

AR503

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:

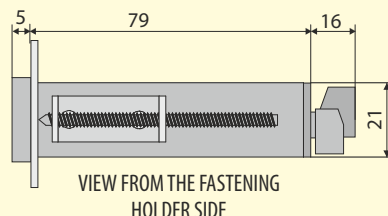
- regulator with handles
- mounting in the window
- user manual
- warranty card

Available accessories:

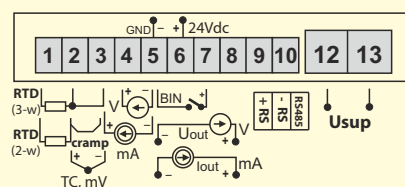
- programmer AR955/GP
- RS485 to USB converter

Dimensions, Installation data

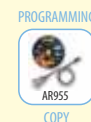
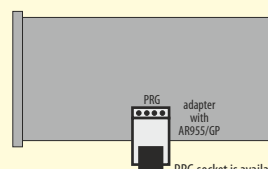
Enclosure dimensions	MULTIBOX 722408, dimensions 72x24x84 mm
Panel window	68x22 mm
Fixing methods	panel, grips on the side of the enclosure
Material	self-extinguishing polycarbonate NORYL 94V-0



Terminal strips, Electrical connections



Programming



PRG socket is available from the top of the housing

Keyboard



How to order

AR503 / □ / □ / □

Supply	Code	Analog output	Code	Interface RS*	Code
230 Vac	S1	0/4÷20mA**	WA	interface RS485	RS485
24 Vac/dc	S2	0/2÷10 V	WU		

Example:

AR503 / S1 / WA / RS485

AR503, supply 230 Vac, output 0/4÷20mA, interface RS485

* option for an extra fee
**standard option

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 ($R_{me} = 50 \Omega$)		0/4 ÷ 20 mA
- voltage ($R_{me} = 110 k\Omega$)		0 ÷ 10 V
- voltage ($R_{me} > 2 M\Omega$)		0 ÷ 60 mV
- resistance (3- or 2-wire)		0 ÷ 2500 Ω
- remote data display (through the RS485 port or PRG, MODBUS-RTU)		-1999 ÷ 9999
Number of measurement inputs		1
Response time for measurements (10 ÷ 90%)		0,25 ÷ 3 s (programmable)
Resistance of leads (RTD, Ω)		$R_L < 25 \Omega$ (for each line)
Resistance current (RTD, Ω)		400 μ A (Pt100, Ni100), 200 μ A (remaining)
Processing errors (at 25°C ambient temperature):		
- basic	- for RTD, mA, V, mV, Ω	0,1 % of measuring range ± 1 digit
	- for thermocouple	0,2 % of measuring range ± 1 digit
- additional for thermocouples		<2 °C (cold ends temperature)
- additional caused by ambient temperature changes		< 0,003 % of input range /°C
Resolution of measured temperature		0,1 °C or 1 °C, programmable
Binary inputs (contact or voltage <24V)		bistable, active level: short-circuit or < 0,8 V
Communication interface (RS485 i PRG, do not use at the same time)	- RS485 (galvanically separated), option	- bitrate 2,4 ÷ 115,2 kb/s, - format 8N1 (8 data bit, 1 bit stop, no parity bit), - MODBUS-RTU protocol (SLAVE)
	- PRG programming link (no separation), standard	
Analogue outputs (1 current or voltage)	- current 0/4 ÷ 20 mA (standard)	maximum resolution 1,4 μ A (14 bit) output load $R_o < 350 \Omega$
	- voltage 0/2 ÷ 10 V (option)	maximum resolution 0,7 mV (14 bit) output load $I_o < 3,7$ mA ($R_o > 2,7 k\Omega$)
	- output basic error	< 0,1 % of output range
7-segment LED display		4 digits, height 14 mm, red
Signaling of alarms, messages, and errors		LED display, variable display color
Power supply (Usup)	- 230Vac (standard)	85 ÷ 260 Vac/ 3VA
	- 24Vac/dc (option)	20 ÷ 50 Vac/ 3VA, 20 ÷ 72 Vdc/ 3W
Power supply to filed transmitters		24Vdc / 30mA
Rated operating conditions		0 ÷ 50°C, <90 %RH (non-condensing)
Working environment		air and neutral gases
Protection rating		IP65 front, IP20 of the connections side
Weight		~100g
Electromagnetic compatibility (EMC)		- immunity: acc. to PN-EN 61000-6-2
		- emission: acc. to PN-EN 61000-6-4

Version 2.0.6 2013.04.02