# NA5PLUS
– DIGITAL METER WITH BARGRAPH

- 3 or 7-colour bargraph with programmable colour switching over.
- Logging of the measured signal in porgramed time intervals (800 samples).
- Universal measuring input.
- Programmable indication characteristic (21-point rescaling) and bargraph magnifier.
- Up to 8 programmable alarm outputs.
- Alarm triggered by the rate of change of the measured signal over time.
- Arithmetical functions x^2, $\sqrt{x}$.
- Communication in SCADA systems (RS485/Modbus interfaces).
- Converstion of any measured value into a current or voltage analog signal.

Electrical Safety
CAT III

CE

EXAMPLE OF APPLICATION

Measurement of pressure in a pipeline.

NA5PLUS

signalling
of pressure overflow
in the pipeline

signalling of a too
low pressure

Safety
valve

pipeline

4...20 mA

PLC

NA5PLUS - DIGITAL METER WITH BARGRAPH

LUMEL
EVERYTHING COUNTS

FEATURES

MODBUS · RTC · 21 points charact. · Password protection · IP50 · eCon

INPUTS

DC · 0..20 mA · 60 mV · Ω · 0..10 V

OUTPUTS

0..20 mA · 0..10 V · U · RS 485
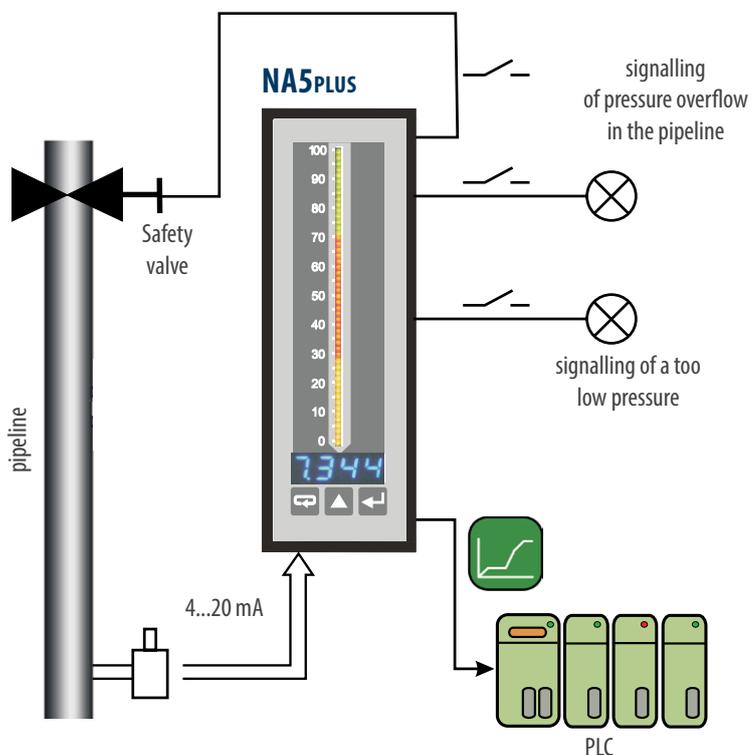
GALVANIC ISOLATION

RS 485 · Supply

TECHNICAL DATA

INPUTS

Input type	Measurement range	Basic error	Additional error
Pt100	-200...850℃		
Pt500	-200...850℃		
Pt1000	-200...850℃		compensation of temperature changes of reference welds $\leq \pm 1℃$
J (Fe-CuNi)	-100...1100℃	0.1%	
K (NiCr-NiAl)	-100...1370℃		compensation of cable resistance changes
N (NiCrSi-NiSi)	-100...1300℃		- when changing the resistance of wires < 10Ω the error is $\leq \pm 0.5℃$
E (NiCr-CuNi)	-100...850℃		
R (PtRh13-Pt)	0...1760℃		- when changing the resistance of wires < 20Ω the error is $\leq \pm 1℃$
S (PtRh10-Pt)	0...1760℃	0.2%	
T (Cu-CuNi)	-50...400℃		
Resistance	0...5 kΩ		
Voltage	$\pm$ 75 mV, $R_{inp.} > 100$ kΩ $\pm$ 300 mV, $R_{inp.} > 100$ kΩ $\pm$ 0...600 V, $R_{inp.} > 3.5$ MΩ	0.1%	change in ambient temperature $\leq \pm$ 0.1% of the range
Current	$\pm$ 40 mA, $R_{inp.} < 4$ Ω $\pm$ 5 A, $R_{inp.} = 10$ mΩ $\pm$ 10%		

Intensity of current flowing through the resistance thermometer: < 400 uA
Resistance of wires connecting the resistance thermometer with the meter: < 20 Ω/1 wire

OUTPUTS

Output type	Features
Current analog output	1 or 2 programmable 0/4...20 mA; load resistance $\leq$ 500 Ω
Voltage analog output	1 or 2 programmable 0-10 V; load resistance $\geq$ 500 Ω
Relay output	4 relays; NOC voltageless contacts, maximal load: - voltage: 250 V a.c., 150 V d.c. - current: 5 A 30 V d.c., 250 V a.c. - resistive load: 1250 VA, 150 W
Open collector (OC) type	8 outputs of OC type: maximal load: - voltage: 5...30V d.c. - current: 25mA d.c.
Digital interface	interface type: RS-485; transmission protocol: MODBUS, RTU (8N2, 8E1, 8O1, 8N1) baud rate: 2400, 4800, 9600, 19200, 57600, 115200 b/s
Additional supply output	24 V d.c., maximal load 30 mA

EXTERNAL FEATURE

|		
Readout field	4 -digits LED dispaly	7-segment digits of 7 mm high, measuring range -1999...9999
	bargraph	bargraph of 100 mm lenght: - 55 segments in three-colour version - 28 segments in seven-colour version
		Bargraph resolution: programmable
Overall dimensions	48 x 144 x 100 mm	
Weight	< 0.4 kg	panel cut-out: 44+0.5 x 137.5+0.5 mm
Protection grade (acc. to EN 60529)	from frontal side: IP50	from terminal side: IP20

RATED OPERATING CONDITIONS

Supply voltage	95...253 V a.c. 40..400 Hz; 90...300 V d.c. 20...40 V a.c. 40...400 Hz, 20...60 V d.c.	power consumption $\leq$ 13 VA
Temperature	ambient: -10...23...55℃	storage: -25...85℃
Relative humidity	< 95%	Condensation inadmissible

SAFETY AND COMPATIBILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Pollution grade	2	
Installation category	III	acc. to EN 61010-1
Maximal phase-to-earth operating voltage	• for input circuit: 600 V • for supply circuit: 300 V • for other circuits: 50 V	
Altitude above sea level	< 2000 m	

NA5plus- DIGITAL METER WITH BARGRAPH

ELECTRICAL CONNECTIONS

GND — 20
RS-485 B — 21
A — 22
OUT 2* + — 23
- — 24
OUT 1* + — 25
- — 26
GND — 27
OC8 — 28
RL4* OC7 — 29
OC6 — 30
RL3* OC5 — 31
OC4 — 32
RL2* OC3 — 33
OC2 — 34
RL1* OC1 — 35

19 — PE
18 — L   supply
17 — N

16 — -
15 — +   24 V DC   additional supply output
14
13
12
11
10
9
8
7
6 — ± 600 V
5 — ± 40 mA
4 — ± 5 A
3 — GND
2 — ± 300 mV
1 — R
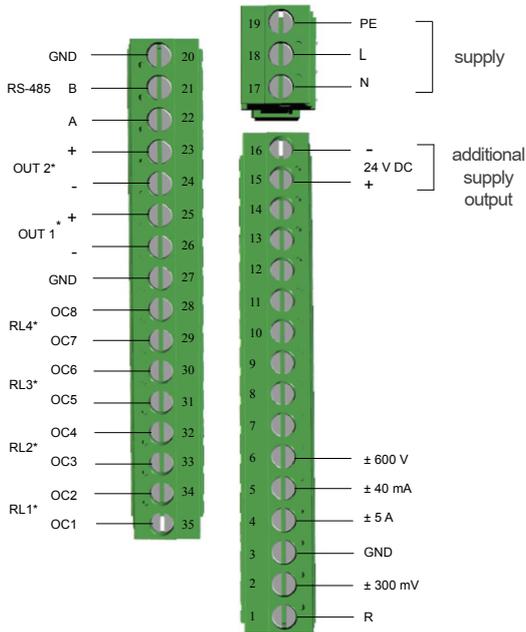
*-optional elements depend on the meter's version

Fig. 1 Description of the terminal strip.

1	2	3
R

resistance thermometer
in a two-wire system or resistance
measurement

1	2	3
R

resistance thermometer
in a three-wire system

2	3
+   -

thermocouple
or voltage ± 75mV, ±300 mV

3	4	5	6
GND   ± 600 V

voltage input ± 10 V, ±600 V

3	4	5	6
GND   ± 40 mA

current input ± 40 mA

3	4	5	6
GND   ± 5 A

current input ± 5 A

27	28	29	30	31	32	33	34	35
GND	OC8	OC7	OC6	OC5	OC4	OC3	OC2	OC1
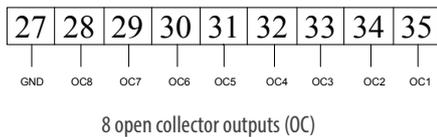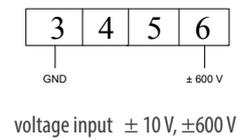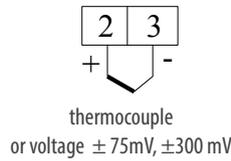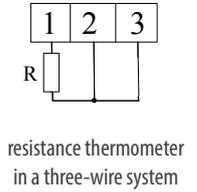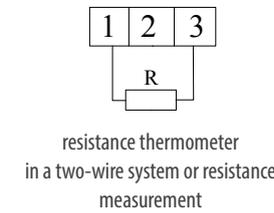
8 open collector outputs (OC)

28	29	30	31	32	33	34	35
RL4		RL3		RL2		RL1	

4 relay outputs

23	24	25	26
+	-	+	-
OUT2		OUT1	
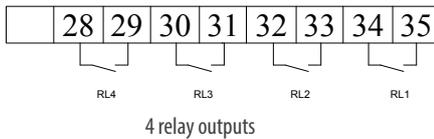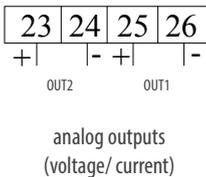
analog outputs
(voltage/ current)

20	21	22
GND	B	A
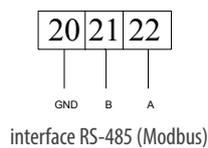
interface RS-485 (Modbus)

±40 mA   24 V d.c.
| 3 | | 5 | 15 | 16 |
| - | | + | + | - |
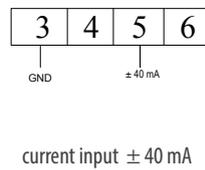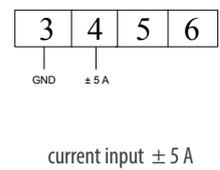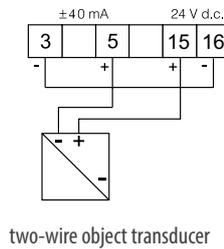
two-wire object transducer

±40 mA   24 V d.c.
| 3 | | 5 | 15 | 16 |
| - | | + | + | - |
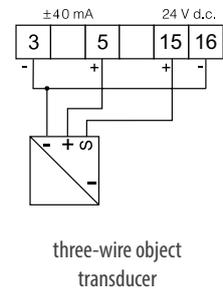
three-wire object transducer

Fig.3. Connection way of output signals
depending on the execution code.

Fig. 2 Connection way of input signals.

NA5PLUS - DIGITAL METER WITH BARGRAPH

NA5PLUS -	X	X	X	X	X	X	XX	X	X

Bargraph colour:

3-colour (R, G, R+G)	T
7-colour(R, G, B, R+G, R+B, G+B, R+G+B)	M

Display colour:

red	R
green	G
custom-made*	X

Input signal:

universal input	U
custom-made*	X

Analog output:

lack	0
0/4...20mA	1
0...10 V	2
2 x 0/4...20 mA	3
2 x 0...10 V	4
1 x 0/4...20 mA, 1 x 0...10 V	5

Additional output:

lack	0
4 relays	4
8 outputs of OC type	8

Supply voltage:

95...253 V a.c./d.c.	2
20...40 V a.c., 20...60 V d.c.	4

Version:

standard	00
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

Odering example:

The code **NA5PLUS- TGU18200E0** means:

NA5PLUS - NA5PLUS meter
T - bargraph RG
G - green display colour
U - universal inputs
1 - current output 0/4...20 mA
8 - 8 outputs of OC type
2 - supply 95...253V a.c./ 90...300 V d.c.
00 - standard version
E - english version
0 - without extra requirements

* - after agreeing with the manufacturer

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