

AR651

TEMPERATURE CONTROLLER

Single-channel temperature controller



- 1 universal measuring input (supporting thermometer, thermocouple or digital probes of temperature AR182 and AR183)
- programmable BIN input for changing the controller's operating mode: control start/stop, keyboard lock
- 1 output, relay or SSR, ON-OFF with hysteresis, PID, PID AUTOTUNING
- automatic section of PID parameters function
- LED display with adjustable brightness
- line resistance compensation for resistive sensors
- temperature compensation of cold ends of thermocouples
- programmable input type, regulation and access options and other configuration parameters
- access to configuration parameters protected by a user's password
- methods of parameters configuration:
 - from the keypad on the controller front panel
 - via RS485 or AR955 programming device and ARSOFT-WZ1 freeware (Windows 2000/XP/Vista/7)
- software and programmer device which allows viewing the measured value and a quick configuration of single or ready-to-use parameter sets previously saved in the computer to be reused, for example in other controllers of the same type (configuration duplication)
- panel housing, IP65 from the front
- high accuracy, long-term stability and immunity to disturbance
- wide range of supply voltages: 15 ÷ 250 Vac (alternating voltage 50/60 Hz), 20 ÷ 350 Vdc (direct voltage)

Contents of set:

- regulator with handles mounting in the window
- user manual

Available accessories:

- AR955 programmer
- digital temperature probes AR182, AR183

Ordering procedure

AR651 / □

Output 1	Code
relay	P
SSR	S

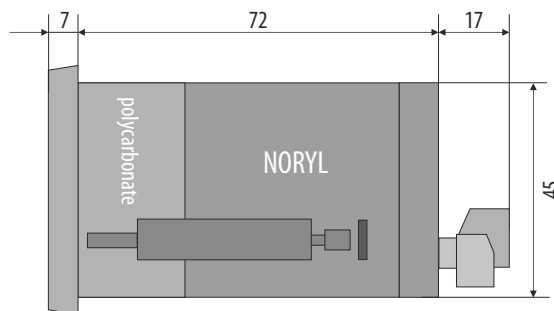
For example:

AR651 / P

AR651, 1 relay output

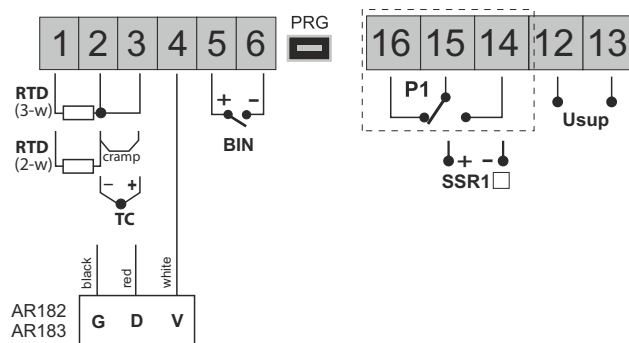
DIMENSIONS, INSTALATION DATA

Enclosure dimensions	96x48x79 mm
Panel window	92x46 mm
Fixing methods	w tablicy, uchwytyami z boku obudowy
Material	self-extinguishing polycarbonate NORYL 94V-0
Leads cross sections	2,5mm ² (power and output 1), 1,5mm ² (remaining)



VIEW FROM THE FASTENING
HOLDER SIDE

TERMINAL STRIPS, ELECTRICAL CONNECTIONS



TECHNICAL DATA

Universal inputs (programmable)		measurement ranges
- Pt100 (RTD, 3- or 2-wire)		-100 ÷ 850 °C
- thermocouple J (TC, Fe-CuNi)		0 ÷ 880 °C
- thermocouple K (TC, NiCr-NiAl)		0 ÷ 1200 °C
- thermocouple S (TC, PtRh 10-Pt)		0 ÷ 1750 °C
- thermocouple B (TC, PtRh30PtRh6)		300 ÷ 1800 °C
- thermocouple R (TC, PtRh 13-Pt)		0 ÷ 1600 °C
- thermocouple T (TC, Cu-CuNi)		0 ÷ 380 °C
- thermocouple E (TC, NiCr-CuNi)		0 ÷ 700 °C
- thermocouple N (TC, NiCrSi-NiSi)		0 ÷ 1300 °C
- AR182 digital temperature probe		-50 ÷ 120 °C
- AR183 digital temperature probe		-50 ÷ 80 °C
Number of measurement inputs		1
Response time (10 ÷ 90%)		0,5 ÷ 2 s (programmable)
Resistance of leads (RTD)		$R_L < 30 \Omega$ (for each line)
Resistance current (RTD)		~250 μ A (Pt100)
Processing errors (at 25°C ambient temperature):		
- basic	- for Pt100	0,2 % of measuring range \pm 1 digit
	- for thermocouples	0,3 % of measuring range \pm 1 digit
- additional for thermocouples		<2 °C (thermocouple cold junction temperature compensation)
Resolution of measured temperature		0,1 °C or 1 °C
Binary inputs (contact or voltage <24V), standard		bistable, active level: short-circuit or < 0,8 V
Communication interface		- PRG programming link (no separation) for AR955 programmer
		- bitrate 2,4 kb/s, - format 8N1 (8 data bit, 1 bit stop, no parity bit), - MODBUS-RTU protocol (SLAVE)
Two-state output (relay or SSR)		- relay (P1), standard
		- SSR (SSR1), option
		8A / 250Vac (for resistive loads), SPDT transistor type NPN OC, 11V, internal resistance 440 Ω
7-segment LCD display with brightness control		red, 4 digits, height 20mm
Signalling		- relays active
		- messages and errors
		LED's, red LED display
Power supply (Usup)		- universal, compliant with 24V and 230V standards
		15 ÷ 250 Vac, <2VA (alternating voltage, 50/60Hz) 20 ÷ 350 Vdc, <2W (direct voltage)
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		~170g
Electromagnetic compatibility (EMC)		- immunity: acc. to PN-EN 61000-6-2 - emission: acc. to PN-EN 61000-6-4
Safety requirements accordins to PN-EN 61010-1		- installation category - II - pollution degree - 2 - value of voltage to earth for the power supply circuit, output - 300 V - value of voltage to earth for input circuit - 50 V - insulation resistance >20 M Ω - altitude above the sea level <2000 m