AR201
Recorder of temperature and analogue signals

APAR

Single channel recorder with universal thermometric and analog input and 7-segment LED display

- measurement and recording of temperature and other physical quantities (humidity, pressure, level, speed, etc.) converted into a standard electrical signal (0/4÷20mA, 0÷10V, 0÷60mV, 0÷1kΩ)
- 1 universal measuring inputs not electrically isolated (thermoresistance, thermocouple and analogue)
- 1 alarm/control outputs
- serial interface USB and RS485 (MODBUS-RTU, galvanically insulated)
- saving data in a standard text file stored in the recorder's internal memory, SD card USB memory (memory stick) in FAT system
- option of transferring archive and configuration data on SD card, USB memory or using the USB port of a computer
- 7-segment LED display with adjustable brightnes
- internal real time clock with a battery backup power supply
- built-in 24Vdc power supply for supplying on-site transducers
- compensation of line resistance for resistance sensors
- temperature compensation of thermocouple cold ends(automatic or fixed)
- free software provided for displaying recorded results as graphics or text and for configuring the parameters
- programmable input, range of indications, options for recording, alarm, communication, access and other configuration parameter
- methods for configuring parameters:
  - via membrane keyboard (IP65) located on the front panel of the device
  - via USB or RS485 interface and a computer program (Windows XP/7/8/10)
  - from the configuration files saved on SD/MMC card or USB memory
- access to configuration parameters is protected by the user's password
- available data protection against unauthorized copying and modification (checksum, authorization request for SD card and USB memory)
- possibility to differentiate archives from many recorders of the same or similar type by assigning individual identification numbers (ID)
- signalling the presence of SD and USB memory and file operations
- saving data until the memory is full, signalling full memory
- option of manual updating the recorder firmware
- high accuracy and immunity to interferenc

Contents of set:
- USB cable for connection to computer, length 2m
- CD with drivers and software (Windows 2000/XP/Vista/7)
- user manula
- warranty card

Accessories:
- SD memory card (1GB)
- SD / MMC card reader
- USB memory (2GB

Technical data

Universal inputs (programmable):	measurement ragnes		
- Pt100 (RTD, 3- or 2-wire)	-200 ÷ 850	℃	
- Ni100 (RTD, 3- or 2-wire)	-50 ÷ 170	℃	
- 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 a T (TC, Cu-CuNi)	-25 ÷ 350	℃	
- thermocouple E (TC, NiCr-CuNi)	-25 ÷ 680	℃	
- thermocouple N (TC, NiCrSi-NiSi)	-35 ÷ 1300	℃	
- current (Rwe = 110 Ω)	0/4 ÷ 20	mA	
- voltage (Rwe = 250 kΩ)	0 ÷ 10	V	
- voltage (Rwe > 2 M Ω)	0 ÷ 60	mV	
- resistance (3- or 2-wire)	0 ÷ 1000	Ω	

Number of measurement input	1
Response time (10÷90%)	1 ÷ 10 s (programmable)
Resistance of leads (RTD, Ω)	Rd < 25 Ω (for each line)
Resistance current (RTD, Ω)	~480 µA

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 thermocouple		<2 ℃ (cold ends temperature)
- additional caused by amb. temp. changes		< 0,005 % of input range /℃

Resolution of measured temperature	0,1 ℃

Communication interface		
- USB	- subordinate mode	drivers for Windows 2000/XP/Vista/7
	- overriding mode	support for USB memory (pendrive)
- RS485 (protocol MODBUS-RTU, SLAVE)		bitrate 2,4 ÷ 115,2 kb/s, galvanically separated

Period of data recording	programmable from 1s to 2 hours 45 min. (1)

Data memory (non-volatile, write up to 18 million measurements for 1GB memory):	
- internal (FLASH type)	4MB, FAT12 file system,up to 97thousand files masurements
- SD/MMC external card (connector with ejector)	FAT16, FAT32, max. size 2GB, recommended size ≤1GB and FAT16
- external USB memory (pendrive, A4 type)	FAT16, FAT32, max. size 4GB, recommended size ≤1GB and FAT16

Real-time clock (quartz RTC)	include leap years, supporting the CR1220 lithium battery

Alarm Output	- relay	5A / 250V~ (for resistive loads), SPST-NO
	- SSR (transistor NPN OC, option)	11V, internal resistance 440 Ω

LED 7-segment display	4 digita, red, height 20mm, adjustable backlightbrightness

Power Supply	- 230Vac	85 ÷ 260 Vac/ 4VA
	- 24Vac/dc (option)	20 ÷ 50 Vac/ 4VA, 20 ÷ 72 Vdc/ 4W

Power supply to filed transmitters	24Vdc / 30mA
Rated operating conditions	0 ÷ 50℃, <100 %RH (non-condesing)
Working environment	air and neutral gases
Protection rating	IP65 front, IP20 of the connections side

| **Electromagnetic compatibility (EMC)**	- immunity	acc. to PN-EN 61000-6-2
	- emission	acc. to PN-EN 61000-6-4

(1) minimum recording period of 1s is always possible for internal memory. For USB memory (pendrives) and SD cards the minimum guaranteed (even) registration period can be up to several seconds and depends on the size of available memory, file system, file size archive, and manufacturer (eg for SD cards with size ≤ 256MB, FAT16 and USB memory ≤ 1GB, FAT16 1s write period is possible, tested SanDisk, GOODRAM, Kingston and other memory)

Dimensions, Instalattion data

Enclosure type	96x48 Incabox XT L57
Material	elf-extinguishing polycarbonate, NORYL 94V-0
Dimensions	96 x 48 x 79 mm
Panel window	92 x 46 mm
Fixing methods	panel, grips on the side of the enclosure
Weight	~195g

VIEW FROM THE FASTENING HOLDER SIDE
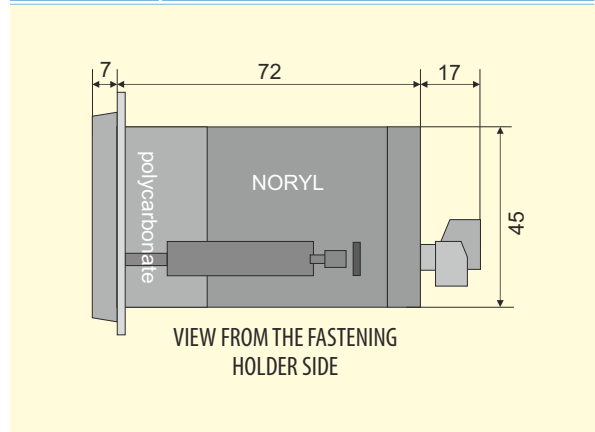
Terminal strips, electrical connections
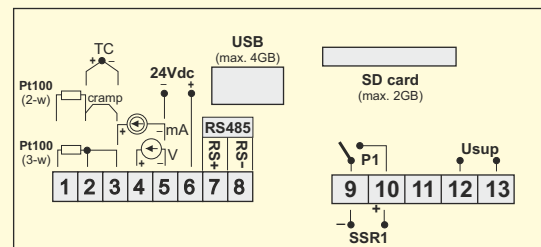
How to order

AR201 / ☐ / ☐

Supply	Code
230 Vac	S1
24 Vac/dc	S2

Output	Code
relay	P
SRR	S

For Example: AR201 / S1 / P
AR201, supply 230 Vac, relay output

Version 2.0.2 2013-03-19