

AR630

Universal controller with single reading



Jednokanałowy regulator uniwersalny z elementami fuzzy logic PID



- regulation 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)
- 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)
- BIN programmable digital input to change the controller's mode of operation: control start/stop, manual mode for outputs, step-wise change of the preset value (day/night), keypad block, display indications stop (HOLD function)
- 2 or 3 outputs of ON/OFF type with the following characteristics:
 - output 1 (main): ON-OFF with hysteresis, PID, fuzzy logic (auto-tuning) PID
 - output 2, 3 (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%
- digital LED readout with programmable color and illumination brightness
- signaling of alarm states (connected outputs) with a variable display color
- built-in 24 Vdc power supply for supplying on-site transducers
- 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 parameter
- 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 re-use, 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:

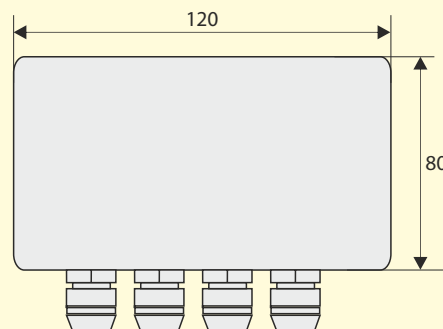
- regulator
- user manual
- warranty card

Available accessories:

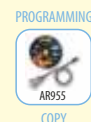
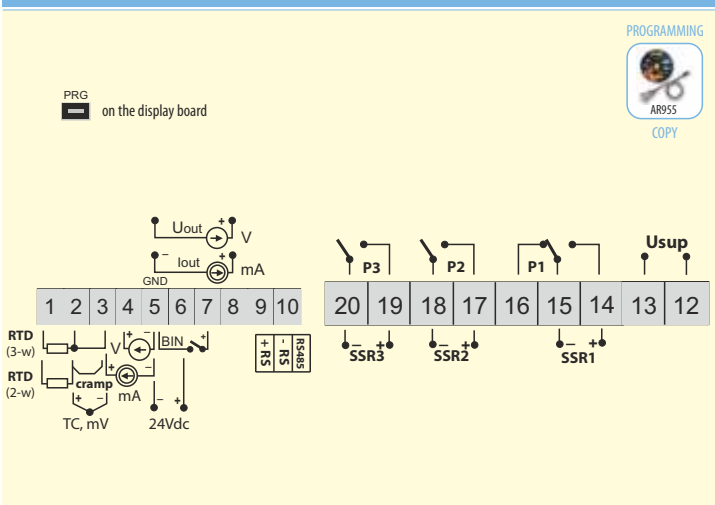
- programmer AR955/GP
- RS485 to USB converter

DIMENSIONS, INSTALLATION DATA

| | |
|----------------------|--|
| Enclosure | industrial IP65, Gainta G2104 |
| Enclosure dimensions | 120x80x55mm |
| Fixing methods | 4 holes Ø 4.3 mm, spacing 108x50 mm, mounting holes are available after removing the front cover |
| Material | polycarbonate |



TERMINAL STRIPS, ELECTRICAL CONNECTIONS



How to order

AR630 / [] / [] / [] / [] / []

| Supply | Code | Outputs 1, 2 | Code |
|-----------|------|--------------|------|
| 230 Vac | S1 | relay | P |
| 24 Vac/dc | S2 | SSR | S |

| Output 3 | Code |
|----------|------|
| relay | P |
| SSR | S |

| Analog output | Code |
|---------------|------|
| 0/4÷20mA | WA |
| 0/2÷10 V | WU |

| Interface RS* | Code |
|-----------------|-------|
| interface RS485 | RS485 |

* option for an extra fee

For example:
AR630 / S1 / S / P / RS485 / P
 AR630, supply 230 Vac, 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 ($R_{in} = 110 k\Omega$) | | 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 |
| 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 (3 relays or SSR) | - relay (P1, P2, P3), standard - SSR (SSR1, SSR2, SSR3), option | 1 main (SPDT) - 8A / 250Vac (for resistive loads), 2 additional (SPST-NO) - 5A/250Vac current source about 22mA / 10V |
| Analogue outputs (1 current or voltage) | - current 0/4 ÷ 20 mA (standard) - voltage 0/2 ÷ 10 V (option) - 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 | | 4 digits, height 20 mm, 5 colors (red, dark- and bright-orange, yellow, green) |
| Signalling | - relays active - messages and errors | LED's red, programmable alarm color of LED display LED display |
| 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 |
| Weight | | ~325g |
| Electromagnetic compatibility (EMC) | | - immunity: acc. to PN-EN 61000-6-2 - emission: acc. to PN-EN 61000-6-4 |

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