

AR602

Universal controller with double reading



Single-channel universal regulator with elements fuzzy logic PID



- microprocessor controller for temperature and other physical quantities (humidity, pressure, level, speed, etc.) converted into a standard electrical signal (0/4÷20mA, 0÷10V, 0÷60mV, 0÷2,5kΩ)
- 1 universal input (thermometer, thermocouple and analogue)
- BIN programmable digital input for changing operational mode of the controller: control start/stop, manual/automatic mode for outputs, two-position switching of the set value (day/night), keyboard lock
- 2 outputs of ON/OFF type with the following characteristics:
 - output 1 (main): ON-OFF with hysteresis, PID, fuzzy logic (auto-tuning) PID
 - output 2 (auxiliary/alarm): ON-OFF with hysteresis
- analogue output 0/4÷20mA or 0/2÷10V (constant-control, retransmission)
- advanced function of selecting PID parameters with fuzzy logic elements
- available for binary and analogue outputs, for setting the value of the output signal in the range of 0 ÷ 100%
- programmable operation characteristics (process controller, ramping)
- built-in 24 Vdc power supply for supplying on-site transducers
- two-line LED digital readout with adjustable brightness:
 - Upper display - measured value,
 - Bottom display - setpoint of output 1
- RS485 serial interface, galvanically isolated, MODBUS-RTU
- compensation of line resistance for resistance sensors
- temperature compensation of thermocouple cold ends
- programmable input, range of indications (for analogue inputs), options for adjustment, alarms, communication, access and other configuration parameters
- access to configuration parameters is protected by the user's password
- methods for configuring parameters:
 - 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 reuse, e.g. in other controllers of the same type (duplicate configuration)
- ingress protection rating: IP65 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, digital input BIN and interface RS485

Contents of set:

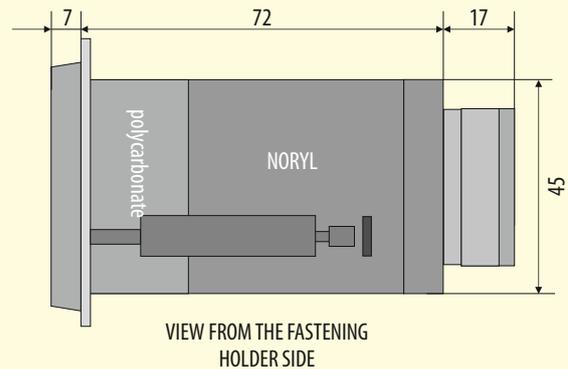
- regulator with handles
- mounting in the window
- user manual
- warranty card

Available accessories:

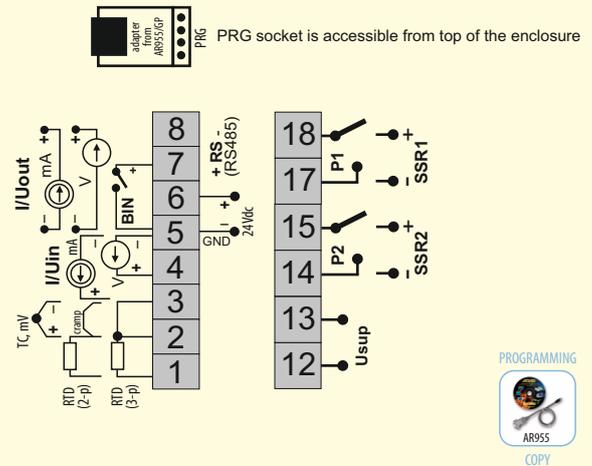
- programmer AR955/GP (with optional adapter)
- RS485 to USB converter

DIMENSIONS, INSTALLATION DATA

Enclosure dimensions	48x48x79 mm
Panel window	46x46 mm
Fixing methods	panel, grips on the side of the enclosure
Material	self-extinguishing polycarbonate NORYL 94V-0
Leads cross sections	2,5mm ² (power i outputs 1,2), 1,5mm ² (pozostałe)



TERMINAL STRIPS, ELECTRICAL CONNECTIONS



How to order

AR602 / □ / □ / □ / □

Supply	Code	Outputs 1, 2	code	Additional option*	Code
230 Vac	S1	relay	P	output 0/4÷20mA	WA
24 Vac/dc	S2	SSR	S	output 0/2÷10V	WU
				interface RS485**	RS485

*available is just one additional option: output 0/4÷20 mA, output 0/2÷10 V or interface RS485
interface RS485 excludes additional binary input BIN
** option for an extra fee

For examples:

AR602 / S1 / S / P / RS485
AR652, supply 230 Vac, main output (1) SSR, auxiliary output(2) relays, interface RS485 (instead analog output and binary input)

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 ($R_{in} = 50 \Omega$)		0/4 ÷ 20 mA
- voltage ($R_{in} = 110 k\Omega$)		0 ÷ 10 V
- voltage ($R_{in} > 2 M\Omega$)		0 ÷ 60 mV
- resistance (3- or 2-wire)		0 ÷ 2500 Ω
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 (remaning)
Processing errors (at 25°C ambient temperature):		
- basic	- for RTD, mA, V,mV, Ω	0,1 % of measuring range \pm 1 digit
	- for thermocouples	0,2 % of measuring range \pm 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 - 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)
Outputs (2 relays or SSR)	- relay (P1, P2), standard - SSR (SSR1, SSR2), option	5A / 250Vac (for resistive loads), SPST-NO transistor type NPN OC, 11V, internal resistance 440 Ω
Analogue outputs (1 current or voltage)	- current 0/4 ÷ 20 mA (standard) - voltage 0/2 ÷ 10 V (option, instead 0/4 ÷ 20 mA) - output basic error	maximum resolution 1,4 μ 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
7-segment LCD display with brightness control	- top - bottom	red 4 digits, height 9mm green 4 digits, height 7 mm
Signalling	- relays active - messages and errors	LED's, red LED dispaly
Power supply (Usup)	- 230Vac (standard) - 24Vac/dc (option)	85 ÷ 260 Vac/ 3VA 20 ÷ 50 Vac/ 3VA, 20 ÷ 72 Vdc/ 3W
Power supply to filed transmitters		24Vdc / 30mA
Rated operating conditions		0 ÷ 50°C, <100 %RH (non-condensing)
Working environment		air and neutral gases
Protection rating		IP65 front, IP20 of the connections side
Weight		~135g
Electromagnetic compatibility (EMC)		- immunity: acc. to PN-EN 61000-6-2 - emission: acc. to PN-EN 61000-6-4