AR200
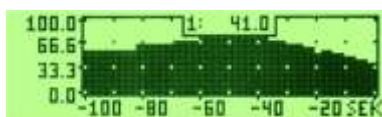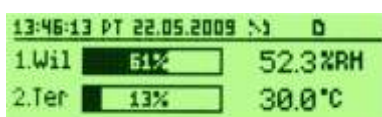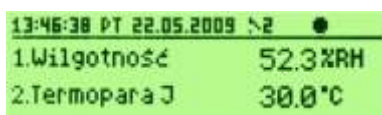## Two-channel data recorder

APAR

- 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÷850 Ω)
- 2 universal measuring inputs not electrically isolated (thermoresistance, thermocouple and analogue)
- 2 alarm/control outputs
- saving data in a standard text file stored in the recorder's internal memory, SD card USB memory (memory stick) in FAT system
- serial interface USB, RS485 (MODBUS-RTU) and Ethernet (10base-T, TCP/IP)
- Web server for work with any web browser, the site contains information about measurements, status of outputs, recording, etc.
- option of transferring archive and configuration data on SD card, USB memory or using the USB port of a computer or via EtherNet
- graphic LCD, 128x32 points, monochrome with backlit (option of assigning each measurement channel with different backlight brightness)
- graphic and text methods of presenting the measured values
- displaying measurement data in a single- and two-channel mode
- internal real time clock with a battery backup power supply
- built-in 24Vdc/50mA power supply adapter for supplying on-site transducers
- compensation of line resistance for resistance sensors
- temperature compensation of thermocouple cold ends (automatic or fixed)
- included free software enabling graphic or text representation of recorded results and configuration of parameters
- programmable inputs, indication ranges, alphanumeric description of measurement channels, options of recording, alarms, display, communication, access and other configuration parameters
- 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 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
- 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 interference

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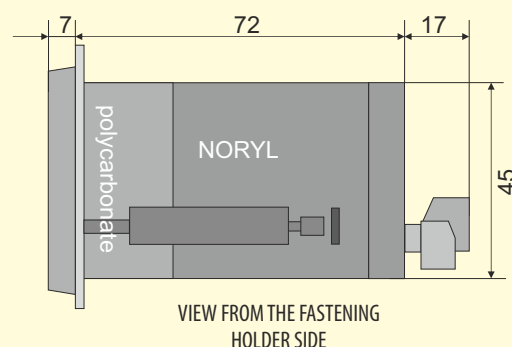- user manula
- warranty card

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

Data presentation

Serwer WWW

Technical data

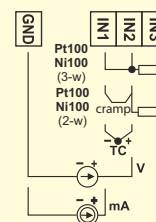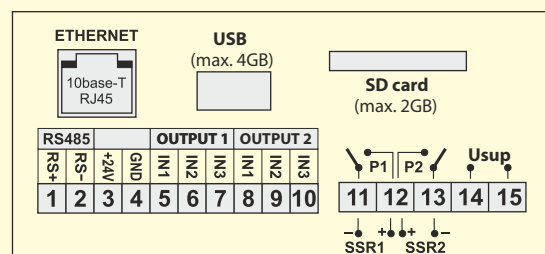|			
Universal inputs (programmable):	measurement ranges		
- Pt100 (RTD, 3- or 2-wire)	-200 ÷ 850 °C		
- Ni100 (RTD, 3- or 2-wire)	-50 ÷ 170 °C		
- thermocouple J (TC, Fe-CuNi)	-40 ÷ 800 °C		
- thermocouple K (TC, NiCr-NiAl)	-40 ÷ 1200 °C		
- thermocouple S (TC, PtRh 10-Pt)	-40 ÷ 1600 °C		
- thermocouple 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 ÷ 850 °C		
- thermocouple N (TC, NiCrSi-NiSi)	-35 ÷ 1300 °C		
- courrent (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 ÷ 850 Ω		
Number of measurement inputs	2		
Response time (10÷90%)	1 ÷ 10 s (programmable)		
Resistance of leads (RTD, Ω)	Rd < 25 Ω (for each line)		
Resistance current (RTD, Ω)	~550 μA		
Processing errors (at 25°C 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 °C (cold ends temperature)		
- additional caused by amb. temp. changes	< 0,005 % of input range /°C		
Resolution of measured temperature	0,1 °C		
Communication interface	- USB (type A4)	- subordinate mode	drivers for Windows 2000/XP/Vista/7
		- overriding mode	host, support for USB memory (pendrive)
	- RS485	protocol MODBUS-RTU, SLAVE, bitrate 2,4 ÷ 115,2 kbit/s, format 8N1, no galvanically separated	
	- EtherNet (option)	10base-T, RJ45, www server, protocol TCP/IP: DHCP, NetBIOS, ICMP, UDP, TCP, data transfer approx. 10 kB/s	
Period of data recording	programmable from 1s to 8 hours (1)		
Data memory (non-volatile, write up to 18 million measurements for 2 channels and 1GB memory):			
- internal	4MB, FLASH type, FAT12 file system, up to 72 thousand files measurements for 2 channels		
- SD/MMC external card	FAT16, FAT32, maximum size 2GB, recommended size ≤1GB and FAT16, connector with ejector		
- external USB memory (pendrive)	FAT16, FAT32, maximum size 4GB, recommended size ≤ 1GB and FAT16, connector type A4		
Real-time clock (RTC)	quartz, include leap years, supporting the CR1220 lithium battery		
Outputs (2 with common tick)	- relay	5A / 250V~ (for resistive loads), SPST	
	- SSR (op.)	transistor type NPN OC, 24V, internal resistance 850 Ω	
Graphic LCD display	128x32 points, 73x19 mm, with adjustable backlight brightness		
Power supply	- 230Vac	85 ÷ 260 Vac/ 5VA	
	- 24Vac/dc (option)	20 ÷ 50 Vac/ 5VA, 22 ÷ 72 Vdc/ 5W	
Power supply to filed transmitters	24Vdc / 50mA		
Rated operating conditions	0 ÷ 50°C, <100 %RH (non-condesing)		
Working environment	air and neutral gases		
Protection rating	IP65 front, IP20 of the connections side		
Weight	~215g		
Electromagnetic compatibility (EMC)	- immunity	acc. to PN-EN 61000-6-2 (2)	
	- emission	acc. to PN-EN 61000-6-2	

(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) as well as the EtherNet interface activity.
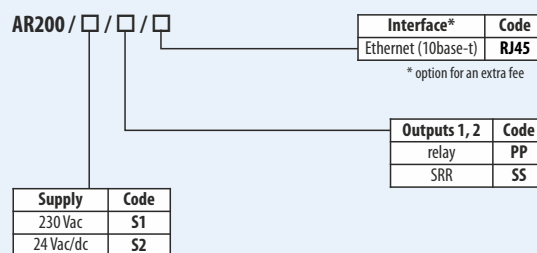(2) – for LCD display: PN-EN 61000-6-1, details in the technical data in the instruction manual

Dimensions, Instalattion data

Fixing methods	panel, grips on the side of the enclosure
Dimensions	96 × 48 × 79 mm
Panel window	92 × 46 mm
Material	self-extinguishing polycarbonate, NORYL 94V-0

VIEW FROM THE FASTENING HOLDER SIDE

Terminal strips, electrical connections

How to order

AR200 / □ / □ / □

Interface*	Code
Ethernet (10base-t)	RJ45

* option for an extra fee

Outputs 1, 2	Code
relay	PP
SRR	SS

Supply	Code
230 Vac	S1
24 Vac/dc	S2

For example: AR200 / PP
supply 230 Vac, relay outputs

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