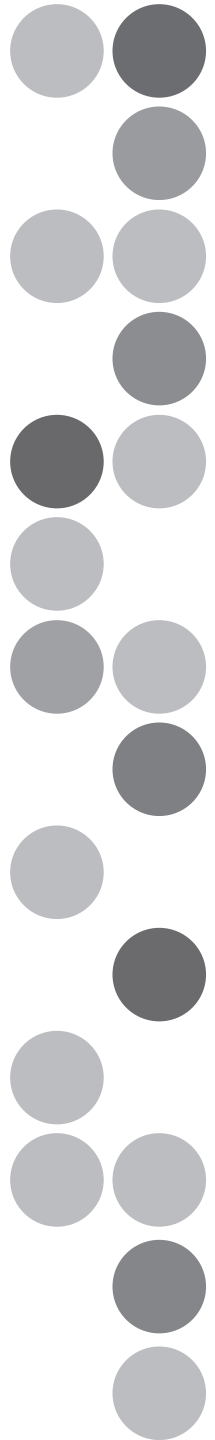


## Portable Multi Logger

ZR-RX20

## Start Up Guide



# Introduction

This manual provides information regarding functions, performance and operating methods that are required for using the ZR-RX20.

When using the ZR-RX20, be sure to observe the following:

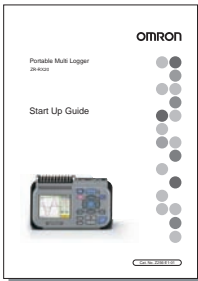
- The ZR-RX20 must be operated by personnel knowledgeable in electrical engineering.
- To ensure correct use, please read this manual thoroughly to deepen your understanding of the product.
- Please keep this manual in a safe place so that it can be referred to whenever necessary.

# Type of Manuals

The manuals of the ZR-RX20 series consist of the following.

Select the manual suitable for your purpose and read it before starting operation.

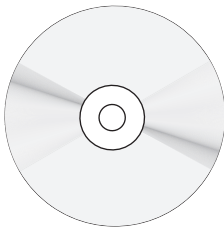
## Manual packaged in the product (brochure)



### Start Up Guide (this manual)

The basic information to use the ZR-RX20 series is described, such as the information for safe and correct use, confirmation of the package, procedure from connection to measurement, and the information of functions and specifications of the ZR-RX20 series.

## Manuals contained in the utility CD-ROM (pdf data)



### Software Manual

Information for installing PC software, basic operation, explanation of screen and setting methods is described.

Two PC software manuals are contained:

- Special PC software "Wave Inspire RX"
- Basic PC software "Smart Viewer RX20"

### Start Up Guide

Same contents as the above referenced "Start Up Guide" packaged in the product.

### User's Manual

- Information for safe and correct use
- Before use: connection and wiring in details, language change of display, etc.
- Procedure in details for setting and measurement
- Specifications of the ZR-RX20 series and accessories
- Other information which is required for the use of the ZR-RX20 series

# Start Up Guide

APPLICATION CONSIDERATIONS  
(Please Read)

---

BEFORE USE

---

**1**

BASIC OPERATIONS

---

**2**

SPECIFICATIONS

---

**3**

## **READ AND UNDERSTAND THIS DOCUMENT**

Please read and understand this document before using the products. Please consult your OMRON representative if you have any questions or comments.

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## **DIMENSIONS AND WEIGHTS**

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## ■ Notice on European EMC Directive (2004/108/EC)

This product meets CISPR11 class A. The intended use of this product is in an industrial environment only.

## ■ Traceability Information

### ● Representative in EU

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### ● Manufacturer

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Shimogyo-ku, Kyoto 600-8530 JAPAN

## Meanings of Signal Words

The following signal words are used in this manual.



Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

## Meanings of Alert Symbols

The following alert symbols are used in this manual.



Indicates the possibility of explosion under specific conditions.



Indicates the possibility of electric shock under specific conditions.



Indicates prohibition when there is a risk of minor injury from electrical shock or other source if the product is disassembled.



Indicates general prohibitions for which there is no specific symbol.

## Alert Statements in this Manual

The following alert statements apply to the products in this manual. Each alert statement also appears at the locations needed in this manual to attract your attention.

### WARNING

This product cannot be used for directly or indirectly detecting human bodies to ensure safety.

Do not use this product as a human body protection device.



Serious hazard may occur in rare occasions due to ignition, rupture or combustion of the lithium battery contained in this product.

Never disassemble, deform under pressure, heat or incinerate this product.



### CAUTION

Injuries from electric shock may occur in rare occasions as the result of disassembly.

Never disassemble, deform under pressure or incinerate the main unit.



Hazard may occur from serious fire or electric shock.

Do not connect voltages exceeding the rated voltage to the signal input terminals.



Fire or hazard may occur in rare occasions from ignition, rupture or combustion.

Do not use battery packs other than ZR-XRB1.





## Precautions for Safe Use

Be sure to observe the following items as they are very important to ensure safety.

### 1. Installation environment

- Do not store or use in locations where the temperature exceeds the rated range.
- Do not use in locations where the relative humidity exceeds the 30 to 80 %RH range.
- Do not use in locations subject to steam.
- Do not use in flammable or explodable gas environment.

### 2. Power supply and wiring

- Do not connect voltages exceeding the rated voltage to signal cables.
- Be sure to check the polarity of the signals when connecting the signal cables.
- When using the battery pack, be sure to read the cautions on the battery pack carefully for correct usage.
- Be sure to use only the specified battery pack.
- Be sure to use only the AC cable and the AC adapter provided as standard accessories.
- Do not connect power supplies exceeding the rated voltage to the AC adapter.
- Be sure to turn off the power supply when connecting to the input terminals.
- Do not touch the input terminals during measurement.

### 3. Others

- Dispose of this product as industrial waste.
- If there are any troubles, stop usage immediately, turn off the power supply and contact OMRON branch or sales office.

## Precautions for Correct Use

Please observe the following precautions to prevent inoperability, misoperation of the product or negative effects on the performance and the device.

### 1. Installation Location

Do not install this product in the following locations.

- Locations where the temperature exceeds the rated range
- Locations where severe changes in temperature occur (where condensation occurs)
- Locations subject to corrosive or flammable gases
- Locations subject to dust, salt or iron powder
- Locations subject to direct shock or vibration
- Locations subject to direct sunlight or near heating devices
- Locations where water, oil or chemical products may be splashed
- Locations subject to strong magnetic fields or strong electric fields

### 2. Power supply, connecting and wiring

- The cables should be wired apart from high-tension or power lines.  
Malfunction or damage may occur due to induction.
- After wiring, check the adequacy of power supply voltage, miswiring such as overvoltage/load short-circuiting and adequacy of load current before turning on the power supply.  
Malfunction may occur due to miswiring and such.
- Always turn off the power supply when attaching or removing peripheral devices.  
Attaching or removing of peripheral devices with the power supply on can cause malfunction or data corruption.

### 3. Installation

- Do not cover the vent hole when using this product.  
Leave at least 30cm of installation space around this product.  
The generated heat may cause malfunction or damage.
- When measuring temperature, install the product so that the input terminals are not subject to severe changes in temperature by wind or sunlight.  
It may cause calculation errors.
- Do not install this product in a slanted or vertical position.
- Connect the GND terminal for safe measurement. This product must also be grounded when sharing a common ground level with other devices.

### 4. Warm up

- For stable measurement, wait at least 30 minutes after turning on the power supply before using.

### 5. Handling

- Be sure to take backups of captured data in your PC. The captured content may be altered or lost due to misuse or malfunctions during usage.
- Do not drop or apply strong impact or force to the product.  
It may cause malfunction of the monitor or the main unit.

### 6. Maintenance

- Do not use thinner, benzene, acetone or kerosene to clean this product.
- Calibration should be performed periodically to maintain measurement accuracy.

## Checking the Accessories

Item	Remarks	Quantity
Main unit	ZR-RX20	1
Start Up Guide	This manual	1
Utility disk	<ul style="list-style-type: none"><li>• Special PC software "Wave Inspire RX" (tryout)</li><li>• Basic PC software "Smart Viewer RX20"</li><li>• Start Up Guide PDF files</li><li>• User's Manual PDF files</li><li>• "Wave Inspire RX" Software Manual PDF files</li><li>• "Smart Viewer RX20" Software Manual PDF files</li></ul>	1
AC cable/AC adapter	100 to 240 VAC, 50/60 Hz	1

## Editor's Note

### ■ Meaning of Symbols

Menu items that are displayed on the ZR-RX20's LCD screen, and windows, dialog boxes and other GUI elements displayed on the PC are indicated enclosed by brackets "[ ]".

### ■ Visual Aids

#### Important

Indicates points that are important to achieve the full product performance, such as operational precautions.

#### Note

Indicates application procedures.



Indicates pages where related information can be found.

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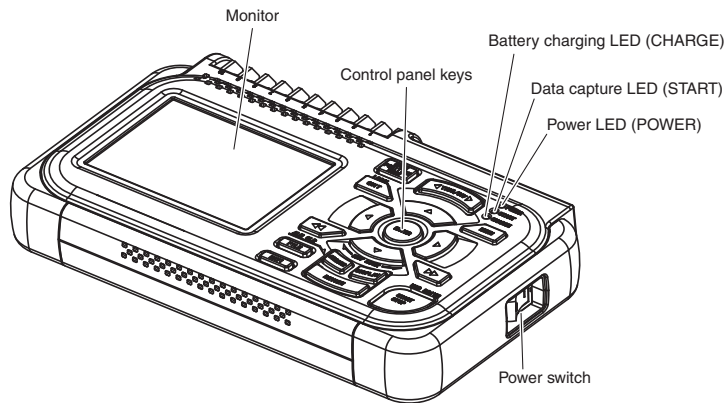
# BEFORE USE

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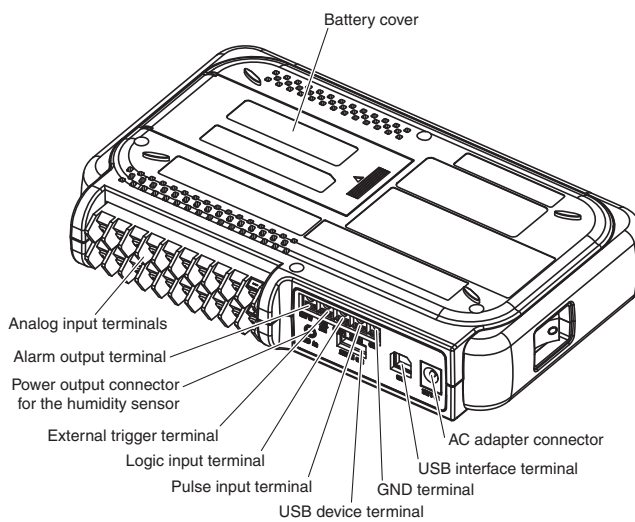
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# Part Names

## Top Panel

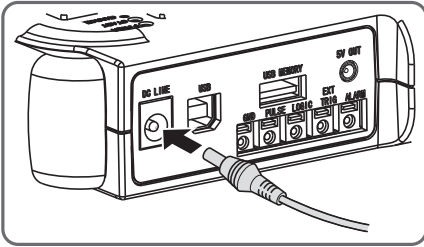


## Bottom Panel



# Connection Procedures

## Connecting the AC Adapter

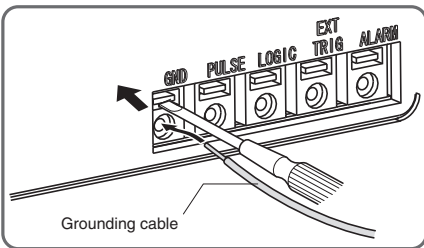


Connect the output side of the AC adapter to the AC adapter connector.

### Important

Be sure to use only the AC cable and the AC adapter provided as standard accessories.

## Connecting the Grounding Cable



Use a flatblade screwdriver to push in the button above the ground terminal while connecting the grounding cable to the ZR-RX20. Connect the other end of the cable to ground.

### Important

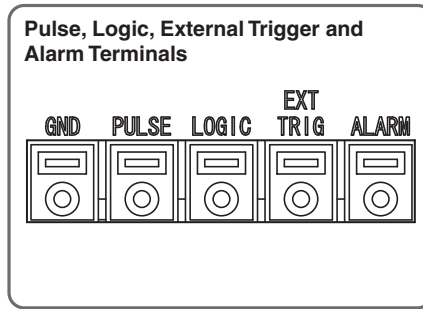
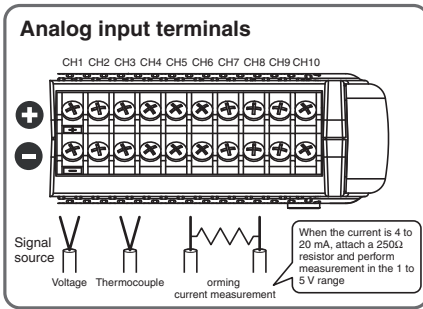
Connect the GND terminal for safe measurement. The ZR-RX20 must also be grounded when sharing a common ground level with other devices.

### Note

The grounding cable is not provided as a standard accessory and must be prepared separately.  
[Recommended Cord Diameter: AWG18/UL1007]



# Making Connections to the Input Terminals



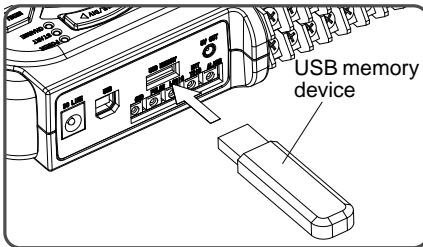
Refer to the channel numbers in the above figure to connect analog input terminals to the desired terminal.

The pulse, logic, external trigger and alarm terminals all have the same configuration as that of the GND terminal. Make connections to these terminals using the procedure described earlier for connecting the grounding cable. Connect each terminal in accordance with the name inscribed above each terminal.

## Attaching USB Memory

You're able to store measured data directly to the USB memory device.

Attach the USB memory to the USB device terminal.



# Setting the Date and Time

The ZR-RX20 includes a rechargeable internal battery for backup.

If you are using the ZR-RX20 for the first time, charge the internal rechargeable battery and then make the date and time settings.

## Note

If the ZR-RX20 is not used for a period of approximately three months, the internal rechargeable battery may be discharged and the date and time may revert to the initial settings. If this happens, recharge the battery before using the ZR-RX20.

## How to Recharge the Rechargeable Battery

Using the AC adapter provided, connect the ZR-RX20 to a mains power outlet, turn on the power switch, and then leave the ZR-RX20 connected for at least 24 hours.

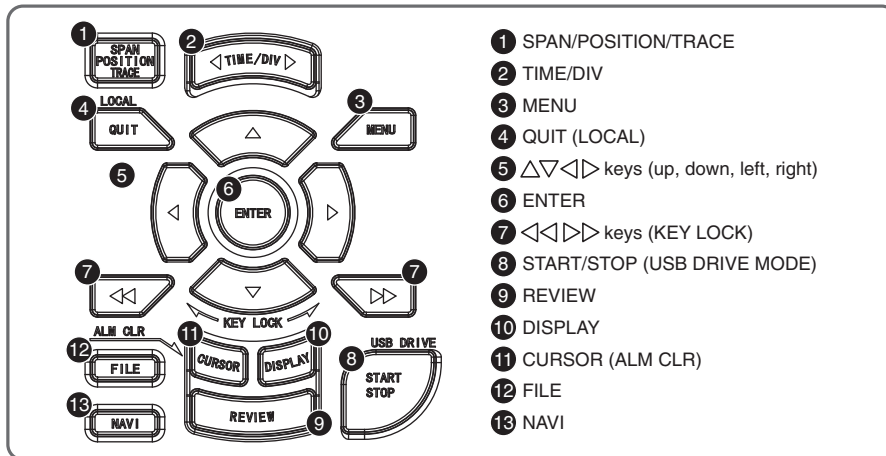
## How to Set the Date and Time

Press the MENU key, display the [OTHR] screen, and then set the date and time at the Date/Time Settings sub-menu.

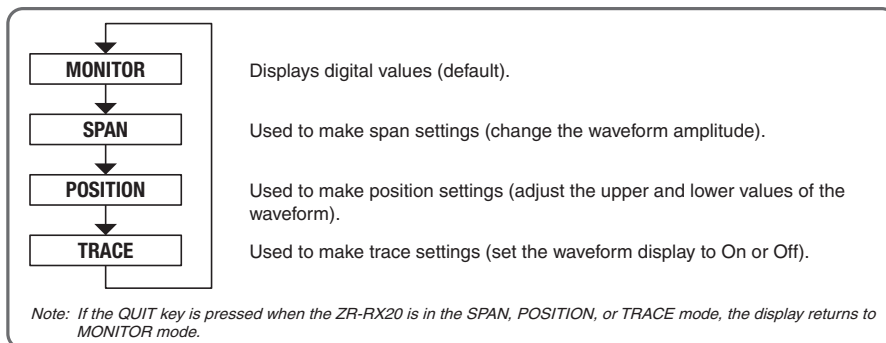


"Setting the Date and Time" section in the User's manual

# Descriptions of the Control Panel Keys



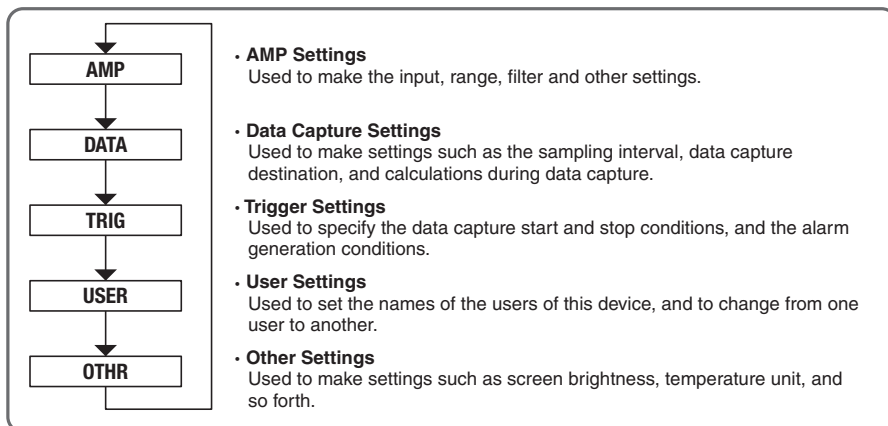
- 1** SPAN/POSITION/TRACE key  
 This key enables SPAN, POSITION, and TRACE settings to be made independently for each channel. Each time this key is pressed, the mode displayed in the waveform operation display area changes in the sequence shown below. Use the △ and ▽ keys to select the channel, and the ◀ and ▶ keys to change the setting values.



- 2** TIME/DIV key  
 Press the TIME/DIV key to change the time axis display range on the waveform screen.

**3 MENU key**

Press the MENU key to open a setup menu. Each time this key is pressed, the setup screen tabs change in the sequence shown below.

**4 QUIT (LOCAL) key**

Press the QUIT key to cancel the settings and return them to their default status. If the device is in the Remote (Key Lock) status, namely the external operating status via the USB interface, press this key to return the device to the normal operating status (Local).

**5 ▽△◀▶ keys**

These keys are used to select menu setup items, to make span settings in the digital display area, to move the cursors during a data replay operation, and so forth.

**6 ENTER key**

Press the ENTER key to enter the settings made in the setup menus, and to confirm your settings.

**7 ◀◀ ▶▶ keys (KEY LOCK)**

These keys are used to move the cursor at high speed during a data replay operation, and to change the operation mode in the file settings box. Hold down both keys simultaneously for at least two seconds to enable key lock status. To cancel key lock status, press them again for at least two seconds. The key lock status can be confirmed by the status of the key lock lamp on the monitor.

**8 START/STOP (USB DRIVE) key**

Press the START/STOP key to perform a data capture start operation while the ZR-RX20 is in the Free Running status, and a data capture stop operation when data capture has ended. If this key is held down while the power to the ZR-RX20 is turned on, the ZR-RX20 goes into USB Drive Mode.

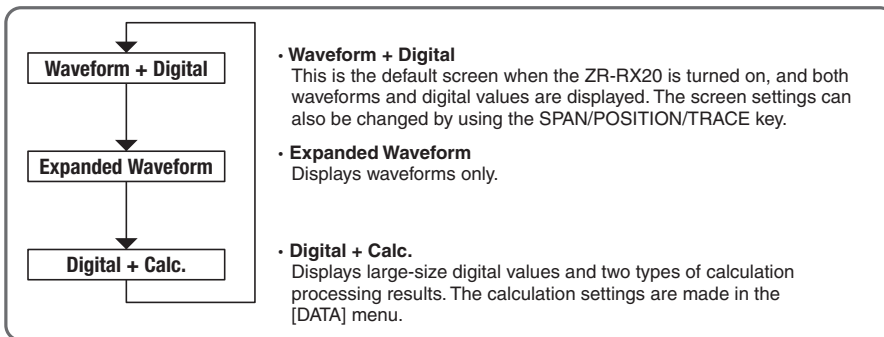
**9 REVIEW key**

Press the REVIEW key to replay captured data. If the ZR-RX20 is in the Free Running status, data files that have already been captured are replayed. If the ZR-RX20 is still capturing data, the data is replayed in a 2-screen format.

*Note: A data replay operation will not be performed if data has not been captured.*

**10** DISPLAY key

This key is used to switch the window mode.



**11** CURSOR (ALM CLR) key

Press the CURSOR key to switch between the A and B cursors during a data replay operation. If the Alarm setting has been specified as "Alarm Hold", press this key to clear the alarm. The alarm settings are made in the [TRIG] menu.

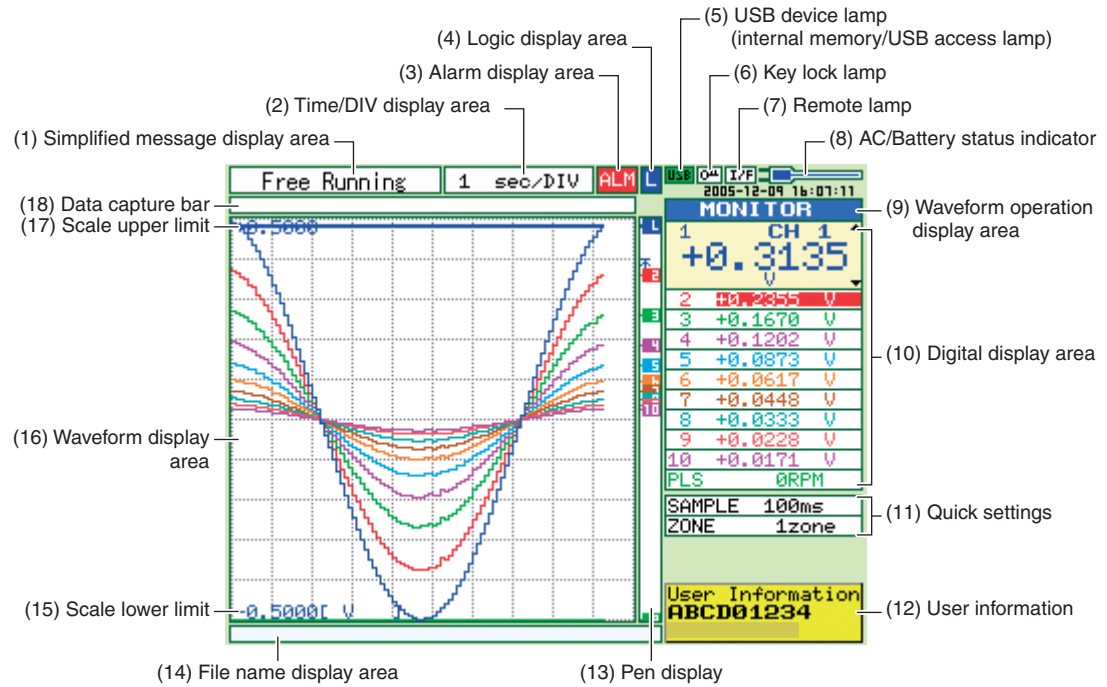
**12** FILE key






Press the FILE key to save data to the ZR-RX20's internal memory and to a USB memory device.

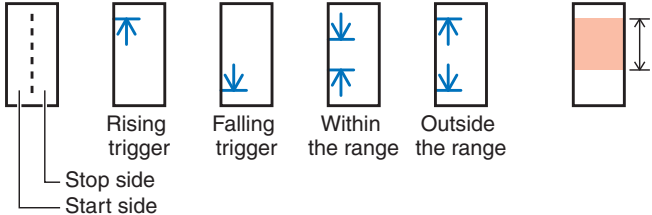
**13** NAVI key

Press the NAVI key to display operational descriptions during the Free Running status, and during data capture and data replay operations.

# Descriptions of the Menu Screens



Item	Description
(1) Simplified message display area	Displays the operating status.
(2) Time/DIV display area	Displays the current time scale.
(3) Alarm display area	Displays the status of the alarm output terminal. (Red = alarm generated, white = alarm not generated)
(4) Logic display area	Displays the status of the logic signal. (Blue = Hi, white = Lo)
(5) USB device lamp (internal memory/USB access lamp)	Turns green when a USB memory device has been inserted. When the ZR-RX20's internal memory or USB memory device is being accessed, this lamp turns red.
(6) Key lock lamp	Displays the key lock status. (Yellow = keys locked, white = not locked)
(7) Remote lamp	Displays the remote status. (Yellow = Remote status, white = Local status)
(8) AC/Battery status indicator	Displays the following icons to indicate the operating status of the AC power supply and the battery. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>AC/Battery Indicator</b></p> <p> When the AC power supply is being used</p> <p> Battery power: Full       Battery power: Medium</p> <p> Battery power: Low       Battery power: Very low</p> </div>
(9) Waveform operation display area	Displays the mode selected by the SPAN/POSITION/TRACE key.

Item	Description
(10) Digital display area	Displays the input values for each channel. The $\triangle$ and $\nabla$ keys can be used to select the active channel (enlarged display). Moreover, the selected active channel is displayed at the very top of the waveform display.
(11) Quick settings	Displays items that can be easily set. The $\triangle$ and $\nabla$ keys can be used to make a Quick settings item active, and the $\triangleleft$ and $\triangleright$ keys to change the values.
(12) User information	Displays the user information for the currently selected user.
(13) Pen display	<p>Displays the signal positions, trigger positions, and alarm ranges for each channel.</p> <div data-bbox="447 465 1219 755" style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"><b>Trigger position</b> <span style="float: right;"><b>Alarm range</b></span></p>  <p style="text-align: center;">Rising trigger    Falling trigger    Within the range    Outside the range</p> <p style="text-align: center;">Stop side Start side</p> </div>
(14) File name display area	Displays the data capture file name during the data capture operation. During a data replay operation, the name of the data replay file is displayed.
(15) Scale lower limit	Displays the lower limit of the scale of the currently active channel.
(16) Waveform display area	The input signal waveforms are displayed here.
(17) Scale upper limit	Displays the upper limit of the scale of the currently active channel.
(18) Data capture bar	During a data capture operation, this bar displays the remaining memory capacity of the device used for data capture. When data is being replayed, the display position information is displayed here.

# BASIC OPERATIONS

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<b>Convenient Functions</b>	<b>33</b>



# Measurement Procedure

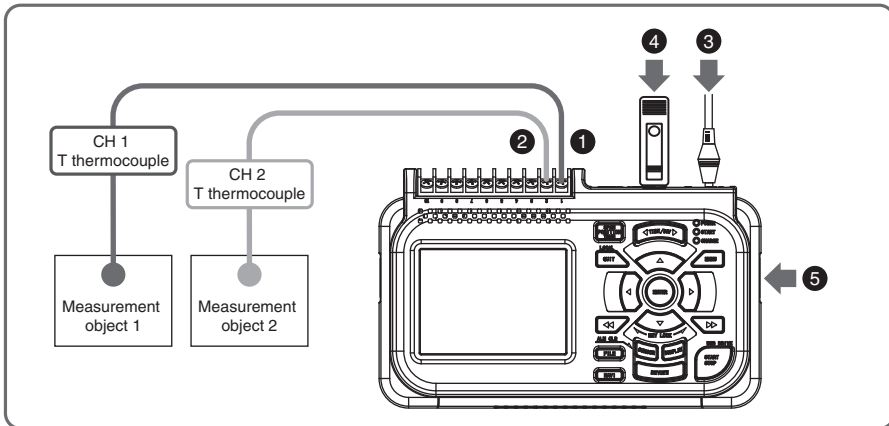
In this section we will provide a simple explanation of the data capture procedure: Preparations → Setup → Data Capture → Data Replay.

T thermocouples will be used here to perform temperature measurement.

Purpose of data capture	To measure the temperature of the target objects
Measurement points	2 locations
Sampling interval	1 second
Data save destination	USB memory device
Important point	We want to check captured data even during a data capture operation.
Items that must be supplied	T thermocouples, USB memory device <i>Note: If you do not have a USB memory device, capture data to the ZR-RX20's internal memory instead.</i>

# 1. Preparations: Preparations for Data Capture

- 1** Connect the thermocouple to measurement object 1 and the CH 1 terminal.
- 2** Connect the thermocouple to measurement object 2 and the CH 2 terminal.
- 3** Connect the AC adapter.
- 4** Insert the USB memory device.
- 5** Turn on the power supply.



# 2. Setup: Setting the Temperature Measurement

Make the settings required for data capture. Here we will make only those settings that are absolutely necessary. The other settings will be left as the default settings (the settings made prior to shipment from the factory).

**Note** Basic Setup Menu Operation

The keys used on the menu screens are the  $\nabla\triangle\leftarrow\rightarrow$  keys, the ENTER key, and the QUIT key. The current cursor position is displayed in green. Use the  $\nabla\triangle\leftarrow\rightarrow$  keys to move the cursor. If you press the ENTER key at the cursor position, a selection menu or a box for inputting numeric values and so forth is displayed. If you press the QUIT key, the screen closes and the settings are canceled.

**Examples of selection menu operations (AMP screen)**

1. Use the  $\nabla\triangle\leftarrow\rightarrow$  keys to move the cursor to the Input parameter opposite CH 1 and then press the ENTER key.

AMP	DATA	TRIG	USER	OT
Making analog and pulse/logic				
CH:	Input	Range	Filter	
ALL:	DC	50 V	Off	
1:	DC	50 V	Off	
2:	DC	50 V	Off	
3:	DC	50 V	Off	
4:	DC	50 V	Off	
5:	DC	50 V	Off	
6:	DC	50 V	Off	

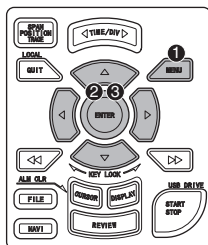
2. A selection menu is displayed when the ENTER key is pressed. Use the  $\triangle$  and  $\nabla$  keys to select "TEMP."

AMP	DATA	TRIG	USER	OT
Making analog and pulse/logic				
CH:	Input	Range	Filter	
ALL:	DC	50 V	Off	
1:	DC	50 V	Off	
2:	Off	50 V	Off	
3:	DC	50 V	Off	
4:	TEMP	50 V	Off	
5:	RH	50 V	Off	
6:	DC	50 V	Off	

3. Press the ENTER key to confirm your selection.

AMP	DATA	TRIG	USER	OT
Making analog and pulse/logic				
CH:	Input	Range	Filter	
ALL:	TEMP	TC-K	Off	
1:	TEMP	TC-K	Off	
2:	DC	50 V	Off	
3:	DC	50 V	Off	
4:	DC	50 V	Off	
5:	DC	50 V	Off	
6:	DC	50 V	Off	

Note: For voltage measurement, select "DC".



- 1 Press the MENU key to display the setup menu screen.
- 2 Select [TEMP.] for the Input parameter for CH 1 and CH 2.
  - (a) Move the cursor to the [Input] parameter opposite CH 1 and select [TEMP.]
  - (b) Make the same setting for CH 2.

- 3 Select [TC-T] for the Range parameter for CH 1 and CH 2.
  - (a) Move the cursor to the [Range] parameter opposite CH 1 and select [TC-T].
  - (b) Make the same setting for CH2.

AMP	DATA	TRIG	USER	OT
Making analog and pulse				
CH:	Input	Range	Filter	
ALL:	DC	50 V	Off	
1:	DC	50 V	Off	
2:	DC	50 V	Off	
3:	DC	50 V	Off	
4:	DC	50 V	Off	
5:	DC	50 V	Off	
6:	DC	50 V	Off	

AMP	DATA	TRIG	USER	OT
Making analog and pulse				
CH:	Input	Range	Filter	
ALL:	DC	50 V	Off	
1:	DC	50 V	Off	
2:	Off	50 V	Off	
3:	DC	50 V	Off	
4:	TEMP	50 V	Off	
5:	RH	50 V	Off	
6:	DC	50 V	Off	

AMP	DATA	TRIG	USER	OT
Making analog and pulse				
CH:	Input	Range	Filter	
ALL:	TEMP	TC-K	Off	
1:	TEMP	TC-K	Off	
2:	DC	50 V	Off	
3:	DC	50 V	Off	
4:	DC	50 V	Off	
5:	DC	50 V	Off	
6:	DC	50 V	Off	

AMP	DATA	TRIG	USER	OTHER	USE
Making analog and pulse/logic settings					
CH:	Input	Range	Filter	EU	Misc.
ALL:	TEMP	TC-K	Off		
1:	TEMP	TC-K	Off		
2:	TEMP	TC-K	TC-W		
3:	DC	TC-J	Off		
4:	DC	TC-T	Off		
5:	DC	TC-R	Off		
6:	DC	TC-E	Off		
7:	DC	TC-B	Off		
8:	DC	TC-S	Off		
9:	DC	TC-N	Off		

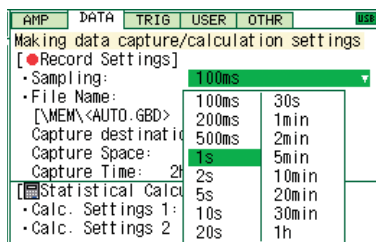
#### 4 Select "Off" for all the other channels.

- (a) Using the procedure described above, select [off] for CH 3 to CH 10.

#### 5 Press the MENU key and open the [DATA] menu.

#### 6 Set the sampling interval to "1s".

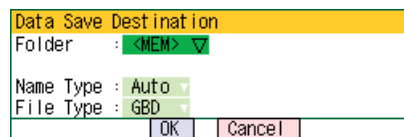
Move the cursor to [Sampling] and then select [1s].



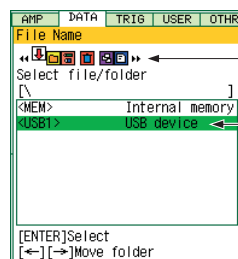
#### 7 Specify the Capture Destination file name.

Here we will create a folder named [TEST] in the USB memory device, and then make the settings required to enable data to be captured to the TEST folder.

- (a) Move the cursor to the File Name parameter and then press the ENTER key.
- (b) With the cursor on the [<MEM>] item in the following screen, press the ENTER key.



- (c) The file settings box shown in the following screen opens. This box is used to specify file names for the ZR-RX20's internal memory and for the USB memory device.

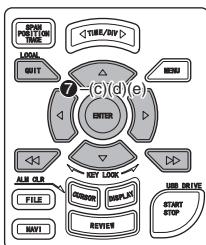
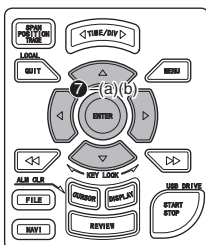
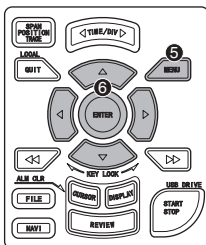


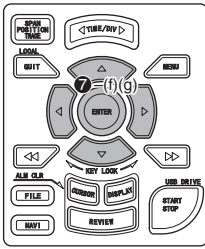
Use the high-speed <<< and >>> keys to change the operation mode.

- In the Select file/folder screen displayed,
- Use the  $\Delta$  and  $\nabla$  keys to move the cursor up or down.
  - Use the  $\leftarrow$  and  $\rightarrow$  keys to move to the Folder level.
  - Use the ENTER key to confirm your setting.
  - Use the QUIT key to cancel your setting.

- (d) Move the cursor to [<USB1>] and then press the  $\rightarrow$  key.

- (e) Press the  $\rightarrow\rightarrow$  key to move the cursor to [Create new folder] and then press the ENTER key.





- (f) A text input box is displayed. Let's create a folder named "TEST".

New folder name:  
 TEST  ← Text input box  
 A a 0 + \* ← OK [Alpha Big] ← Select the text type; delete; insert; confirm  
 B C D E F G H I J K L M N O ← Select the text  
 P Q R S T U V W X Y Z

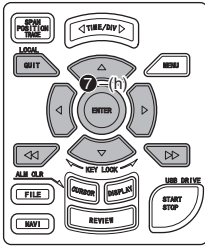
- Use the  $\Delta$  and  $\nabla$  keys to move the cursor up or down.
- Use the  $\triangleleft$  and  $\triangleright$  keys to move the cursor to the right or left.
- Use the ENTER key to input the name.

[  $\uparrow$   $\downarrow$   $\leftarrow$   $\rightarrow$  ] Select,  
 [  $\leftarrow$   $\rightarrow$  ] Back, [  $\rightarrow$   $\rightarrow$  ] Forward  
 [ ENTER ] Input / [ QUIT ] Exit

- (g) Input "TEST", move the cursor to "OK", and then press the ENTER key to confirm your setting.

- (h) As shown in the following screen, a folder named "<TEST>" has been created.

Press the  $\triangleleft\triangleleft$  key to move the cursor to [Select file/folder] and use the  $\Delta$   $\nabla$  keys to select the "<TEST>" folder, and then press the ENTER key.



AMP	DATA	TRIG	USER	OTHR
File Name				
Create new folder				
[USB1]				
<TEST>				
<BMP>				

- Use the high speed  $\triangleleft\triangleleft$  and  $\triangleright\triangleright$  keys to change the operation mode.
- In the Select file/folder screen displayed, use the  $\Delta$  and  $\nabla$  keys to move the cursor up or down.
- Use the  $\triangleleft$  and  $\triangleright$  keys to move to the Folder level.
- Use the ENTER key to confirm your setting.
- Use the QUIT key to cancel your setting

[ ENTER ] Execute  
 [  $\leftarrow$  ] [  $\rightarrow$  ] Move folder

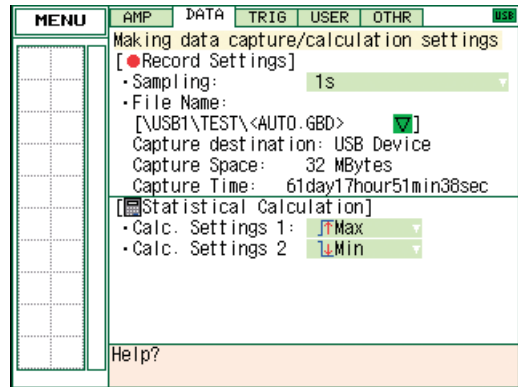
- (i) Check that "<TEST>" appears opposite "Folder", move the cursor to the [OK] button, and then press the ENTER key.

Data Save Destination	
Folder	: <TEST> $\nabla$
Name Type	: Auto $\nabla$
File Type	: GBD $\nabla$
OK Cancel	

Data Save Destination	
Folder	: <TEST> $\nabla$
Name Type	: Auto $\nabla$
File Type	: GBD $\nabla$
OK Cancel	

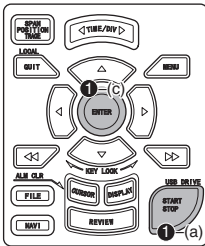
- (j) In the screen displayed below, we can check the capture destination, the amount of data that can be captured, and the allowable data capture time.



This completes all the settings required for data capture.

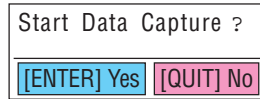
# 3. Data Capture: Measuring the Temperature

During the data capture operation, you can replay some data that was captured previously to check the data.



## 1 Starting data capture

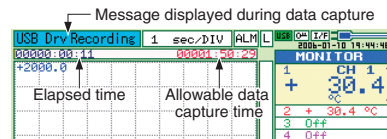
- (a) Press the START/STOP key.
- (b) A confirmation message is displayed.



- (c) Press the ENTER key to start data capture.

## 2 Screen status during data capture

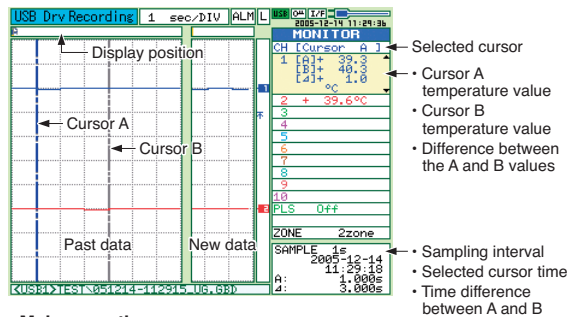
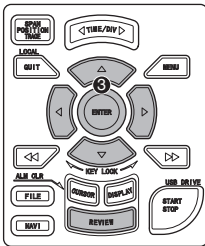
Once data capture has started, the elapsed time and the allowable data capture time are counted.



## 3 Replaying data being captured

Data that was captured in the past can be replayed while new data is being captured to the ZR-RX20. In addition, the past data can be compared with the current input waveform in a 2-screen format.

- (a) Press the REVIEW key to display the data in a 2-screen format.



### <Main operations>

- Use the < and > keys to move the cursor
- Use the << and >> keys to move the cursor at high speed
- Use the CURSOR key to change your cursor selection (A→B→A)

- (b) Move the cursor as desired to check the captured waveforms, date/time, and so forth.

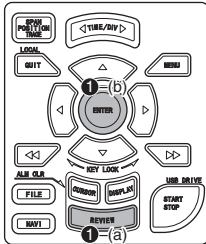




# 4. Data Replay: Replaying Captured Data

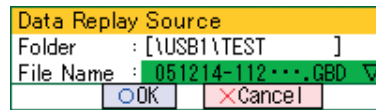
Now that data capture has been completed, let's replay some of that captured data.

The data has been captured to the <TEST> folder that was created in the USB memory device in Step 7 of Section 2, "Setup". The file name is appended automatically, and therefore the name of the file that was created is "Year/month/date-time\_UG.gbd". The year/month/date and time are those that were in effect when data capture started.

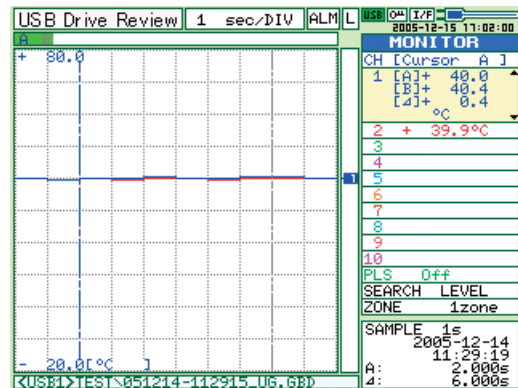


## 1 Selecting a file to replay

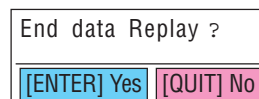
- (a) Press the REVIEW key.
- (b) Since the file you want to replay has the file name that was appended automatically when the data was captured, move the cursor to the [OK] button and then press the ENTER key.



- (c) The Replay screen opens.

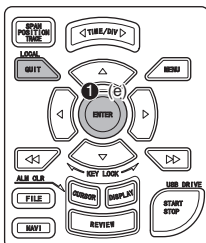


- (d) Move the cursor as desired to check the captured waveforms, date/time, and so forth. The SPAN/ POSITION/TRACE key can also be used in the Replay screen to change the span, position, trace, zone and other displayed settings.
- (e) Press the QUIT key to end the data replay operation. A confirmation message is displayed. Press the ENTER key.



- (f) Data replay ends, and the ZR-RX20 goes into the Free Running status.

This completes our simple explanation of how to use the basic ZR-RX20 functions.



# Convenient Functions

## Trigger Functions

Trigger functions can be used to control the timing of the start of a data capture operation, and the timing of the end of a data capture operation.

### Note

For example...

You can use trigger functions to perform operations such as the following:

- Start data capture when the voltage exceeds 1 V
- Stop data capture at 1:00 pm
- Perform control via external input

## Span, Position and Trace Functions

These functions enable you to make adjustments in order to view individual channels more easily, and to delete waveforms that you do not need to view.

### Note

The span, position and trace operations can be performed while the ZR-RX20 is in the Free Running status, while it capturing data, and while it is replaying data. The changes made are applied to the displayed data only, and so the original data is not affected in any way.

## Quick Settings

The Quick settings function can be used to change the settings of the two items displayed respectively in the Free Running status and during data replay.

Free Running status: Sampling interval, Zone divisions

During data capture: Zone divisions only

During data replay: Search, Zone divisions

# SPECIFICATIONS

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**Standard Specifications**

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**External Dimensions**

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# Standard Specifications

Main unit specifications		ZR-RX20A			
Analog input section	Input method		Photo MOS relay scanning system; all channels isolated		
	Number of channels		10 ch		
	A/D resolution		16-bit		
	Measurement ranges	Voltage		20, 50, 100, 200, 500 mV; 1, 2, 5, 10, 20, 50 V; 1-5 V F.S.	
		Temperature		Thermocouples: K, J, E, T, R, S, B, N, W (WRe5-26)	
		Humidity (*1)		0 to 100 % (Voltage 0 to 1 V scaling conversion)	
	Measurement accuracy (*2) (*3)	Voltage		±0.1 % of F.S.	
		Thermo-couple	Type	Measurement Temperature Range (°C)	Measurement Accuracy
				R/S	±5.2 °C
			R/S	0 ≤ TS ≤ 100	±3.0 °C
				100 < TS ≤ 300	±(0.05 % of rdg + 2.0 °C)
				R: 300 < TS ≤ 1600 °C	±(0.05 % of rdg + 2.0 °C)
				S: 300 < TS ≤ 1760 °C	±(0.05 % of rdg + 2.0 °C)
			B	400 ≤ TS ≤ 600	±3.5 °C
600 < TS ≤ 1820 °C				±(0.05 % of rdg + 2.0 °C)	
K			-200 ≤ TS ≤ -100	±(0.05 % of rdg + 2.0 °C)	
			-100 < TS ≤ 1370 °C	±(0.05 % of rdg + 1.0 °C)	
E			-200 ≤ TS ≤ -100	±(0.05 % of rdg + 2.0 °C)	
			-100 < TS ≤ 800 °C	±(0.05 % of rdg + 1.0 °C)	
T	-200 ≤ TS ≤ -100	±(0.1 % of rdg + 1.5 °C)			
	-100 < TS ≤ 400 °C	±(0.1 % of rdg + 0.5 °C)			
J	-200 ≤ TS ≤ -100	±2.7 °C			
	-100 < TS ≤ 100	±1.7 °C			
	100 < TS ≤ 1100 °C	±(0.05 % of rdg + 1.0 °C)			
N	0 ≤ TS ≤ 1300 °C	±(0.1 % of rdg + 1.0 °C)			
W	0 ≤ TS ≤ 2315 °C	±(0.1 % of rdg + 1.5 °C)			
Reference contact compensation accuracy		±0.5 °C (23 °C ± 2 °C, when the input terminal temperature is balanced)			
Maximum input voltage		60 Vp-p			
Reference contact compensation		Internal/External switching			
Input impedance		1 MΩ ± 5 %			
Allowable signal source resistance		300 Ω or less			
Temperature coefficient		Gain: 0.01 % of F.S./°C			
Withstand voltage		350 Vp-p (between each input channel/main unit chassis; between each chs) 1 minute			
Insulation resistance		Between main unit chassis: At least 50 MΩ (at 500 VDC)			

Main unit specifications			ZR-RX20A
External Input/ Output Sections	Logic input	Number of channels	1 ch
	Pulse input	Number of channels	1 ch
		Modes	Revolutions mode, Counts mode, Inst. Mode switch method
	Trigger input	Number of channels	1 ch
	Specifications of each input section	Maximum input voltage	24 V
		Threshold voltage	Approx. 2.5 V
	Alarm output	Number of channels	1 ch
		Output format	Open collector output (100 k $\Omega$ pull-up resistance)
		Output conditions	Level judgment, window judgment, logic pattern judgment, pulse judgment
	PC I/F		USB 1.1
Sampling interval			100, 200, 500 ms; 1, 2, 5, 10, 20, 30 s; 1, 2, 5, 10, 20, 30 min; 1 h
Display			3.5-inch TFT color LCD (320 x 240 dots)
Internal memory devices	Internal memory		Approx. 3.5 MB
Operating environment			0 to 40 °C, 30 to 80 % RH (15 to 40 °C when the battery is used)
Power supply			AC adapter: 100 to 240 VAC/50 to 60 Hz (*4) DC input: 8.5 to 24 VDC Battery pack (ZR-XRB1) (*5)
Power consumption			28 VA or less (when the AC adapter is used)
External dimensions			194 x 122 x 41 mm
Weight			Approx. 480 g (*6)

\*1 When ZR-XRH1 (Option) is used

\*2 Features under the following measurement parameters

- Operating environment 23 °C  $\pm$ 3 °C
- Left for at least 30 minutes after the power supply is turned on
- Sampling interval 1 s (10 ch)
- Filter ON (Average: 10 times)
- GND connection
- Thermocouple used is T: 0.32  $\varnothing$ , other: 0.65  $\varnothing$

\*3 Refer to the ZR-XRH1 (Option) specifications for humidity measurement accuracy.

\*4 Be sure to use only the AC cable and the AC adapter provided as standard accessories.

\*5 ZR-XRB1 is an option

\*6 Excluding the AC adapter and battery



# Revision History

A manual revision code appears as a suffix to the catalog number at the bottom of the front and back covers of this manual.

Cat. No. Z256-E1-03

↑  
Revision code

Revision code	Date	Revised contents
01	April 2007	Original production
02	August 2007	Minor corrections
03	October 2007	Notice on EMC Directive added and minor corrections.

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