

# AR518

## UNIVERSAL METER WITH SINGLE READING

### Single channel universal digital meter



- digital meter of temperature and other physical quantities (humidity, pressure, level, speed, etc.) converted into a standard electrical signal (0/4÷20mA, 0÷10V, 0÷60mV, 0÷2.5 kΩ)
- 1 universal measurement input (thermoresistance, thermocouple, and analog) with memory of the minimum and maximum measured value and a remote data display function (over the MODBUS-RTU protocol)
- programmable digital input (except for AR500) for changing the operation mode of the meter: manual/automatic mode for the analog output, keypad block, stopping the display indications (HOLD function)
- analog output (except for AR500) 0/4÷20 mA or 0/2÷10 V (retransmission, alarm/control, manual)
- manual mode for the analog output (open control loop) enabling setting the output signal value in the range of 0-100%
- digital LED readout with programmable illumination brightness
- integrated 24 V DC power supply supplying the field transmitter
- RS485 serial interface (galvanically isolated, MODBUS-RTU protocol)
- compensation of line resistance for resistance sensors
- temperature compensation of thermocouple cold end
- programmable type of input, range of indications (for analog inputs), alarm, display, communication, and access options, and other configuration parameter
- access to configuration parameters protected with a user password
- parameter configuration methods:
  - via membrane keyboard (IP65) located on the front panel of the device
  - via RS485 or PRG AR955/GP programmer and freeware: ARsoft-LOG (Windows 7/8/10)
- software and programmer allow you to view the measured value and quickly configure single or few sets of parameters previously saved in the computer for re-use, e.g. in other controllers of the same type (duplicate configuration)
- ingress protection rating: IP54 from the front
- high accuracy, long-term stability and immunity to interference
- optional to choose (in the ordering method): power supply 24Vac/dc, output SSR, analog output 0/2÷10V and interface RS485

#### Contents of set:

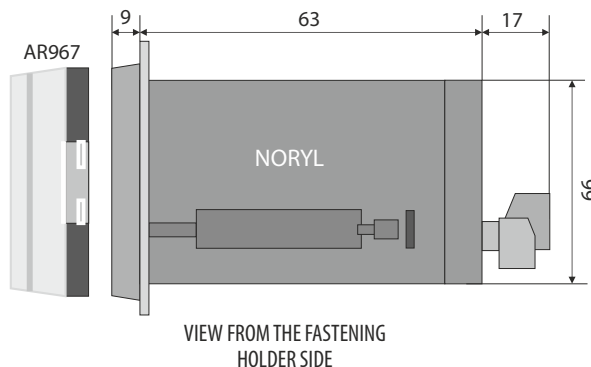
- regulator with handles mounting in the window
- user manual

#### Available accessories:

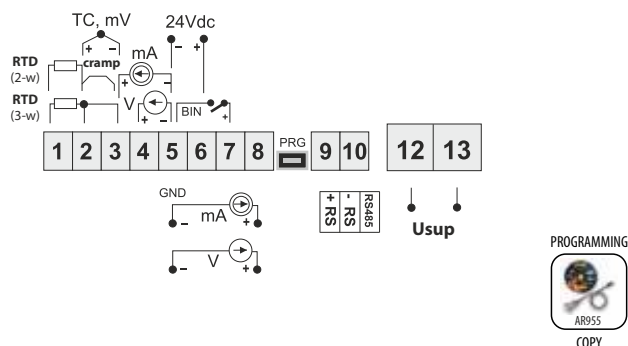
- programmer AR955/GP
- RS485 to USB converter
- protective cover AR967 (IP54)

### DIMENSIONS, INSTALLATION DATA

Enclosure dimensions	144 x 72 x 72 mm (S x W x G)
Panel window	138 x 67 mm (S x W)
Fixing methods	panel, grips on the side of the enclosure
Material	self-extinguishing polycarbonate NORYL 94V-0
Protective cover	IP54 protection, order code AR967



### TERMINAL STRIPS, ELECTRICAL CONNECTIONS



### Ordering procedure

AR518 / □ / □

Analog output	Code	Interface RS*	Code
0/4÷20mA**	WA	interface RS485	RS485
0/2÷10 V	WU		

\* option for an extra fee  
\*\*standard option

#### For example:

AR518 / WA / RS485

AR518, output 0/4÷20mA, interface RS485

## TECHNICAL DATA

Universal inputs (programmable)	measurement ranges
- Pt100 (RTD, 3- or 2-wire)	-200 ÷ 850 °C
- Ni100 (RTD, 3- or 2-wire)	-50 ÷ 170 °C
- Pt500 (RTD, 3- or 2-wire)	-200 ÷ 620 °C
- Pt1000 (RTD, 3- or 2-wire)	-200 ÷ 520 °C
- thermocouple J (TC, Fe-CuNi)	-40 ÷ 800 °C
- thermocouple K (TC, NiCr-NiAl)	-40 ÷ 1200 °C
- thermocouple S (TC, PtRh 10-Pt)	-40 ÷ 1600 °C
- thermocouple B (TC, PtRh30PtRh6)	300 ÷ 1800 °C
- thermocouple R (TC, PtRh13-Pt)	-40 ÷ 1600 °C
- thermocouple T (TC, Cu-CuNi)	-25 ÷ 350 °C
- thermocouple E (TC, NiCr-CuNi)	-25 ÷ 820 °C
- thermocouple N (TC, NiCrSi-NiSi)	-35 ÷ 1300 °C
- current ( $R_{we} = 50 \Omega$ )	0/4 ÷ 20 mA
- voltage ( $R_{we} = 110 k\Omega$ )	0 ÷ 10 V
- voltage ( $R_{we} > 2 M\Omega$ )	0 ÷ 60 mV
- resistance (3- or 2-wire)	0 ÷ 2500 $\Omega$
- remote data display (through the RS485 port or PRG, MODBUS-RTU)	-1999 ÷ 9999
<b>Number of measurement inputs</b>	1
<b>Response time for measurements (10 ÷ 90%)</b>	0,25 ÷ 3 s (programmable)
<b>Resistance of leads (RTD, <math>\Omega</math>)</b>	$R_L < 25 \Omega$ (for each line)
<b>Resistance current (RTD, <math>\Omega</math>)</b>	400 $\mu$ A (Pt100, Ni100), 200 $\mu$ A (remaining)
<b>Processing errors (at 25°C ambient temperature):</b>	
- basic	- for RTD, mA, V, mV, $\Omega$ - for thermocouple
	0,1 % of measuring range $\pm 1$ digit 0,2 % of measuring range $\pm 1$ digit
- additional for thermocouples	<2 °C (thermocouple cold junction temperature compensation)
- additional caused by ambient temperature changes	< 0,003 % of input range /°C
<b>Resolution of measured temperature</b>	0,1 °C or 1 °C, programmable
<b>Binary inputs (contact or voltage &lt;24V)</b>	bistable, active level: short-circuit or < 0,8 V
<b>Communication interface</b> (RS485 i PRG, do not use at the same time)	- RS485 (galvanically separated), option - PRG programming link (no separation), standard
	- bitrate 2,4 ÷ 115,2 kb/s, - format 8N1 (8 data bit, 1 bit stop, no parity bit), - MODBUS-RTU protocol (SLAVE)
<b>Analogue outputs</b> (1 current or voltage)	- current 0/4 ÷ 20 mA (standard) - voltage 0/2 ÷ 10 V (option) - output basic error
	maximum resolution 1,4 $\mu$ A (14 bit) output load $R_o < 350 \Omega$ maximum resolution 0,7 mV (14 bit) output load $I_o < 3,7$ mA ( $R_o > 2,7 k\Omega$ ) < 0,1 % of output range
<b>7-segment LED display (programmable brightness)</b>	4 digits, height 25 mm, red
<b>Signaling of alarms, messages, and errors</b>	LED display, variable display color
<b>Power supply (Usup), universal</b>	- 230Vac - 24Vac/dc
	85 ÷ 260 Vac/ 3VA 20 ÷ 50 Vac/ 3VA, 20 ÷ 72 Vdc/ 3W
<b>Power supply to filed transmitters</b>	24Vdc / 30mA
<b>Rated operating conditions</b>	0 ÷ 50°C, <90 %RH (non-condensing)
<b>Working environment</b>	air and neutral gases
<b>Protection rating</b>	IP65 front, IP20 of the connections side
<b>Weight</b>	~295g
<b>Electromagnetic compatibility (EMC)</b>	- immunity: acc. to PN-EN 61000-6-2 - emission: acc. to PN-EN 61000-6-4