AR753

APAR

Two-channel large display with standard mathematical functions, alarms and clock

4 COLORS DISPLAY

- control of temperature and other physical parameters (humidity, pressure, level, speed, etc.) processed into a standard electric signal (0/4÷20mA, 0÷10V, 0÷60mV, 0÷2,5kΩ)
- 2 universal measuring inputs (thermoresistance, thermocouple and analogue) with additional features:
  - mathematical (difference, sum and average of measurements from two inputs)
  - with measured minimum and maximum value saved in the memory
  - remote data display (via MODBUS-RTU, slave)
- real-time clock displayed alternately with measurements
- programmable display colours for measurement channels, clock, LED indicators and alarms
- 2 independent on/off alarm outputs (ON-OFF, heating, cooling, relative alarms, manual mode) with LED indication and a colour display
- BIN digital input for switching the operating mode: start/stop for outputs, manual/automatic mode for outputs, two-position switching of the set value (day/night) for alarms, display "Hold" feature for measurements, changing or stopping the switching of displayed channels, direct display of measured value inputs (for mathematical functions), etc.
- analogue output 0/4÷20mA or 0/2÷10V (alarm, retransmission)
- option of converting an input signal into a standard analogue output
- selecting control value outputs (input, difference, sum, average from measurements)
- manual mode (open control loop) available for binary and analogue outputs, setting the value of the output signal in the range of 0 ÷ 100%, option of auto-activation due to sensor failure
- built-in 24Vdc/50mA power supply adapter for supplying on-site transducers
- RS485 serial interface, galvanically isolated, MODBUS-RTU, slave
- compensation of line resistance for resistance sensors
- temperature compensation of thermocouple cold ends
- programmable display values (measurements, mathematical or remote functions), input types, indication ranges (for analogue inputs), alarm options, communication, access, display and other parameters
- option of protecting access to the configuration of parameters with user password
- methods for configuring parameters:
  - via membrane keyboard (IP65), located on the front panel of the device
  - via RS485 or PRG (programmer AR956/955) and freeware ARsoft-LOG (Windows 7/8/10), MODBUS-RTU
- 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 devices of the same type (duplicate configuration)
- 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
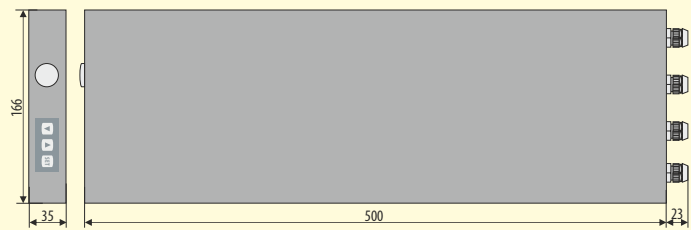
Contents of set:
- dispaly
- user manual
- warranty card

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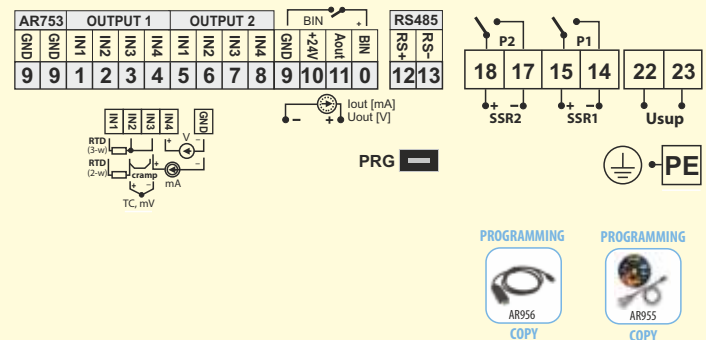- programmer AR956 or AR955
- RS485 to USB converter

Dimensions, Installation data

Encloruse type	wall mounting IP51, DELTA-BOX
Enclosure dimensions	500 x 166 x 35 mm (S x W x G)
Fixing methods	in horizontal guides at the back of the housing (eg with M4 or M5 screws for retractable nuts in guides)
Material	aluminum
Conductor cross-sections (for detachable connectors)	2,5mm2 (supply, bi-state outputs), 1,5mm2 (other)

Terminal strips, Electrical connections

PRG - programming connector is available after unscrewing cap in the left side of the housing (next to the keyboard). (do not use simultaneously with RS485)
Insert electric wires into the housing through cable glands(M12x1,5)
To terminal PE inside the housing next to the upper gland join a ground / neutral wire

How to order

AR753 / □ / □ / □ / □

Supply	Code	Output 1, 2	Code	Analog output	Code
230 Vac	S1	relay	P	0/4÷20 mA	WA
24 Vac/dc	S2	SSR	S	0/2÷10 V	WU

Fox example
AR753 / S1 / P / P / WA
AR753, supply 230 Vac, 2 relay outputs, output 0/4÷20 mA, interface RS485

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Technical data

Universal inputs (programmable)		measurement ranges			
– Pt100 (RTD, 3- or 2-wire)		-200	÷	850	℃
– Ni100 (RTD, 3- or 2-wire)		-50	÷	170	℃
– Pt500 (RTD, 3- or 2-wire)		-200	÷	620	℃
– Pt1000 (RTD, 3- or 2-wire)		-200	÷	520	℃
– thermocouple J (TC, Fe-CuNi)		-40	÷	800	℃
– thermocouple K (TC, NiCr-NiAl)		-40	÷	1200	℃
– thermocouple S (TC, PtRh 10-Pt)		-40	÷	1600	℃
– thermocouple B (TC, PtRh30PtRh6)		300	÷	1800	℃
– thermocouple R (TC, PtRh13-Pt)		-40	÷	1600	℃
– thermocouple T (TC, Cu-CuNi)		-25	÷	350	℃
– thermocouple E (TC, NiCr-CuNi)		-25	÷	820	℃
– thermocouple N (TC, NiCrSi-NiSi)		-35	÷	1300	℃
– current (R_{we} = 50 Ω)		0/4	÷	20	mA
– voltage (R_{we} = 110 kΩ)		0	÷	10	V
– voltage (R_{we} > 2 MΩ)		0	÷	60	mV
– resistance (3- or 2-wire)		0	÷	2500	Ω
– remote data display (via RS485 or PRG port)		-1999	÷	9999	

Number of measurement inputs		2
Response time for measurements(10 ÷ 90%)		0,5 ÷ 4 s (programmable)
Resistance of leads(RTD, Ω)		R_d < 25 Ω (for each line)
Resistance current (RTD, Ω)		400 μA (Pt100, Ni100), 200 μA (remaining)
Processing errors (at 25℃ 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 ℃ (cold ends temperature)
– additional caused by ambient temperature changes		< 0,003 % of input range /℃
Resolution of measured temperature		0,1 ℃
Display range (resolution of analog inputs)		-1999 ÷ 9999, programmable
Position of decimal point for analog inputs		programmable, 0 ÷ 0,000
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	
Outputs (2 relays or SSR))	– relay (P1, P2), standard	5A / 250Vac (for resistive loadsh), 1 main, 1 additional, SPST-NO
	– SSR (SSR1, SSR2), option	transistor type NPN OC 24V, internal resistance 850 Ω
Analogue outputs (1 current or voltage, without separation from input)	– current 0/4÷20 mA (standard)	maximum resolution 1,4 μA (14 bit)
		output load Ro < 500 Ω
	– voltage 0/2÷10 V (option)	maximum resolution 0,7 mV (14 bit)
		output load Io < 3,7 mA (Ro > 2,7 kΩ)
	– output basic error	< 0,1 % of output range
7-segment LCD display with brightness control		4 digits, height 100 mm, 4 colors (red, orange, yellow, green)
Signalling	– relays active	LED diode, 4 colors (as for display)
	– messages and errors	LED dispaly
Power supply (Usup)	– 230Vac (standard)	85 ÷ 260 Vac/ 5VA
	– 24Vac/dc (opcja)	20 ÷ 50 Vac/ 5VA, 20 ÷ 72 Vdc/ 5W
Power supply to filed transmitters		24Vdc / 50mA
Rated operating conditions		0 ÷ 50℃, <100 %RH (non-condesing)
Working environment		air and neutral gases
Protection rating		IP65, wall mounted aluminum, DELTA-BOX
Weight		~2300g
Electromagnetic compatibility (EMC)		– immunity: acc. to PN-EN 61000-6-2
		– emission: acc. to PN-EN 61000-6-4