

AR663

Universal two-channel controller



Two-channel universal regulator with mathematical functions and elements fuzzy logic PID



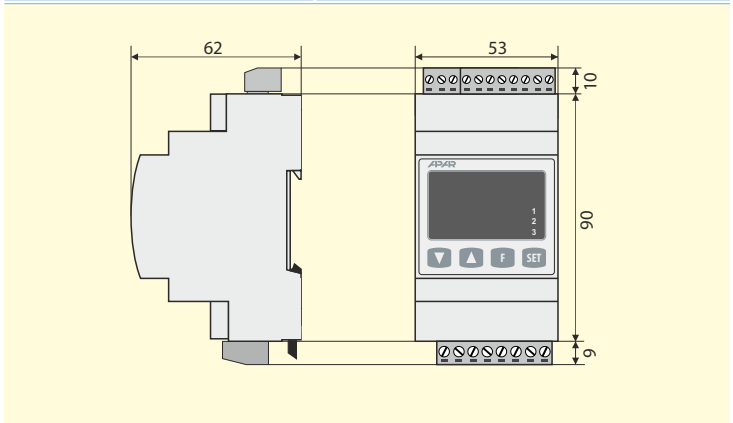
- control and monitoring of temperature and other physical values (humidity, pressure, level, speed, etc.) processed to a standard electrical signal (0/4÷20mA, 0÷10V, 0÷60mV, 0÷2,5kΩ)
- 2 universal measurement inputs (thermoresistant, thermocouple, and analog) with mathematical functions (subtraction, addition and average of measurements from two inputs)
- programmable functional button to change the operating mode of the controller: start/stop of control, manual mode for outputs, step change of the set value (day/night), keyboard lock, view of measured values
- 3 independent ON/Off type outputs (2- and 3-way adjustment) with the following control characteristics:
 - output 1 (main): ON-OFF with hysteresis, PID, AUTOTUNING PID
 - output 2, 3 (auxiliary/alarm): ON-OFF with hysteresis
- analogue output 0/4÷20mA or 0/2÷10V (constant-control, retransmission)
- selection of the value controlling the operation of each output (any input, subtraction, addition, average of measurements)
- advanced PID parameter selection function with fuzzy logic elements
- manual mode (open control loop) available for binary outputs and the analog output, which makes it possible to set the value of the output signal in the range of 0-100%; possibility of self-activation in the event of sensor failure
- programmable operating characteristics (process controller, ramping)
- an integrated 24V DC power supply supplying the field transducers
- two-line LED digital readout with adjustable brightness:
 - **Upper display** - measured value 1 (e.g. input 1, difference between measured values, etc.)
 - **Bottom display** - measured value 2 or set value of output 1
- RS485 serial interface, galvanically isolated, MODBUS-RTU
- compensation of line resistance for resistance sensors
- temperature compensation of thermocouple cold ends
- programmable values to be displayed (measurements or mathematical functions), types of inputs, indication ranges (for analog inputs), control, alarms, communication, and access options, and other configuration parameters;
- 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 the AR956 (or AR955) programmer that enables viewing the measured value and quick configuration of single or ready sets of parameters that were saved earlier on the computer for future use, e.g. in other controllers of the same type (copying of configuration)
- universal power supply 15-350Vdc, 20-250Vac / 50-60Hz
- enclosure for the DIN35 rail, IP20
- 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
 - user manual
 - warranty card

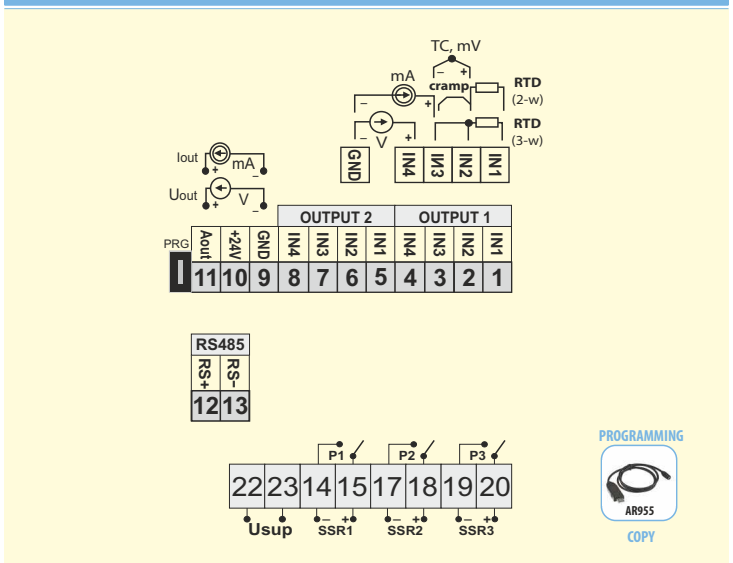
Available accessories:
 - AR955/GP or AR956 programmer
 - RS485 to USB converter

DIMENSIONS, INSTALLATION DATA

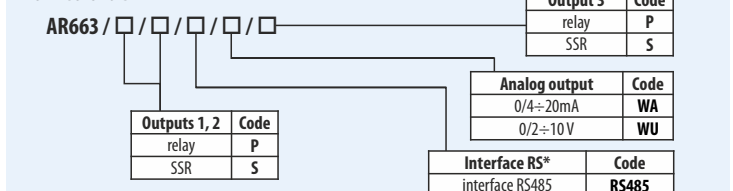
Enclosure dimensions	Modulbox 3MH53, 53x90x62 mm
Fixing methods	on a TS35 rail (DIN EN 50022-35)
Material	ABS/PC
Conductor cross-sections	2,5mm ² (supply, bi-state outputs), 1,5mm ² (other)



TERMINAL STRIPS, ELECTRICAL CONNECTIONS



How to order



* option for an extra fee

For example
 AR663 / S / P / RS485 / P
 AR663, main output (1) SSR, auxiliary output (2 i 3) relays, 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 ($R_{in} = 50 \Omega$)		0/4 ÷ 20 mA
- voltage ($R_{in} = 33 k\Omega$)		0 ÷ 10 V
- voltage ($R_{in} > 2 M\Omega$)		0 ÷ 60 mV
- resistance (3- or 2-wire)		0 ÷ 2500 Ω
Number of measurement inputs		2
Response time for measurements (10 ÷ 90%)		0,5 ÷ 4 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), pulse for WE1, continuous for WE2
Processing errors (at 25°C ambient temperature):		
- basic	- for RTD, mA, V,mV, Ω	0,1 % of measuring range \pm 1 digit
	- for thermocouple	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
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	
Outputs (3 relays or SSR)	- relay (P1, P2, P3), standard	8A / 250Vac (for resistive loads), 1 main (SPDT), 2 additional (SPST-NO)
	- SSR (SSR1, SSR2, SSR3), option	transistor type NPN OC, 11V, internal resistance 440 Ω
Analogue outputs (1 current or voltage, no separation from the input)	- current 0/4 ÷ 20 mA (standard)	maximum resolution 1,4 μ A (14 bit)
	- voltage 0/2 ÷ 10 V (option)	output load $R_o < 350 \Omega$ maximum resolution 0,7 mV (14 bit)
	- output basic error	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	red 4 digits, height 10 mm
	- bottom	green 4 digits, height 7 mm
Signalling	- relays active	LED's red
	- messages and errors	LED dispaly
Power supply (U _{sup})	universal,	15-350 Vdc / 3VA
	compatible to standard 24Vdc and 230Vac	20-250 Vac / 3VA / 50-60Hz
Power supply to filed transmitters		24Vdc / 50mA
Rated operating conditions		0 ÷ 50°C, <90 %RH (non-condensing)
Working environment		air and neutral gases
Protection rating		enclosure for the DIN35 rail, 53x90x62 mm, IP40 (enclosure), IP20 (connections side)
Weight		~160g
Electromagnetic compatibility (EMC)		- immunity: acc. to PN-EN 61000-6-2 - emission: acc. to PN-EN 61000-6-4