

**azbil**

# Paperless Recorder

## ARF100/200

Advanced network  
applications

PC data management

Remote monitoring



# Paperless recorder with network and other enhanced functionality can be used in any field

The ARF100/200 series paperless recorder is user-friendly, with versatile recording forms and display functions. It has a high-speed data collection rate of 100 ms and accuracy level of  $\pm 0.1\%$ , and is equipped with functions useful in many fields, such as Ethernet connectivity, USB port and CF card slot. In addition to recording, it can be used for tasks such as remote monitoring, sending e-mail reports in emergencies, automated data transfer, and distributed remote measurement.

Ready-to-use advanced functions in a compact unit.



## ▶▶ Designed for ease of use and easy viewing

- Setup so simple, you won't need the manual
- Smooth touch-panel operation (ARF200 only)
- Display has high visibility for use in the field

## ▶▶ High performance and expandability

- High-speed sampling with high accuracy
- Selectable recording modes and data formats
- Handles conventional chart recorder functions
- Fully equipped with calculation functions

## ▶▶ Enhanced network functionality

- Ready-to-use communication functions
- Compatible with LAN environments
- Number of channels can be expanded with Network Instrumentation Modules (optional)

### ■ Quick overview of functions

	Input channels	Measurement cycle	External dimensions	Display device	Touch panel	Ethernet	CF card I/F	USB
<b>ARF100</b>	6/12 ch.	100 ms/ all ch.	W144xH144xD234 mm	5.6 TFT color LCD	—	○	○	Slave (connected to PC)
<b>ARF200</b>	12/24/36/48 ch.	100 ms/ all channels*	W288xH288xD251 mm	12.1 TFT color LCD	○	○	○	Host (USB memory connection)

\*With measurement cycle specification of 100 ms

# ARF100

144x144 mm  
100 ms / max. 12 channels

## High-quality, easy-to-view screen and a host of functions with easy-to-use operation

### Ethernet-ready

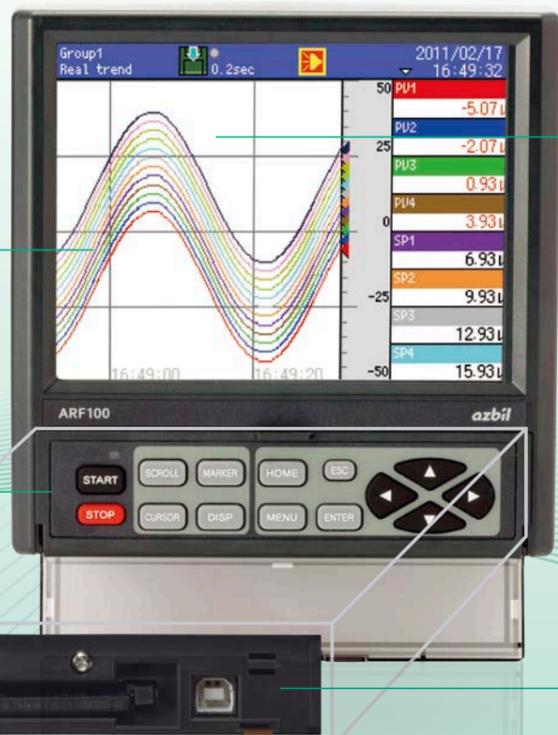
Ethernet port is a standard feature. Remote monitoring with a web browser, data transfer with an FTP client/server, automated e-mail reporting and other functions are ready to use.

### 5.6" TFT LCD display

Display has excellent visibility—made for data monitoring in the field.

### Operation keys

Dedicated keys for each function, and functional key layout, make operation and configuration easy.



### Simultaneous display of 44 items High-speed trend display

Diverse display functions handle various kinds of data monitoring. Simultaneous trend display of up to 44 data measurement inputs.

### Front USB port, CompactFlash card slot and power switch.

Operation is simple even with other equipment connected.

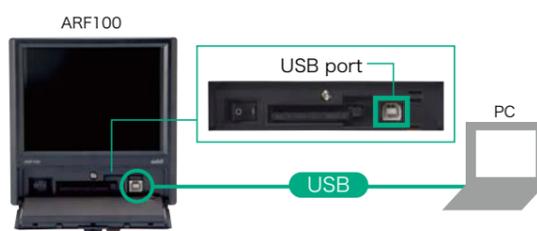
## A variety of interfaces is standard.

### Recorded data can be retrieved easily.



Front CompactFlash card slot. Data can be backed up "as is" to a PC.

### File read-out from the USB port.



Data on a CF card or setup files can be read from a PC using the USB port (ARF100 only).

Functional layout of dedicated keys and menus

## Easy to use, no manual needed



With a touch of the MENU key

Viewer- and user-friendly display design

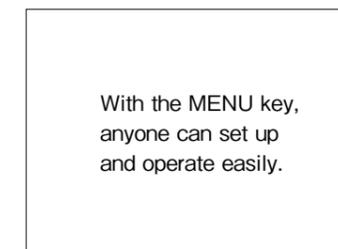
## Display is easy to view in the field



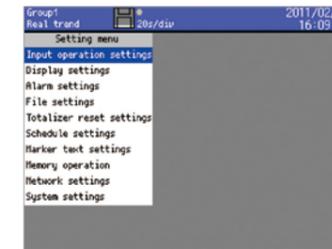
With a touch of the DISP key

## Ease of use and viewing

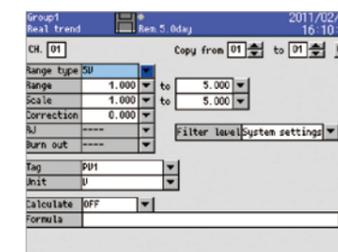
Designed for easy operation and setup



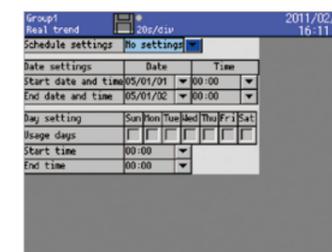
With the MENU key, anyone can set up and operate easily.



Selecting an item for setup



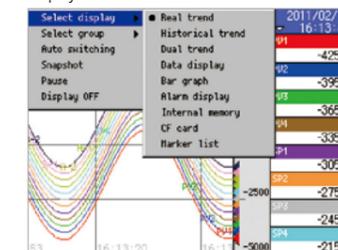
Input and calculation settings



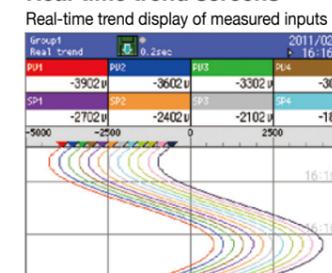
Schedule settings

## Screen type selection to fit any application

### Display selection screen

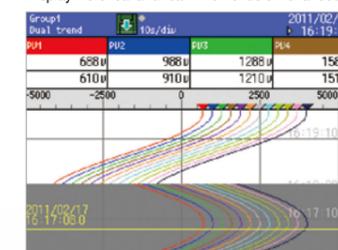


### Real-time trend screens



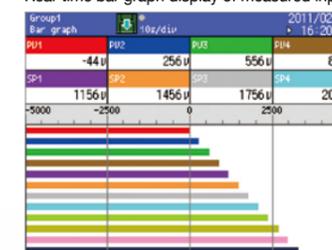
### Dual trend screens

Display historical and real-time trends simultaneously



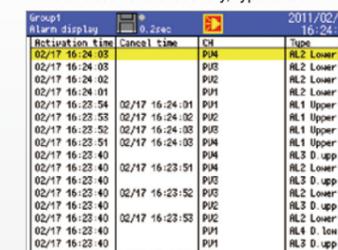
### Bar graph display

Real-time bar graph display of measured inputs



### Alarm display

Time of occurrence/recovery, type of alarm



### Data display

Real-time numerical display of measured inputs



# ARF200

288x288 mm  
100 ms / max. 48 channels

Multiple channels, ease of use, large touch-panel display—designed for use in the field!

**12.1" TFT LCD**  
Large display with excellent visibility. Easy to view, even when divided into four.

**Touch-panel (ARF200 only)**  
Touch-panel is overlaid on the LCD. Changing the screen type, scrolling, character input, parameter configuration and other operations can be done using the touch-panel.

**Front USB port, a CompactFlash card slot and power switch.**  
Operation is simple even with other equipment connected.



**Ethernet-ready**  
The Ethernet port is a standard feature. Remote monitoring on a web browser, data transfer with an FTP client/server, automated e-mail reporting and other functions are ready to use.

**Simultaneous display of up to 56 items**  
Diverse display functions handle various kinds of data monitoring. Simultaneous trend display of up to 56 items.

**Operation keys**  
In addition to the touch-panel, each function has a dedicated key. Functional key layout makes operation and configuration easy.

**USB port**  
Data can be saved to USB memory (ARF200 only).

## A variety of interfaces is a standard feature.

**Recorded data can be retrieved easily.**



Front CompactFlash card slot. Data can be backed up "as is" to a PC.

**Copy data using a USB memory device.**



Various other uses are possible (ARF200 only).

- To connect a data recording medium other than a CF card
- To save differential data automatically when a USB memory device is inserted
- To copy all files recorded on the CF card to a USB memory device
- To read or write an ARF setup file

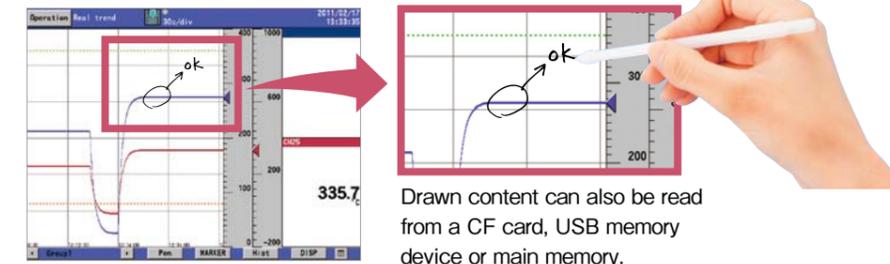
USB memory capability means users do not need a PC in the field, and CF cards need not be returned after data has been copied.

Intuitive operation and excellent recording performance

## Smooth operation using the touch-panel

## Ease of use and view

Touch pen allows users to write on the trend screen.



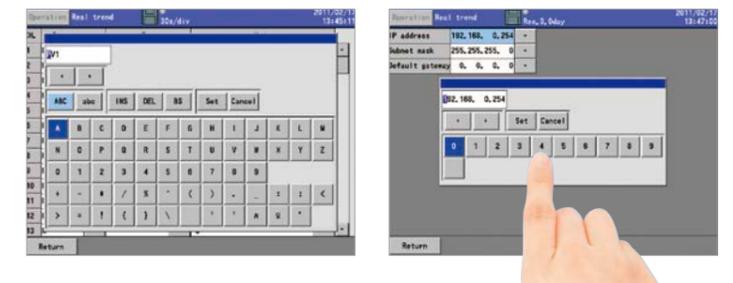
Drawn content can also be read from a CF card, USB memory device or main memory.

Users can scroll the screen by touching and dragging the scroll button.



Touching above or below the scroll button allows users to scroll screen by screen.

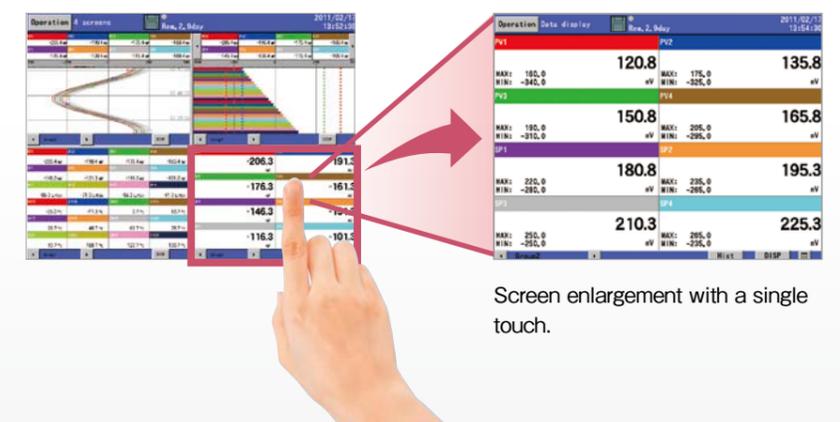
Touch panel allows exceptionally simple operation.



Browse various on-screen items at the same time

## Applicable to a wide range of situations

Large screen is easy to read and holds lots of data.



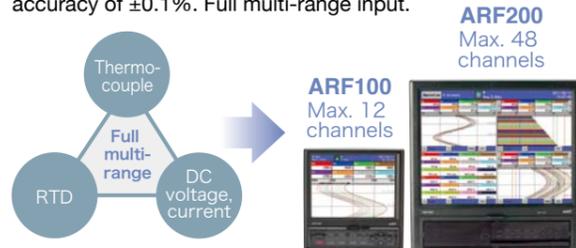
Screen enlargement with a single touch.

## High performance and expandability

High-speed data collection and versatile recording and calculation functions

### Multiple channels recorded at high speed with high accuracy

High-speed data collection at 100 ms on all channels. High accuracy of  $\pm 0.1\%$ . Full multi-range input.



\*An external resistor is used for DC current.

### Versatile recording modes possible

Versatile recording modes can be selected for various applications. Data can be collected as suits the user.

Manual recording	Start/stop easily by pressing a key
Scheduled recording	Start/stop by day of the week, time, or date/time
Data recording pre-/post-trigger point	Pre-trigger recording function

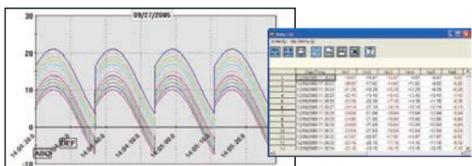
### Large data-recording capacity

A large volume of data—up to 2 GB—can be recorded. Select whether to stop recording or overwrite oldest data when this limit is reached.

Recording channels	Capacity	Data recording cycle			
		100 ms	1 s	10 s	1 min
12	128 MB	Approx. 3 days	Approx. 1 month	Approx. 10 months	Approx. 5 years
		Approx. 18 hours	Approx. 7 days	Approx. 2 months	Approx. 15 months
48	2 GB	Approx. 49 days	Approx. 16 months	Approx. 13 years	Approx. 81 years
		Approx. 12 days	Approx. 4 months	Approx. 3 years	Approx. 20 years

### Data analysis tool is available (optional extra)

- Display data from a CF card; process and edit waveforms
- Versatile graph display (vertical/horizontal, bar graphs, etc.)
- Save data in CSV or text format
- Search data
- Add comments to graphs



### Selectable data format for saving

Data format when saving can be selected depending on the user's needs.

#### CSV format

Data can be opened directly with a general-purpose application (such as Excel). Data can be checked and edited.



#### Binary format\*

Past data can be reproduced on the ARF screen (historical trends).

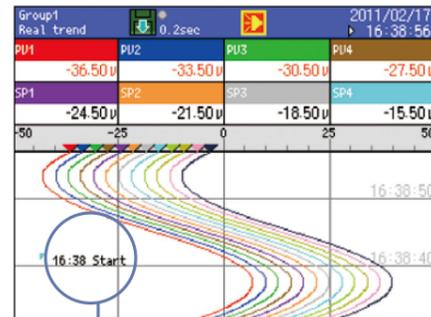
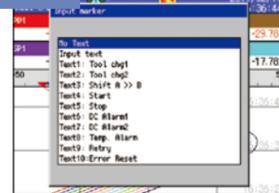
\*Processing data on a PC requires dedicated data-analysis software.

### Text can be added to screens

Useful marker text can be inserted on recorded screens. Fifty user-defined text patterns can be inserted with a touch.



Select text to insert.



\*Text can also be input directly with the main operation keys.

## Enhanced network functionality

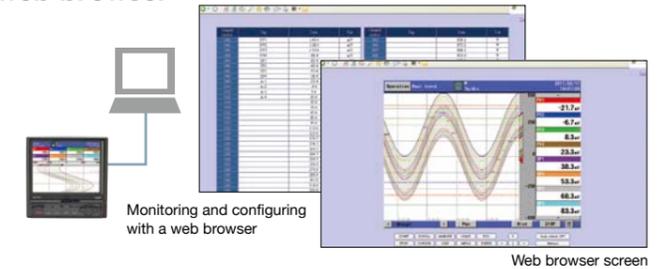
Remote monitoring and management of collected data

### Ethernet, for more extensive application

#### Monitoring of collected data with a web browser

##### Web server functions

Collected data can be monitored on a PC web browser when the ARF is connected to a network. Naturally, remote monitoring of collected data can be done without any special application software. Also, the ARF can be connected to a PC with an Ethernet crossover cable.

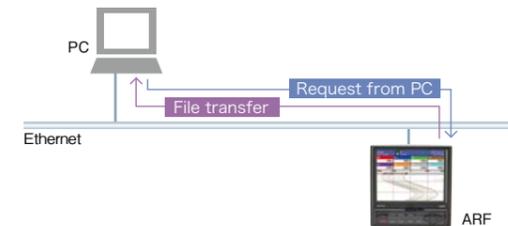


#### Collected data transferred by FTP

Data files on the ARF can be transferred upon demand from a PC.

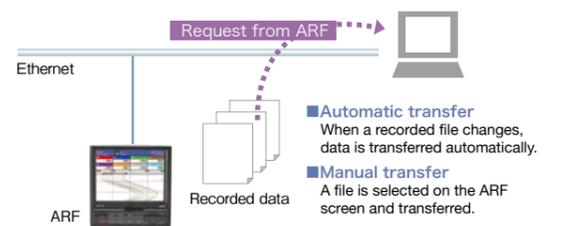
\*FTP : File Transfer Protocol

##### FTP server functions



Recorded data can be transferred automatically or manually from the ARF to a PC server.

##### FTP client functions



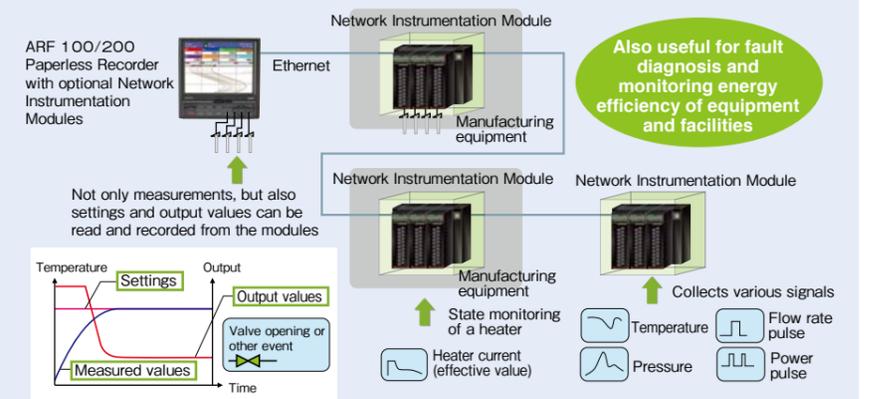
### Security in emergencies, thanks to automatic e-mail notification of alarms

Alarms notification can be sent automatically by e-mail to users' cell phones or network PCs. Up to 8 mail addresses can be registered to receive reports.



### Channel expansion and distributed remote measurement

With optional Ethernet-capable Network Instrumentation Modules, data from a module can be recorded via the network. With a distributed arrangement, wiring can be minimized and unit channel price reduced while expanding the number of measurement channels.



## Specifications

Item	Description
Input	Input type DC current, DC voltage, thermocouple, resistance temperature detector *An external resistor is used for DC current.
	Input channel ARF100: 6/12 channels ARF200: 12/24/36/48 channels
	Sampling rate ARF100: about 100 ms for all channels ARF200 (100 ms specification): about 100 ms for all channels ARF200 (1 s specification): about 300 ms/all channels
	Accuracy rating ±0.1 % ±1 digit (with exceptions)
Display	Display ARF100: 5.6 TFT color LCD ARF200: 12.1 TFT color LCD
	Display type • Measured data (trend display, numerical display, bar graph display) • Historical trend display (can be displayed simultaneously with real-time trend) • Information display (alarm display, marker list, file list) • Settings screen (alarm, calculation, memory, system, maintenance, communication, etc.)
	LCD backlight Automatic/manual OFF function, brightness adjustable to 4 levels Backlight brightness half-life: about 5 years
Recording	Internal memory ARF100: flash memory (capacity: 4 MB) ARF200: flash memory (capacity: 8 MB)
	External memory CF (CompactFlash) card (capacity: 128 MB to 2 GB)
	Recording period 100, 200, 500 ms** 1, 2, 3, 5, 10, 15, 20, 30 s 1, 2, 3, 5, 10, 15, 20, 30, 60 min *1) ARF100: For recording periods of 100, 200, or 500 ms, up to 3 groups with 12 channels per group can be registered. For recording periods of 1 s or longer, up to 5 groups with 44 channels per group can be registered (a total of up to 100 registered channels). ARF200: Six groups with 56 channels per group can be registered, irrespective of the recording cycle (a total of up to 128 registered channels).
	Recorded data File name (group name), recording start date and time, tag, measured data, state and type of alarm, marker text, setting parameter
	File format (when saving) Binary**/CSV format can be selected for each group. *2) Processing binary data on a PC requires an optional data analysis tool.
	Saving options Manual start/stop, schedule, trigger signal (alarm, contact input), data recording pre-/post-trigger point
	Calculation points ARF100: max. 44 channels ARF200: max. 128 channels
Calculation	Calculation types Arithmetic/comparison/logical operations, general functions, integration, channel data operations, dew point, relative humidity, F value, remaining CF card capacity, etc.
	Number of settings Up to 4 per input channel
Alarm functions	Alarm types High limit, low limit, differential high limit, differential low limit, abnormal data
	ON delay Delay time setting range: 1 to 3600 s
	Alarm outputs AND/OR setting possible
Communication functions	External memory Ethernet (10 BASE-T/100 BASE-T)
	FTP server Data files read from a PC over a network
	FTP client Data files transferred to a server over a network
	SNTP client Time synchronized with an SNTP server over a network
	Web server In conformity with HTTP 1.0: measured data, alarms, etc. displayed/set with browser software
	E-mail E-mail reporting at the time of alarm occurrence or at designated time. Up to 8 addresses
General specifications	Network Instrumentation Modules (optional) Data from an Ethernet-connected Network Instrumentation Module read remotely and recorded
	Rated supply voltage 100 to 240 Vac, 50/60 Hz
	Maximum current consumption ARF100: 50 VA ARF200: 65 VA
	Normal operating conditions Ambient temperature/humidity: 0 to 50 °C, 20 to 80 % RH Supply power voltage: 90 to 264 Vac Supply power frequency: 50/60 Hz ±2 % Positioning: right, left, and forward tilt: 0°, backward tilt: 0 to 20° Warm-up time: min. 30 minutes
	Mass ARF100: about 2.2 kg ARF200: about 7.2 kg
	Mounting method Panel mount
Optional specifications	Alarm output Mechanical relay output (contact forms A or C) upon alarm occurrence and abnormal input
	Alarm MOS relay output MOS relay contact output upon alarm occurrence and abnormal input
	Non-voltage contact input ON/OFF state recording, pulse input (up to 5 Hz), recording start/stop, marker write, integration operation reset, time correction
	Network Instrumentation Module (Ethernet) Communications Data in an Ethernet-connected Network Instrumentation Module read remotely and recorded

## Input list

Input type	Measurement range	Input type	Measurement range	
DC voltage	±13.80 mV to ±2.000 V	WRe5-WRe26	0 to 2315 °C	
(Voltage-dividing resistance is built-in)	±5.000 to ±50.00 V	PtRh40-PtRh20	0 to 1888 °C	
Thermocouple	K	-200 to +1370 °C	NiMo-Ni	-50 to +1310 °C
	E	-200 to +900 °C	CR-AuFe	0.0 to 280.0 K
	J	-200 to +1200 °C	Platinel II	0 to 1395 °C
	T	-200.0 to +400.0 °C	U	-200.0 to +600.0 °C
	R	0 to 1760 °C	L	-200 to 900 °C
	S	0 to 1760 °C	Pt100	-200.0 to +850.0 °C
	B	0 to 1820 °C	JPt100	-200.0 to +649.0 °C
	N	-200 to +1300 °C	Pt50	-200.0 to +649.0 °C
	W-WRe26	0 to 2315 °C	Pt-Co	4.0 to 374.0 K
			Resistance temperature detector	

## Model number of ARF100

I	II	III	IV	V	VI	VII	VIII	Description
Basic Model No.	Power supply	Input	Optional function 1	Optional function 2	Optional function 3	Additional treatment 1	Additional treatment 2	
<b>ARF106</b>								6 inputs
<b>ARF112</b>								12 inputs
	A							100 to 240 Vac, 50/60 Hz
		S						Standard multi-input (100 ms specification)
			0					None
			1					12 relay outputs (1A contacts)
			7					8 digital inputs + 8 MOS relay alarm outputs
				0				None
				3				Network Instrumentation Module (Ethernet) communications
					0			None
						O		None
						D		With inspection results
						T		Tropicalization
						B		With inspection results + tropicalization
						Y		With traceability certification
							O	None

## Model number of ARF200

I	II	III	IV	V	VI	VII	VIII	Description
Basic Model No.	Power supply	Input	Optional function 1	Optional function 2	Optional function 3	Additional treatment 1	Additional treatment 2	
<b>ARF212</b>	A	S						12 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (100 ms specification)
<b>ARF224</b>	A	S						24 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (100 ms specification)
<b>ARF236</b>	A	S						36 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (100 ms specification)
<b>ARF248</b>	A	S						48 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (100 ms specification)
<b>ARF212</b>	A	L						12 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (1 s specification)
<b>ARF224</b>	A	L						24 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (1 s specification)
<b>ARF236</b>	A	L						36 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (1 s specification)
<b>ARF248</b>	A	L						48 inputs, 100 to 240 Vac, 50/60 Hz Standard multi-input (1 s specification)
			0					None
			1					12 relay outputs (A contacts)
			2					6 relay outputs (C contacts)
			3					24 relay outputs (A contacts)
			4					12 relay outputs (C contacts)
			5					18 relay outputs (12 A contacts + 6 C contacts)
			A					8 digital inputs
			B					8 digital inputs + 12 relay outputs (A contacts)
			C					8 digital inputs + 6 relay outputs (C contacts)
			D					8 digital inputs + 24 relay outputs (A contacts)
			E					8 digital inputs + 12 relay outputs (C contacts)
			F					18 relay outputs (12 A contacts + 6 C contacts)
				0				None
				3				Network Instrumentation Module (Ethernet) communications
					0			None
						O		None
						D		With inspection results
						T		Tropicalization
						B		With inspection results + tropicalization
						Y		With traceability certification
							O	None

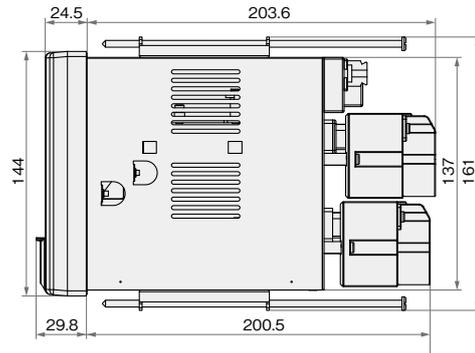
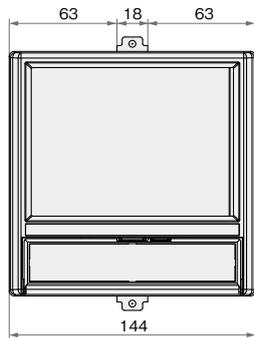
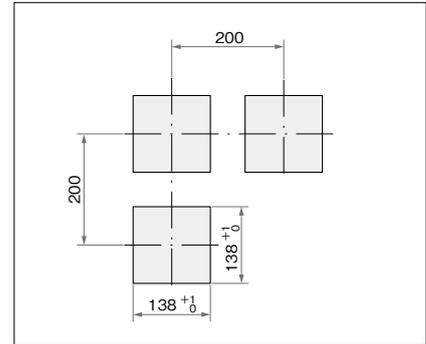
## Model number of related parts

Name	Model No.	Name	Model No.
CF (CompactFlash) card 128 MB	<b>ARF910CF0128</b>	PC CF (CompactFlash) card adaptor	<b>ARF910ADP000</b>
CF (CompactFlash) card 256 MB	<b>ARF910CF0256</b>	ARF series data analysis tool	<b>ARF990DA0000</b>
CF (CompactFlash) card 512 MB	<b>ARF910CF0512</b>	250 Ω resistor (1), ±0.02 % accuracy	<b>81401325</b>
CF (CompactFlash) card 1 GB	<b>ARF910CF1000</b>	250 Ω resistors (2), ±0.05 % accuracy	<b>81446642-001</b>
CF (CompactFlash) card 2 GB	<b>ARF910CF2000</b>		

## External dimensions

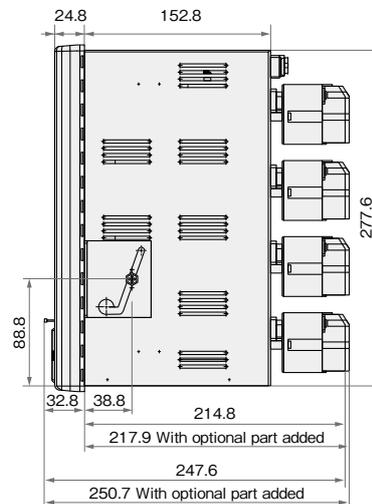
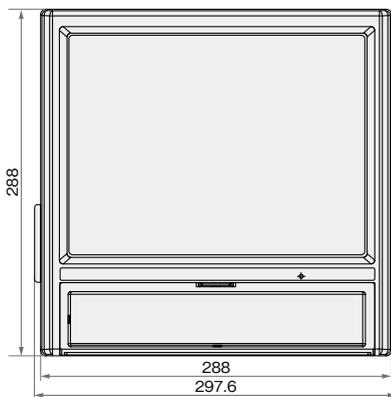
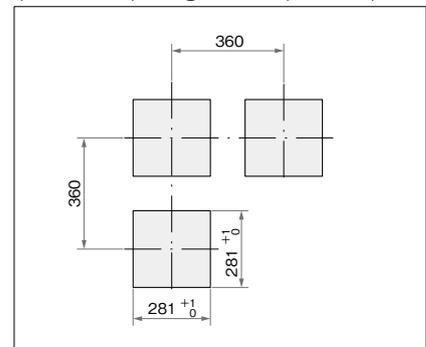
ARF100

(Unit: mm)

Panel cut diagram  
(minimum spacing for multiple units)

ARF200

(Unit: mm)

Panel cut diagram  
(minimum spacing for multiple units)

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Advanced Automation Company

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