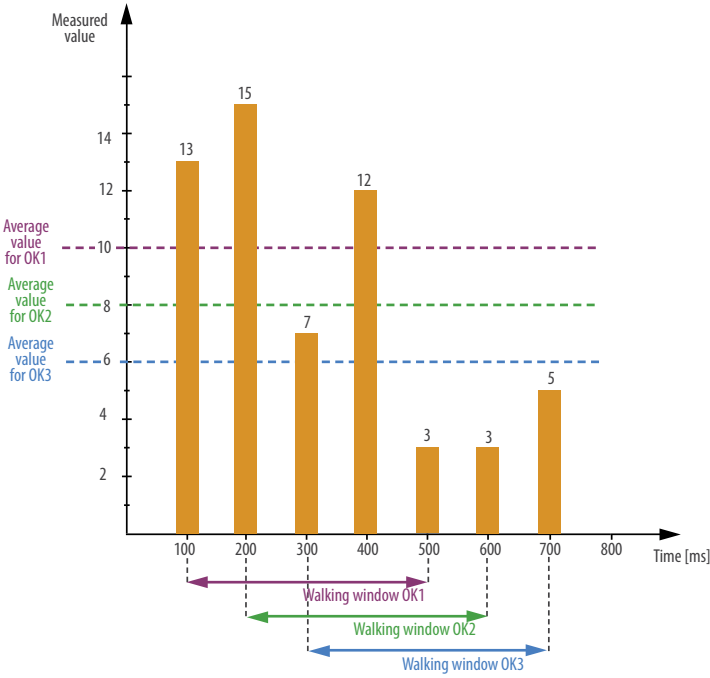
Programmed averaging time according to the walking window algorithm with a set averaging time. This function is useful for measuring high-dynamic signals.

Ability to measure the average, minimum or maximum value when displaying the walking window.

TECHNICAL DATA

INPUTS

Input type	Maximal measuring range	Class	Basic error
Pt100	-205...855℃ (-200...850℃)		
Pt1000	-205...855℃ (-200...850℃)		
400 Ω	0...410 Ω (0...400 Ω)		
4000 Ω	0...4010 Ω (0...4000 Ω)		
Thermocouple of J type	-200..1200 ℃ (-100..1200 ℃)		- due to automatic compensation of the reference junction temperature < 1℃
Thermocouple of K type	-200..1370 ℃ (-100..1370 ℃)		
Thermocouple of N type	-200..1300 ℃ (-100..1300 ℃)		- due to automatic compensation of the cable resistance for thermoresistors < 0.5℃
Thermocouple of E type	-200..1000 ℃ (-100..1000 ℃)	0.1	
Thermocouple of R type	-50..1768 ℃ (-50..1760 ℃)		- due to automatic compensation of the cables for resistance measurement < 0.2 Ω
Thermocouple of S type	-50..1768 ℃ (-50..1760 ℃)		
Voltage input 10 V	-13...13 V (-10...10 V)		- from temperature changes 50 % of the class/ 10 K
Current input 20mA	-24...24 mA (-20...20 mA)		
Current input 4...20 mA	3.6...22.0 mA (4...20 mA)		
Voltage input 60 mV	-10...63 mV (0...60 mV)		
Voltage input 150 mV	-155...155 mV (-150...150 mV)		
Voltage input 300 mV	-310...310 mV (-300...300 mV)		
Current time	00.00...23.59	+/-20 ppm	

OUTPUTS

Output type	Properties	Remarks
Relay output	• 1 x NO contacts, load-carrying capacity 5A / 250 V a.c.; 5A / 30V d.c. • 3 relays with changeover contact, load-carrying capacity 6A / 250V a.c.; 6A / 30V d.c.; 0,15A / 250V d.c.	
Analog output	• current programmable 0/4...20 mA, load resistance ≤ 500 Ω • voltage programmable 0...10 V, load resistance ≥ 500 Ω	Error of analog output: **0.1% of the set range** Additional error from temperature changes: **50% of the class/10K**
OC output	OC type, passive npn, 30 V d.c./30 mA	voltageless output
Auxiliary supply	24 V d.c./ 30mA	

DIGITAL INTERFACE

Interface type	Transmission protocol	Mode	Baud rate
RS-485	MODBUS RTU	8N2, 8E1, 8O1, 8N1	2.4, 4.8, 9.6, 14.4, 19.2, 28.8, 38.4, 57.6, 115.2 kbit/s

EXTERNAL FEATURES

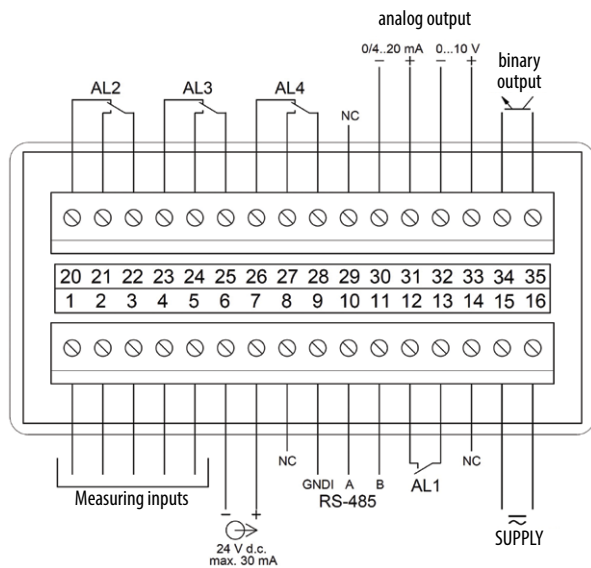|		
Readout field	1 row: 6-digits; digits height 12.85 mm 2 row: 5-digits; digits height 7.5 mm	high contrast LCD with backlight and programmable measuring unit
Weight	< 0.25 kg	
Overall dimensions	96 x 48 x 93 mm	mounting hole 92$^{+0.6}$ x 45$^{+0.6}$ mm
Protection grade (acc. to EN 60529)	from frontal side: IP65	from terminal side: IP 10

RATED OPERATING CONDITIONS

Supply voltage	85...253 V a.c. (40...400 Hz), 90...300 V d.c. 20...40 V a.c. (45...65 Hz) / 20..60 V d.c.	power consumption < 6 VA
Temperature	ambient: -25...23...55℃	storage: -30...70℃
Relative humidity	25...95%	without condensation
Operating position	any	
External magnetic field	0...400 A/m	

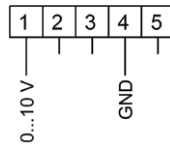### SAFETY AND COMPABILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation between circuits	basic	
Polution level	2	
Installation category	III	acc. to EN 61010-1
Maximal phase-to-earth voltage	for supply circuits : 300 V	
	for other circuits: 50 V	
Altitude a.s.l.	< 2000 m	

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CONNECTION DIAGRAMS

analog output

0/4..20 mA   0...10 V

binary output

AL2   AL3   AL4   NC

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Measuring inputs

24 V d.c.
max. 30 mA

GNDI A B   AL1
RS-485

NC   NC

SUPPLY

Standard signals 0...10 V
(range -13...13 V)

1	2	3	4	5

0...10 V   GND

Standard signals 0/4...20 mA
(range -24...24 mA)

1	2	3	4	5

0/4...20 mA   GND

Thermocouples, thermoelectric
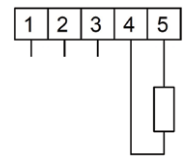sensors (thermocouple)

1	2	3	4	5
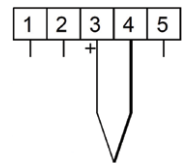
Standard shunts: 60 mV,
150 mV, 300 mV
(measuring range respectively:
-75...75 mV, -155...155 mV,
-310...310 mV

1	2	3	4	5

+   −
60 mV
150 mV
300 mV
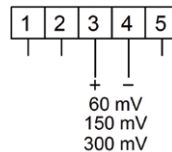
Resistance sensors or resistor
in a three-wire system

1	2	3	4	5
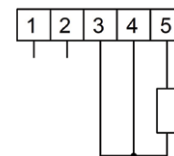
Resistance sensors or resistor
in a two-wire system

1	2	3	4	5

Description of signals on the connection strips

Meter connection

ORDERING CODE

	N32U	X	X	XXXXXXX	X	X
Supply:						
85...253 V a.c., 90...300 V d.c.		1				
20..40 V a.c./ 20..60 V d.c.		2				
Additional outputs:						
1 relay output, RS-485			1			
4 relay outputs, RS-485			2			
4 relay outputs, RS-485, 1 analog output			3			
Version:						
standard				0000000		
custom-made*				XXXXXXX		
Language:						
Polish/English					M	
Acceptance tests:						
without additional quality requirements						0
with an extra quality inspection certificate						1
with an extra calibration certificate						2
acc. to customer's request						X

* only after agreeing with the manufacturer

ORDERING EXAMPLE:

N32U 130000000M0 means N32U meter with supply 85... 253 V a.c.,90...300 V d.c., with 4 relay outputs, RS-485 interface and 1 analog output, in standard version, polish-english language version, without addtional quality requirements.

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ATS 100 ATS 200 ATS 300 ATS 400 ATS 500 B2_060100AA0100M0 B2_06010A0A0100M0 B2_060120AA01A2M0 B2_06015A0A0100M0 B2_060160AA01A2M0 B2_0601A00A0100M0 B2_0601K00B0100M0 B2_060200AB01B1M0 B2_0602K50B0100M0 B2_06030A0A01A1M0 B2_06040A0A0100M0 B2_0604A00A0100M0 B2_06050A0A01A2M0 B2_0605A00A01A1M0 B2_0606A00A0100M0 B2_060800AB01B3M0 B3_15010A0A0100M0 B3_150200AD01A2M0 B3_15025A0A0100M0 B3_15050A0D01A2M0 B3_1505A00A01A1M0 B3_15060A0D0100M0 B4_0502K00B01B5M0 B4_05050A0D01A2M0 B5_075300AB01B1M0 B5_07575A0D01A2M0 B6_10010A0A0100M0 B6_100150AD0100M0 B6_10020A0A01A1M0 B6_10050A0D01A2M0 BA271NE4120000 BA271NE4160000 BA271NE4170000 BA391NE4050000 BE271NF4162000 BE271NF4170000 BE271NF4500000 BE391NF4122000 CA39_120000 EA12N C70100000000 EA12N C70200000000 EA12N E20700000000 EA12N E21000000000 EA12N E21200000000 EA12N E21300000000