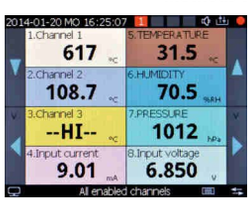
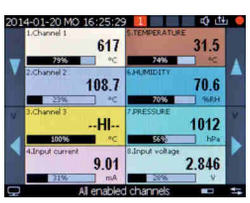
AR208

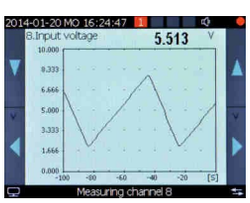
Multi-channel data recorder

4GB Memory | USB | RJ45 Ethernet | RS485 | HTTP www | E-mail Alarm | MODBUS TCP, RTU | DDNS | IP65

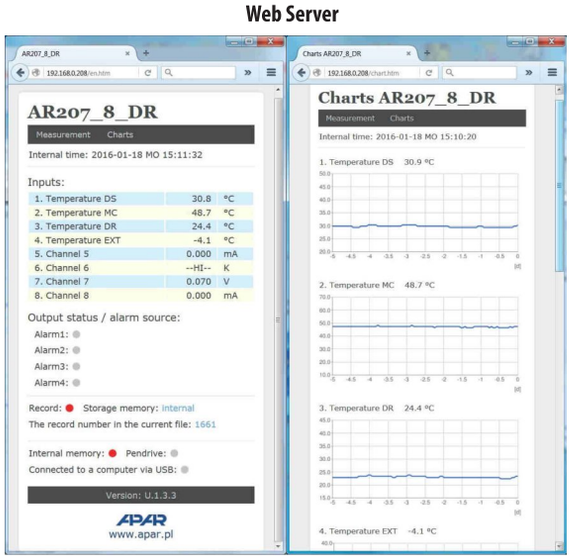
Methods of data presentation







Web Server



- 8 universal input (thermoresistance, thermocouple and analog)
- measurement and recording of temperature from thermoresistance sensors and thermocouples and other physical values (humidity, pressure, level, flow, speed, etc.) processed to a standard electrical signal (0/4÷20mA, 0÷10V, 0÷60mV, 0÷850") or pulse signals (frequency, flow, counting, etc.)
- 4 alarm/regulation outputs with sound and visual operating status signaling and e-mail notofications, programmable characteristics, and the possibility to assign any mea surement channels that trip the alarm
- a color graphic display, LCD TFT, 320x240 points (QVGA) with a touch screen, brightness adjustment, and programmable background color for individual measurement channels
- rich standard equipment with serial interfaces: USB (cooperation with a computer and USB memories), RS485 and Ethernet (100base-T, TCP/IP protocols), MODBUS-RTU and M ODBUS-TCP
- saving data in standard text files stored in the recorder's internal memory (4 GB) or in a USB memory (FAT system) supported by computers, tablets, etc.
- reading archive data via USB (computer, USB stick) or Ethernet with the option of editing in spreadsheets in such software as Microsoft Excel and OpenOffice Calc
- web server for cooperation with any web browser (Opera, IE, Firefox, etc.), the site contains information on active measurement channels, time, status of outputs, recording, etc., with the possibility to present charts using the Google Chart API service (permanent Internet access is required to present charts)
- the DDNS service, which enables easy access over the Internet a recorder connected to a network that has no fixed public IP address, through a friendly Internet address defined by the user; the service is available only for registered users of popular DDNS services, such as DynDNS (www.dyndns.org), No-IP (www.no-ip.com), and DNS-O-Matic (www.dnsomatic.com)
- a programmable language of the menu and the site saved on web server (Polish, English)
- programmable F button for quick selection of one of the available functions: stop/start of recording, copying or transfer of archives into USB memory, blocking of outputs, sound alarms or touch screen and keypad, device and internet services status
- programmable types of inputs, ranges of indications, alphanumeric description of channels and measurement groups, options of recording, alarms, display, communication, access, and other configuration parameters
- access to configuration parameters protected with a user password or not protected with a password
- parameter configuration methods:
  - from the film keypad and a touch screen located on the front panel of the device
  - via the USB, the RS485, or the Ethernet and the ARSOFT-CFG free software (Windows Vista/7/8/10) or a user's application, the MODBUS-RTU and MODBUS-TCP communication protocols
  - from configuration files saved in the USB memory or on a computer disk
- available protection of measurement data from unauthorized copy or modification
- graphic and text methods of presentation of the measured values (bar graph, analog indicator, chart)
- grouping of measurement channels to be displayed, with automatic formatting of the screen
- internal real time clock with a battery backup power supply (up to 8 years of continuous operation)
- an integrated 24 V DC power supply supplying the field transducers, flowmeters, etc.
- compensation of line resistance for resistance sensors in 2- or 3-wire connection
- compensation of thermocouple cold tip temperature (automatic or permanent)
- enclosed free software enabling graphic or text presentation of recorded result (ARSOFT-WZ3) and configuration of parameters (ARSOFT-CFG)
- recording of data until the memory is full (at least 470 days of continuous operation with recording of 8 channels every 1 s)
- a broad selection of methods of initiation of recording (continuous, limited by date and time, repeated daily, over or under a permission threshold connected with any measurement channel)
- USB drivers for Windows 7/8/10
- possibility to distinguish archives from many recorders of the same time thanks to individual assignment of an identification number (ID)
- clearly visible status of operation of recording, memory, USB port, alarms, file and disk operations, serial transmission (USB, RS485, Ethernet), etc.
- high accuracy and immunity to interferences
- possibility to latest firmware upgrade via USB memory
- two-chamber housing for wall mounting, IP65 tightness

Ordering procedure

AR208 / □ / □

Output (1, 2, 3, 4)	Code
4 x relay	P
4 x SRR	S

Power Supply	Code
230 Vac	S1
24 Vac/dc	S2

For example:
AR208/S1/P - power supply 230Vac, 4 relay outputs

APAR APLISENS GROUP

TECHNICAL DATA

Number of measurement inputs	8 universal not galvanically isolated			
Universal inputs (programmable, 16 types), measurement ranges **(1)**				
- Pt100 (RTD, 3- or 2-wire)	-200 ÷ 850 °C	- thermocouple R (TC, PtRh13-Pt)	-40 ÷ 1600 °C	
- Pt500 (RTD, 3- or 2-wire)	-200 ÷ 620 °C	- thermocouple T (TC, Cu-CuNi)	-25 ÷ 350 °C	
- Pt1000 (RTD, 3- or 2-wire)	-200 ÷ 620 °C	- thermocouple E (TC, NiCr-CuNi)	-25 ÷ 850 °C	
- Ni100 (RTD, 3- or 2-wire)	-50 ÷ 170 °C	- thermocouple N (TC, NiCrSi-NiSi)	-35 ÷ 1300 °C	
- thermocouple J (TC, Fe-CuNi)	-40 ÷ 800 °C	- current (mA, Rwe = 100 Ω)	0/4 ÷ 20 mA	
- thermocouple K (TC, NiCr-NiAl)	-40 ÷ 1200 °C	- voltage (V, Rwe = 150 kΩ)	0 ÷ 10 V	
- thermocouple S (TC, PtRh 10-Pt)	-40 ÷ 1600 °C	- voltage (mV, Rwe > 2 M Ω)	0 ÷ 60 mV	
- thermocouple B (TC, PtRh30PtRh6)	300 ÷ 1800 °C	- resistance (R, 3-wire or 2-wire)	0 ÷ 850 Ω	

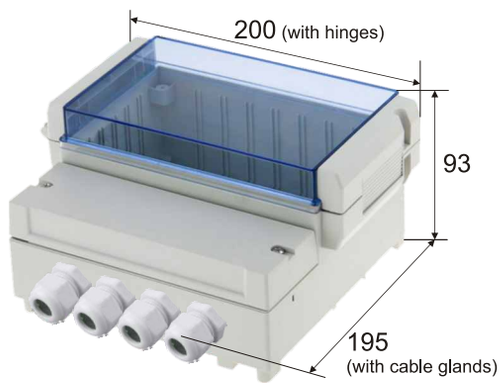
Response time (10 ÷ 90%)		1 ÷ 5 s (programmable)
Resistance of leads (RTD, R)		Rd < 25 Ω (for each line)
Resistance input current (RTD, R)		650 µA (Pt100, Ni100, 850Ω), 150 µA (Pt500, Pt1000), multiplexed
Processing errors(at ambient temperature of 25 °C):		
- basic	- for RTD, mA, V,mV, R	0.1% of the measurement range ±1 digit
	- for thermocouples	0.2% of the measurement range ±1 digit
- additional for thermocouples		<2 °C (thermocouple cold junction temperature compensation)
- additional from ambient temperature		< 0.005% of the input range /°C
Range of indications(programmable)		-9999 ÷ 19999 (resolution of analog inputs), 0 ÷ 99999 (pulse inputs)
Resolution / dot position		programmable, 0 ÷ 0,000, for thermometric inputs 0,1 °C or 1 °C
Communication interfaces (in IP30 version USB also accessible from the front)	**-USB** (A4 socket type, programmable mode of operation)	- slave mode (device, communication with a computer): drivers for the Windows 7/8/10 exchangeable disk (reading ~ 335kB/s) + virtual COM serial port (MODBUS-RTU protocol)
		- master mode (host): support of USB memory (pendrive) up to 4 GB
	-RS485	MODBUS-RTU protocol, SLAVE, speed 2.4÷115.2 kbit/s, sign format 8N1, galvanic separation
	-Ethernet	100base-T, RJ45, web server, MODBUS-TCP, e-mail client (SMTP), DDNS server client, TCP/IP protocols: DHCP (client, server), SMTP, NetBIOS, ICMP, UDP, TCP, data transfer up to 135 kB/s (depending on the network)
Data recording interval		programmable 1 s to 8 hours**(4)**
Data storage memory(non-volatile, recording of approx. 42x10^6 measurements from 8 channels and 4 GB memory):		
- internal		4GB, FAT32 file system, micro SDHC card, industrial, MLC
- external USB memory (pendrive)		FAT16, FAT32, maximum size 4 GB, pendrive, A4 type socket
Real time clock (RTC)		quartz, date, time, takes leap years into account, **CR1220** lithium battery
Outputs (4 separate)	- relay	5A / 250Vac (for resistance loads), SPST
	- SSR (optional)	ansistor, type NPN OC, 24V, internal resistance 850Ω
LCD graphic display		TFT, 320x240 points (QVGA), 3.5", background brightness adjustment
Touch panel		resistance, integrated with LCD display
Power supply(Usup)	- 230Vac	85 ÷ 260 Vac/ 7VA
	- 24Vac/dc (option)	20 ÷ 50 Vac/ 7VA, 22 ÷ 72 Vdc/ 7W
Power supply of field transducers		24Vdc/200mA (100 mA in the case of the 24 VAC/DC supply)
Rated operating conditions		0 ÷ 50°C, <100 %RH (no condensation), air and neutral gases, no dust
Protection rating		IP65
Electromagnetic compatibility (EMC)		immunity: according to the PN-EN 61000-6-2, emission: PN-EN 61000-6-4
Safety requirements according to PN-EN 61010-1 standard		overvoltage category: II; pollution degree: 2
		voltage to the ground (earth): 300 V for power supply and output relay circuits, 50 V for other inputs/outputs circuits and communication interfaces
		insulation resistance > 20 M"; height above sea level < 2000 m

Notes:

(1) - in the case of recording interval of 1 s, the recording may be uneven during the transfer of the archive over the Ethernet and also due to the excessive number of files, their size, and the type and brand of the USB (pendrive) memory used

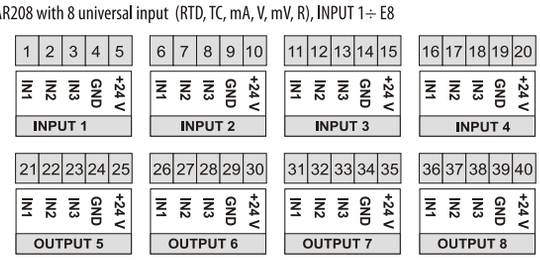
DIMENSIONS, INSTALLATION DATA

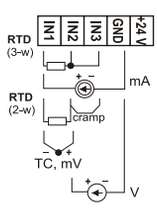
Enclosure type	Wall 2-chamber, Gainta DC001CBU
Material	ABS (UL 94-HB)
Dimensions, weight, tightness	200 x 195 x 93 mm, ~1050g, IP65
Access to connectors	Cable glands M16 (x1), M20 (x3)
Conductor cross-sections (separable connectors)	2.6mm^2=13AWG (power supply, alarm outputs) 1.3mm^2=16AWG (others)



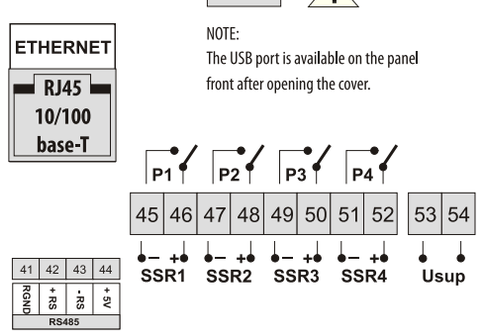
TERMINAL STRIPS, ELECTRICAL CONNECTIONS

a) AR208 with 8 universal input (RTD, TC, mA, V, mV, R), INPUT 1÷ E8





b) other connectors



Version 1.0.0 2024.10.17