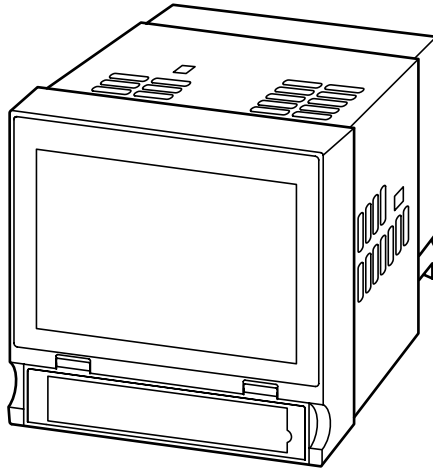


# 73VR1100 PAPERLESS RECORDER

# STARTUP GUIDE

---

– Read Before Installation –



## Contents

1. POINTS OF CAUTION .....	2
2. PACKAGE INCLUDES.....	5
3. ITEMS TO PREPARE.....	6
4. COMPONENT IDENTIFICATION .....	7
5. EXTERNAL DIMENSIONS .....	9
6. INSTALLING THE UNIT.....	10
7. PREPARATION & WIRING TO THE UNIT.....	12
8. SETTING UP THE RECORDER.....	15
9. LET'S START RECORDING .....	23



**■ SAFETY PRECAUTION**

- Before you remove the unit, turn off the power supply and input signal for safety.
- Do not use the 73VR1100 in an environment where flammable gases are present. This may result in an explosion.
- Do not disassemble or modify the 73VR1100 in any way. Doing so may result in a fire or an electrical shock.
- Do not strike the panel of the 73VR1100 with a hard, heavy or pointed object, or press the panel with excessive force. Doing so may result in panel damage or injury.
- Do not block the 73VR1100's ventilation openings or use it in areas where heat accumulates. Additionally, do not store or use it under high-temperature conditions.
- Do not store or use the 73VR1100 in locations subject to direct sunlight, or where excessive dust or dirt is present.
- The 73VR1100 is a precision instrument. Do not store or use it where large shocks or excessive vibration can occur.
- Do not store or use the 73VR1100 in environments subject to chemical evaporation (such as that of organic solvents), or where there are chemicals and/or acids present in the air.
- Do not use paint thinner or organic solvents to clean the 73VR1100.
- Observe the environmental conditions when using the 73VR1100.
- Wait at least for 5 seconds before turning on the power supply after it has been turned off. The 73VR1100 may not start up if the time interval is less than 5 seconds.

**■ ENVIRONMENT**

- Indoor use
- The 73VR1100 is designed to be mounted on a vertical panel. It is not suitable for a slanted or a horizontal panel surface.
- Environmental temperature must be within 0 to 50°C (32 to 122°F) with relative humidity within 30 to 85% RH in order to ensure adequate life span and operation.
- Desktop type cannot be mounted on a panel surface.
- The handle and rubber feet cannot be detached from desktop type unit.

**■ GROUNDING**

- Be sure to determine in advance the most stable grounding point in the environment and earth the 73VR1100's FG terminal and that of connected devices (PC) to it in order to protect the devices from dielectric breakdown.
- Grounding is also effective to eliminate noise that could cause errors in the 73VR1100's operation.

**■ CF CARD**

- Do not turn off the power supply to the 73VR1100 or reset it during recording. The CF Card may be destroyed.
- Observe the described procedure when you need to replace the CF Card during recording.
- Confirm the sides and the connector position of the CF Card when inserting one to the card slot.

**■ LCD PANEL**

- The LCD panel's liquid contains an irritant. If the panel is damaged and the liquid contacts your skin, rinse immediately the contact area with running water for at least 15 minutes. If the liquid gets in your eyes, rinse immediately your eyes with running water for at least 15 minutes and consult a doctor.
- The following phenomena are LCD characteristics, and NOT a product defect:
  - LCD screen may show uneven brightness depending upon displayed images or contrast settings.
  - The LCD screen pixels may contain minute black-and-white-colored spots.
  - The color displayed on the LCD screen may appear different when seen from outside the specified viewing angle.
  - When the same image is displayed on the screen for a long time period, an afterimage may appear when the image is changed. If this happens, turn off the 73VR1100 and wait 10 seconds before restarting it.
- To prevent an afterimage:
  - Set the screensaver when you plan to display the same image for a long time period.
  - Plan to change the screen image periodically so that the same image does not remain for the long time period.

**■ BACKLIGHT**

- Even when the backlight is failed, the screen display can be controlled by touching it.
- Backlight failure is confirmed by the following phenomena:
  - The screen gets dark even when no screensaver setting is enabled.
  - If the screensaver is activated, the screen display does not recover when the screen is touched.
- The backlight can be replaced in M-System factory. The LCD must be replaced at the same time. Please consult M-System.

**■ INTERNAL CLOCK**

- The internal clock data is stored in memory powered by a backup battery while the 73VR1100 is without external power supply.
- The data will be reset to its default status when the battery is used up while the 73VR1100 is left without power supply for a long time period. The clock adjustment will be necessary once the power is restored. Please refer to the 73VR1100 Users Manual (EM-7399-C, Section 5) for the procedure.
- Once the power is restored, the 73VR1100 starts recharging the battery. It will be full in approximately in 36 to 48 hours.

**■ AND ....**

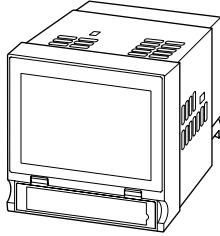
- We recommend use of an UPS to supply power backups.
- The module is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

## 2. PACKAGE INCLUDES...

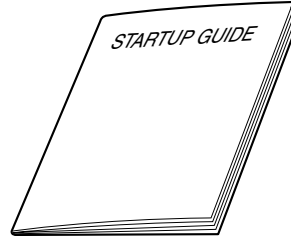
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Please confirm that all items mentioned below are included in the package.

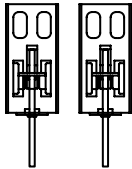
Paperless Recorder



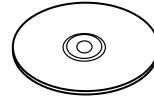
Startup guide (this booklet)



Mounting bracket (two pieces)



Software CD (73VRPAC2)



Not included for desktop type.

### **3. ITEMS TO PREPARE**

---

- CF card

Prepare one of the following model numbers:

1. Manufacturer: Hagiwara Solutions

Model No.: MCF10P-xxxxS (Alternative model: CFI-xxxxDG)

Capacity: 128 MB through 1 GB

2. Manufacturer: Apacer Technology

Model name: CFC III

Model No.: AP-CFxxxxE3ER-ETNDNRK Parts No.: 256 MB ... 81.2A010.1H34C

512 MB ... 81.2B010.1H34C

1 GB ... 81.2E010.1H34C

Model No.: AP-CFxxxxE3ER-ETNDNR Parts No.: 256 MB ... 81.2A010.1H10C

512 MB ... 81.2B010.1H10C

1 GB ... 81.2E010.1H10C

Capacity: 256 MB through 1 GB

- CF card reader

The CF card reader is required to read the card contents into a PC.

- Refer to Users Manuals stored in the 73VRPAC2 CD for detailed operations of the 73VR1100.

Paperless Recorder (model: 73VR1100) Users Manual,

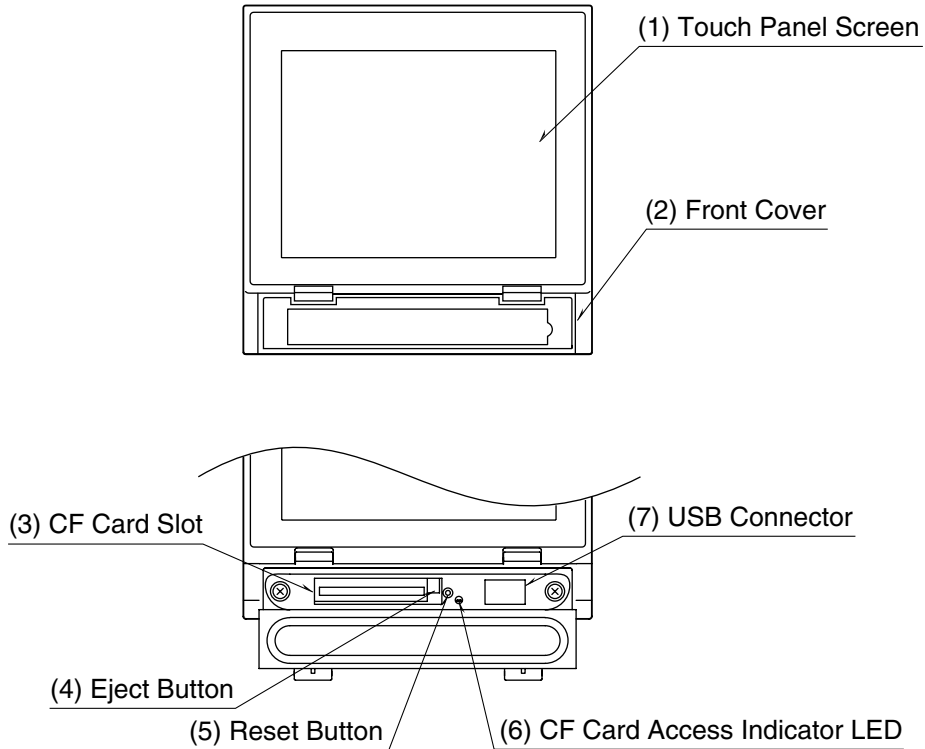
Connecting with I/O devices..... No. EM-7399-B

Paperless Recorder (model: 73VR1100) Users Manual..... No. EM-7399-C

## 4. COMPONENT IDENTIFICATION

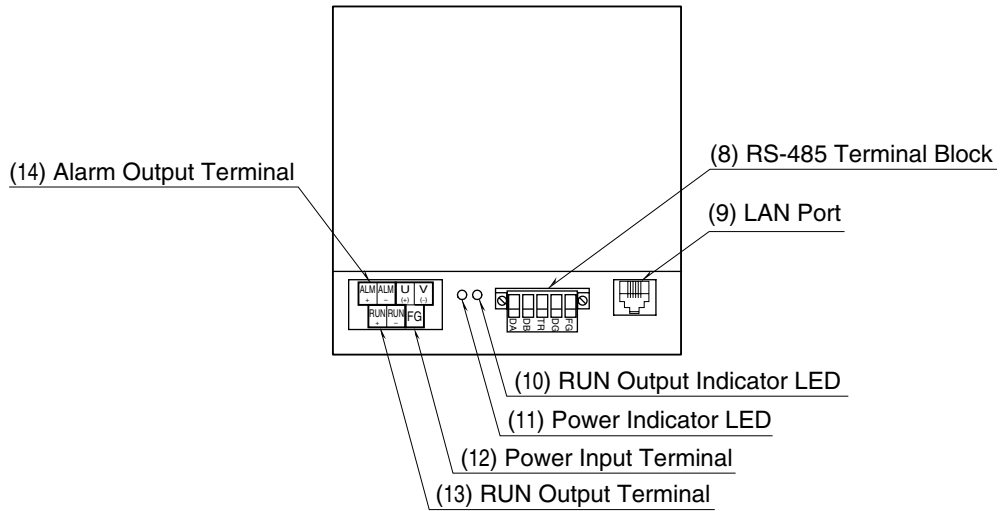
---

### ■ FRONT VIEW



- (1) Touch Panel Screen  
Trend chart and other data views and setup views are displayed.
- (2) Front Cover  
Access to the CF Card Slot.
- (3) CF Card Slot  
Insert a CF Card.
- (4) Eject Button  
Used to retrieve the CF Card.
- (5) Reset Button  
Used to restart the 73VR1100.
- (6) CF Card Access Indicator LED  
Red light turns on during the CF Card is accessed.
- (7) USB Connector  
Connect an USB flash-memory.

■ REAR VIEW



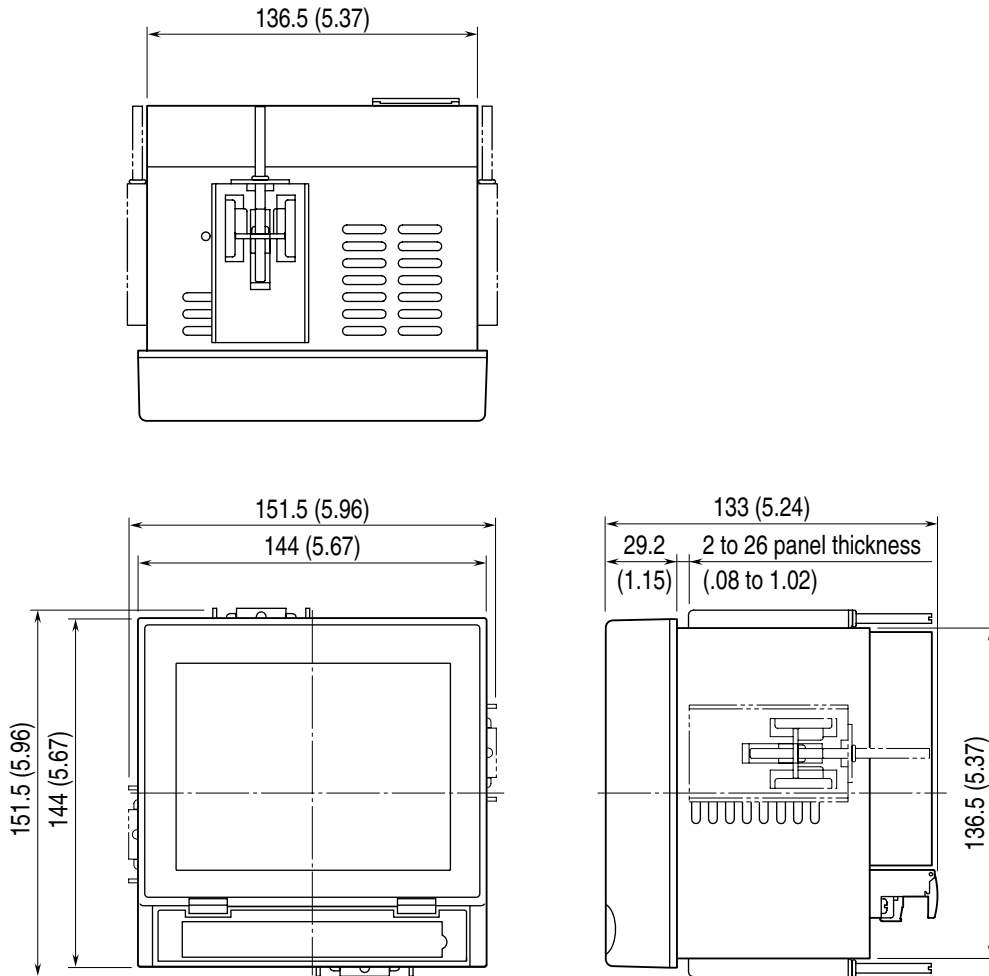
- (8) RS-485 Terminal Block  
Used to connect the 73VR1100 to its I/O devices via RS-485.
- (9) LAN Port  
Connects the LAN cable (10BASE-T or 100BASE-TX)
- (10) RUN Output Indicator LED  
Green light turns on in normal conditions; off when the RUN output contact is tripped in an abnormality of the unit.
- (11) Power Indicator LED  
Light turns on while the power is supplied.
- (12) Power Input Terminal
- (13) RUN Output Terminal
- (14) Alarm Output Terminal



## 5. EXTERNAL DIMENSIONS

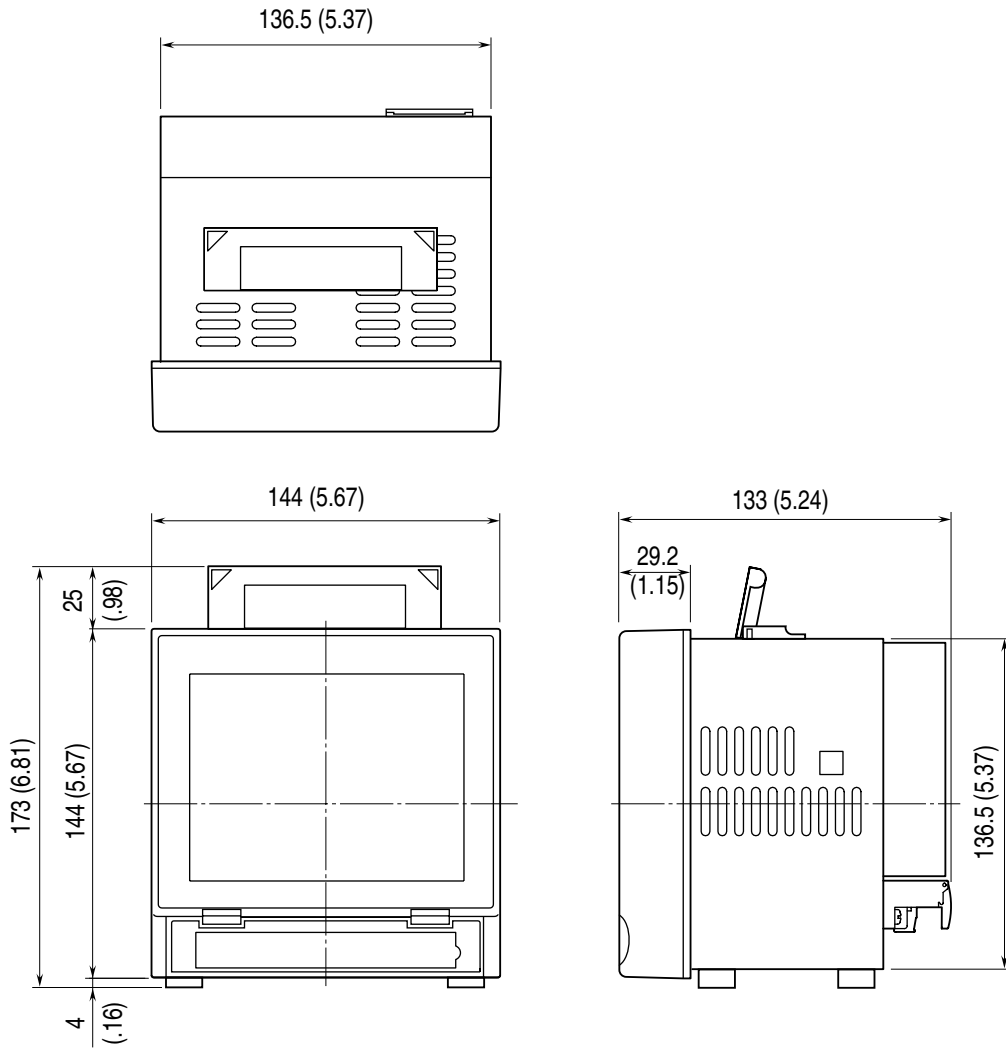
Unit: mm (inch)

### ■ PANEL MOUNT TYPE



Attach the mounting bracket either on the top/bottom or on the sides.

■ DESKTOP TYPE



## 6. INSTALLING THE UNIT

Mount the 73VR1100 on the surface of a panel.

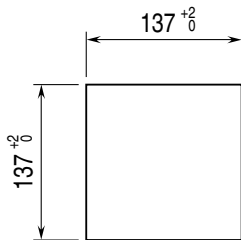
### ■ ADAPTABLE PANEL

Panel thickness: 2 to 26 mm

Material: Steel

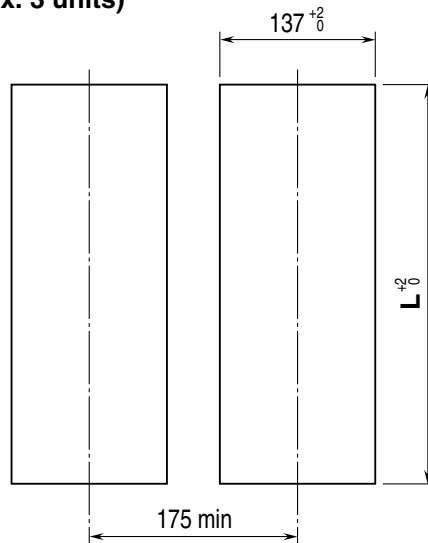
### ■ PANEL CUTOUT Unit: mm

#### ■ SINGLE MOUNTING

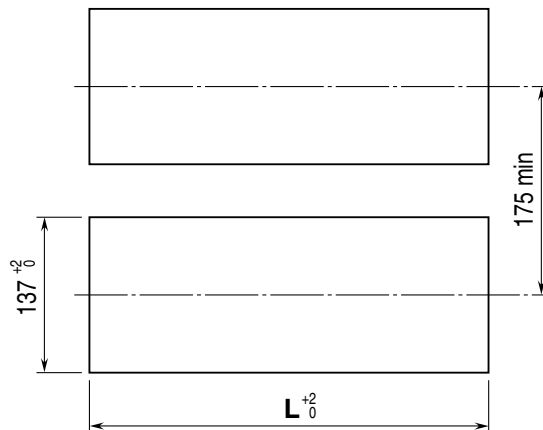


Number	$L^{+2}_0$ (mm)
2	282
3	426
4	570
5	714
6	858
7	1002
8	1146
9	1290
10	1434
n	$(114 \times n) - 6$

#### ■ VERTICAL CLUSTERED MOUNTING (max. 3 units)



#### ■ HORIZONTAL CLUSTERED MOUNTING

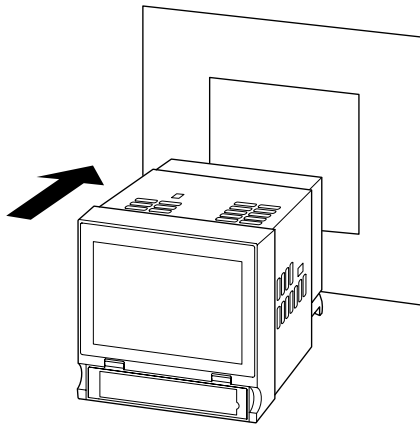


#### Notes

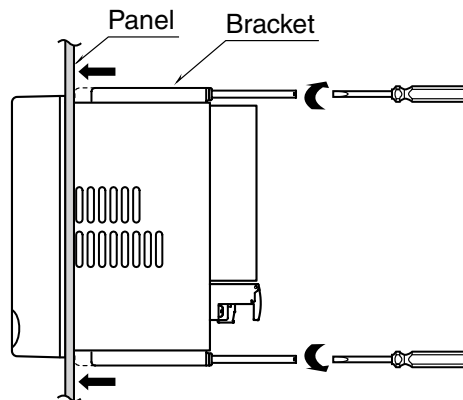
1. Dimensional tolerance  $\pm 3\%$  unless otherwise specified.  
( $\pm 0.3$  mm for  $< 10$  mm)
2. Desktop type cannot be mounted on a panel surface.

■ **PANEL MOUNTING**

(1) Insert the 73VR1100 from the front side of the panel.



(2) Remove the sheets covering the mounting bracket holes. Fix two mounting brackets either on the sides or on the top and bottom of the unit. Tighten screws.



**CAUTION !**

Adequate tightening torque for the screws used to mount the unit onto the panel is between 0.8 and 1.2 N·m. If an excessive force is applied, the unit's enclosure may be destroyed, or the panel may be distorted, which would cause a compromise in the unit's protection against water or liquid ingress.

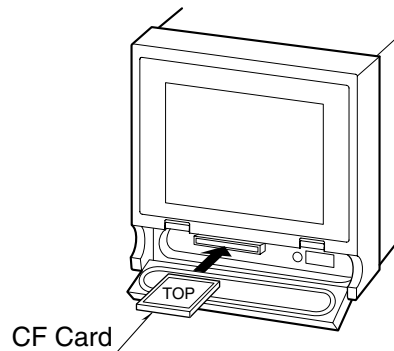
## 7. PREPARATION & WIRING TO THE UNIT

### 7.1 INSERTING CF CARD

Insert a CF card to store recorded data and setting of Paperless Recorder.

#### ■ INSERTING THE CF CARD

- (1) Turn off the power supply to the 73VR1100.
- (2) Open the front cover.



- (3) Insert the CF card maintaining its top side visible from above.
- (4) Push it in until EJECT button is popped up.
- (5) Close the front cover.

#### NOTES – Hot to Take the CF Card Out –

- (1) When the 73VR1100 is recording data, touch [ MENU ] key on the right bottom on the screen and touch [ Stop ] to stop the recording.
- (2) Push EJECT button to the right side of the card slot and take the card out.

### 7.2 CONNECTING THE POWER SUPPLY

Please choose appropriate solderless terminals for the power terminals, referring to the figure to the right. Appropriate tightening torque is 0.5 N·m.

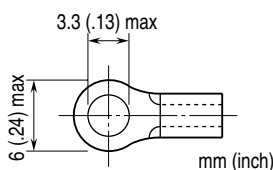
Connection: M3 screw terminal

Screw terminal material: Nickel-plated steel (torque 0.5 N·m)

Applicable wire size: 0.25 to 1.65 mm<sup>2</sup> (AWG 22 to 16)

Recommended manufacturer: Japan Solderless Terminal

MFG.Co.Ltd, Nichifu Co.,ltd



### 7.3 SETTING UP & CONNECTING I/O DEVICES

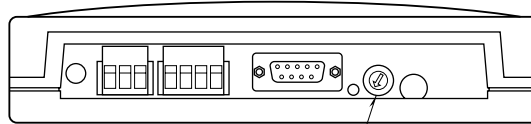
#### ■ SETTING UP THE R1M-GH2

Node address and signal type must be set.

(1) Node address

Set the rear rotary switch to '1.'

If the power is supplied to the R1M-GH2 when setting the address, turn off and on the power supply to enable the new setting.

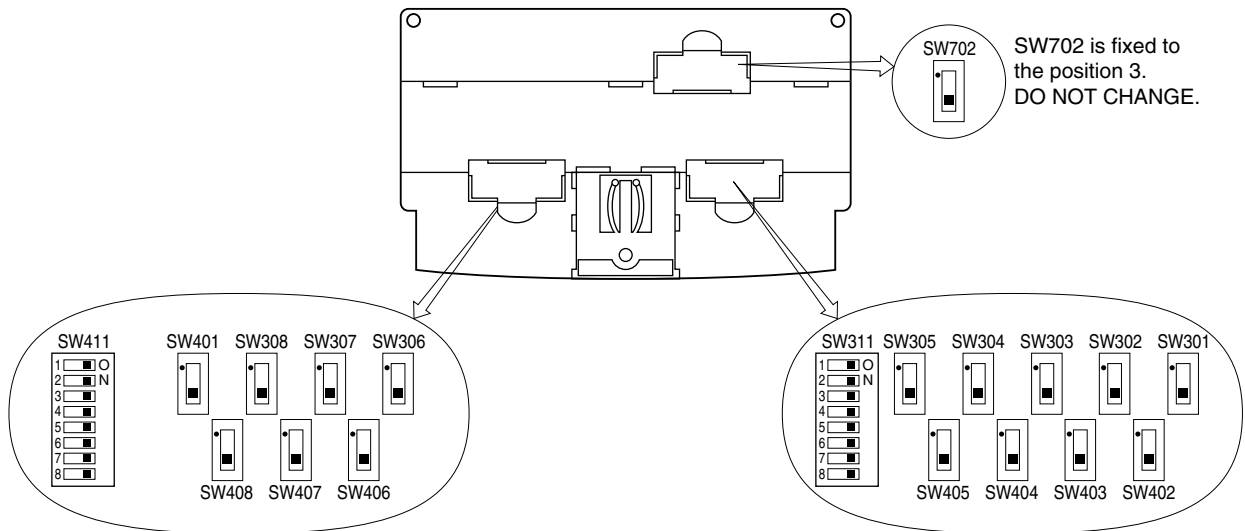


Address Setting Rotary SW




(2) Signal type

Set the DIP switches at the bottom of the unit.

In this example, '-5 to +5V' will be used. Set the switches for the voltage 'exceeding 0.8V.' (This setting is actually the factory default setting.)



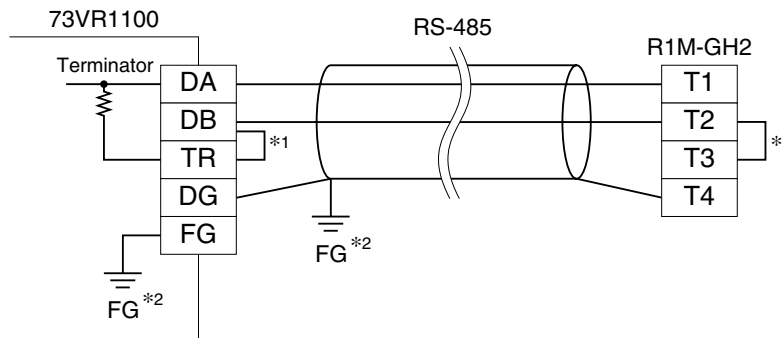
• **Signal Type Setting**

INPUT	SWITCHES	SETTING	NOTES
Thermocouple	SW301 ... SW308 (ch 1 ... ch 8) SW401 ... SW408 (ch 9 ... ch 16)	Set to position "1." 	Attenuation OFF
	SW311 (ch 1 ... ch 8) SW411 (ch 9 ... ch 16)	OFF	
Voltage input, 0.8 V or less	SW301 ... SW308 (ch 1 ... ch 8) SW401 ... SW408 (ch 9 ... ch 16)	Set to position "1." 	Attenuation OFF
	SW311 (ch 1 ... ch 8) SW411 (ch 9 ... ch 16)	ON	
Voltage input, above 0.8 V*	SW301 ... SW308 (ch 1 ... ch 8) SW401 ... SW408 (ch 9 ... ch 16)	Set to position "3." 	Attenuation ON
	SW311 (ch 1 ... ch 8) SW411 (ch 9 ... ch 16)	ON	

\*Factory default setting

■ **CONNECTING THE R1M-GH2 TO THE 73VR1100**

The R1M-GH2 and the 73VR1100 are connected via RS-485, using a twisted-pair cable. Refer to the diagram below.



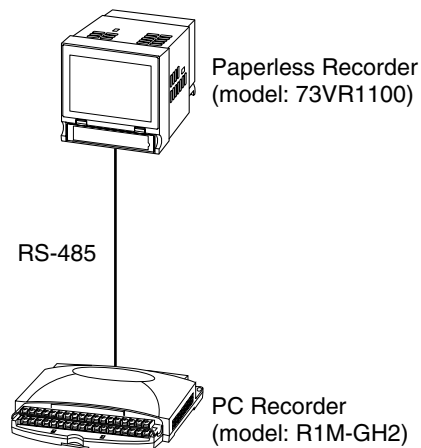
- \*1. Internal terminating resistors are used for the devices at both end of a transmission line. Close across the terminals DB and TR for the 73VR1100, T2 and T3 for the R1M-GH2.
- \*2. Install shielded cables to all sections and ground them at a single point.

☛ When connecting other signal types, see the 73VR1100 User's Manual (EM-7399-B, Section 3).

## 8. SETTING UP THE RECORDER

Basic setup procedure is explained in this section, using an example of thermocouple input at Input 1 to store data in a CF card in 1 second storing interval.

### ■ SYSTEM CONFIGURATION



☛ See the 73VR1100 User's Manual (EM-7399-C, Section 6) for the setting details.

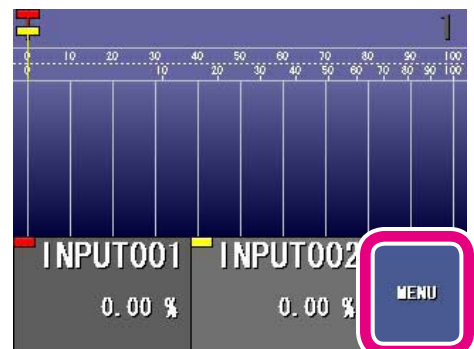
(1) Insert the CF card into the 73VR1100. Turn on the power supply to the 73VR1100.

#### NOTES – Creating Files in the CF Card –

The 73VR1100 creates files necessary to function once the power is turned on. This process takes some time. Please wait until the initial view appears on the screen.

☛ See the 73VR1100 User's Manual (EM-7399-C, Section 2) for the files in the CF card.

(2) Touch [ MENU ] on the screen to call up the control panel.

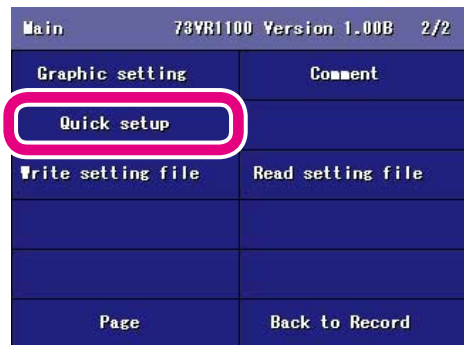




(3) Touch [ Config. ].



(4) Touch [Quick setup ] in Main setup view.



(5) 'Basic setting' view is on the screen.  
Touch [ Next ].

**NOTES – Control Key Functions –**

Cancel : Return to Main setup view without applying changes made in Quick setup.

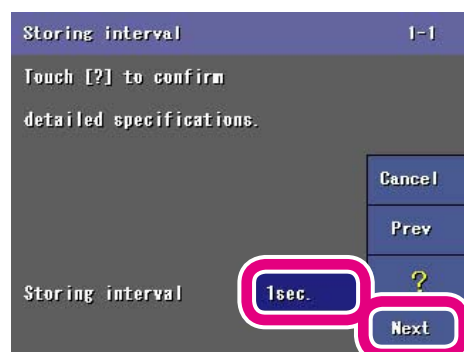
Return : Go to the previous view (page).

? : Go to Help view.

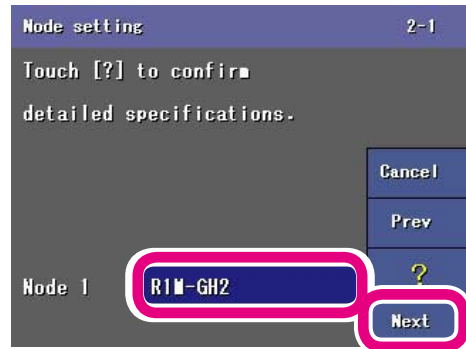
Next : Go to the next view (page).



(6) 'Storing interval' view is on the screen.  
Touch [ Storing interval ] field to show available options.  
Choose '1 sec.' and touch [ Next ].



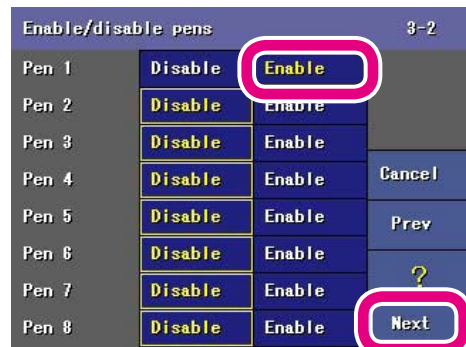
- (7) 'Node setting' view is on the screen.  
 Touch [ Node 1 ] field to show available options.  
 Choose 'R1M-GH2' and touch [ Next ].



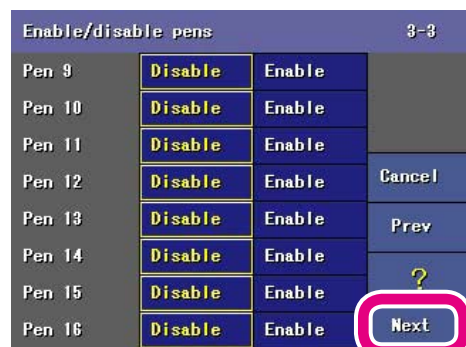
- (8) 'Enable/disable pens' view is on the screen.  
 Touch [ Next ].



- (9) Available selections for 'Enable/disable pens' are on the screen.  
 Choose 'Enable' for Pen 1.  
 Choose 'Disable' for Pen 2 through 8.  
 Touch [ Next ].



- (10) Available selections for 'Enable/disable pens' are on the screen.  
 Choose 'Disable' for Pen 9 through 16.  
 Touch [ Next ].



(11) 'Analog/Discrete pens' view is on the screen.  
Touch [ Next ].



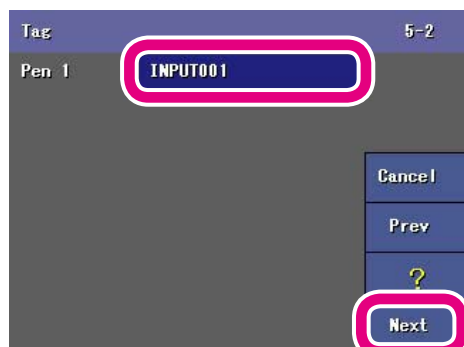
(12) Available selections for 'Analog/Discrete pens' are on the screen.  
Choose 'Analog' for Pen 1.  
Touch [ Next ].



(13) 'Tag' view is on the screen.  
Touch [ Next ].



(14) Default tag names are on the screen.  
Touch these names to change.  
Leave the default 'INPUT001' as it is in this example.  
Touch [ Next ].



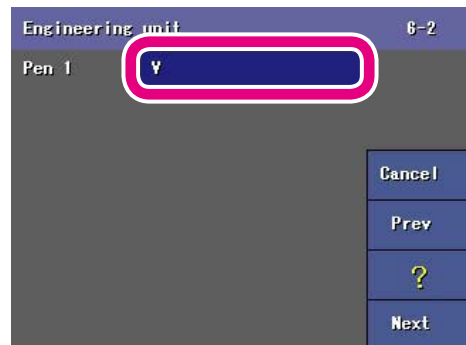
**NOTES**

Pens you 'disabled' in the previous page do not show tag names.

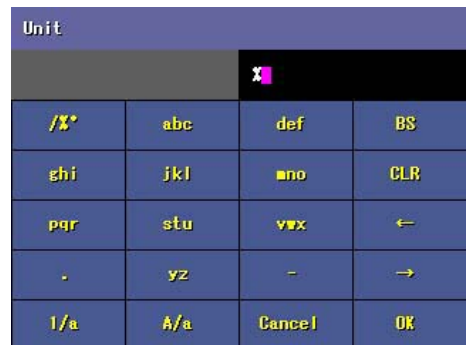
- (15) 'Engineering unit' view is on the screen.  
Touch [ Next ].



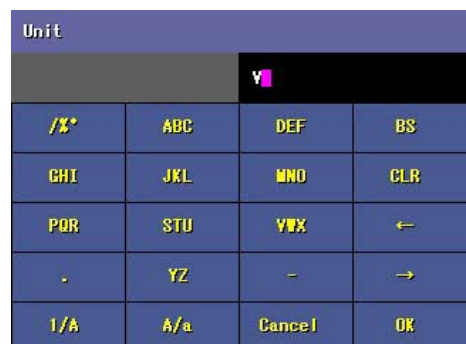
- (16) Default engineering units are on the screen.  
Touch these units to change.



Touch the current unit selection for Pen 1 and a keypad appears on the screen.



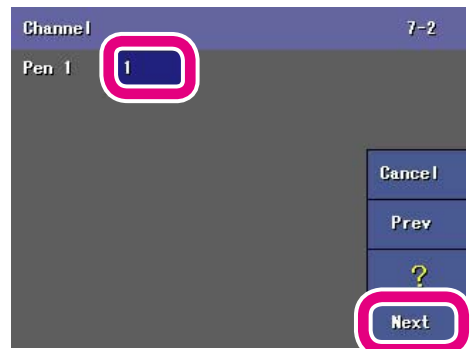
- The following is an example to set 'V' for Pen 1.
1. Touch [ A/a ] key once to switch to the capital letter mode.
  2. Touch arrow key to move to [ VWX ] key, and choose 'V' by touching the key once.
  3. Touch [ OK ].
  4. The view returns to 'Engineering unit'.
  5. Touch [ Next ].



(17) 'Channel' view is on the screen.  
Touch [ Next ].



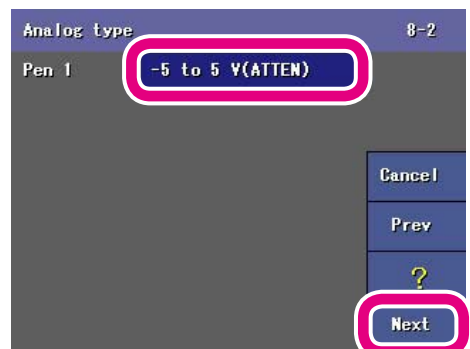
(18) Default channel numbers are on the screen.  
Touch these channel numbers to change.  
Touch the current unit selection for Pen 1 and a keypad appears on the screen.  
Enter '1' and touch [ OK ]  
Touch [ Next ].



(19) 'Analog type' view is on the screen.  
Touch [ Next ].



(20) Default analog types are on the screen.  
Touch these type descriptions to change.  
Touch the current type selection for Pen 1 and a list of available options will appear.  
Leave the default '-5 to 5 V(ATTEN)' as it is in this example.  
Touch [ Next ].



(21) 'Input range' view is on the screen.  
Touch [ Next ].



(22) Default input ranges are on the screen.  
Touch these range value fields to change.  
Touch the current selections for Pen 1 and a keypad appears on the screen.  
Enter '-5.0' and '5.0' respectively and touch [ OK ].  
Touch [ Next ].



(23) 'Scaling' view is on the screen.  
Touch [ Next ].



(24) Default scaling ranges are on the screen.  
Touch these range value fields to change.  
Touch the current selections for Pen 1 and a keypad appears on the screen.  
Enter '-5.0' and '5.0' respectively and touch [ OK ].  
Touch [ Next ].



(25) Now the basic setting is complete.  
Touch [ Record ].



**NOTES**

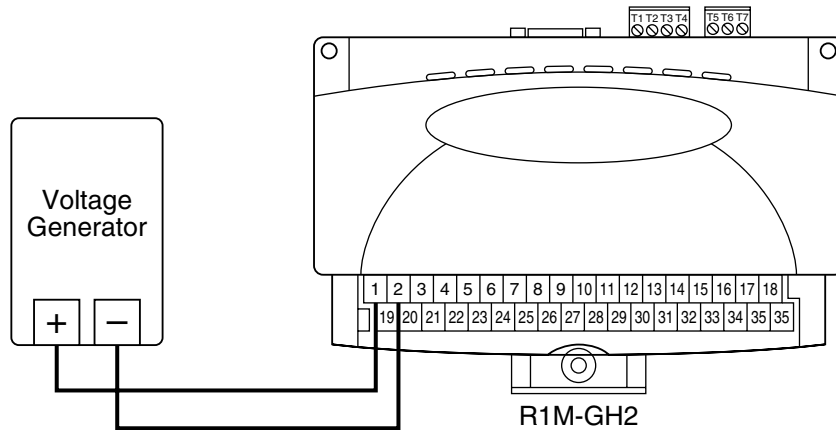
Scaling range is automatically set as the plot position for the pen when you use Quick setup.

## 9. LET'S START RECORDING

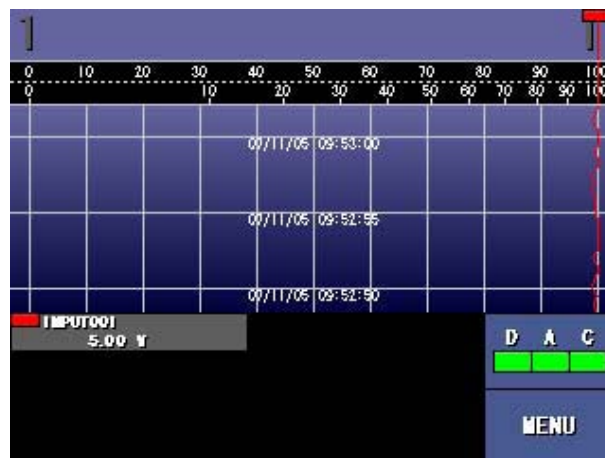
### 9.1 CONFIRMING THE 73VR1100 OPERATION WITH SIMULATED INPUT

Confirm that the 73VR1100 is functioning properly using a simulated input signal.

Connect a voltage simulator to Channel 1 terminals (+ to 1, – to 2) and supply 5V DC.



The digital indicator for Pen 1 now shows 5V.



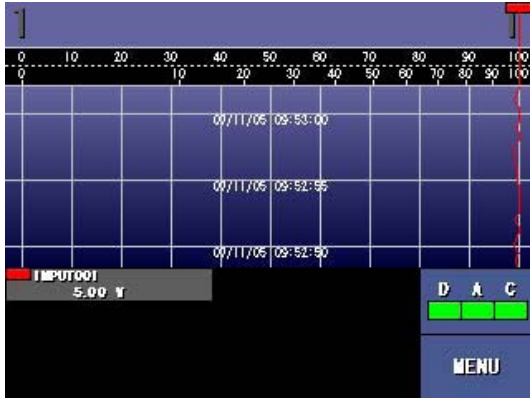


## 9.2 DISPLAY VIEWS

The 73VR1100 is available with:

- 'Trend View,' 'Overview,' 'Bargraph View' and 'Graphic View' plotting recorded data in real time.
- 'Retrieve View' and 'Alarm History' showing data stored in the CF card.

☛ See 73VR1100 Users Manual (EM-7399-C, Section 8) for detail.



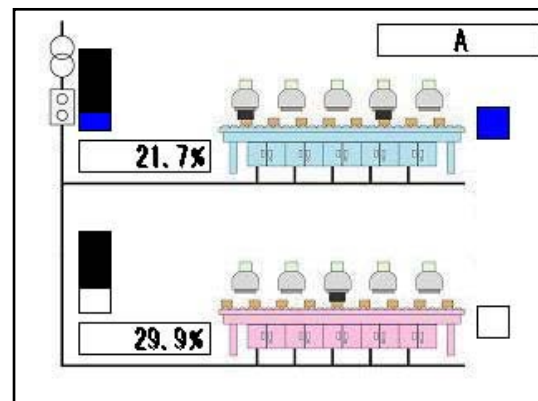
Trend View



Overview



Bargraph View



Graphic View