

INSTRUCTION MANUAL

EMON-20A

MONITOR UNIT

Thank you for purchasing KYOWA's product EMON-20A Monitor Unit.
Read this Instruction Manual carefully in order to make full use of the high performance capabilities of the product.
Do not use the product in methods other than described in this Manual.

This Manual only describes operations of the EMON-20A.
For the Universal Recorder EDX-100A, refer to the "EDX-100A INSTRUCTION MANUAL (FOR HARDWARE)."
For the Universal Recorder EDX-200A, refer to the "EDX-200A INSTRUCTION MANUAL (FOR HARDWARE)."
For the Dynamic Data Recording Software DCS-100A, refer to the "DCS-100A INSTRUCTION MANUAL (FOR EDX-100A OPERATION)" and "DCS-100A INSTRUCTION MANUAL (FOR EDX-100A OPERATION)."

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STANDARD ACCESSORIES

The following accessories are packed with the EMON-20A. When unpacking, check the contents to ensure that all accessories are enclosed.

Instruction manual	1 set (DVD-R) *1
Test certificate with warranty	1
EMON-20A dedicated cable	1
Read in the beginning	1

*1 Including For the Dynamic Data Recording Software DCS-100A trial version and Instruction manual.

OPTIONAL ACCESSORIES

AC adapter	UIA345-12
DC power cable	P-76

SAFETY PRECAUTIONS

(Do not forget to read the safety precautions prior to use.)

The product is designed to be used according to "12. SPECIFICATIONS."

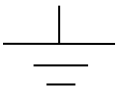
Do not use the product in an environment exceeding the specifications. Otherwise, it may cause troubles.

PRIOR TO USE

For safe use of the product, do not forget to read the "Safety Precautions" prior to use.

Kyowa Electronic Instruments Co., Ltd. assumes no liability for any damage resulting from the user's failure to comply with the safety precautions.

For safety operation of the product, the following symbol marks are used in the Instruction Manual.

	Indicates "protective ground terminal." Be sure to connect the GND terminal to the ground.
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SAFETY SYMBOLS

For safety operation of the product, the following symbol marks are used in the Instruction Manual.

 WARNING	Improper operation of the system may result in death or severe injury to the operator.
 CAUTION	Improper operation of the system may result in injury to the operator and physical damage of the system.

 WARNING	
● Warning Be sure to observe the warning and precautions described in the EMON-20A INSTRUCTION MANUAL. ● Power supply To prevent a fire hazard, ensure that the power supply voltage specified for the product matches the local line voltage before connecting the system to the DC power. When using the optional AC adapter, check the voltage range of the AC power outlet before connecting. ● Avoid using in environment with inflammable gas, etc. To prevent the risk of fire hazard or explosion, do not use the product in an environment with inflammable gas, vapor, or dust. ● If any trouble occurs To prevent a fire hazard, if smoke is emerging from the product, immediately turn OFF the power switch and disconnect the DC power cable or AC adapter to terminate the system operation. ● Protective ground Be sure to connect the GND terminal to the ground. Otherwise, it may cause an electric shock hazard, lower the performance, and cause trouble.	



CAUTION

- Precautions

Be sure to observe the warning and precautions described in the “EMON-20A INSTRUCTION MANUAL.”

- Use the product with the temperature ranging from 0 to 50°C.
Otherwise, it may lower the performance and other issues may occur.
If use under direct sunlight or in a cold place is inevitable, prepare a sunscreen or take proper measures to keep it warm.
- Use the product in the specified operating humidity range 20 to 80%RH.
Use in a humid place exceeding the specified range or where it is exposed to splashing water may lower the insulation resistance and cause trouble.
- Do not use the product immediately after the change in the environment.
Allow the product adequate time to adjust to the ambient environment prior to use. In addition, abrupt changes in ambient temperature during transportation, etc. may cause condensation, which may result in lower performance and or damage the system.
- Use the product under environment without excessive vibration or high impact.
The vibration resistance and impact resistance are as follows.
Vibration resistance: 29.4 m/s²(3 G), 5 to 200 Hz
Impact resistance: 147.0 m/s²(15 G), 11 msec or less
Use the product in an area where vibration and impact can be kept within the scope of specifications.
Continuous vibration or severe impact may cause deteriorated performance and system failure.
- Do not use the product under dusty environment.
Otherwise, it may lower the performance. Be careful that dust may not enter the product not only during operation but also under stored conditions.
- Do not use the product in the strong electromagnetic field.
Use the product in a magnetic field environment where the PC may be used. Performance may be lowered and erroneous operation and troubles may result if it is used near a telemetry system, microwave oven, electronic furnace or any other equipment generating a strong magnetic field.
- Do not use the product under poor conditions.
Use the product in the specified voltage range.
DC power: 10 to 36 VDC
Optional accessory AC adapter (UIA345-12): 100 to 240 VAC (50 Hz/60 Hz)
The power supply used for the product should not experience an instantaneous power failure and be free from noise.
- The specifications of the optional accessory AC adapter (UIA345-12) is as follows.
Input voltage: 100 to 240 VAC (50/60 Hz)
Output voltage: 12 VDC (3.8 A)
Operating temperature range: 0 to 40°C



CAUTION

- The AC adapter (UIA345-12) is a consumable item.
- Do not pull cords and cables.
Lay cords and cables with a certain allowance so that excessive force is not applied to the connections.
Pulling or applying excessive force may cause negatively affect or interrupt the measurement.
- Do not disassemble or modify the product.
Otherwise, it may cause electric shock hazards or damage the product.
This warranty does not cover any damaged or defective parts that result from disassembling or remodeling.
- When using/storing the product near oceans, block the outside air.
Otherwise, it may lower the performance and other issues may occur.
- Handle the DVD-R with care.
Do not expose the DVD-R to direct sunlight, high temperature, or high humidity.
Do not apply pressure to the DVD-R by laying object or bending.
Dust, scratches, and fingerprints on either side of the DVD-R can cause write errors.
- Cleaning
When the product gets dirty, clean the product with a dry soft cloth.

NOTATIONS USED IN THE INSTRUCTION MANUAL

Examples of notations

To express strain, “10-6 strain”, $\mu\text{m}/\text{m}$ or “ $\mu\epsilon$ ” is used.

This instruction manual uses “ $\mu\epsilon$ ” on the panel, and “ $\mu\text{m}/\text{m}$ ” to express strain in general.

Informational notes

Certain notations are used as necessary to attract your attention to information that requires special care when handling the product, and to information provided for reference purposes.

Examples of notations

NOTE

Essential precautions required when handling the product.

MEMO

Reference items required when handling the product.

IMPORTANT PRECAUTIONS WHEN USING EMON-20A

NOTE

When the EDX-100A/200A version is lower than 2.00, you are not able to control the EDX-100A/200A by using the EMON-20A.

Update the EDX-100A/200A version 2.00 or higher in advance.

For details, see “UPDATING THE EDX-100A” and “UPDATING THE EDX-200A.”

INSTRUCTION MANUAL (PDF FILE) AND HYPERLINKS

The instruction manual has hyperlinks in “2-1 WINDOWS AND TREES.”

To jump to the description page, put a cursor on the underlined setting items (example: “Display Conditions” window) on the tree and click it.

1 OUTLINE OF PRODUCT

1-1 OUTLINE

The EMON-20A is a simplified monitor unit for the EDX-100A/200A series.

Since the EMON-20A has a touch panel, the EMON-20A monitors the measured data on sites where you are not able to use the PC.

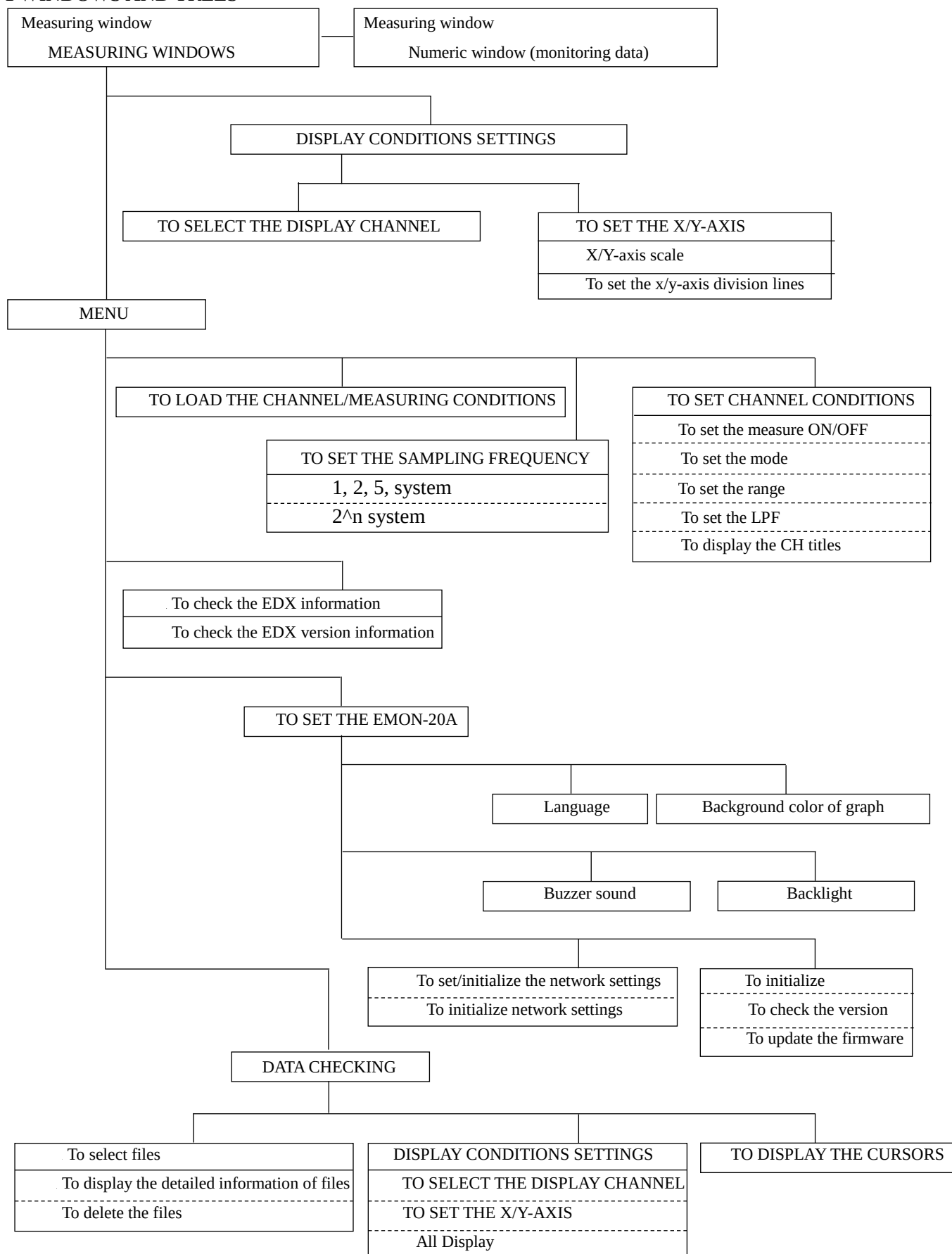
The EMON-20A sets the channel conditions and checks the measured data files also.

1-2 FEATURES

- Selects arbitrary 8 channels of the connected EDX-100A/200A and monitors the measured data in waveforms/numbers.
- Y-Time graph
 - The number of display channels is up to 8.
 - *Unable to select multiple channels of multiple EDX units during the synchronous operation.
 - *Able to select multiple channels of single EDX unit during the synchronous operation.
 - Sets the x/y-axis scale and the number of division lines of the x/y-axis.
- Numeric window
 - The number of display channels is up to 8.
 - *Able to select multiple channels of multiple EDX units during the synchronous operation.
- Controls the EDX-100A/200A by using the touch panel.
Executes balance adjustments, starts monitoring data, starts recording data, stops monitoring data, and stops recording data by pressing the touch panel keys.
- Sets the channel conditions and sampling frequency.
Channel conditions: Measure ON/OFF, mode, range, LPF
- Displays the measured data, recorded in the CF card of the EDX-100A/200A, on the Y-Time graph.
 - The number of display channels is up to 8.
 - Checks the details of the measured data files.
 - Deletes the measured data files.
- Various conditioner cards
- Connects the EDX-100A/200A easily by using the dedicated cable.
- Compact and lightweight

2 OPERATIONS AND FUNCTIONS

2-1 WINDOWS AND TREES



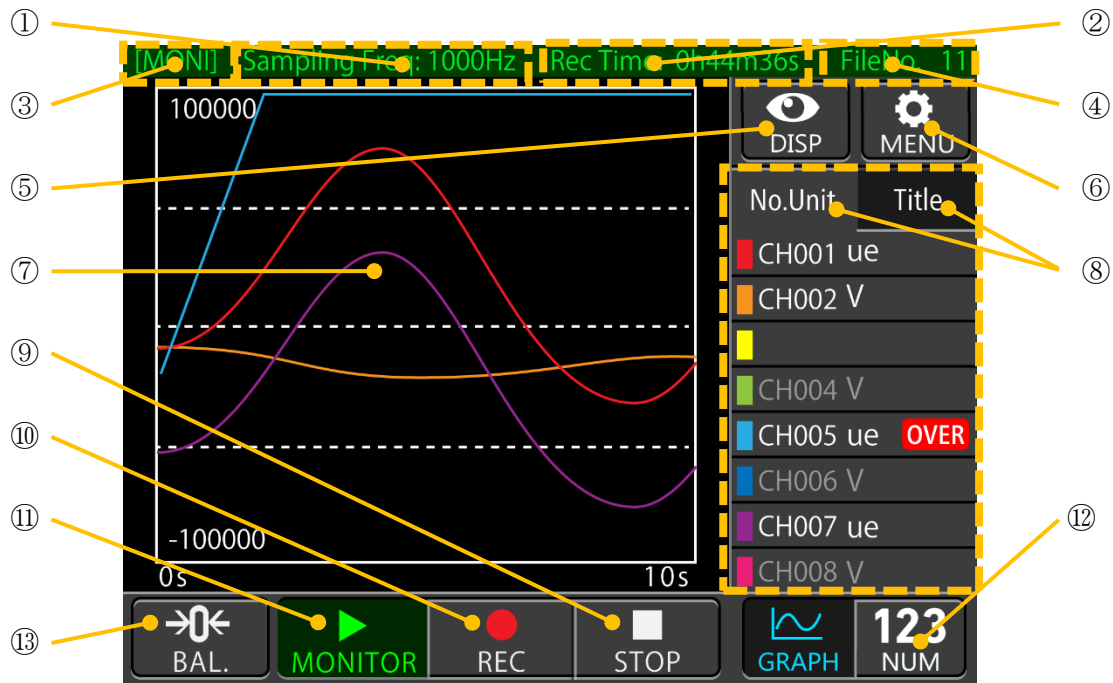
2-2 LIST OF WINDOW CONFIGURATION



3 CONTROLS AND INDICATORS

3-1 MEASURING WINDOWS

3-1-1 Y-Time graph (monitoring data)

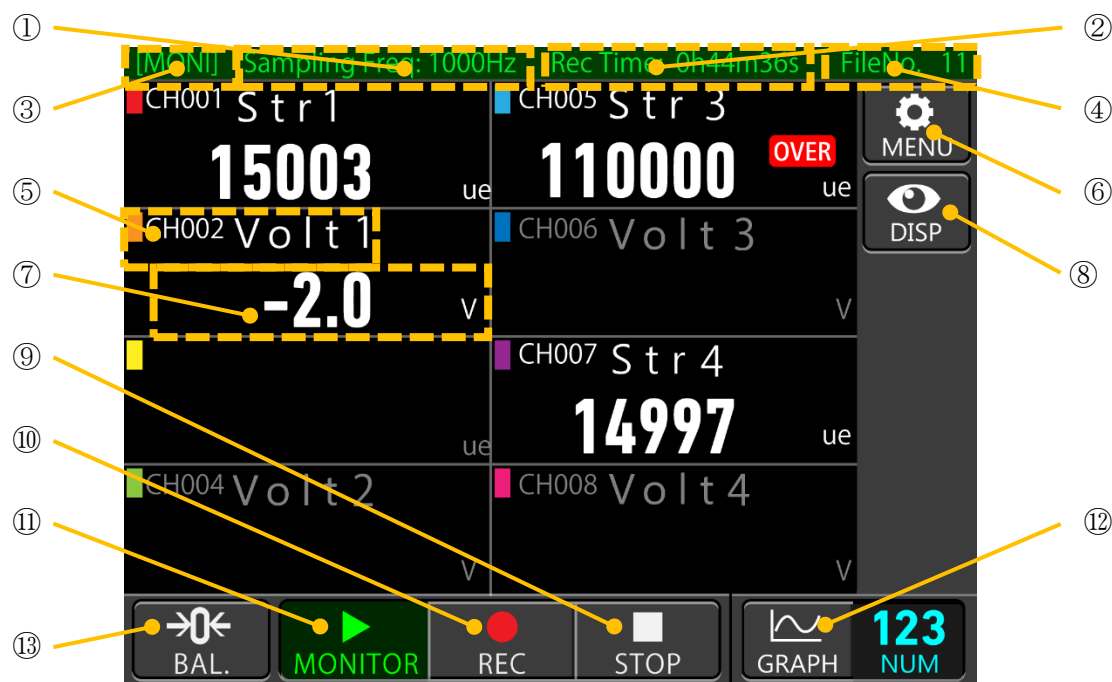


- | | |
|-----------------------|--|
| ① Sampling Freq | The pre-set sampling frequency appears. |
| ② Rec Time | The max. recording time at the pre-set sampling frequency appears. |
| ③ Status | The current status of the EDX-100A/200A appears as follows.
STOP: Stopped
MONI: Monitoring data
REC: Recording data |
| ④ File No. | As the recording starts, the current recording data file No. appears. |
| ⑤ [DISP] button | The “Display Conditions” window appears. |
| ⑥ [MENU] button | The “Menu” window appears. |
| ⑦ Y-Time graph | The monitoring and recording measured data appears on the Y-Time graph. |
| ⑧ [No.Unit/Title] tab | [No.Unit] tab: The pre-set CH Numbers and units appear.
[Title] tab: The pre-set CH titles appear.
When the item exceeds the range even once, the [OVER] icon appears. |
| ⑨ [STOP] button | Stops recording/monitoring the measured data. |
| ⑩ [REC] button | Starts recording the measured data. |
| ⑪ [MONITOR] button | Starts monitoring the measured data. |
| ⑫ [NUM] button | The numeric window appears. |
| ⑬ [BAL.] button | Executes the balance adjustment. |

MEMO

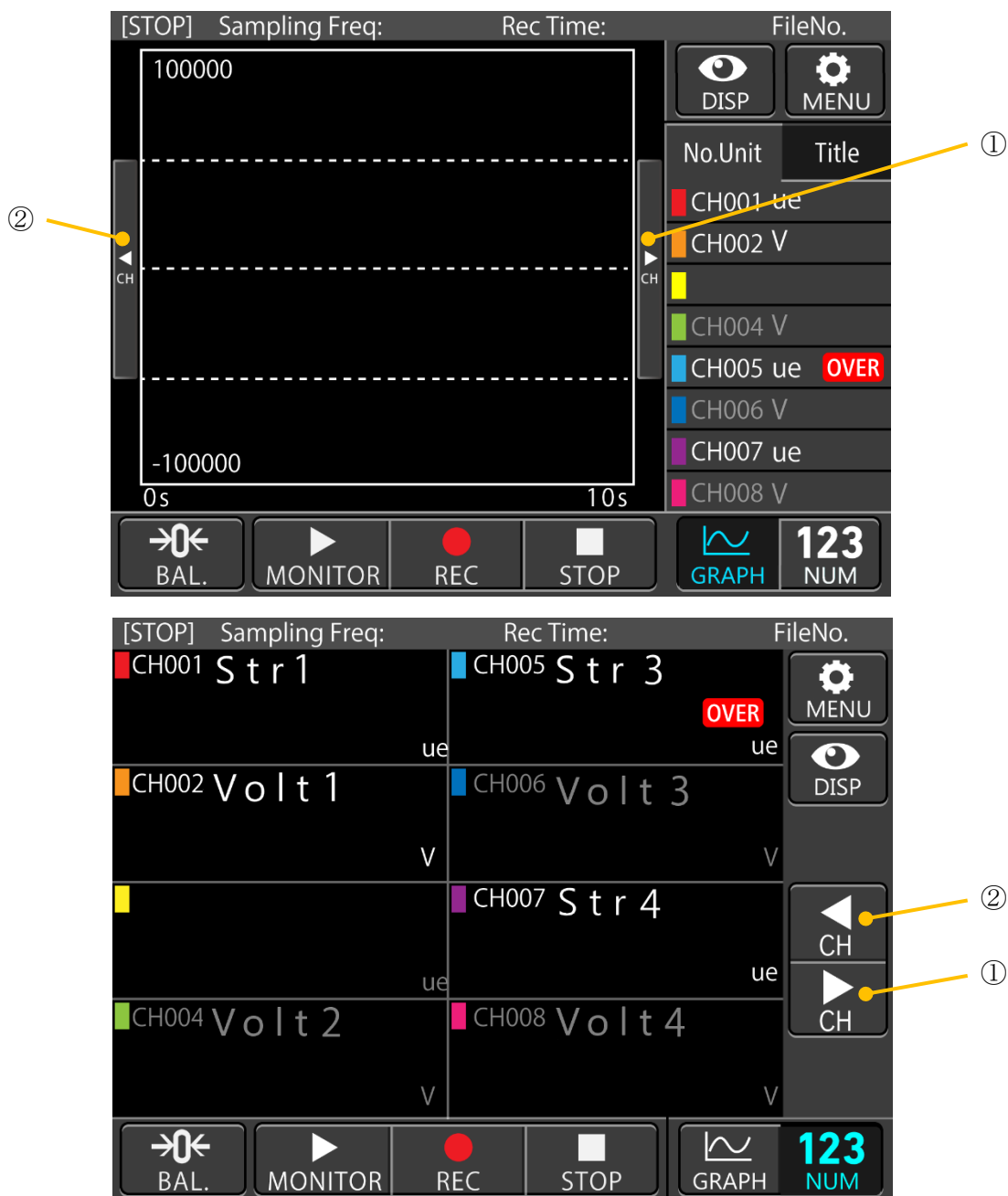
During the synchronous operation, the “Rec Time” of the EDX-100A/200A - which has the smallest remaining time - appears as the ② Rec Time.

3-1-2 Numeric window (monitoring data)



- | | |
|--------------------|---|
| ① Sampling Freq | The pre-set sampling frequency appears. |
| ② Rec Time | The max. recording time at the pre-set sampling frequency appears. |
| ③ Status | The current status of the EDX-100A/200A appears as follows.
STOP: Stopped
MONI: Monitoring data
REC: Recording data |
| ④ File No. | As the recording starts, the current recording data file No. appears. |
| ⑤ CH No./Title | The pre-set CH Numbers and CH titles appear. |
| ⑥ [MENU] button | The “Menu” window appears. |
| ⑦ Numerical value | The monitoring and recording measured data appears in numbers.
When the item exceeds the range even once, the [OVER] icon appears. |
| ⑧ [DISP] button | The “Display Conditions” window appears. |
| ⑨ [STOP] button | Stops recording/monitoring the measured data. |
| ⑩ [REC] button | Starts recording the measured data. |
| ⑪ [MONITOR] button | Starts monitoring the measured data. |
| ⑫ [GRAPH] button | The Y-Time graph window appears. |
| ⑬ [BAL.] button | Execute the balance adjustment. |

3-1-3 Y-Time graph/numeric window (stopped)



① [→CH] button

Changes the channel list on the “Displayed CH Select” window (hereinafter referred to as the “pre-set channel list”) to the first 8 channels (CH001 to CH008).

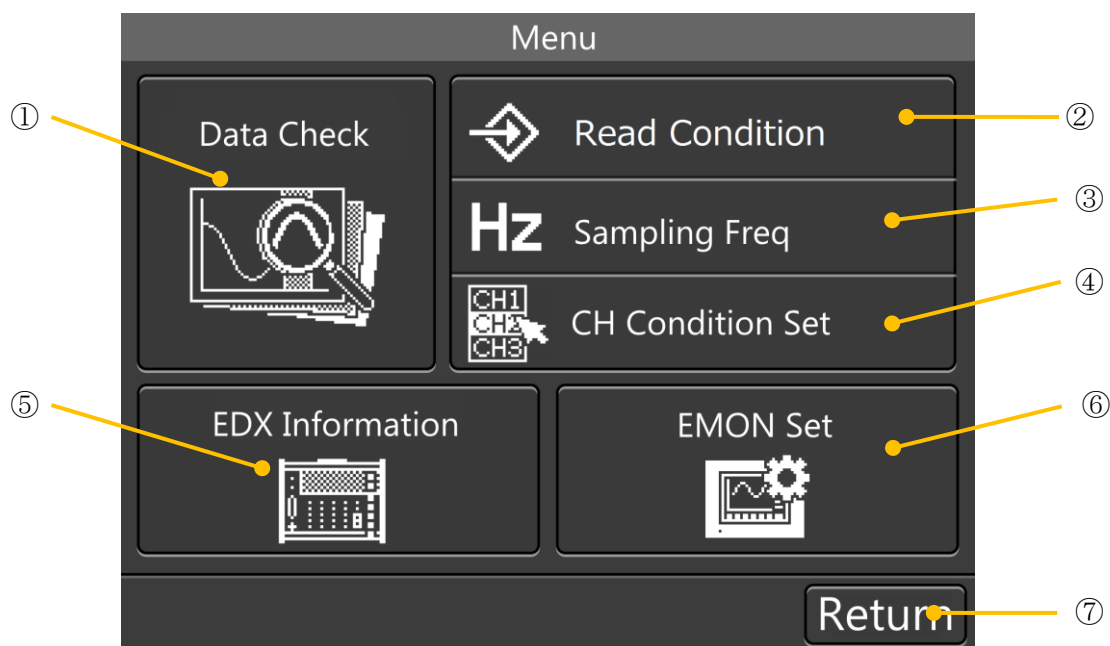
When the EDX-100A/200A has multiple conditioner cards and the first 8 channels (CH001 to CH008) appear on the window, click the [→CH] button to display the next 8 channels.

② [←CH] button

Changes the first 8 channels (CH001 to CH008) to the “pre-set channel list.”

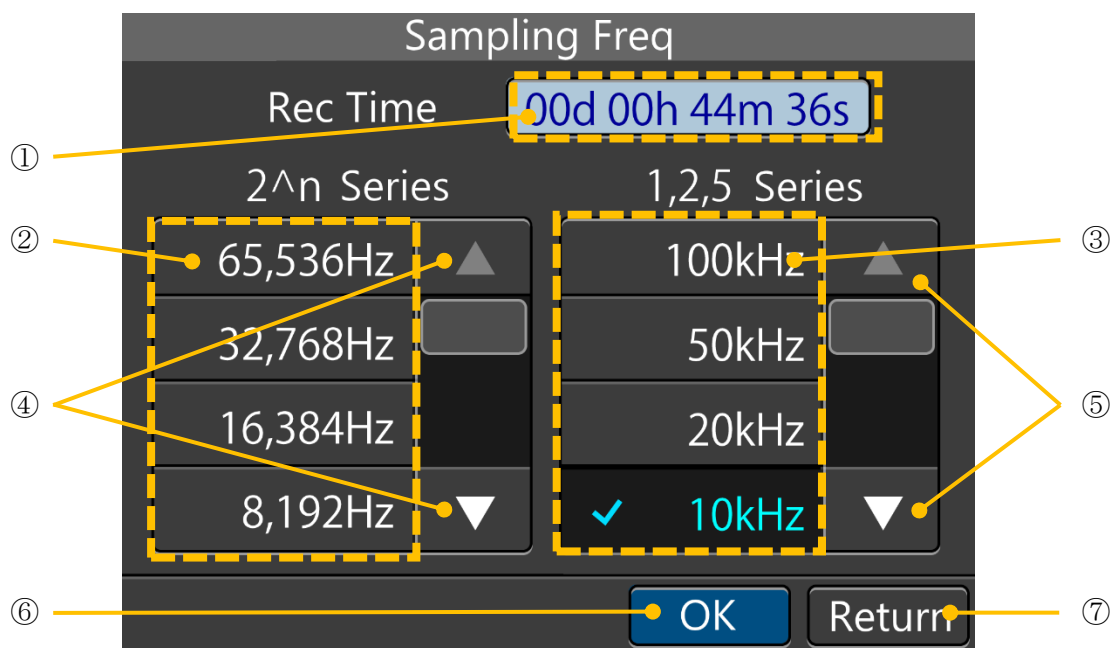
When the EDX-100A/200A has multiple conditioner cards and the “pre-set channel list” appears on the window, click the [←CH] button to display the last 8 channels.

3-2 “MENU” WINDOW



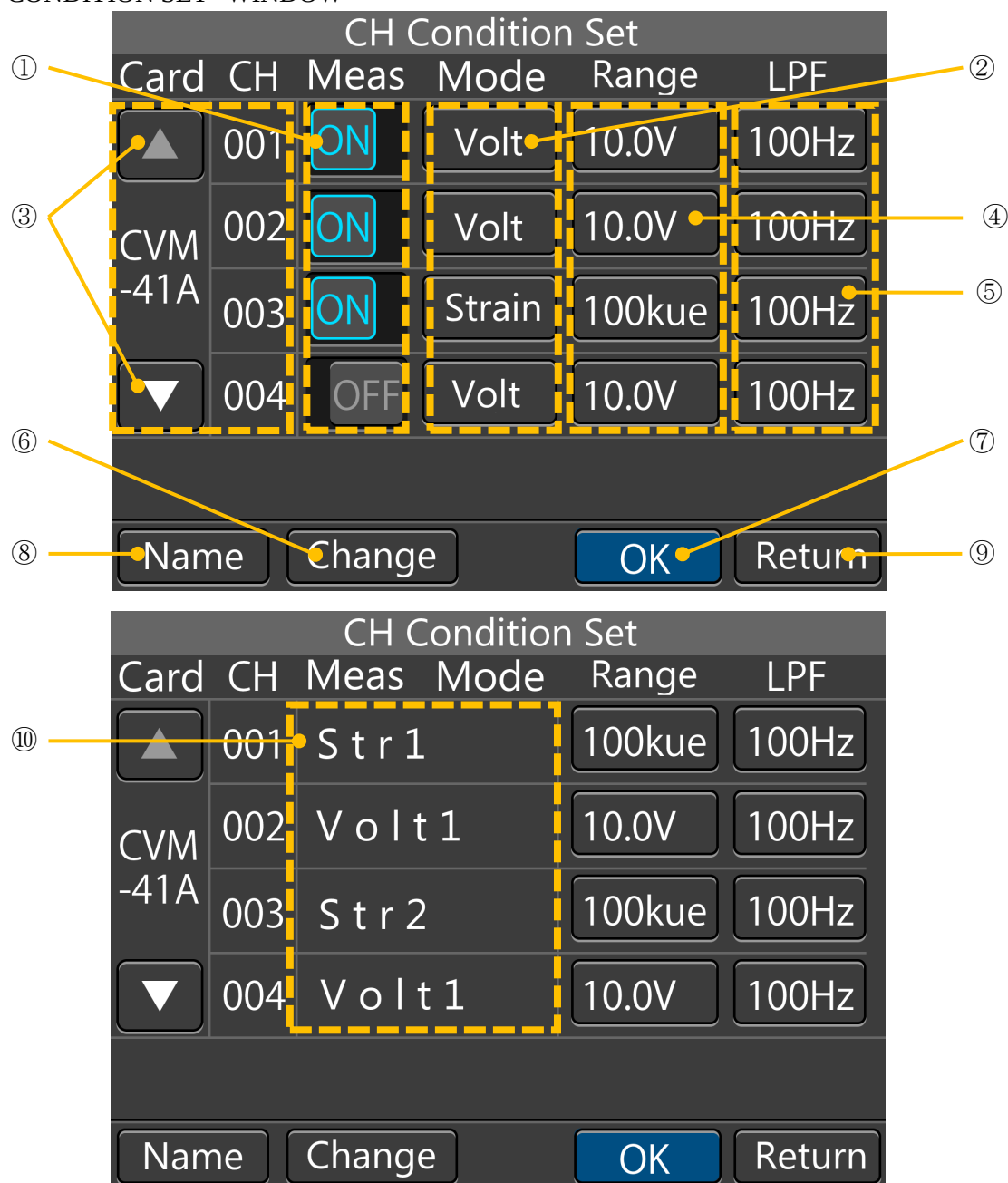
- | | |
|--|---|
| ① [Data Check] button | The “Data Check” window appears. |
| ② [CH/Measuring Condition Read] button | Loads the channel conditions and measuring conditions from the connected EDX-100A/200A. |
| ③ [Sampling Frequency] button | The “Sampling Frequency” window appears. |
| ② [CH Condition Set] button | The “CH Condition Set” window appears. |
| ⑤ [EDX Information] button | The “EDX Information” window appears. |
| ⑥ [EMON Set] button | The “EMON Set” window appears. |
| ⑦ [Return] button | Returns to the measuring window (Y-Time graph or numeric window). |

3-3 “SAMPLING FREQUENCY” WINDOW



- | | |
|-----------------------------|--|
| ① Rec Time | The max. recording time at the pre-set sampling frequency appears. |
| ② [2^N Series] button | 4 Hz to 65,536 Hz in 2^n series.
As you click the button, the button is highlighted and a check mark is placed. |
| ③ [1,2,5 Series] button | 1 Hz to 100 kHz in 1,2,5 series.
As you click the button, the button is highlighted and a check mark is placed. |
| ④ [2^N Series ↑/↓] button | Every 4 [2^N Series] buttons appear as you click the button. |
| ⑤ [1,2,5 Series ↑/↓] button | Every 4 [1,2,5 Series] buttons appear as you click the button. |
| ⑥ [OK] button | Saves sampling frequency in the EDX-100A/200A.
The “Menu” window appears. |
| ⑦ [Return] button | Returns to the “Menu” window.
Cancels the sampling frequency. |

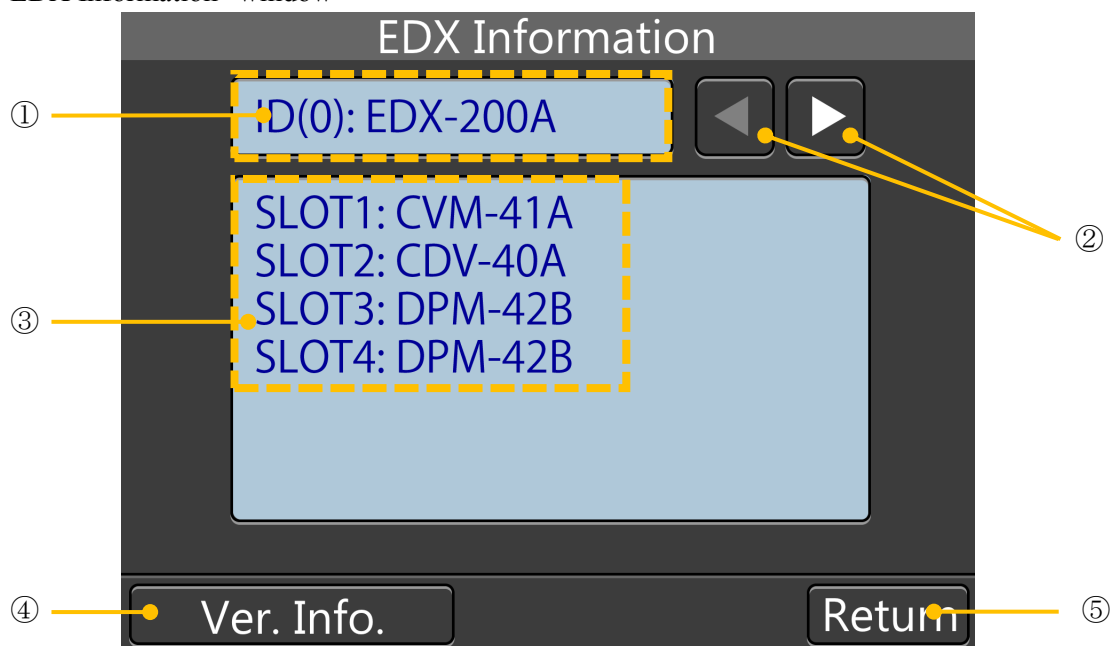
3-4 “CH CONDITION SET” WINDOW



- ① [Measure ON/OFF] button
Sets the measure ON/OFF of every channel of the EDX-100A/200A.
- ② [Mode] button
Sets the mode of every channel of the EDX-100A/200A.
- ③ [↑/↓] button
Every 4 CH Numbers appear as you click the button.
- ④ [Range] button
Sets the range of every channel of the EDX-100A/200A.
- ⑤ [LPF] button
Sets the LPF of every channel of the EDX-100A/200A.
- ⑥ [Item Change] button
Changes the upper window (with the [Mode] buttons) and lower window (without the [Mode] buttons).
- ⑦ [OK] button
Save the CH conditions in the EDX-100A/200A.
The “Menu” window appears.
- ⑧ [Name] button
The “Detail of CH Name” pop-up window appears to check the CH titles of the EDX-100A/200A.
- ⑨ [Return] button
Returns to the “Menu” window.
Cancel the CH conditions.
- ⑩ CH title
CH titles in 6 characters.

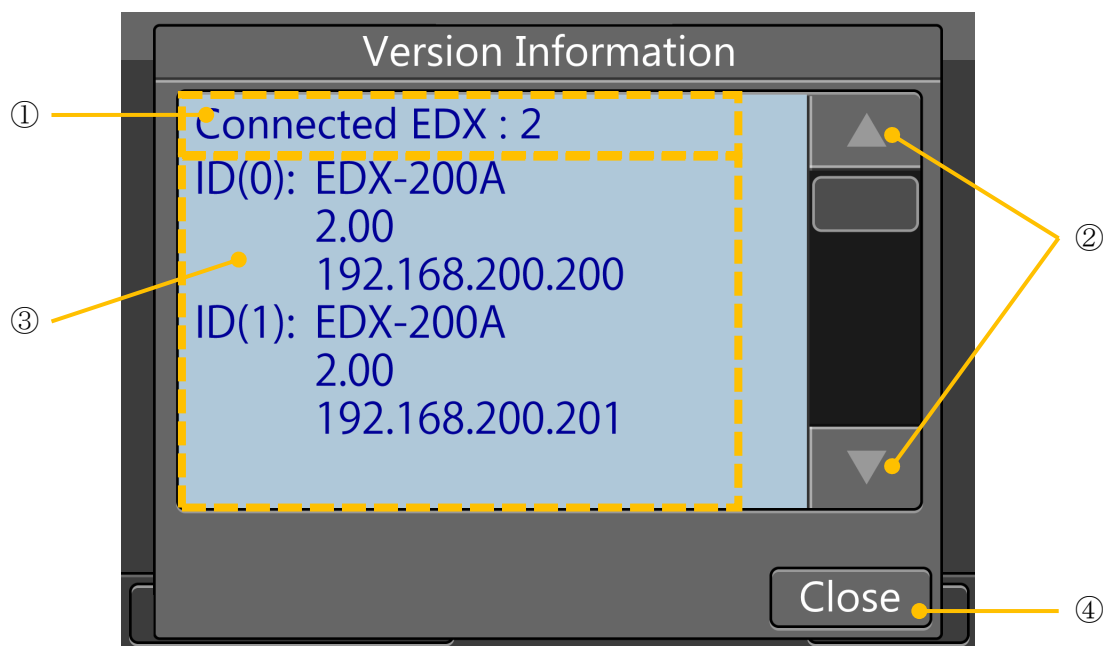
3-5 “EDX INFORMATION” WINDOW

3-5-1 “EDX Information” window



- | | |
|--------------------------------|---|
| ① EDX information | The ID and model of the EDX-100A/200A appear. |
| ② [←/→] button | Changes the EDX-100A and EDX-200A during the synchronous operation. |
| ③ Card information | The slot Numbers and models of the cards, mounted in the EDX-100A/200A, appear. |
| ④ [Version Information] button | The “Version Information” window appears. |
| ⑤ [Return] button | Returns to the “Menu” window. |

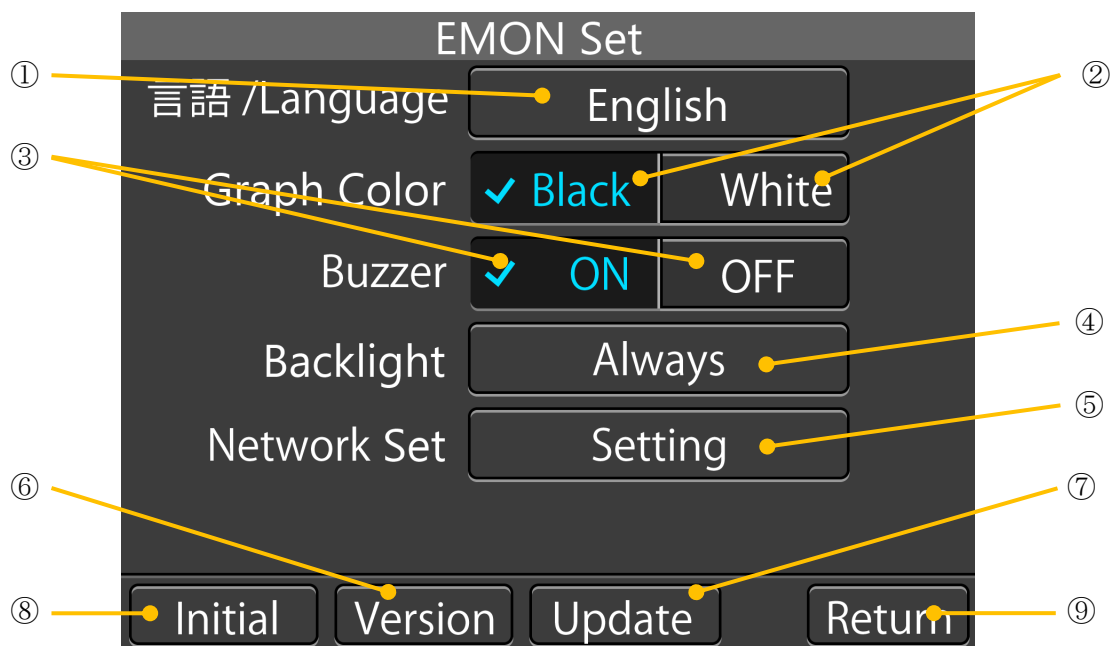
3-5-2 “Version Information” window



- ① Connected measuring machine
The number of the EDX-100A/200A units appears.
- ② [↑/↓] button
When the number of EDX-100A/200A units is 3, click the [↓] button to display the information of the 3rd EDX-100A/200A.
- ③ EDX information
The ID Numbers, models, firmware versions, and IP addresses of the EDX-100A/200A appear.
- ④ [Close] button
Returns to the “EDX Information” window.

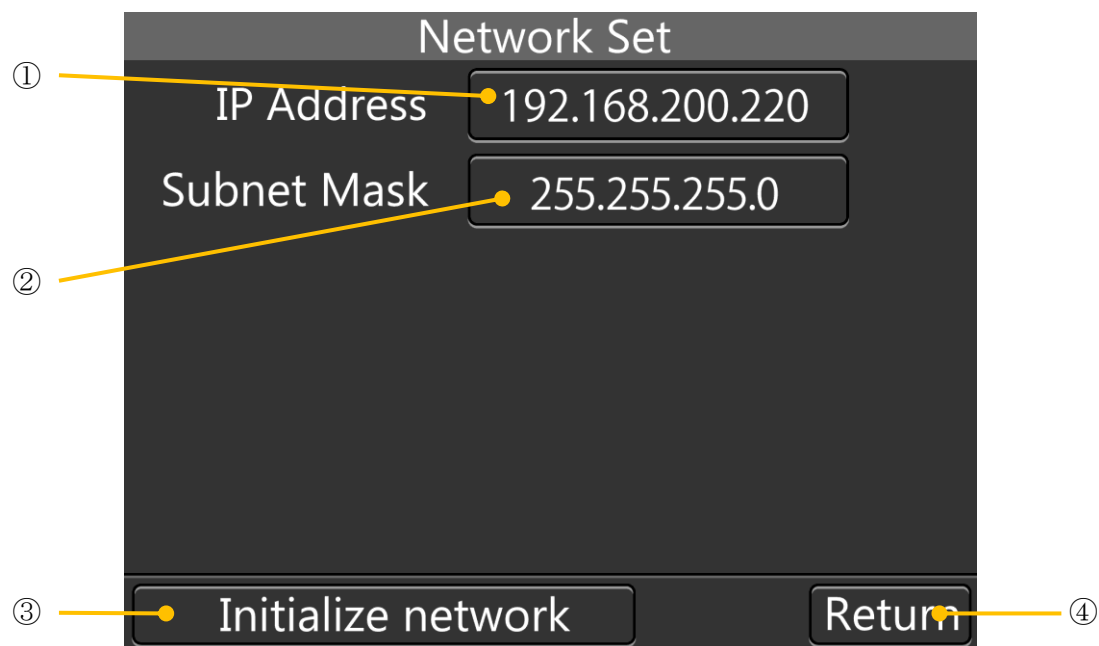
3-6 “EMON SET” WINDOW

3-6-1 “EMON Set” window



- | | |
|-------------------------|---|
| ① [Language] button | Selects the EMON-20A language.
Japanese/English |
| ② [Back Color] button | Selects the background color of the Y-Time graph.
Black/White |
| ③ [Buzzer Sound] button | Selects the ON/OFF of the buzzer sound while operating the touch panel. |
| ④ [Back Light] button | Selects the required time to turn OFF the backlight without touching the touch panel. |
| ⑤ [Network] button | The “Network Set” window appears. |
| ⑥ [Version] button | The firmware versions, etc. of the EMON-20A appear. |
| ⑦ [Update] button | Becomes the “update standby” mode.
For details, see “UPDATING THE EMON-20A” provided separately. |
| ⑧ [Initialize] button | Initializes the EMON-20A settings to the initial values. |
| ⑨ [Return] button | Returns to the “Menu” window. |

3-6-2 “Network Set” window



① [IP Address] button

The IP address of the EMON-20A appears.

② [Subnet Mast] button

As you click the button, the “IP Address” window appears.

The subnet mask of the EMON-20A appears.

③ [Initialize Network] button

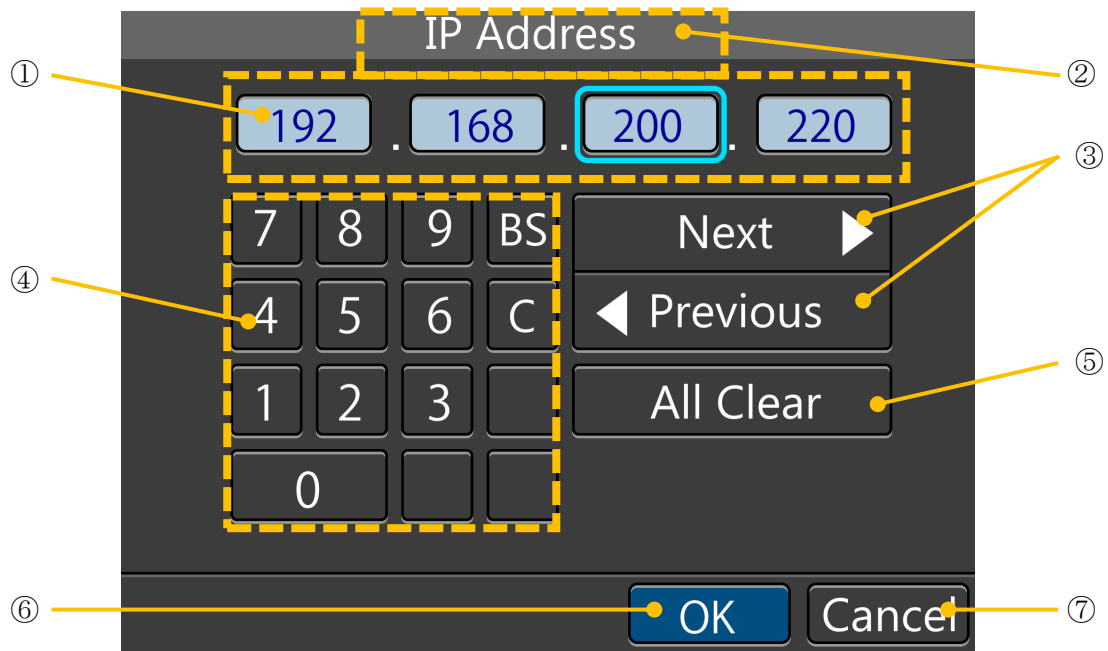
As you click the button, the “Subnet Mask” window appears.

Initializes the EMON-20A IP address and subnet mask to the initial values.

④ [Return] button

Returns to the “EMON Set” window.

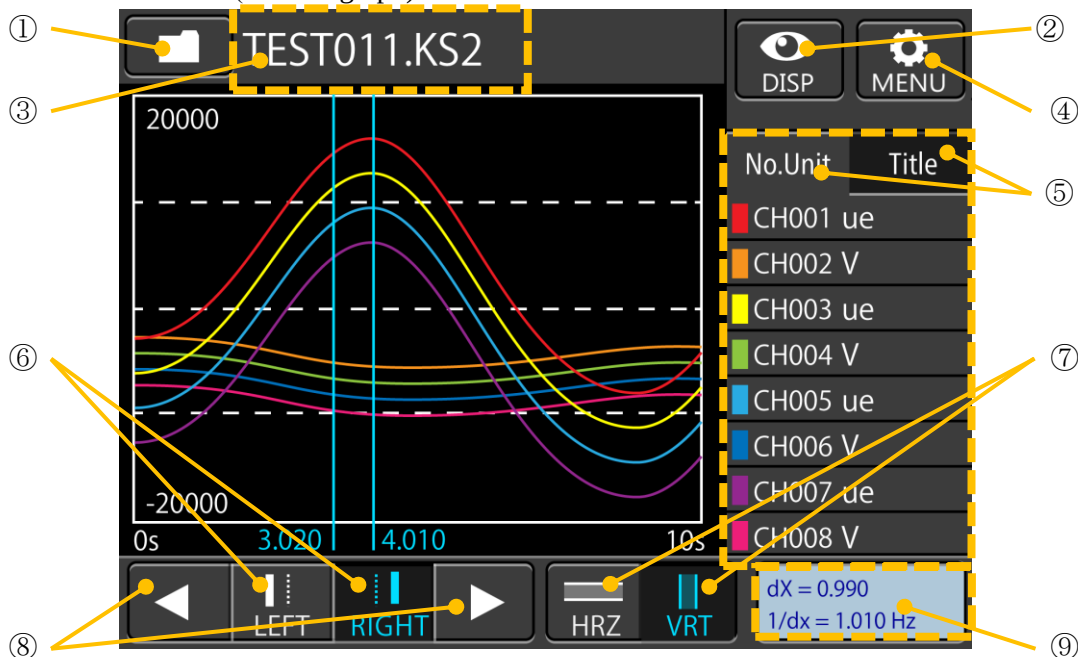
3-6-3 “IP Address” window



- ① [Block] button The IP address or subnet mask appears.
The IP address or subnet mask consists of 4 [Block] buttons.
As you click the [Block] button, the blue frame appears around the target button.
- ② Network name The name of the button clicked on the “Network Set” window appears.
- ③ [Next Block]/[Previous Block] button
[Next Block] button: Moves the blue frame around the [Block] button to the right.
[Previous Block] button: Moves the blue frame around the [Block] button to the left.
- ④ Numeric keypad Changes the values in the blue-framed block.
[BS] key: Clears the number in the target block from the rightmost digit.
[C] key: Clears the target block value to “0.”
Note that the number of each block is within 3 digits.
- ⑤ [All Clear] button Clears all block values to “0”.
- ⑥ [OK] button Saves the network status in EMON-20A.
The “Network Set” window appears.
- ⑦ [Cancel] button Returns to the “Network Set” window.
Cancel the network status.

3-7 “DATA CHECK” WINDOW

3-7-1 “Data check” window (Y-Time graph)



① [Folder] button

The “Select File” window appears.

Selects the files for displaying on the Y-Time graph.

② [DISP] button

The “Display Conditions” window appears.

③ Data filename

The filename on the Y-Time graph appears.

④ [MENU] button

The “Menu” window appears.

⑤ [No.Unit/Title] tab

[No.Unit] tab: The pre-set CH Numbers and units appear.

[Title] tab: The pre-set CH titles appear.

After set the all display, if the value exceeds the range, the [OVER] icon appears to indicate.

After the all display, if the value of the CH were exceeded the range, the [OVER] icon appears on that CH titles or CH Numbers.

⑥ [Cursor switch] button

[VRT] mode: [LEFT]/[RIGHT] button

[LEFT] button: Selects the cursors on the left side.

[RIGHT] button: Selects the cursors on the right side.

[HRZ] mode: [TOP]/[BOTTOM] button

[TOP] button: Selects the cursors on the upper side.

[BOTTOM] button: Selects the cursors on the lower side.

⑦ [Cursor mode] button

Changes the [VRT] mode and [HRZ] mode.

⑧ [Move cursor] button

[VRT] mode: [←]/[→] button

Moves the cursors, selected by the [LEFT]/[RIGHT] button, to the right and left.

[HRZ] mode: [↑]/[↓] button

Moves the cursors, selected by the [TOP]/[BOTTOM] button, to the up and down.

⑨ Analyzed information

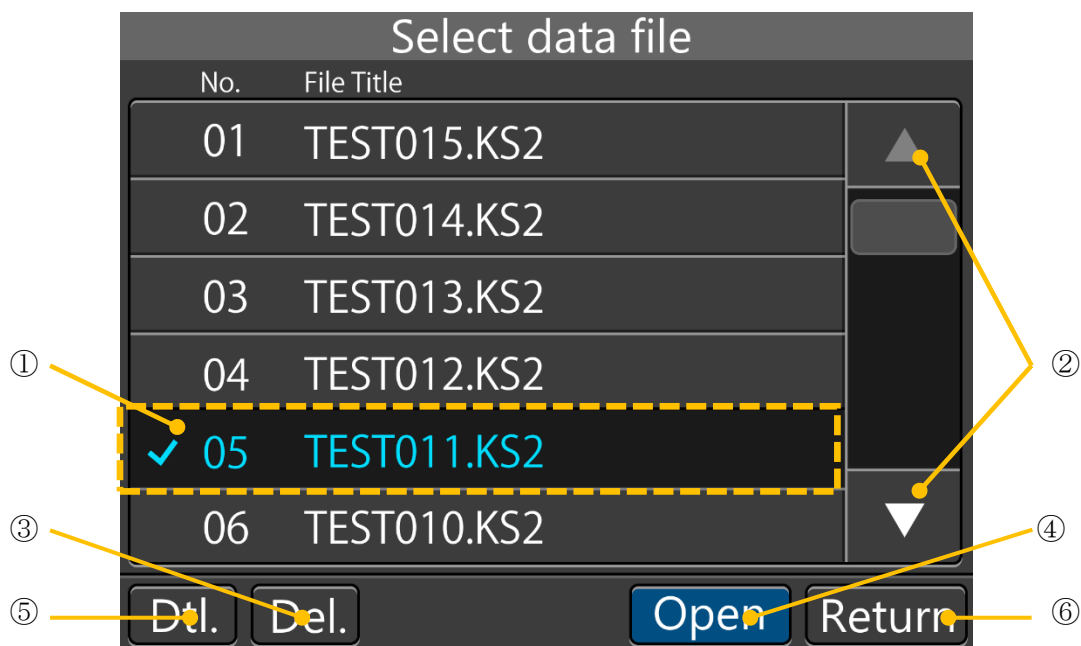
[VRT] mode:

The difference (sec) between the cursors on the x-axis and frequency (Hz) appear.

[HRZ] mode:

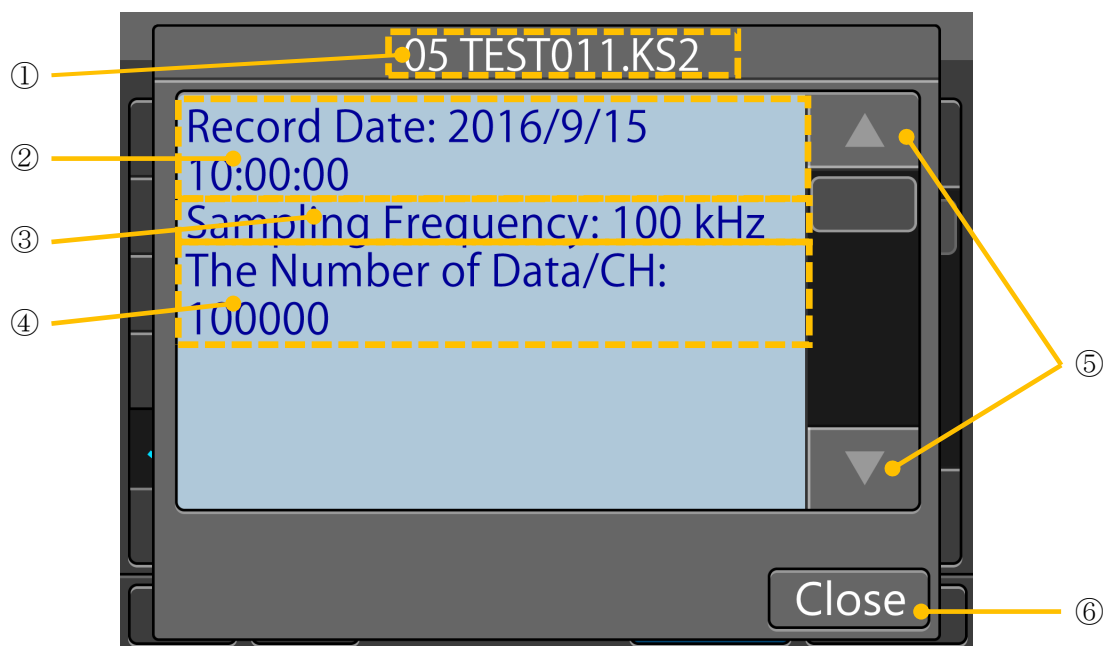
The difference between the cursors on the y-axis appears.

3-7-2 “Select File” window



- ① File button
As you click the button, the button is highlighted and a check mark is placed.
The latest files appear from No. 01.
- ② [↑/↓] button
[↓] button: The No.5 to No.10 files appear.
[↑] button: The No.1 to No.6 files appear.
Delete the selected files from the CF card.
- ③ [Delete] button
Delete the selected files from the CF card.
- ④ [Open] button
Open the selected files.
The “Data check” window appears, and the measured data appears on the Y-Time graph.
- ⑤ [Detail] button
The “File details” window appears.
- ⑥ [Return] button
Returns to the “Data check” window.
The selected files do not open.

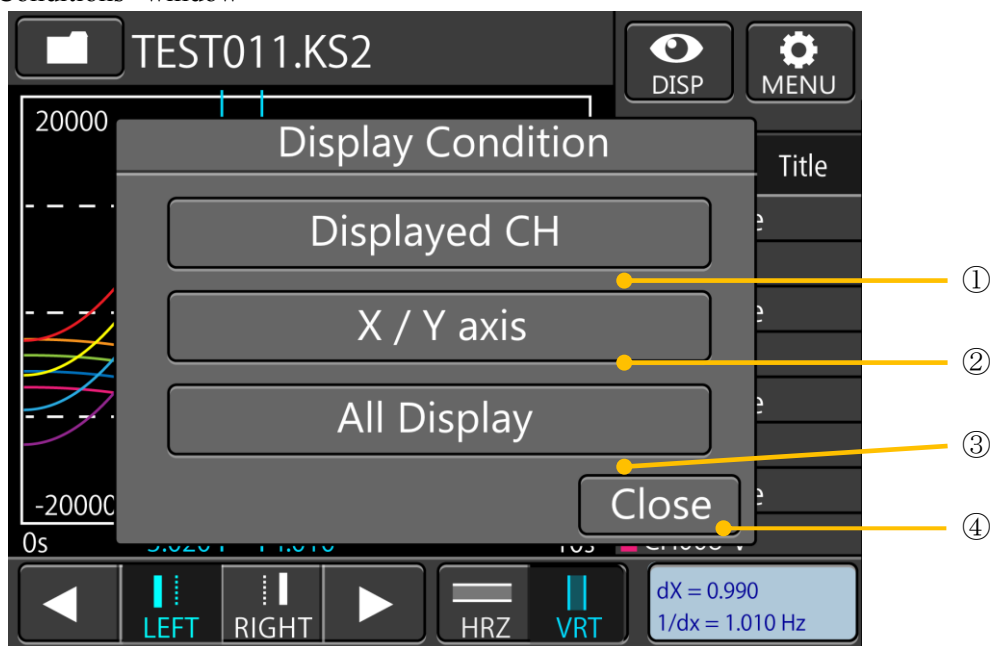
3-7-3 “File details” window



- | | |
|----------------------|---|
| ① File No./Name | The file No. and name, selected on the “Select File” window, appears.
When the filename is too long to display, 6 characters (including the first 5 characters and last 1 character of the filename) appear. |
| ② Record Date | The recording completed date and time of the measured data appear. |
| ③ Sampling Frequency | The sampling frequency while recording the measured data appears. |
| ④ Number of Data/CH | The number of recorded data per channel appears. |
| ⑤ [↑/↓] button | Every file information appears as you click the button. |
| ⑥ [Close] button | Returns to the “Select File” window appears. |

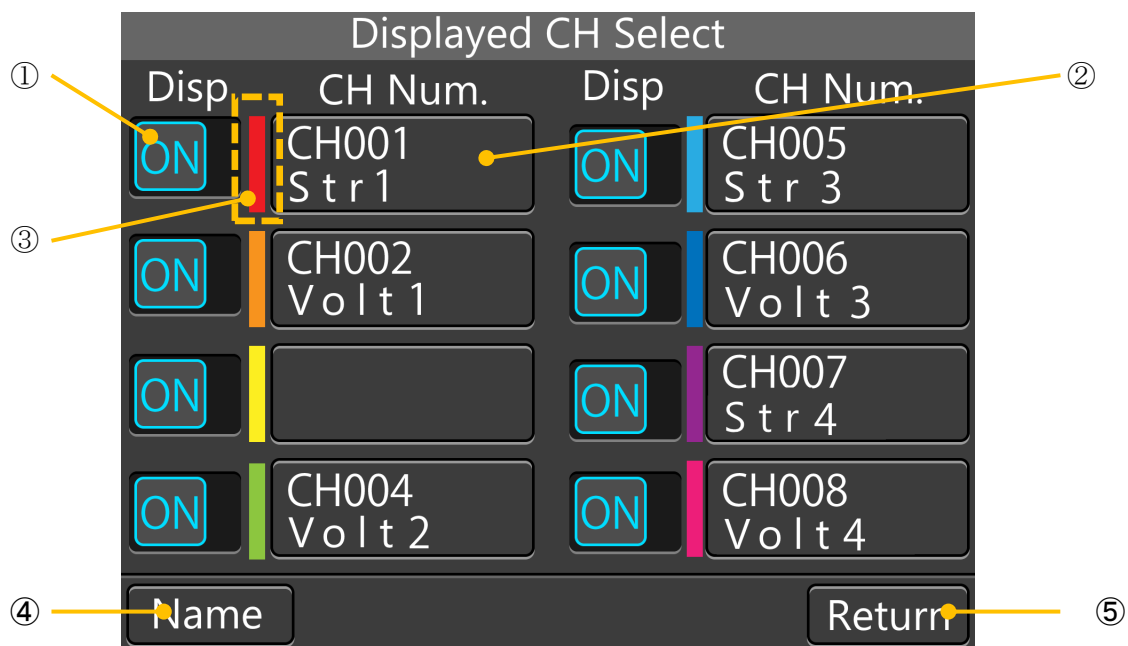
3-8 “DISPLAY CONDITIONS” WINDOW

3-8-1 “Display Conditions” window



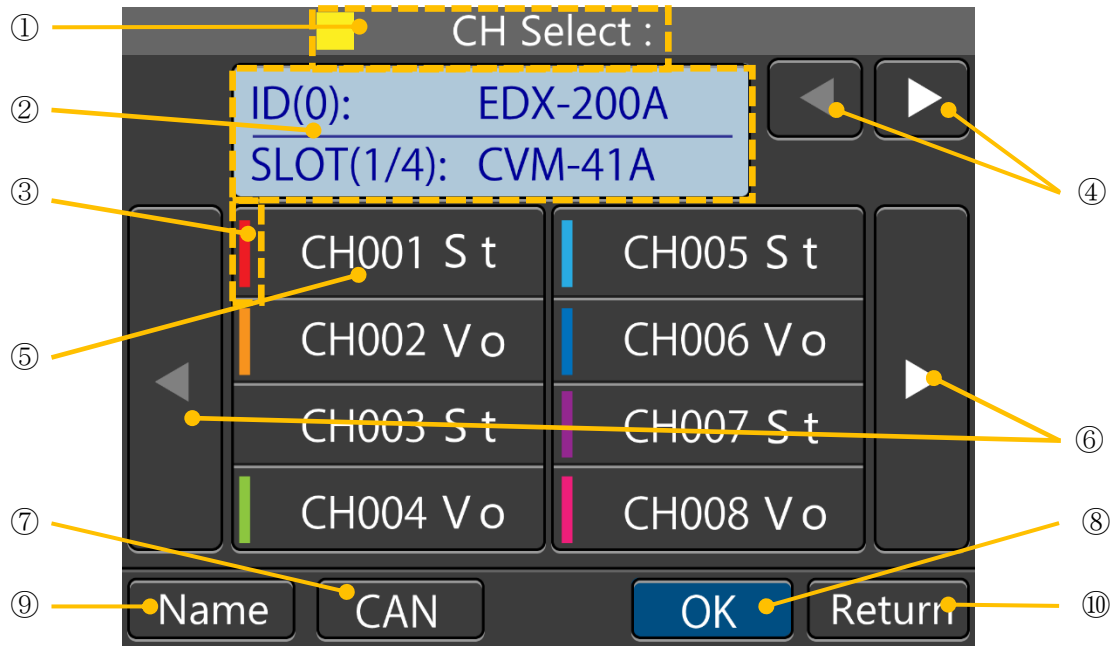
- | | |
|--------------------------------|--|
| ① [Select Displayed CH] button | The “Displayed CH Select” window appears. |
| ② [XY-axis Config] button | The “Set XY Scale” window appears. |
| ③ [All Display] button | Displays all data of the file on the single window.
To use this function, make sure the files are opening on the “Data check” window. |
| ④ [Close] button | Returns to the measuring window or “Data check” window. |

3-8-2 “Displayed CH Select” window



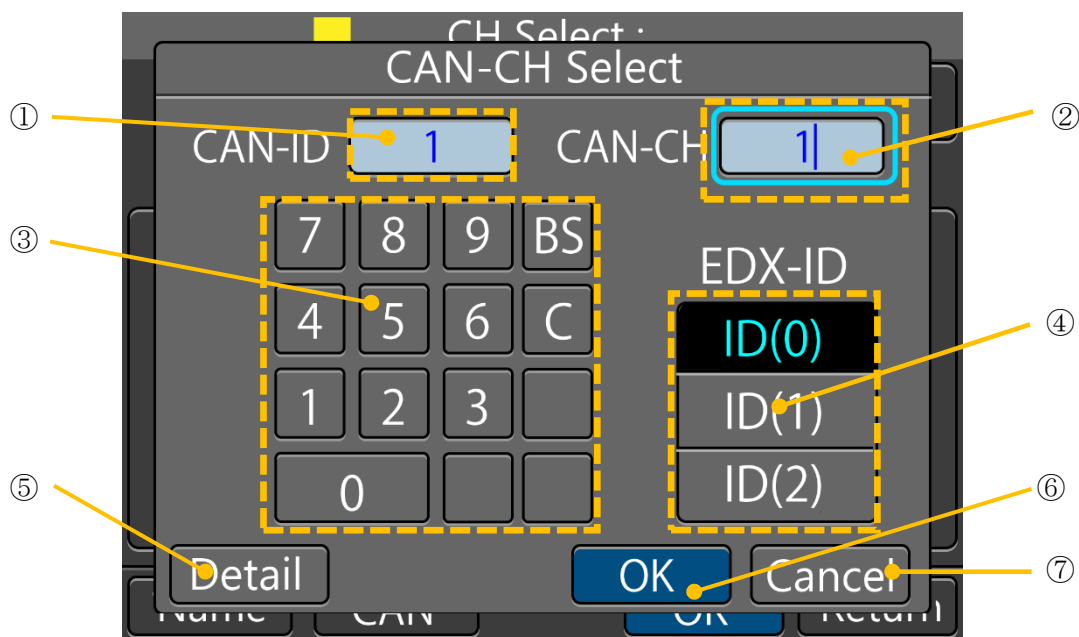
- | | |
|--------------------------------|--|
| ① [ON/OFF] button | Selects the show (ON)/hide (OFF) of the assigned display channel on the measuring window or “Data check” window. |
| ② [Displayed CH assign] button | <p>Assigns a channel to be displayed on the measuring window or “Data check” window. The assigned CH No. and CH title appear.</p> <p>The “Assigned CH Select” window appears.</p> <p>When the CH title is too long to display, first 5 characters of the CH title appear.</p> <p>The [Displayed CH assign] button is blank before selecting a channel.</p> |
| ③ CH color | <p>Displays the waveform color or number color on the measuring window or “Data check” window.</p> <p>The color is the assigned display channel is fixed.</p> |
| ④ [CH Title] button | The “Detail of CH Name” pop-up window appears to display each CH title of the EDX-100A/200A. |
| ⑤ [Return] button | Returns to the measuring window or “Data check” window. |

3-8-3 “Assigned CH Select” window



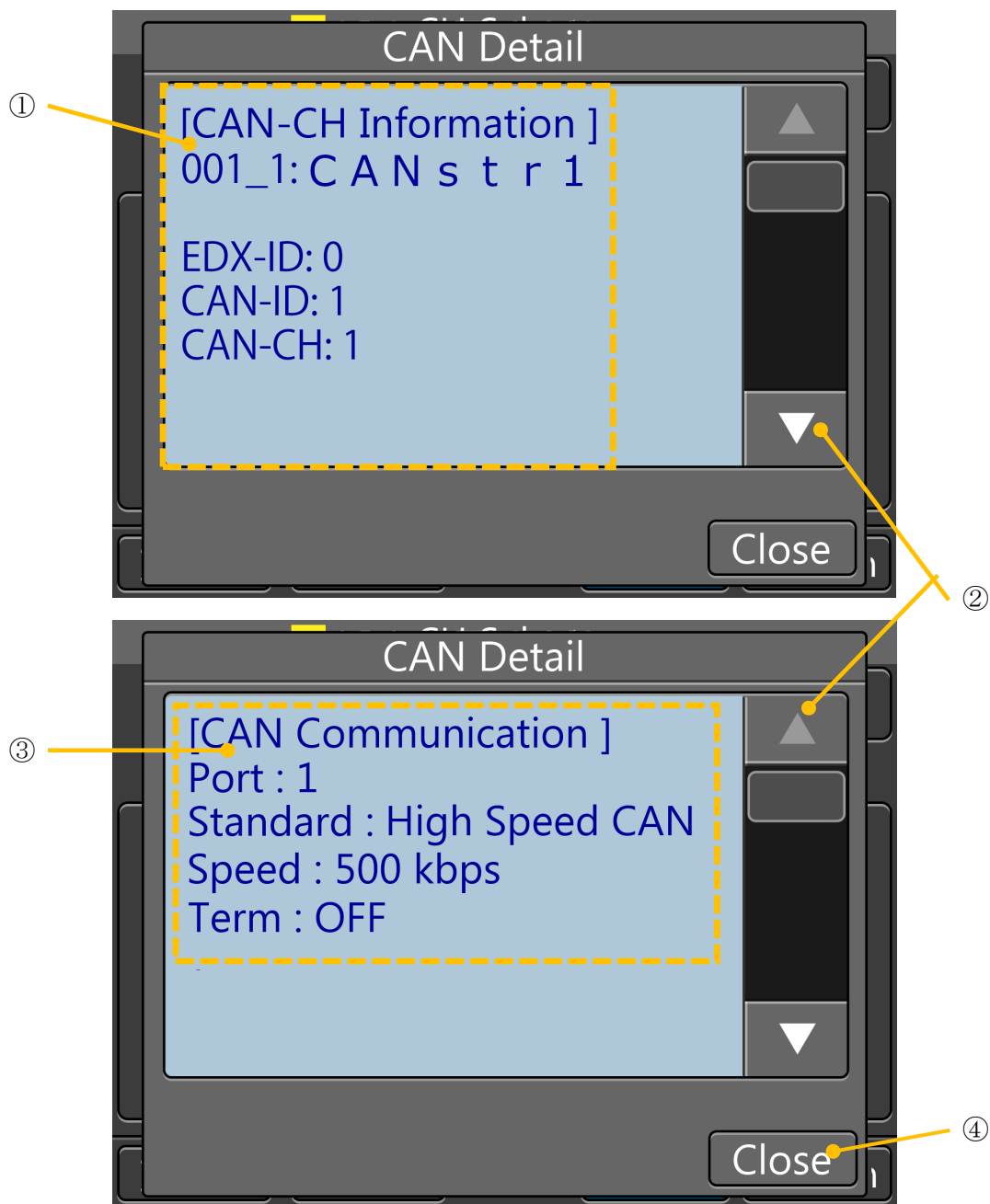
- ① Current channel color The channel color of the target ⑤[Select Displayed CH] button the “Displayed CH Select” window appears.
- ② EDX information The model and ID of the current EDX-100A/200A and mounting conditioner card information appear.
- ③ Assigned channel color The already assigned channel colors appear.
When the ③ assigned channel color appears, you are not able to select the ⑤ [Select Displayed CH] button.
- ④ [←/→] button Changes the EDX-100A and EDX-200A during the synchronous operation.
The ② EDX information also changes.
- ⑤ [Select Displayed CH] button
Selects an arbitrary channel to be assigned to the ① Current channel color.
- ⑥ [←/→] button Changes the conditioner cards mounted on the EDX-100A/200A.
The ② EDX information also changes.
- ⑦ [CAN] button The “CAN-CH Select” window appears.
- ⑧ [OK] button Save the selected displayed CH.
The “Displayed CH Select” window appears.
- ⑨ [CH Title] button The “Detail of CH Name” pop-up window appears.
The CH titles appear.
- ⑩ [Return] button Returns to the “Displayed CH Select” window.
Cancel the selected displayed CH.

3-8-4 “CAN-CH Select” window



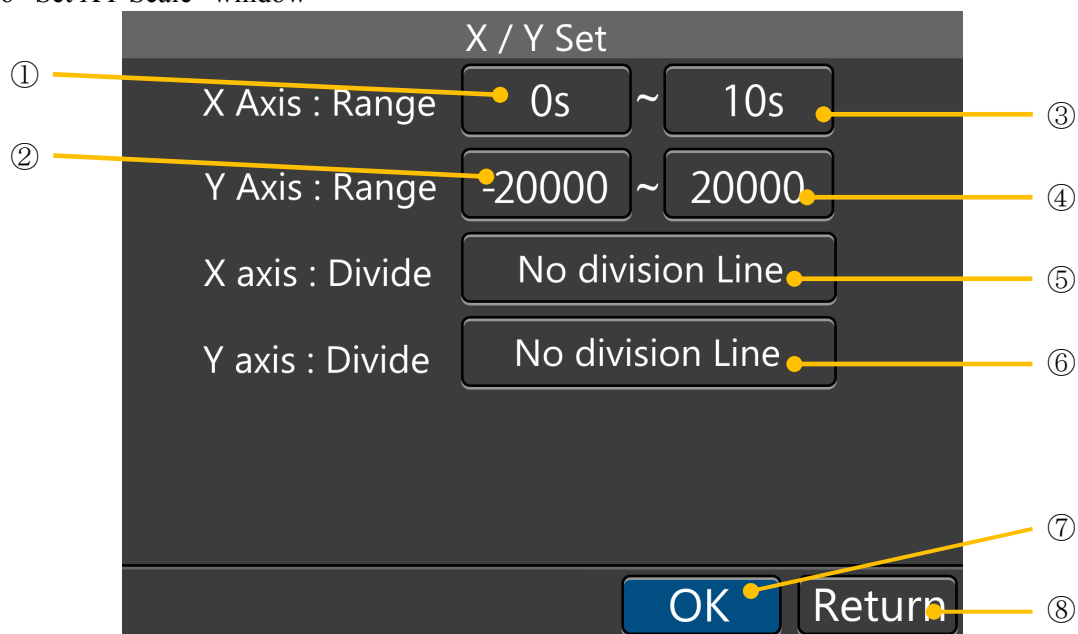
- | | |
|-------------------|--|
| ① [CAN-ID] button | Sets the CAN-ID. |
| ② [CAN-CH] button | Sets the CAN-CH No. |
| ③ Numeric keypad | Enters the CAN-ID or CAN-CH No.
[BS] key: Clears the number in the target block from the rightmost digit.
[C] key: Clears the target block value to “0.” |
| ④ [EDX-ID] button | Changes the EDX-ID Numbers during the synchronous operation. |
| ⑤ [Detail] button | The “CAN Detail” window appears. |
| ⑥ [OK] button | Assigns the “Measuring CAN-CH” as the display channel.
The “Displayed CH Select” window appears. |
| ⑦ [Cancel] button | Returns to the “Displayed CH Select” window.
Cancel the “Measuring CAN-CH” as the display channel. |

3-8-5 “CAN Detail” window



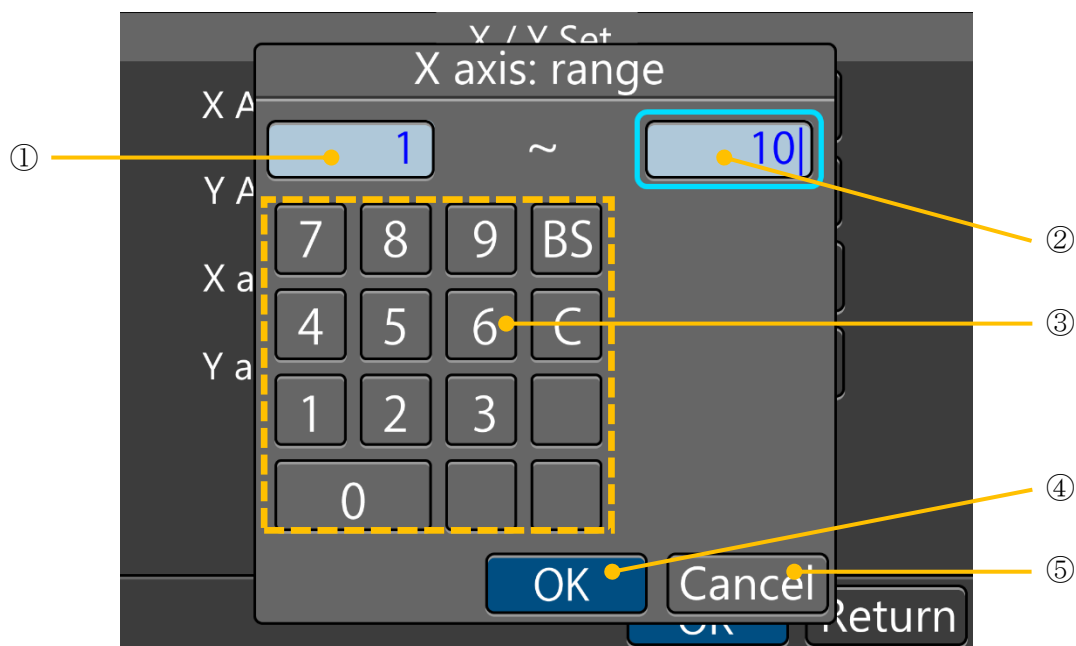
- | | |
|----------------------|--|
| ① CAN-CH Information | The current EDX-ID, CAN-ID, and CAN-CH No. appear. |
| ② [↑/↓] button | Changes the CAN-CH information and CAN communication conditions. |
| ③ CAN Comm | The current port No., Can Comm Std, Comm Speed, and Term Resis appear. |
| ④ [Close] button | Returns to the “CAN-CH Select” window. |

3-8-6 “Set XY Scale” window



- | | |
|--|---|
| ① [Set X Area Scale, start point] button | Sets the start point of the x-axis on the Y-Time graph window. |
| ② [Set Y Area Scale, start point] button | Sets the start point of the y-axis on the Y-Time graph window. |
| ③ [Set X Area Scale, endpoint] button | Sets the endpoint of the x-axis on the Y-Time graph window. |
| ④ [Set X Area Scale, endpoint] button | Sets the endpoint of the y-axis on the Y-Time graph window. |
| ⑤ [Set X Separate Line] button | Sets the number of division lines of the x-axis on the Y-Time graph window. |
| ⑥ [Set Y Separate Line] button | Sets the number of division lines of the y-axis on the Y-Time graph window. |
| ⑦ [OK] button | Save the X/Y scale settings.
The measuring window or “Data check” window appears. |
| ⑧ [Return] button | Returns to the measuring window or “Data check” window.
Cancel the X/Y scale settings. |

3-8-7 “X/Y Axis Scale” window



① [Start point] button

Enters the start point by using the ③ numeric keypad.

② [Endpoint] button

Enters the endpoint by using the ③ numeric keypad.

③ Numeric keypad

Enters the start point and endpoint.

[BS] key: Clears the number in the target block from the rightmost digit.

[C] key: Clears the target block value to “0.”

④ [OK] button

Save the X/Y axis scale settings.

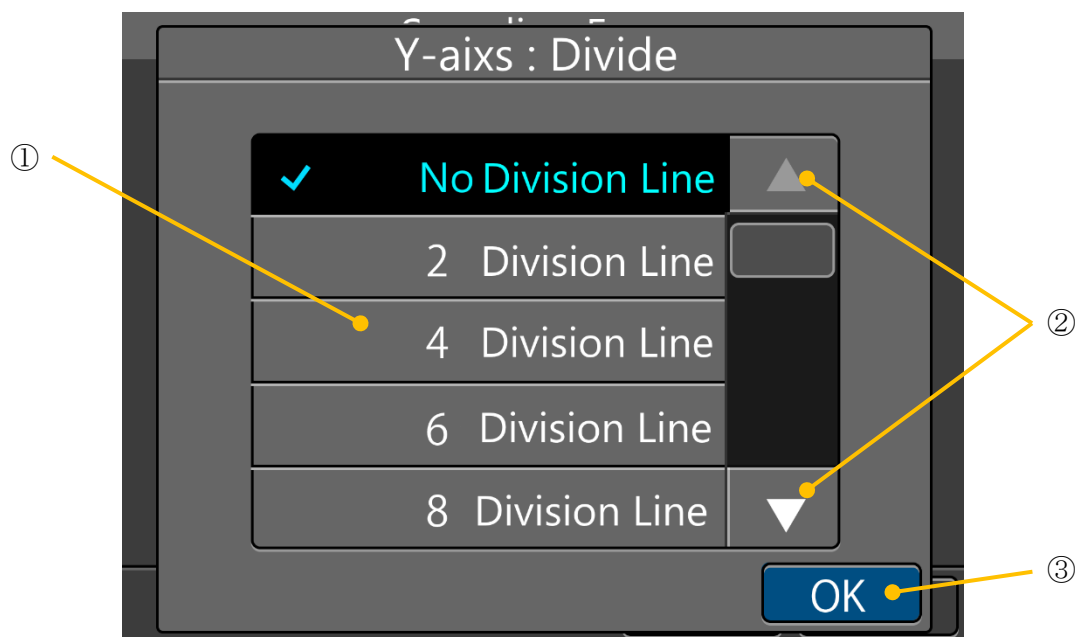
The “Set XY Scale” window appears.

⑤ [Cancel] button

Returns to the “Set XY Scale” window.

Cancel the X/Y axis scale settings.

3-8-8 “X/Y Axis Line” window



① Division line button

As you click the button, the button is highlighted and a check mark is placed.

② [↑/↓] button

Changes the division line buttons.

③ [OK] button

Saves the division line settings.

The “Set XY Scale” window appears.

4 INSTALLING AND CONNECTING THE EMON-20A

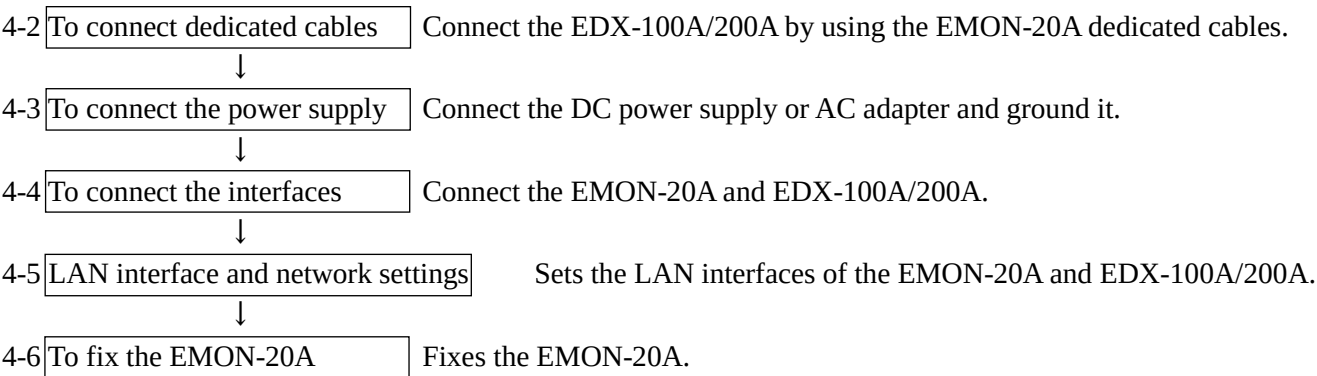
4-1 TO INSTALL THE EMON-20A

This section describes important operations from installation to measurement. Follow the procedures described as follows.

NOTE

Before connecting the EMON-20A, check the following items.

- Set the conditions of the EDX-100A/200A by using the control software (including the DCS-100A) in advance.
- Mount the conditioner cards in the EDX-100A/200A in advance.



4-2 TO CONNECT THE DEDICATED CABLES

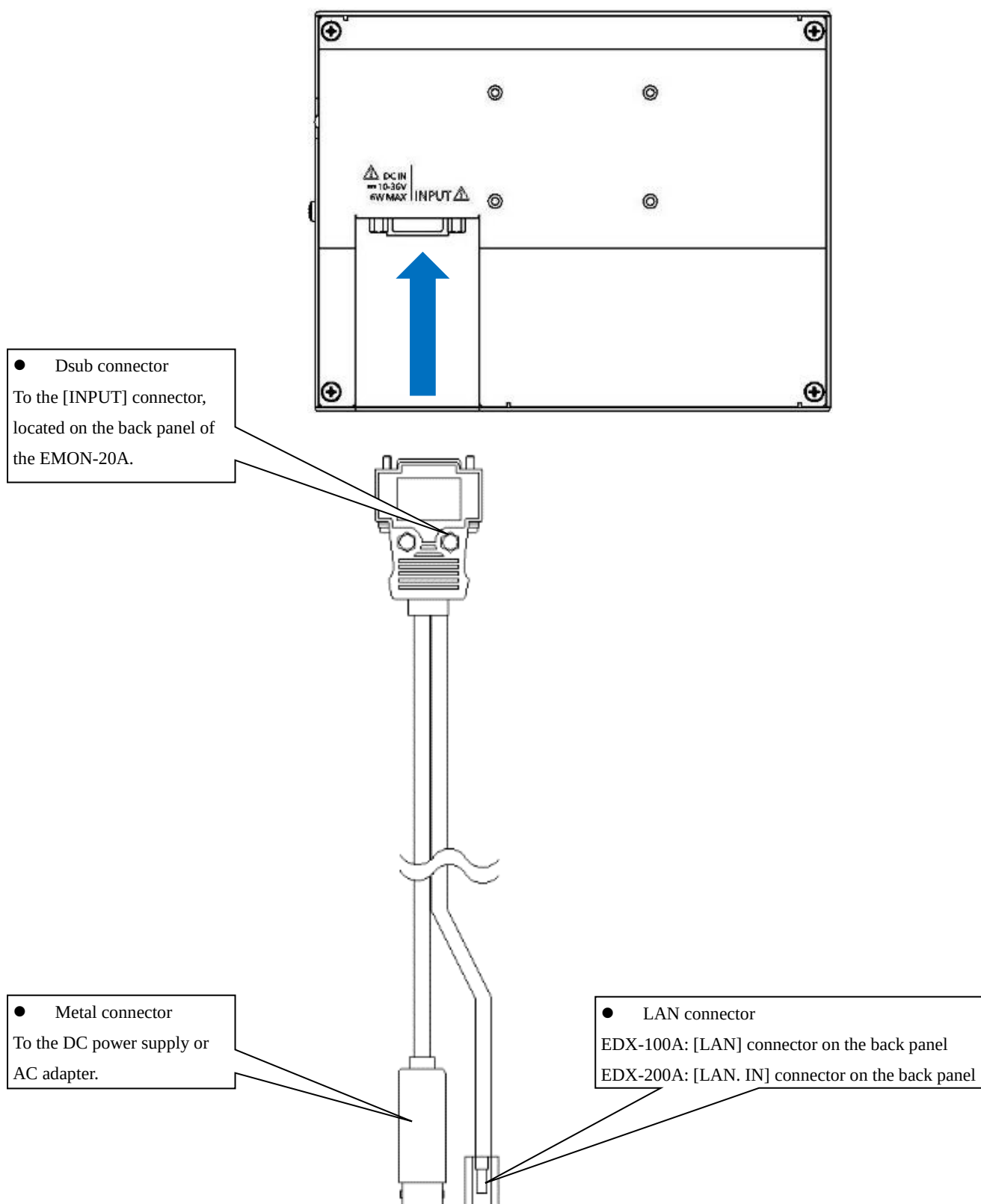
Connect the D-sub connector (15 pins) of the dedicated cable to the [INPUT] connector, located on the back panel of the EMON-20A.

Connect the metal connector (4 pins) of the dedicated cable to the DC power supply or AC adapter.

Connect the LAN connector of the dedicated cable to the connectors of the EDX-100A or EDX-200A as follows.

EDX-100A: [LAN] connector on the back panel

EDX-200A: [LAN. IN] connector on the back panel



4-3 TO CONNECT THE POWER SUPPLY

4-3-1 To connect the power cable (P-76)

This section describes how to connect the optional accessory DC power cable (P-76) to the metal connector of the dedicated cable for supplying power.

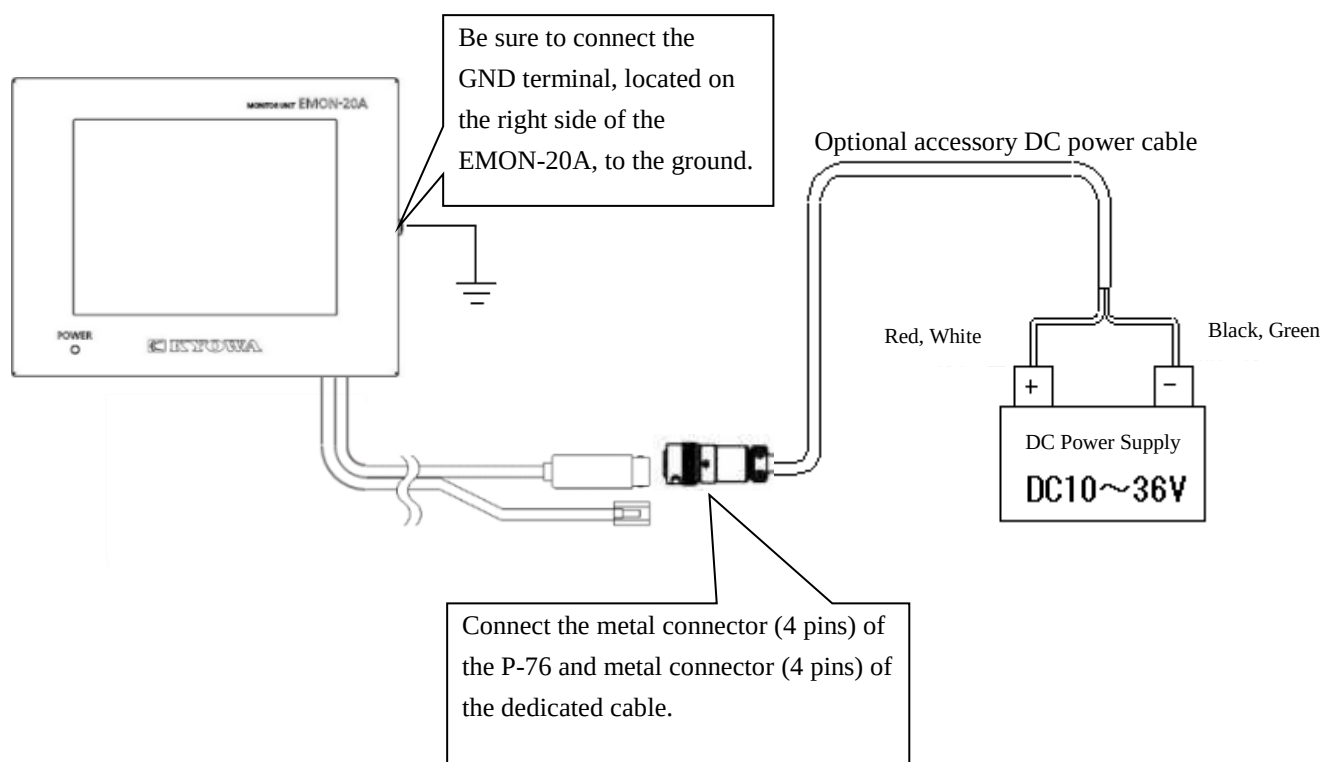
Make sure the power supply voltage is 10 to 36 VDC, current-carrying capacity is 800 mA, and use the cable which has the rated voltage larger than the power supply voltage.

NOTE

- The power supply voltage range of the EMON-20A is 10 to 36 VDC.
~~Be sure to use the product within the specified power supply voltage range.~~
If the power supply voltage exceeds the above range or if a voltage between each terminal and the grounding has a potential exceeding power supply voltage, do not connect the AC power cable to the AC power outlet. Otherwise, it may cause system failures and accidents.
- The current consumption of the EMON-20A is as follows.
 - 12 V: 450 mA or less
 - 24 V: 200 mA or lessUse the external power supply which has the larger current than the current consumption.
- Be sure to connect the GND terminal, located on the right side of the EMON-20A, to the ground. Otherwise, it may cause an electric shock hazard, lower the performance, and cause trouble.
- The negative (-) side of the DC power supply is isolated from the chassis of the EMON-20A and GND terminal.
- When using the vehicle battery as the DC power supply, make sure the negative (-) side of the battery is connected to the vehicle body.
Also take countermeasures since the power supply voltage may drop temporarily due to the self-starter and may cause unstable operations.
- Connect the power supply correctly.
Otherwise, it may cause troubles and accidents.

When using the optional accessory DC power cable (P-76), connect as follows.

- | | |
|------------------------------|---|
| Cable tip (red and white): | Positive (+) side of the external power supply |
| Cable tip (black and green): | Negative (-) side of the external power supply |
| Metal connector (4 pins): | Metal connector (4 pins) of the dedicated cable |



4-3-2 To connect the AC adapter

This section describes how to connect the optional accessory AC adapter (UIA345-12) to the metal connector (4 pins) of the dedicated cable for supplying power.

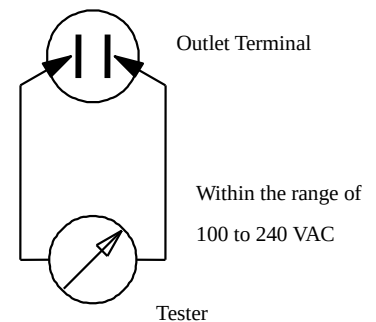
Make sure the power supply voltage is 100 to 240 VAC.

NOTE

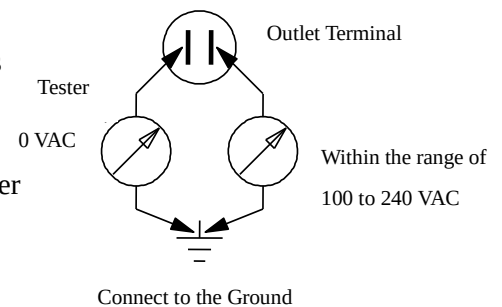
- The power supply voltage range of the AC adapter is 100 to 240 VAC.
Be sure to use the product within the specified power supply voltage range.
If the power supply voltage exceeds the above range or if a voltage between each terminal and the grounding has a potential exceeding power supply voltage, do not connect the AC power cable to the AC power outlet. Otherwise, it may cause system failures and accidents.
- Be sure to connect the GND terminal, located on the right side of the EMON-20A, to the ground. Otherwise, it may cause an electric shock hazard, lower the performance, and cause trouble.

The power supply voltage should be checked according to the procedure described below.

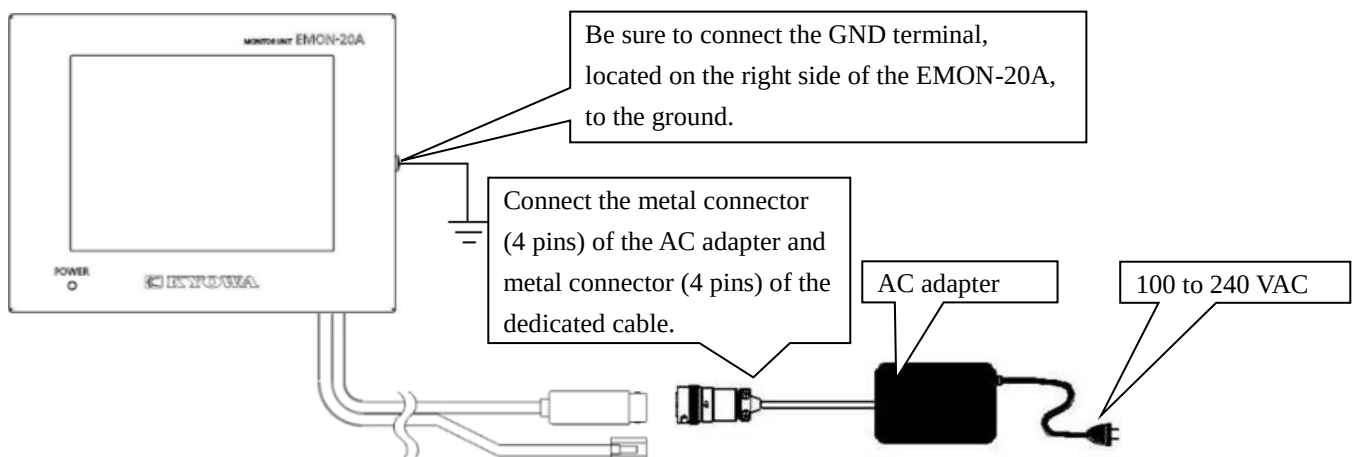
- 1) Use the tester to measure the voltage between the AC power outlet terminals and ensure that the voltage is within the range of 100 to 240 VAC.



- 2) Use the testers to measure the voltage levels between the ground and each of the AC power outlet terminals to ensure that one voltage level is 0 V and the other is within the range of 100 V to 240 VAC.

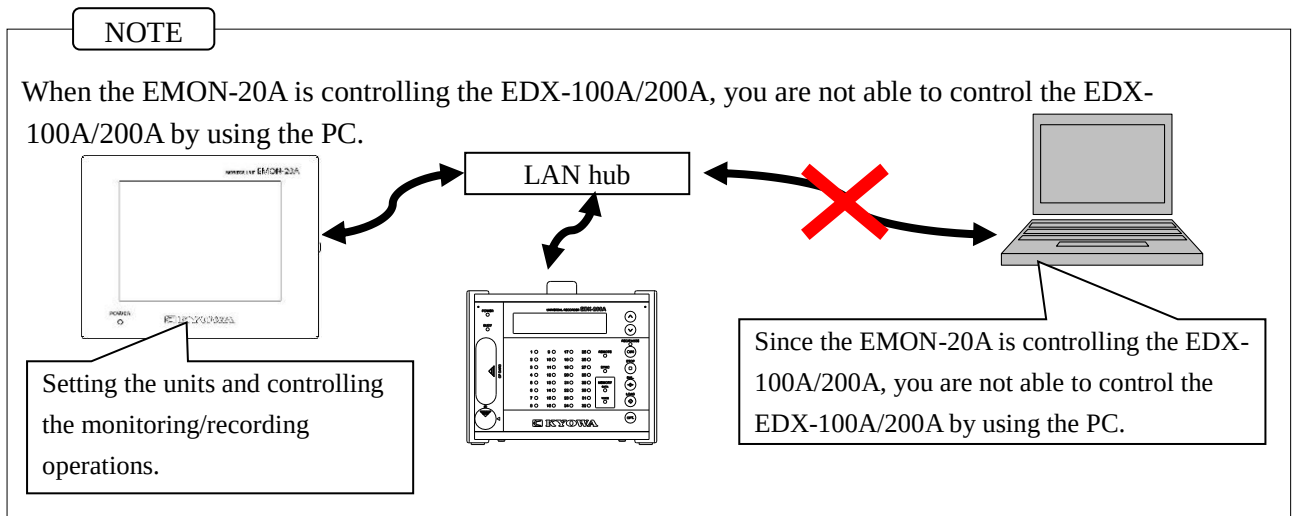


- 3) If the product is used at a job site where induction motors, electric welder and other devices that generate noise are used, power supply condition may be insufficient due to noise. It is recommended to use KYOWA's insulation transformer (optional: UPT-300B) or noise cut transformer.



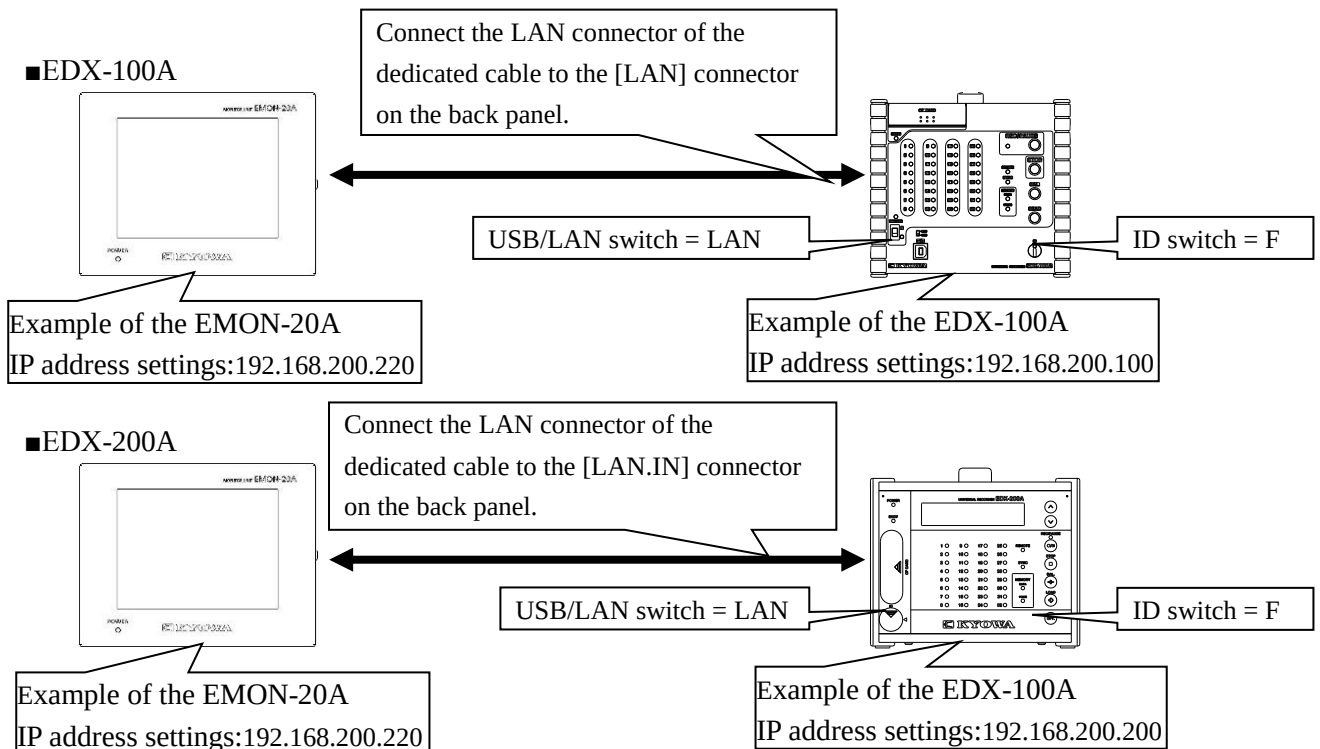
4-4 TO CONNECT THE INTERFACES

This section describes how to connect the interfaces of the EMON-20A and that of the EDX-100A/200A. For details during the synchronous operation, see “EDX-100A INSTRUCTION MANUAL (FOR HARDWARE)” and “EDX-200A INSTRUCTION MANUAL (FOR HARDWARE).”



4-4-1 To connect the stand-alone unit

This section describes how to connect the stand-alone unit, set the ID switch and IP address settings of the EDX-100A/200A.

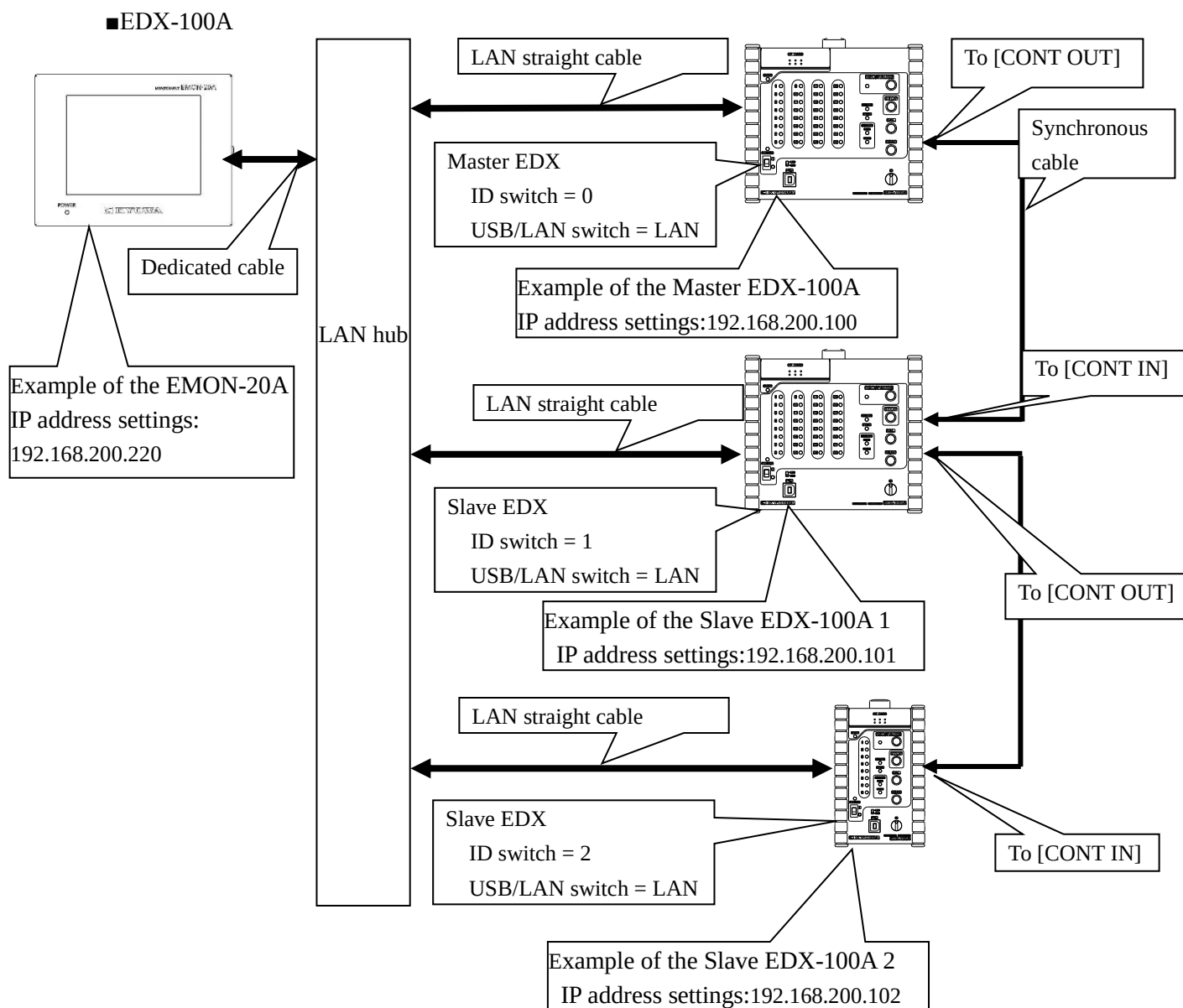


NOTE

- When communication errors frequently occur while connecting the EMON-20A and EDX-100A/200A directly via the dedicated cable, connect the LAN hub - 100Base-TX or higher - between them.
- Do not connect the units by using the wireless LAN function.
- Do not connect the LAN connector of the dedicated cable to the [LAN.OUT] connector, located on the back panel of the EDX-200A.

4-4-2 To connect the units during synchronous operation

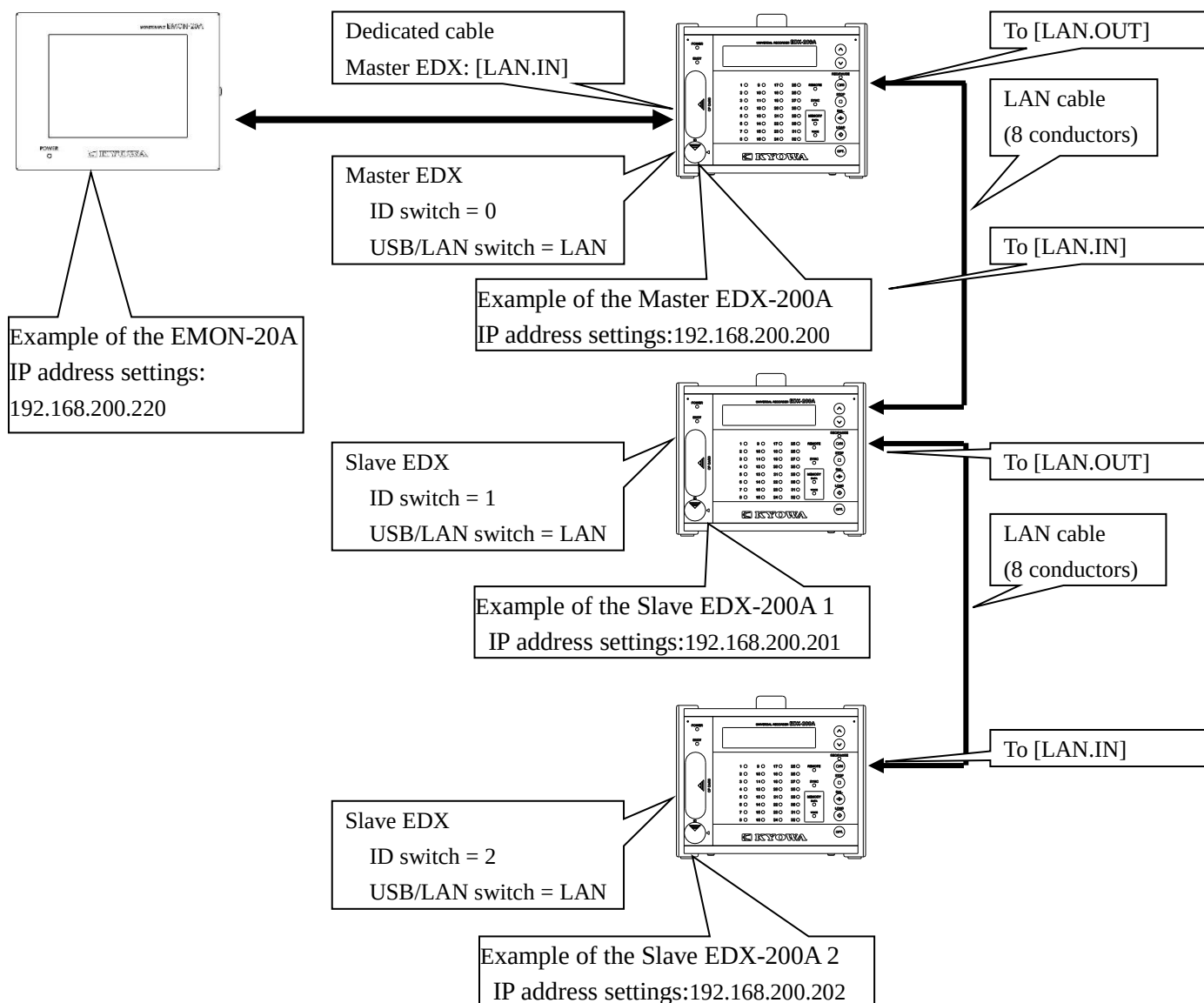
This section describes how to connect the units during synchronous operation, set the ID switch and IP address settings of the EDX-100A/200A.



NOTE

Use the LAN hub 100Base-TX or higher.

■EDX-200A



NOTE

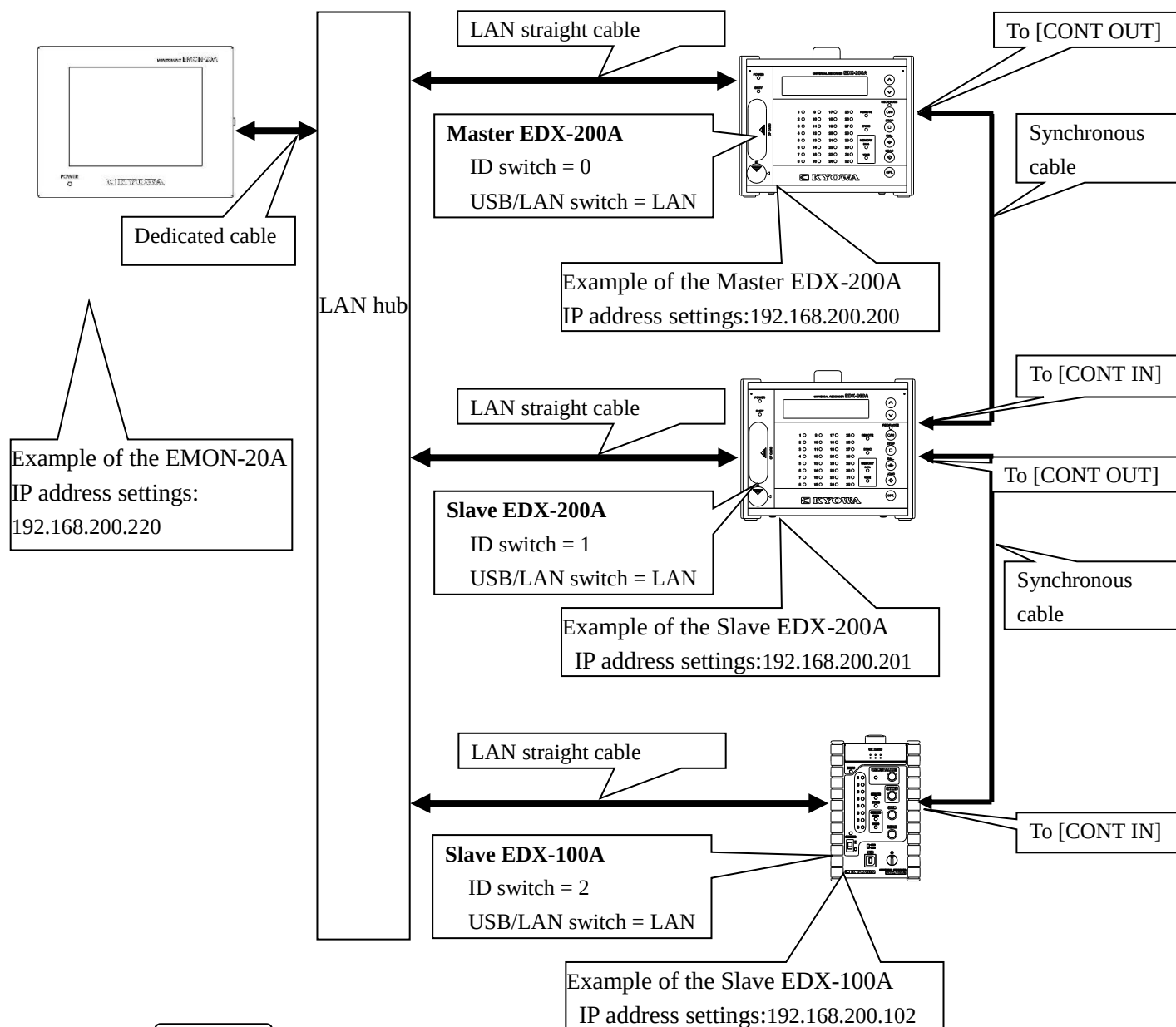
- Use the shielded-twist-pair cable 8P8C (2C4P), category 5 or higher, as the LAN cable between the EDX-200A units.
You are not able to execute the synchronous operation when using the LAN cable 8P4C (2C2P).
- You are not able to execute the synchronous operation when connecting the LAN hub between the EDX-200A units.
- Do not connect the units by using the wireless LAN function.

MEMO

You are able to connect the LAN hub - 100Base-TX or higher - between the EMON-20A and EDX-200A.

4-4-3 To connect the EDX-100A units and EDX-200A units during synchronous operation

This section describes how to connect the EDX-100A units and EDX-200A units during synchronous operation, set the ID switch and IP address settings of the EDX-100A/200A.



4-4-4 To extend the LAN cable

The length of the LAN cable between the EMON-20A and EDX-100A/200A is max. 100 m.

To extend the LAN cable, connect the LAN connector of the dedicated cable to the LAN relay connector.

The recommended LAN relay connector is as follows.

Manufacture: SANWA SUPPLY INC.

Model: 500-LAN-EX6S (or equivalent)

The recommended LAN cable is the shielded-twist-pair cable.

4-5 LAN INTERFACE AND NETWORK SETTINGS

This section describes how to match the network settings of the EMON-20A and that of the EDX-100A/200A for controlling the EDX-100A/200A by using the EDX-100A/200A.

4-5-1 EMON-20A and network settings

Example of the EMON-20A network settings

IP address: 192.168.111.220 Subnet mask: 255.255.255. 0
--

- 1) Turn ON the POWER switch located on the right side of the EMON-20A.
 - 2) Change the IP address and subnet mask on the “Network Set” window of the EMON-20A.
- For details, see "6-4-6."

NOTE

- Contact the network administrator and enter the correct IP address and subnet mask.
- Suppose the IP address of the EDX-100A/200A is [192.168.111.XXX].
Make sure the front part [192.168.111.] of the IP address of the EMON-20A is the same as the EDX-100A/200A and rear part [XXX] of the IP address is not the same as the EDX-100A/200A.

- 3) Turn OFF the power and turn ON again.
The network settings of the LAN interface becomes valid.
To check the IP address and subnet mask, open the “Version Information” window.

4-5-2 EDX-100A/200A and network settings

This section describes how to create the condition setting files of the LAN interface in the CF card and save them in the CF card.

Insert the CF card into the EDX-100A/200A and load the condition setting files.

Example of the condition setting file

```
[EDX-100A] ␣  
IP_ADDRESS=192.168.111.122 ␣  
SUBNET_MASK=255.255.255.0 ␣  
DEFAULT_GATEWAY=0.0.0.0 ␣
```

```
[EDX-200A] ␣  
IP_ADDRESS=192.168.111.122 ␣  
SUBNET_MASK=255.255.255.0 ␣  
DEFAULT_GATEWAY=0.0.0.0 ␣
```

1) Create the above files by using editor software, including notepad.

Set the filenames as follows.

Save the files in the root folder of the CF card.

EDX-100A: EDX100A.IP (fixed)

EDX-200A: EDX200A.IP (fixed)

NOTE

- Contact the network administrator and enter the correct IP address and subnet mask.
- Suppose the IP address of the EDX-100A/200A for the synchronous operation is [192.168.111.XXX]. Make sure the front part [192.168.111.] of the IP address of the EMON-20A is the same as the EDX-100A/200A and rear part [XXX] of the IP address is not the same as the EDX-100A/200A.
- Use the uppercase letters only. Do not use spaces and tabs.
- After creating the files on the editor software, make sure the filenames are those described above.
- The mark ␣ in the file contents is the line feed code (0x0d 0x0a).

2) With the EDX-100A/200A turned OFF, insert the CF card which has condition setting files.

3) EDX-100A With pressing the [READ] switch on the front panel, turn ON the power.

EDX-200A With pressing the [LOAD] switch on the front panel, turn ON the power.

4) EDX-100A With pressing the [READ] switch, wait for a while.

The EDX-100A emits the sound “pii, pii, pi, pi, pi” and completes the settings.

Release your hand from the [READ] switch.

EDX-200A With pressing the [LOAD] switch, wait for a while.

The EDX-200A emits the sound “pii, pii, pi, pi, pi.”

The [REMOTE] LED blinks orange and lights up in green and the EDX-200A completes the settings.

Release your hand from the [LOAD] switch.

5) After turning OFF the power switch, wait approx. 5 seconds and turn ON the power once again.

The network settings become valid.

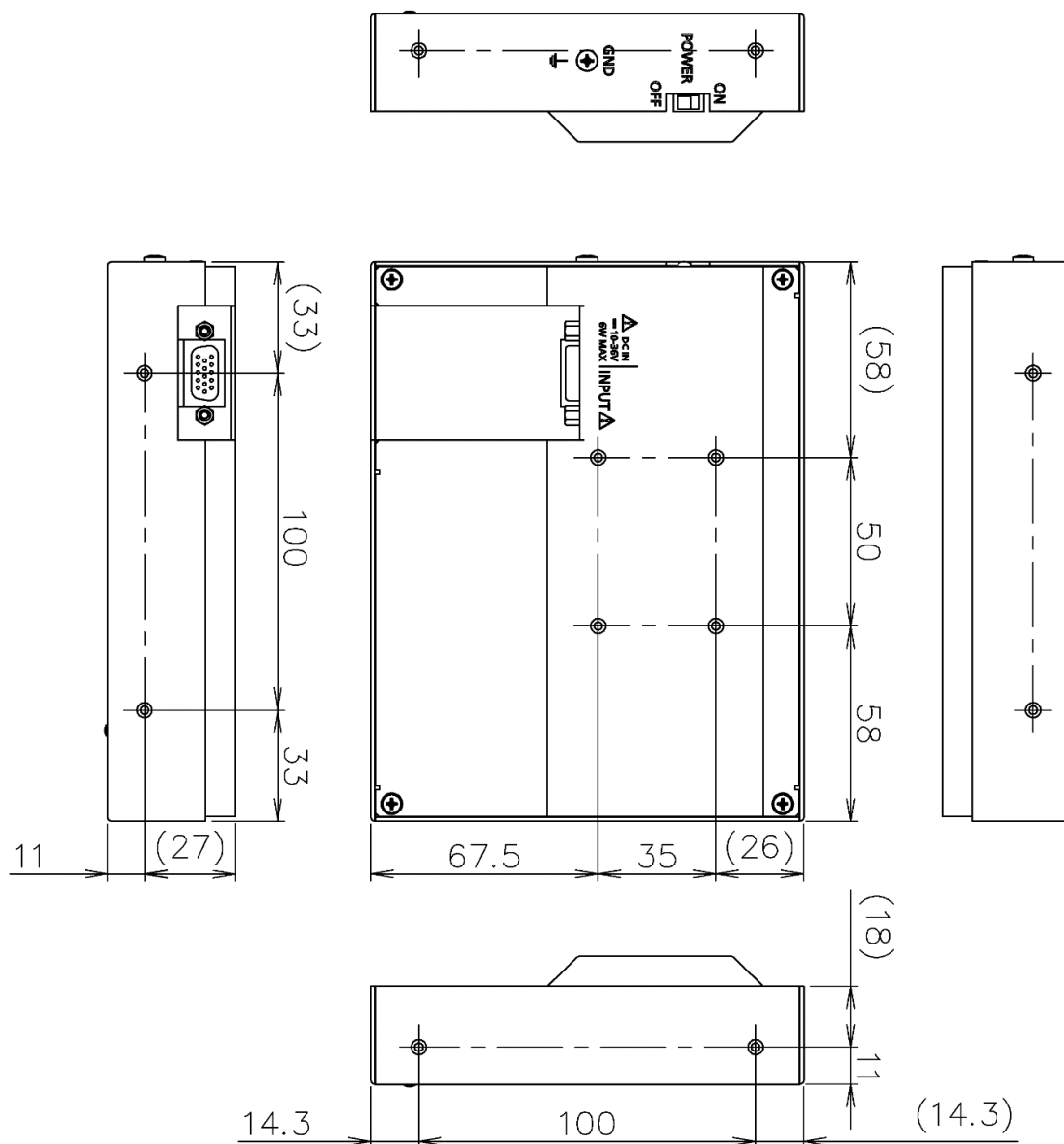
NOTE

- When the network settings failed, the EDX-100A/200 keep emitting the sound “pii, pii, ...”
Check the condition setting files saved in the CF card.
- The factory-configured network settings of the EDX-100A are as follows.
IP address: 192.168.100.100
Subnet mask: 255.255.255. 0
Default gateway: 0. 0. 0. 0
- The factory-configured network settings of the EDX-200A are as follows.
IP address: 192.168.200.200
Subnet mask: 255.255.255. 0
Default gateway: 0. 0. 0. 0

4-6 TO FIX THE EMON-20A

This section describes how to fix the EMON-20A by using the utility nuts located on the bottom panel, back panel, top panel, left panel, and right panel.

The dimensions of utility nuts are as follows.



NOTE

- Use 4 or more utility nuts to fix the EMON-20A.
 - Use M2.5 × 6 screws.
- Do not use screws longer than 6 mm. Otherwise, the product may be damaged.

5 MONITORING/RECORDING OPERATIONS

5-1 OPERATION OUTLINE

■Controlling the monitoring/recording operations

The EMON-20A monitors the EDX-100A/200A, starts/stops recording data, and executes balance adjustments.

■Y-Time graphs and numeric windows

The EMON-20A checks the measured data, assigned on the display channel, on the Y-Time graph or numeric window.

The EMON-20A also checks whether the display channels exceed the measuring range while monitoring/recording data.

NOTE

- When the sampling frequency is larger than 5 kHz, you are not able to start monitoring/recording data on the Y-Time graph.
To start monitoring/recording data, select the numeric windows.
- You are not able to set the measuring conditions of the manual recording, trigger recording, and interval recording of the EDX-100A/200A from the EMON-20A.
- Before connecting the EMON-20A and EDX-100A/200A, set the conditions of the EDX-100A/200A by using the control software (including the DCS-100A).

5-2 BEFORE MONITORING/RECORDING DATA

Before start monitoring/recording data, be sure to load the channel/measuring conditions.

For details, see "6-1 TO LOAD THE CHANNEL/MEASURING CONDITIONS."

NOTE

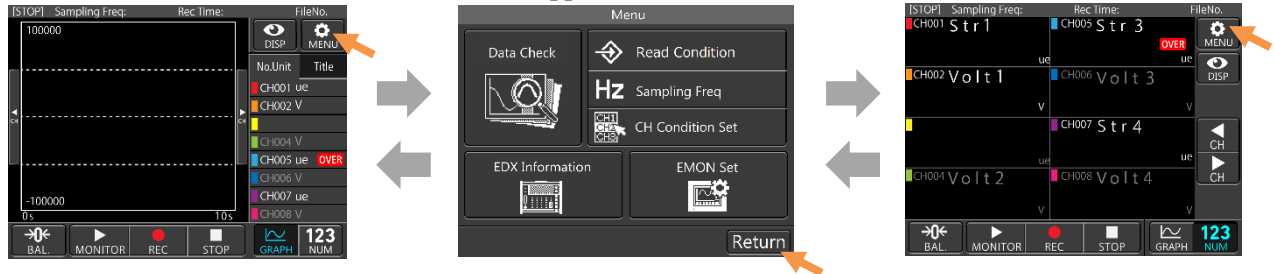
- Be sure to load the channel/measuring conditions.
Otherwise, you may not set the display channels and channel conditions.
- When loading the channel conditions and measuring conditions failed, check the interface connection between the EDX-100A/200A and EMON-20A and network settings.

5-3 TO OPERATE THE EMON-20A

5-3-1 To operate the EMON-20A while it is stopped

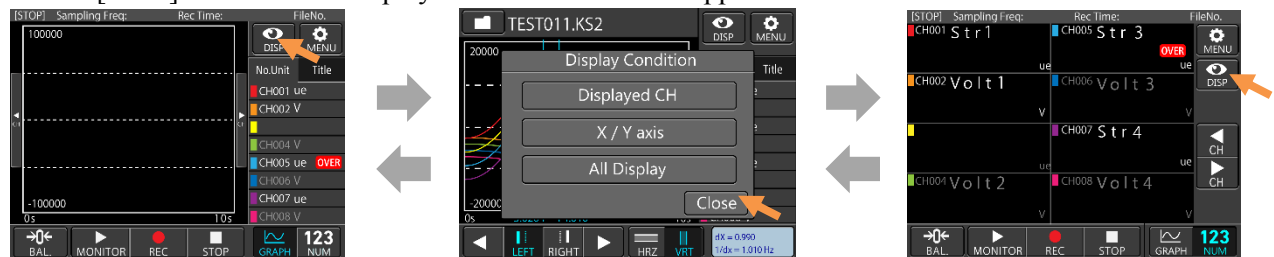
- To open the “Menu” window.

Click the [Menu] button. The “Menu” window appears.



- To open the “Display Conditions” window.

Click the [DISP] button. The “Display Conditions” window appears.



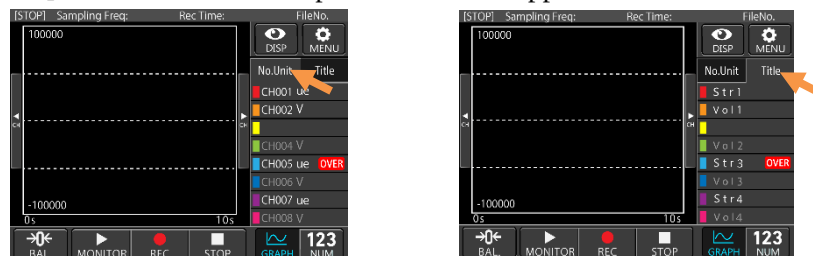
- To change the [No.Unit/Title] tab on the Y-Time graph.

[No.Unit] tab:

The pre-set CH Numbers and units appear.

[Title] tab:

The pre-set CH titles appear.



- To start monitoring data.

Click the [MONITOR] button to start monitoring data.



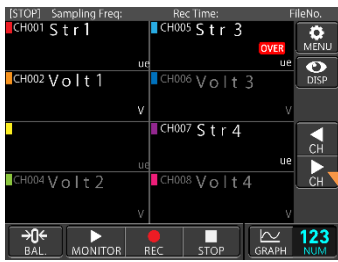
■To feed/return the channel list.

This section describes the operations by using the examples as follows.

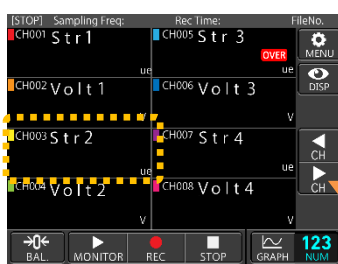
Example) Measuring window: Numeric window

The “pre-set channel list”: CH001, 002, 004, 005, 006, 007, and 008 (The CH003 is not the display channel.)

The number of channels of the EDX-100A/200A during the synchronous operation: 64 channels



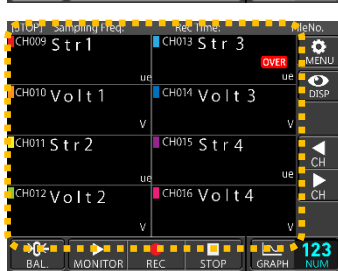
1) When the “pre-set channel list” appears on the window, click the [→CH] button.



2) The first 8 channels (CH001 to CH008) appear.

Note that the data appears on the CH003 on this channel list.

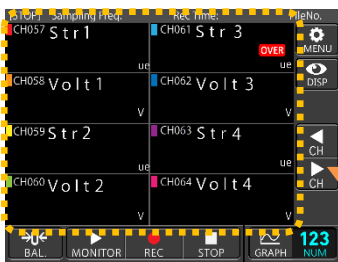
Click the [→CH] button.



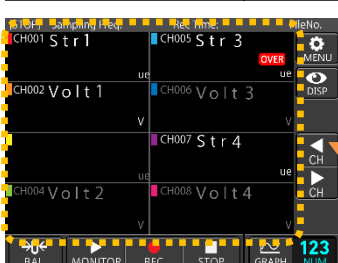
3) The next 8 channels (CH009 to CH016) appear.

MEMO

- The measure ON/OFF of each display channel is pre-set on the “CH Condition Config” window.
- The slot channels, with a conditioner card, appear only.
Example) Suppose a conditioner card is not mounted in the 2nd slot. The CH009 to CH016 on the 2nd slot do not appear, and the CH017 to CH024 on the 3rd slot appear.

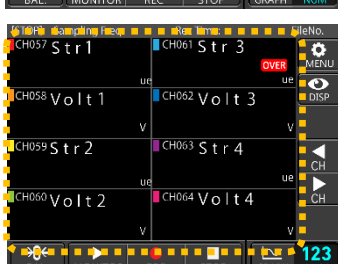


4) After the last 8 channels (CH057 to CH064) appears, click the [←CH] button.



5) The “pre-set channel list” appears.

When the “pre-set channel list” appears on the window, click the [←CH] button.



6) The last 8 channels (CH057 to CH064) appear.

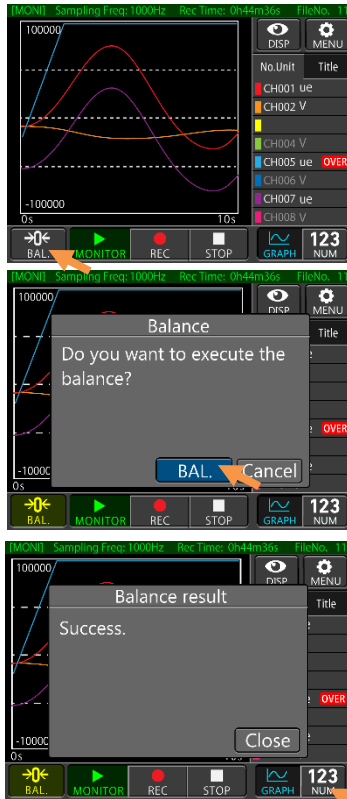
NOTE

- When the EDX-100A/200A has the CAN-40A/41A, you are not able to display the channels - which measure the data frames on the CAN - by clicking the [←CH] button and [→CH] button.

5-3-2 To operate the EMON-20A while monitoring/recording data

■To execute the balance adjustment.

This section describes how to execute the balance adjustment of cards mounted in the EDX-100A/200A by pressing the [BAL.] button.



1) Click the [BAL.] button.

The “Balance” pop-up window appears.

2) Click the [BAL.] button to execute the balance adjustment of every card.

MEMO

To cancel, click the [Cancel] button.

The measuring window (Y-Time graph or numeric window) appears.

3) The “Balance result” pop-up window appears.

Click the [Close] button.

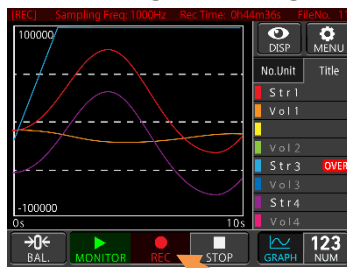
The measuring window (Y-Time graph or numeric window) appears.

MEMO

When the balance adjustment failed, make sure the LED of the target channel, located on the front panel of the EDX-100A/200A, lights up in red.

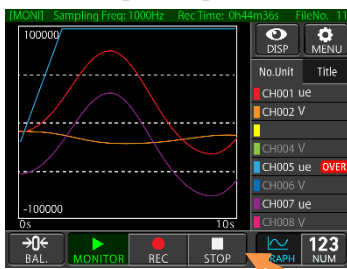
■To start recording data.

After starting monitoring data, click the [REC] button to start recording data.



■To stop monitoring/recording data.

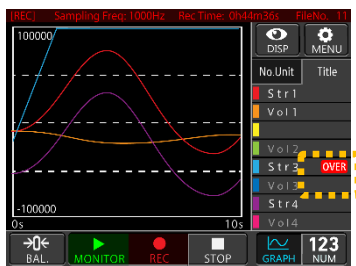
Click the [STOP] button to stop recording/monitoring data.



5-4 TO DISPLSY THE [OVER] ICON

When the assigned display channel exceeds the measuring range while monitoring/recording data, the [OVER] icon appears right next to the target channel.

The EMON-20A also emits buzzer.



MEMO

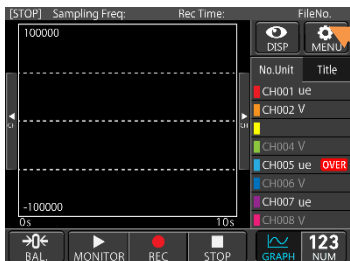
- Although you stop monitoring/recoding data, the [OVER] icons indicating that the CH exceeds the measuring range do not disappear.
To remove the [OVER] icons, check the assigned display channels do not exceed the measuring range and start monitoring/recording data.
- When the measured data exceeds the measuring range and with the [Buzzer Sound] button OFF on the “EMON Config” window, the EMON-20A does not emit buzzer.

6 MENU

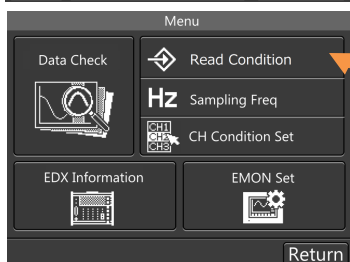
6-1 TO LOAD THE CHANNEL/MEASURING CONDITIONS

NOTE

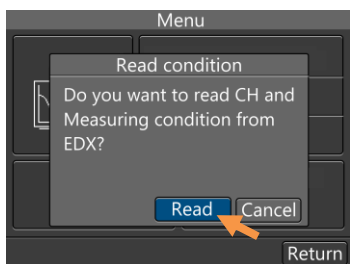
Before start monitoring/recording data, be sure to load the channel/measuring conditions.



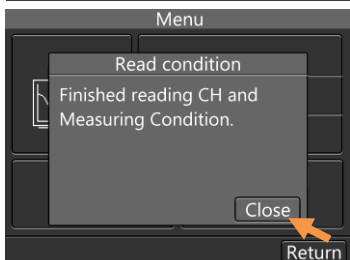
1) Click the [Menu] button.



2) Click the [CH/Measuring Condition Read] button.



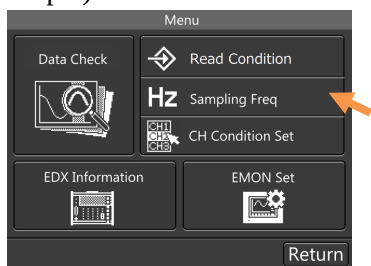
3) Click the [Load] button.



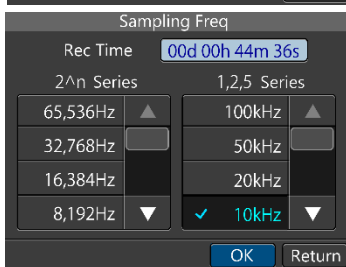
4) After the EMON-20A loads the channel conditions and measuring conditions correctly from the EDX-100A/200A, the left message appears. Click the [Close] button.

6-2 TO SET THE SAMPLING FREQUENCY

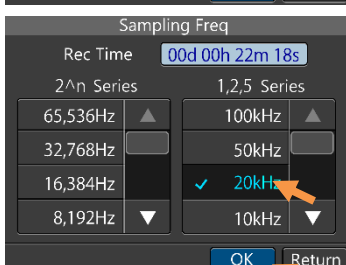
Example) This section describes how to change the sampling frequency from “10k Hz” to “20k Hz.”



1) Click the [Sampling Frequency] button.



2) The [10k Hz] button is highlighted, and a check mark is placed.



3) Click the [20k Hz] button.

The button is highlighted, and a check mark is placed.

Click the [OK] button.

The items are saved in the EDX-100A/200A.

To cancel, click the [Return] button.

MEMO

- The higher limit of the sampling frequency of the EDX-100A/200A varies with the models of the conditioner cards and the number of conditioner cards.
- Select the proper sampling frequency.
Otherwise, the error appears.

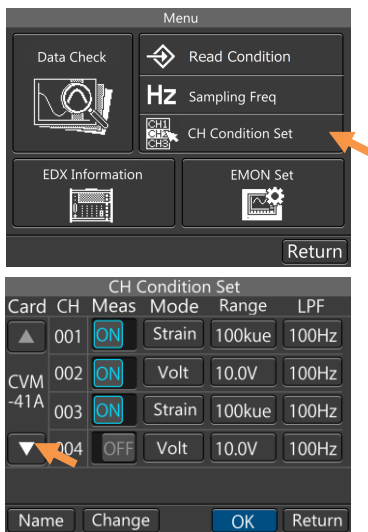
6-3 TO SET CHANNEL CONDITIONS

This section describes how to set channel conditions of the EDX-100A/200A.
The changing available items are the measure ON/OFF, mode, range, and LPF.

NOTE

- You are not able to set the channel conditions (excluding the measure ON/OFF, mode, range, and LPF) from the EMON-20A.
- You are not able to set the CAN conditions from the EMON-20A.
- To set the channel conditions other than those described in the above, use the DCS-100A, etc.

6-3-1 To switch channels



1) Click the [CH Condition Set] button.

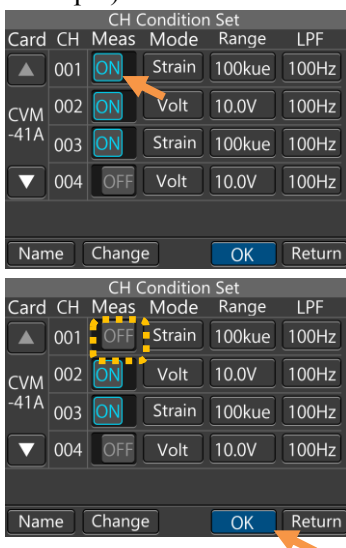
2) As you click the [↑/↓] button, every 4 CH Numbers, mounted in the EDX-100A/200A, appear.

MEMO

The conditioner card and channels, appear on the “CH Condition Set” window for the first, are the conditioner card mounted on the 1st slot of the master EDX-100A/200A and the channels (CH1 to CH4) of the conditioner card.

6-3-2 To set the measure ON/OFF

Example) This section describes how to set the CH001 “Measure OFF.”



1) Click the [ON] button of the CH001.

2) The [OFF] appears.

Click the [OK] button.

The items are saved in the EDX-100A/200A.

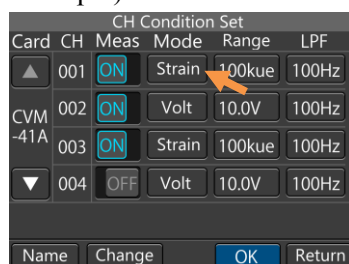
To cancel, click the [Return] button.

MEMO

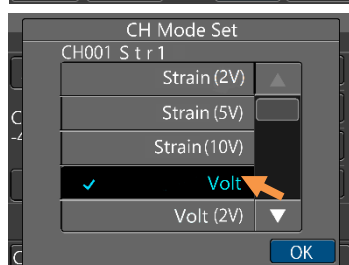
To display [ON], click the [OFF] button again.

6-3-3 To set the mode

Example) This section describes how to change the CH001 mode from “Strain(2V)” to “Volt.”



1) Click the [Strain] button of the CH001.



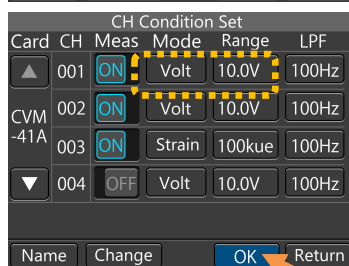
2) The [Strain (2V)] button is highlighted, and a check mark is placed.

Click the [Volt] button.

The button is highlighted, and a check mark is placed.

Click the [OK] button.

The items are saved.



3) The [Volt] appears.

Click the [OK] button.

The items are saved.

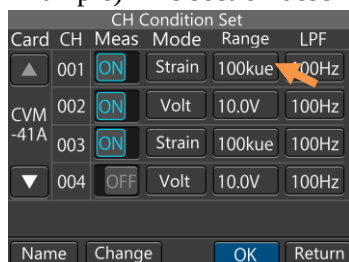
To cancel, click the [Return] button.

MEMO

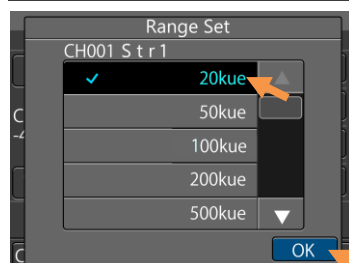
As you update the mode, the EMON-20A updates the range (10.0 V in this example) also.

6-3-4 To set the range

Example) This section describes how to change the CH001 range from “100kue” to “20kue.”



1) Click the [100kue] button of the CH001.



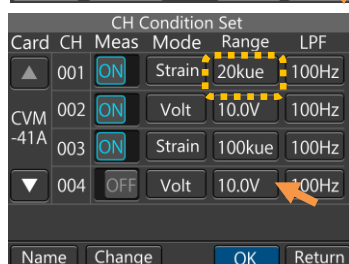
2) The [100kue] button is highlighted, and a check mark is placed.

Click the [20kue] button.

The button is highlighted, and a check mark is placed.

Click the [OK] button.

The items are saved.



3) The [20kue] appears.

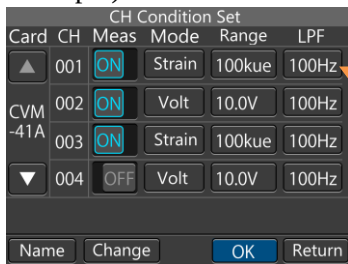
Click the [OK] button.

The items are saved in the EDX-100A/200A.

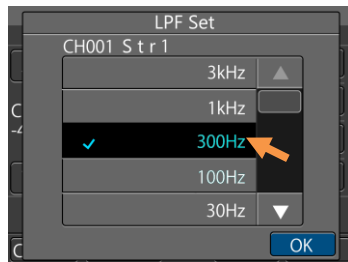
To cancel, click the [Return] button.

6-3-5 To set the LPF

Example) This section describes how to change the CH001 LPF from “100Hz” to “300Hz.”



1) Click the [100Hz] button of the CH001.



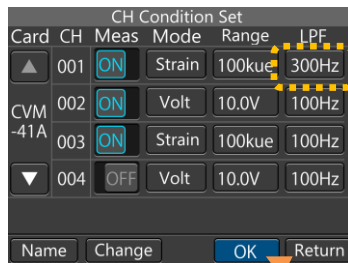
2) The [100kue] button is highlighted, and a check mark is placed.

Click the [300Hz] button.

The button is highlighted, and a check mark is placed.

Click the [OK] button.

The items are saved.



3) The [300Hz] appears.

Click the [OK] button.

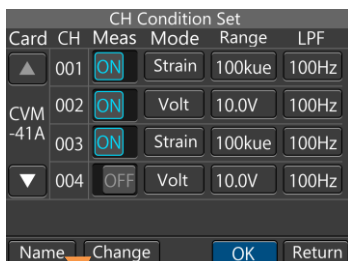
The items are saved in the EDX-100A/200A.

To cancel, click the [Return] button.

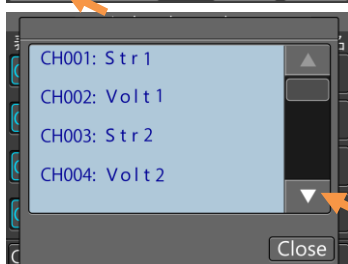
6-3-6 To display the CH titles

This section describes how to display the details of the channel titles.

This section also describes how to display the lower window in the 3-4 “CH CONDITION SET” WINDOW.



1) Click the [Name] button.

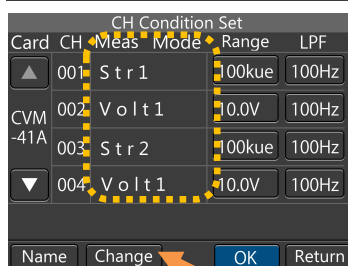


2) The 4 CH titles appear.

To change every 4 CH titles, click the [↑/↓] button located on the right of the window.

Click the [Close] button.

The “CH Condition Set” window appears.



3) Click the [Item Change] button.

[Measure ON/OFF] button and [Mode] button change to CH Title in 6 Characters.

MEMO

Since the lower window in the 3-4 “CH CONDITION SET” WINDOW does not have [Mode] button, you are not able to set the modes on this window. To set the modes, click the [Item Change] button.

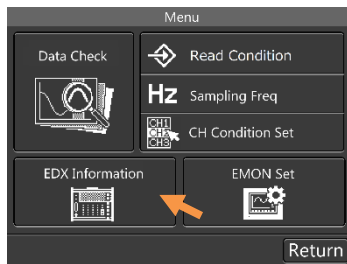
6-4 TO CHECK THE EDX INFORMATION

This section describes how to check the number of units and ID Numbers of the EDX-100A/200A, connected to the EMON-20A, and mounted conditioner cards and firmware version.

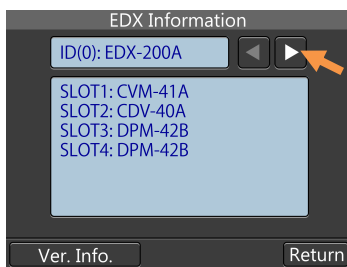
6-4-1 To check the EDX information

This section describes how to display the ID Numbers, of the EDX-100A/200A and conditioner card models mounted on each slot.

This section also describes how to switch the information of the master EDX-100A/200A information of the slave EDX-100A/200A during the synchronous operation.



1) Click the [EDX Information] button.



2) The information of the 1st EDX-100A/200A (master unit) appears.

To display the information of the 2nd EDX-100A/200A (slave unit), click the [→] button.



2) The information of the 2nd EDX-100A/200A (slave unit) appears.

To display the information of the 3rd EDX-100A/200A (slave unit), click the [→] button.

To display the 1st EDX-100A/200A (master unit), click the [←] button.

To return to the “Menu” window, click the [Return] button.

MEMO

The ID No. of the 1st EDX-100A/200A (master unit) and that of the 2nd and 3rd EDX-100A/200A (slave unit) are as follows.

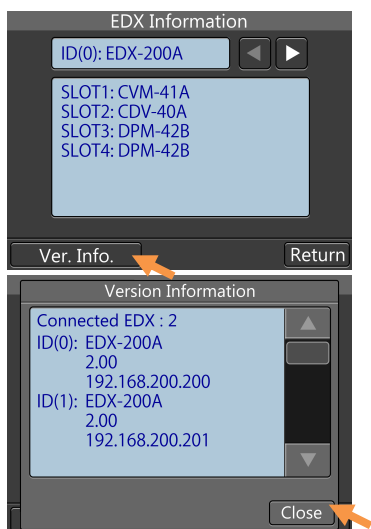
Master unit (1st EDX-100A/200A): ID (0)

Slave unit (2nd EDX-100A/200A): ID (1)

Slave unit (3rd EDX-100A/200A): ID (2)

6-4-2 To check the EDX version information

This section describes how to check the EDX-100A/200A information and firmware versions and IP addresses of the EDX-100A/200A.



1) Click the [Version Information] button.

2) The following information appears.

The number of EDX-100A/200A units connected to the EMON-20A, ID Numbers, models, firmware versions, and IP addresses of the EDX-100A/200A

Click the [Close] button.

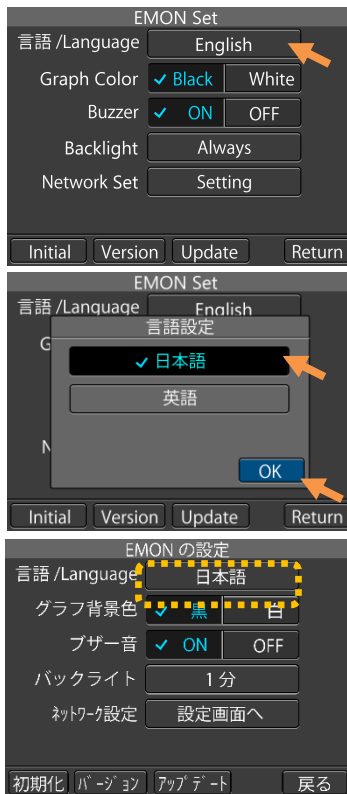
The “EDX Information” appears.

6-5 TO SET THE EMON-20A

This section describes how to set the configuration of the EMON-20A.

6-5-1 Language

This section describes how to select the EMON-20A language.



1) Click the [English] button.

2) The [English] button is highlighted, and a check mark is placed.

Click the [Japanese] button.

The button is highlighted, and a check mark is placed.

Click the [OK] button.

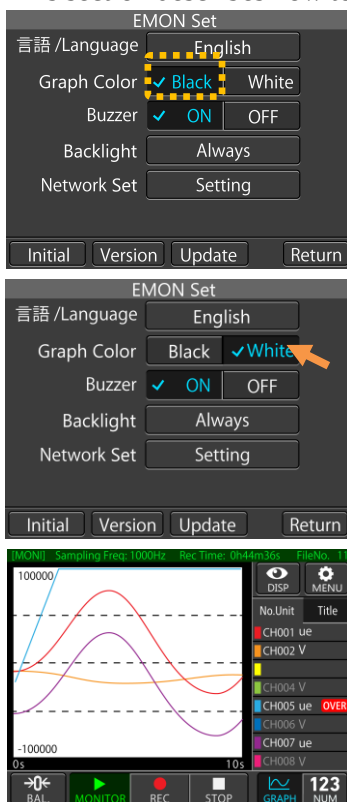
The items are saved.

3) The [日本語] appears.

The language of the EMON-20A becomes Japanese.

6-5-2 Background color of graph

This section describes how to select the background color of the Y-Time graph.



1) The [Black] button is highlighted, and a check mark is placed.

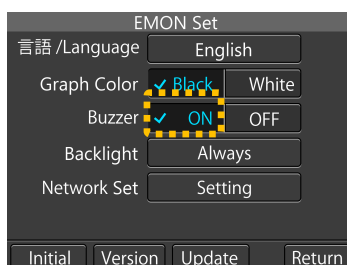
2) Click the [White] button.

The button is highlighted, and a check mark is placed.

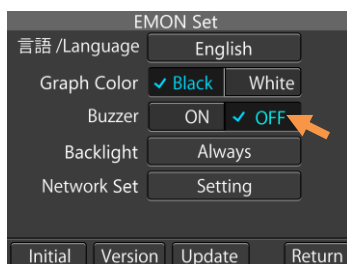
3) The background color of the Y-Time graph is white on the measuring window or “Data check” window.

6-5-3 Buzzer sound

This section describes how to emit buzzer sound (ON)/not to emit buzzer sound (OFF) while operating the buttons on the EMON-20A.



1) The [Buzzer Sound] button “ON” is highlighted, and a check mark is placed.

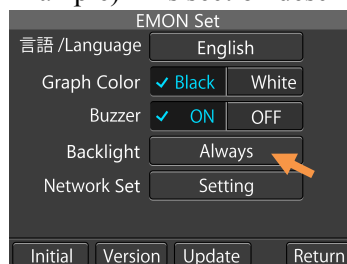


2) Click the [Buzzer Sound] button “OFF”.
The button is highlighted, and a check mark is placed.

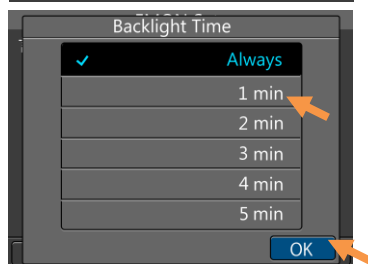
6-5-4 Backlight

After elapsing the pre-set time without touching the touch panel, the backlight turns OFF.

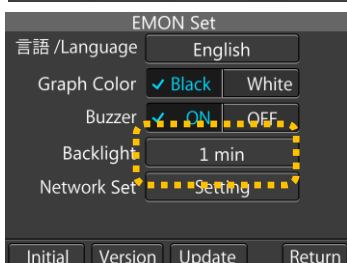
Example) This section describes how to change the backlight time from “Always On” to “1 min.”



1) Click the [Always On] button.



2) The [Always On] button is highlighted, and a check mark is placed.
Click the [1 min] button.
The button is highlighted, and a check mark is placed.
Click the [OK] button.
The items are saved.



3) The [1 min] appears.
After elapsing 1 minute without touching the touch panel, the backlight turns OFF.

MEMO

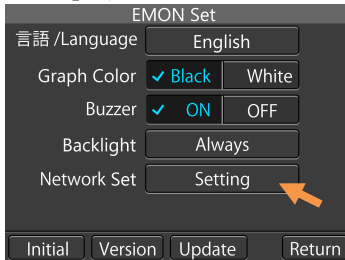
To turn ON the backlight again, touch the touch panel again.

6-5-5 To set/initialize the network settings

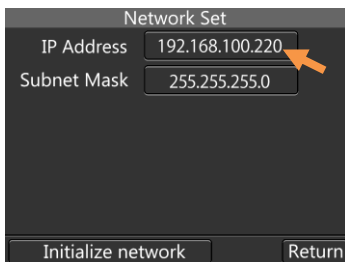
This section describes how to set the IP address and subnet mask of the EMON-20A.

■ To set network settings.

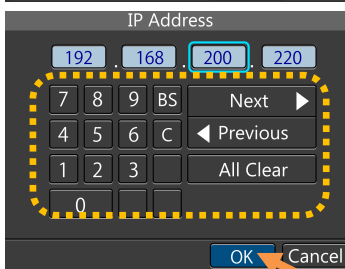
Example) This section describes how to change the IP address from “192.168.100.220” to “192.168.200.220”.



1) Click the [Network] button “Setting”.

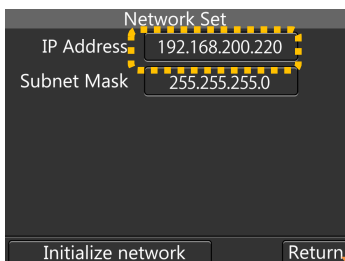


2) Click the [IP Address] button “192.168.100.220”.



3) Change the value in the 3rd block from the left from “100” to “200.”

- [Next Block]/[Previous Block] button
[Next Block] button: Moves the blue frame around the [Block] button to the right.
[Previous Block] button: Moves the blue frame around the [Block] button to the left.
- Numeric keypad
Changes the values in the blue-framed block.
[BS] key: Clears the number in the target block from the rightmost digit.
[C] key: Clears the target block value to “0.” Note that the number of each block is within 3 digits.
- [All Clear] button
Clears all block values to “0”.



4) Click the [OK] button.

The items are saved.

To cancel, click the [Cancel] button.

5) The “192.168.200.220” appears.

To return to the “EMON Set” window, click the [Return] button.

NOTE

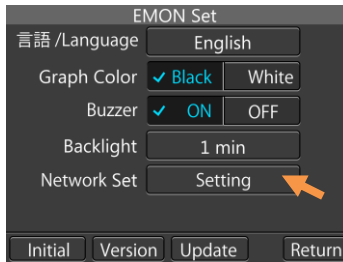
After setting the network settings of the EMON-20A, be sure to turn OFF the power and turn ON again. Otherwise, the LAN communication may not work properly.

MEMO

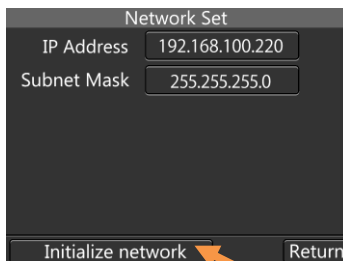
To check the network settings, open the “Version Information” window.
For details, see "6-5-7 To check the version."

■To initialize network settings.

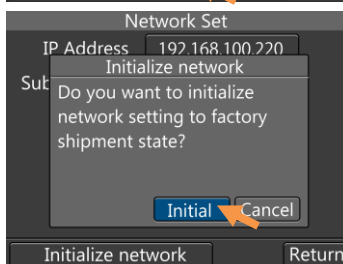
This section describes how to initialize the IP addresses and subnet mask.



1) Click the [Network] button “Setting”.



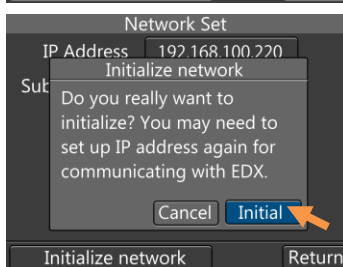
2) Click the [Initialize Network] button.



3) The first “Initialize network” window appears.

To initialize, click the [Initial] button.

To cancel, click the [Cancel] button.



4) The last “Initialize network” window appears.

To initialize network status, click the [Initial] button.

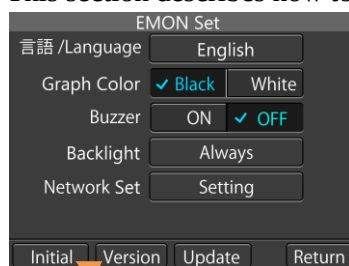
To cancel, click the [Cancel] button.

MEMO

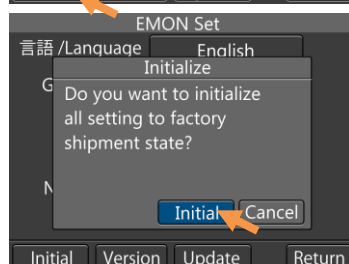
- The factory-configured network settings of the EMON-20A are as follows.
IP address: 192.168.200.220
Subnet mask: 255.255.255. 0
- Note that you are not able to initialize the default gateway.
Default gateway: 0. 0. 0. 0 (fixed)

6-5-6 To initialize

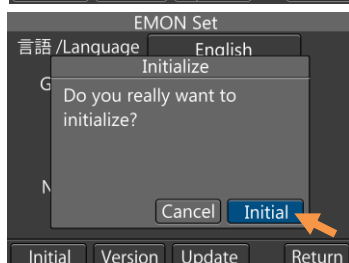
This section describes how to initialize the EMON-20A settings.



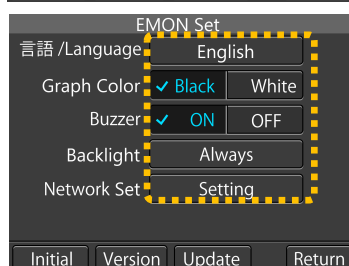
1) Click the [Initial] button.



2) The first “Initialize” window appears.
To initialize, click the [Initial] button.
To cancel, click the [Cancel] button.



3) The last “Initialize” window appears.
To initialize, click the [Initial] button.
To cancel, click the [Cancel] button.



4) The factory-configured settings appear.

MEMO

- The factory-configured settings are as follows.
 - “EMON Config” window

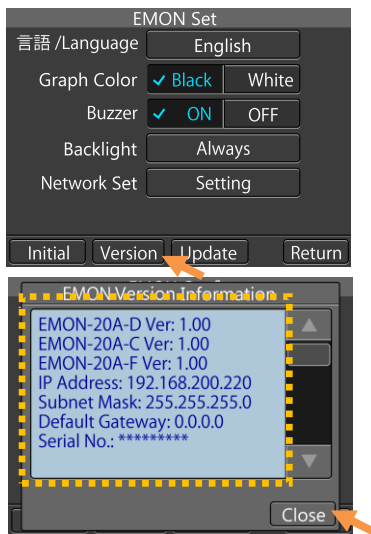
Language:	Japanese
Back Color:	Black
Buzzer Sound:	ON
Backlight:	Always On
Network settings	IP address: 192.168.200.220
	Subnet mask: 255.255.255. 0
 - “Displayed CH Select” window

Display channel:	CH001 to CH008
Display:	ON
 - “Set XY Scale” window

X Axis Scale	Start point: 0s, Endpoint: 10s
Y Axis Scale	Start point: -500000, Endpoint: 500000
X Axis Line	No Division Line
Y Axis Line	No Division Line

6-5-7 To check the version

This section describes how to check the firmware version, network settings, and serial No. of the EMON-20A.



1) Click the [Version] button.

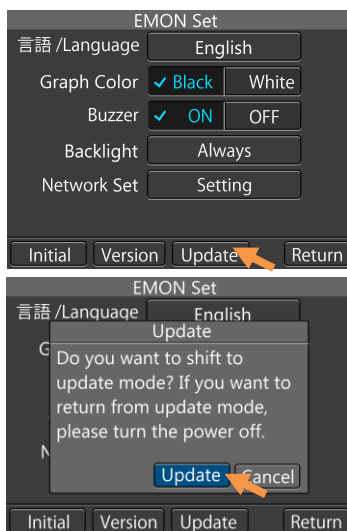
2) The firmware version, network settings, and serial No. of the EMON-20A appear.

Click the [Close] button.

The “EMON Set” appears.

6-5-8 To update the firmware

This section describes how to update the firmware of the EMON-20A in the “update standby” mode.



1) Click the [Update] button.

2) To update, click the [Update] button.

The EMON-20A becomes the “update standby” mode.

To cancel, click the [Cancel] button.

NOTE

- Before updating the EMON-20A firmware, see “UPDATING THE EMON-20A” provided separately.
- Before updating the EMON-20A firmware, disconnect the LAN connector of the dedicated cable from the EDX-100A/20A and connect it to the PC.
- After starting the update by clicking dedicated update .exe file saved on the PC, never turn OFF the EMON-20A and PC.
- In the “update standby” mode, you are not able to operate the EMON-20A including the touch panel.
- When the EMON-20A enters the “update standby” mode mistakenly, turn OFF the power and turn ON again.

The EMON-20A starts previous state of entering the “update standby” mode.

7 DISPLAY CONDITIONS SETTINGS

7-1 TO SELECT THE DISPLAY CHANNEL

This section describes how to select the display channels of the EDX-100A/200A on the measuring window or “Data check” window.

NOTE

- The display conditions on the measuring window are not the same as that of the “Data check” window.
Click each [DISP] button on the measuring window and the “Data check” window for settings.
- As you click the [DISP] button on the Y-Time graph or numeric window, the same “Display Conditions” window appears.

7-1-1 To assign the display channels

This section describes how to assign the measured data of the EDX-100A/200A as the display channel on the measuring window or “Data check” window.

■To assign the display channel

Example) This section describes how to assign “CH003” to the yellow display channel.



1) Click the yellow [Displayed CH assign (blank)] button.

2) Click the [CH003] button.

The color of the CH No. and CH title changes to pale blue, and check mark is attached.

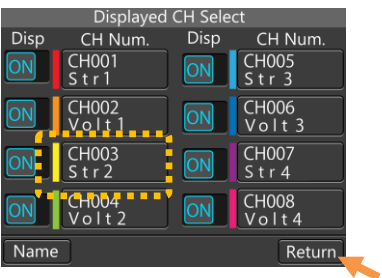
Click the [OK] button.

The items are saved.

To cancel, click the [Return] button.

MEMO

Since the color of the CH No. and CH title of the already assigned [Select Displayed CH] button is gray, you are not able to select the buttons.



3) The yellow [Displayed CH assign (empty)] button changes as follows.

The CH003 is assigned to the yellow display channel.

CH No.: CH003

CH Title: Str2

Click the [Return] button.

The measuring window or “Data check” window appears.

■To change the EDX-100A/200A and conditioner cards

This section describes how to change the master EDX-100A/200A, slave EDX-100A/200A, and conditioner cards during the synchronous operation only.



- 1) Click the [←/→] button located on the top right of the window.
The master EDX-100A/200A or slave EDX-100A/200A appears on the upper side of the window.

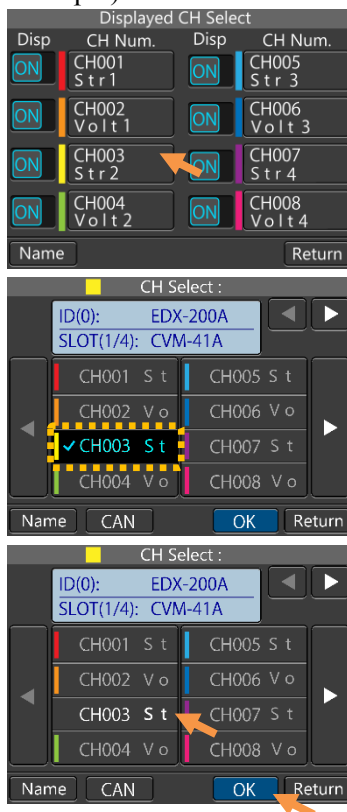
- 2) Click the [←/→] button located on the right and left of the window.
The conditioner cards mounted on the EDX-100A/200A appears on the upper side of the window.

MEMO

The conditioner cards, mounted on the slots, appear only.

■To cancel the Displayed CH assignment

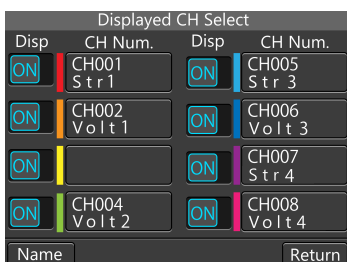
Example) This section describes how to cancel the “CH003” assigned to the yellow display channel.



- 1) Click the yellow [CH003] button.
- 2) The color of the CH No. and CH title of the [CH003] button is pale blue, and check mark is attached.
- 3) Click the [CH003] button.
The color of the CH No. and CH title changes to white.
Click the [OK] button. The assignment is cancelled.

MEMO

To assign the “CH003” to the yellow display channel, click the [CH003] button again. The color of the CH No. and CH title changes to pale blue, and check mark is attached. The CH003 is assigned to the yellow display channel.

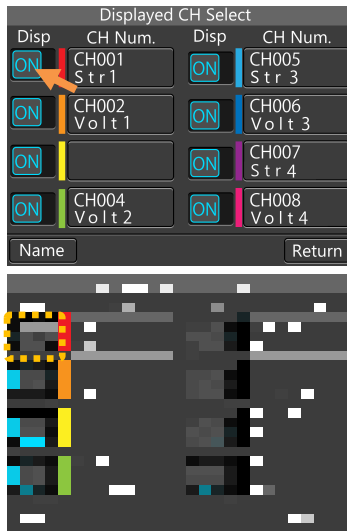


- 4) The CH No. and CH title disappear.
The yellow button becomes the yellow [Displayed CH assign (blank)] button.

■To show/hide display the display channels

This section describes how to show (ON)/hide (OFF) the assigned display channels on the measuring window or “Data check” window.

Example) This section describes how not to display the red CH001 on the measuring window or “Data check” window.



1) Click the [ON] button of the red CH001.

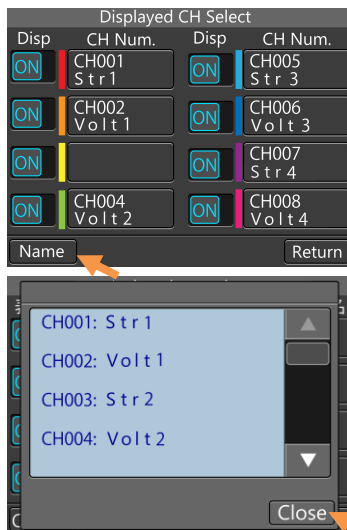
2) The [OFF] button appears.

MEMO

To display [ON], click the [OFF] button again.

7-1-2 To check the CH titles

This section describes how to check The CH titles set for EDX-100A/200A, assigned to the display channels.



1) Click the [CH Title] button.

2) The CH titles set for EDX-100A/200A appear.

To change every 4 CH titles, click the [↑/↓] button located on the right of the window.

Click the [Close] button.

The “Displayed CH Select” window appears.

7-1-3 To set CAN-CHs

When the EDX-100A/200A has the CAN-40A/CAN-41A, you are able to assign the “Measuring CAN-CH” (channels which measure the data frames on CAN) as the display channels of the EMON-20A.

■ To check the conditions on the DCS-100A

To assign the “Measuring CAN-CH” as the display channel on the EMON-20A, set the CAN-ID No. and CAN-CH No. of the DCS-100A on the “Assigned CH Select” window.

Check and record the CAN-ID No. and CAN-CH No. as follows

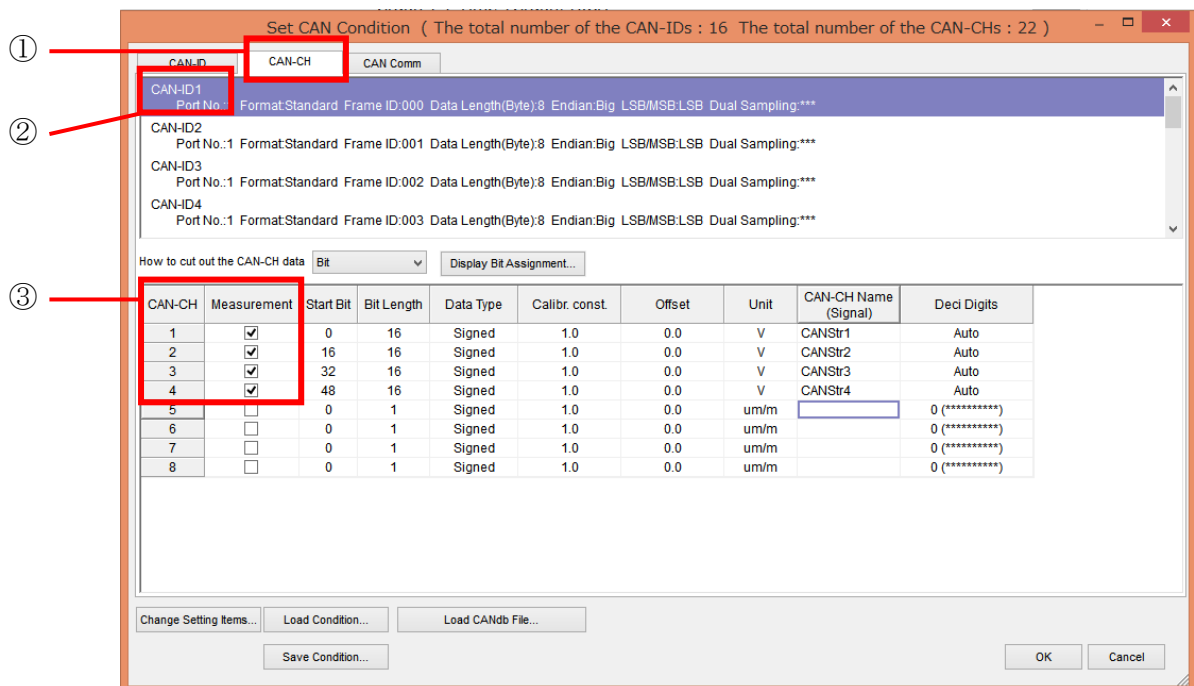
① Click the [CAN-CH] tab on the “Set CAN Condition” window of the DCS-100A.

② Select the target CAN-ID and record it.

The CAN-ID No. is “1” in the following window.

③ Record the CAN-CH Numbers which has a check mark on the “Measure” column.

The CAN-CH No. is “1, 2, 3, and 4” in the following window.

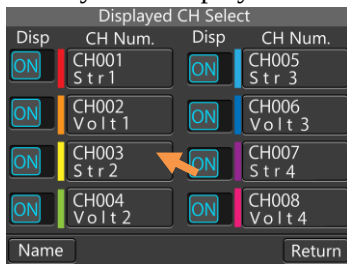


NOTE

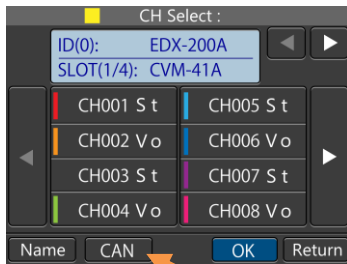
- You are not able to set the CH Numbers, appear on the Y-Time graph of the DCS-100A, as the display channels of the EMON-20A.
- You are not able to check/change the CAN condition settings from the EMON-20A.

■To assign the “Measuring CAN-CH” as the display channel

Example) This section describes how to assign “Measuring CAN-CH” (EDX-ID: 0, CAN-ID: 1, CAN-CH: 1) to the yellow display channel.



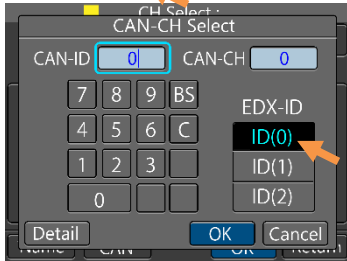
1) Click the yellow [CH003] button.



2) Click the [CAN] button.

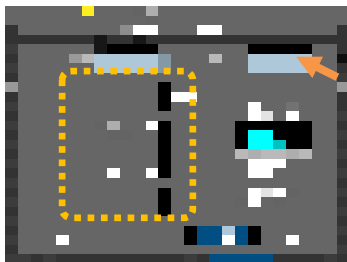
MEMO

The [CAN] button appears only when the EDX-100A/200A has the CAN-40A/41A.



3) Click the [ID (0)] button.

To cancel, click the [Cancel] button.



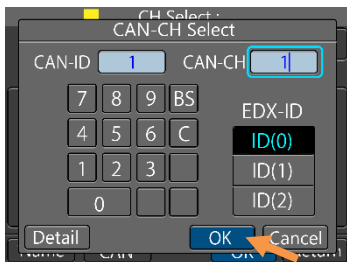
4) Click the “0” of [CAN-CH] button.

The pale blue frame appears around it.

Enter “1” by using the numeric keypad.

Click the “0” of [CAN-ID] button.

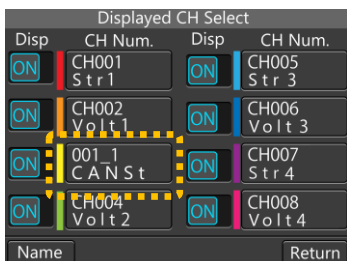
Enter “1” by using the numeric keypad.



5) Click the [OK] button.

The “Measuring CAN-CH” is assigned to the yellow display channel.

To cancel, click the [Cancel] button.



6) The yellow button changes as follows.

CH No.: 001_1

CH Title: CANSt

NOTE

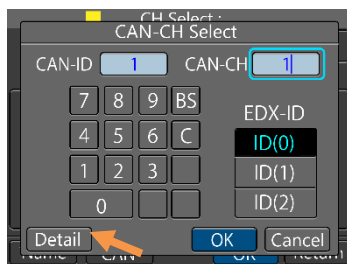
- When the “Measuring CAN-CH” is “Measure: OFF” and when you click the [OK] button, the error message appears.
- When you set the overlapping “Measuring CAN-CH” and when you click the [OK] button, the error message appears.

MEMO

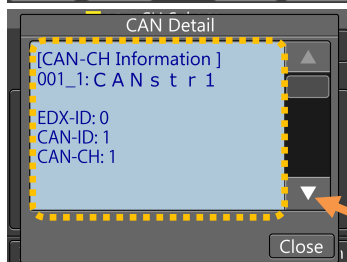
- The setting range of the CAN-IDs and CAN-CH Numbers are as follows.
CAN-40A CAN-ID No.: 1 to 16, CAN-CH No.: 1 to 8
CAN-41A CAN-ID No.: 1 to 32, CAN-CH No.: 1 to 8
- When you enter a value exceeding the range, the value automatically changes to the maximum value of each item.
Example)
Suppose you entered “99” as the CAN-ID No. of the CAN-41A.
The “99” changes to “32.”
- The EDX-ID is the ID No. of the EDX-100A/200A mounting the CAN card.
- The CH Numbers of the “Measuring CAN-CH” are as follows.
Example)
EDX-ID: 0, CAN-ID: 9, CAN-CH: 5 The CH No. is 009_5.
EDX-ID: 2, CAN-ID: 32, CAN-CH: 8 The CH No. is 232_8.

■Detailed information for CAN-CH

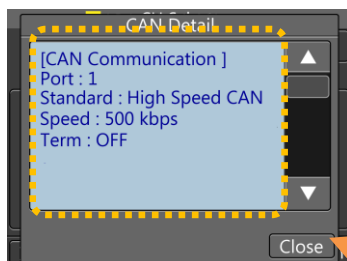
This section describes how to check the current CAN-CH information and CAN communication conditions.
Example) This section describes how to display the detailed information of the EDX-ID: 0, CAN-ID: 1, and CAN-CH: 1.



1) Click the [Detail] button.



2) The left window appears.
Click the [↓] button.



3) The left window appears.
Click the [Close] button.
The “CAN-CH Select” window appears.

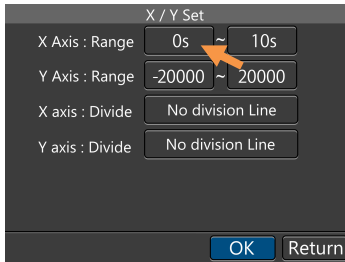
7-2 TO SET THE X/Y-AXIS

7-2-1 X/Y-axis scale

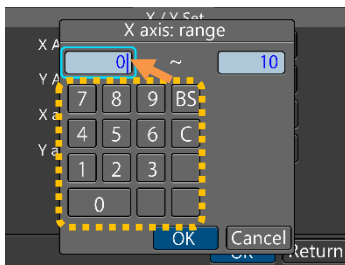
This section describes how to set the scale of the x/y-axis on the Y-Time graph.
The setting methods of the x-axis are the same as the y-axis.

■Setting methods

Example) This section describes how to set the x-axis scale “1 sec to 12 sec” on the Y-Time graph.



- 1) Click the [Set X Area Scale, start point] button “0s” or [Set X Area Scale, endpoint] button “10s”.



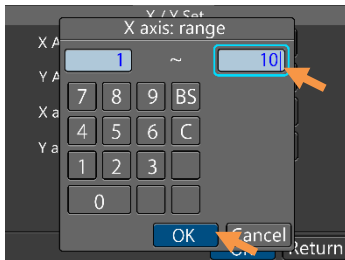
- 2) Click the [0] button.
The pale blue frame appears around it.
Enter “1” by using the numeric keypad.

MEMO

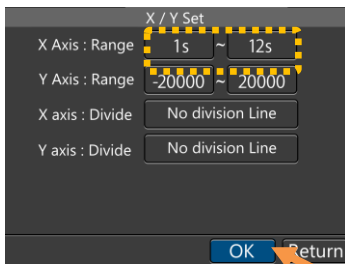
Operations of the [BS] key and [C] key on the numerical keypad

[BS] key: Clears the number in the target block from the rightmost digit.

[C] key: Clears the target block value to “0.”



- 3) Click the [10] button.
Enter “12” by using the numeric keypad.
- 4) Click the [OK] button.
The items are saved.
To cancel, click the [Cancel] button.



- 5) The [Set X Area Scale, start point] button and [Set X Area Scale, endpoint] button changes as follows.
[Set X Area Scale, start point] button: 1 s
[Set X Area Scale, endpoint] button: 12 s
- 6) Click the [OK] button.
The items are saved.
To cancel, click the [Cancel] button.

NOTE

The x/y-axis conditions on the measuring window are not the same as that of the “Data check” window.
To set the x/y-axis conditions on the measuring window, click the [DISP] button on the measuring window for settings.

■ X-axis scale and the setting ranges

The setting ranges of the x-axis scale on the measuring window/“Data check” window are as follows.

The setting ranges of the x-axis scale on the measuring window

X-axis start point: 0 s fixed

X-axis endpoint: 1 s to 10 s (in units of 1 s)

X-axis scale on the “Data check” window

X-axis start point: 0 s to (endpoint -1) (in units of 1 s)

Example) Suppose the x-axis endpoint is 15s.

The x-axis start point is 0 s to 14 s.

X-axis endpoint: 1 s to [round up at the once place of (number of data/CH) ÷ (sampling frequency)]

Example) Suppose the number of data/CH is 456 and the sampling frequency is 100 Hz.

The x-axis endpoint is 5 s.

$456 \div 100 = 4.56 \rightarrow$ Round up at the once place $\rightarrow 5s$

■ Y-axis scale and the setting ranges

The setting ranges of the y-axis scale on the measuring window/“Data check” window are as follows.

The setting ranges of the y-axis scale on the measuring window

Y-axis start point: -500000 to 500000

Y-axis endpoint: -500000 to 500000

The number of significant digits is 6 (including the decimal point).

Note that the symbol is excluded.

When the target value is within 6 digits, you are able to enter the decimal point at an arbitrary position.

Example) The number of significant digits is 6: -5.0000 to 5.0000

The number of significant digits is 3: -9.9 to 0.1

NOTE

- Do not enter the same value as the start point and endpoint on the “X/Y Axis Scale” window.

Example) X-axis start point: 10 s

X-axis endpoint: 10 s

Y-axis start point: 0.000

Y-axis endpoint: 0.000

- When the value of the [Start point] button is larger than that of the [Endpoint] button on the “X/Y Axis Scale” window, the values change each other.

Example) X-axis [Start point] button: 10 s, X-axis [Endpoint] button: 8 s

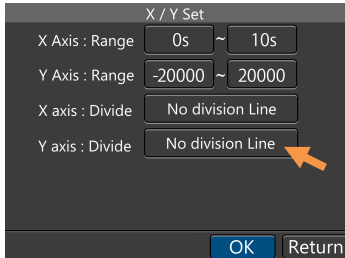
$\rightarrow$ X-axis [Start point] button: 8 s, X-axis [Endpoint] button: 10 s

7-2-2 To set the x/y-axis division lines

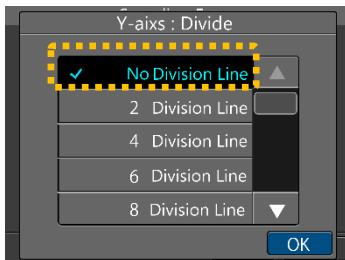
This section describes how to divide the x/y-axis displaying range by selecting the number of division lines of the Y-Time graph on the measuring window or “Data check” window.

The setting methods of the x-axis are the same as the y-axis.

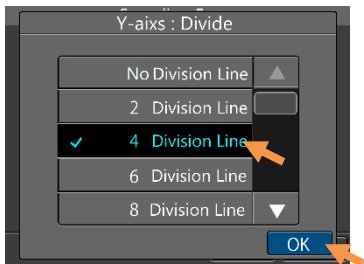
Example) This section describes how to divide the y-axis displaying range on the “Data check” window into 4 sections.



1) Click the [Set Y Separate Line] button “No Division Line”.



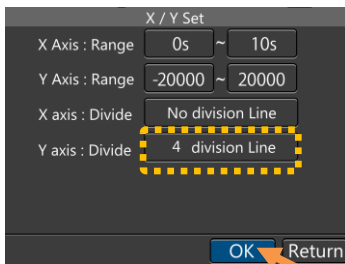
2) The [No Division Line] button is highlighted, and a check mark is placed.



3) Click the [4 Division Line] button. The button is highlighted, and a check mark is placed.

Click the [OK] button.

The items are saved.



4) The [Set Y Separate Line] button changes as follows.

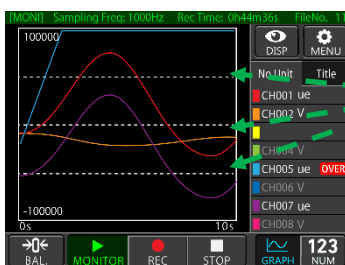
[Set Y Separate Line] button: 4 Division Line

5) Click the [OK] button.

The items are saved.

To cancel, click the [Cancel] button.

6) The 3 division lines divide the y-axis displaying area into 4 sections.



3 division lines (dotted line) appears on the y-axis.

8 DATA CHECKING

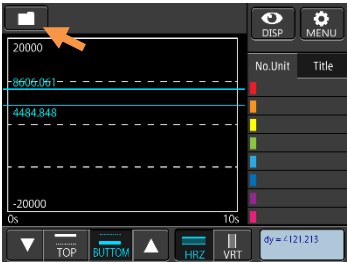
8-1 TO CHECK DATA ON THE Y-TIME GRAPH

This section describes how to select the single file, recorded in the CF card on the EDX-100A/200A, and display the data on the Y-Time graph.

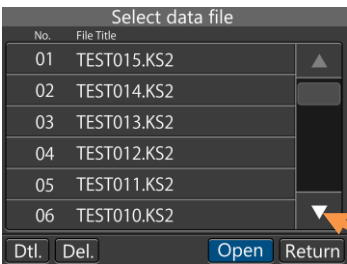
This section also describes how to check the display channels, which exceeds the measuring range, at the all display,

8-1-1 To select files

Example) This section describes how to select the file (TEST011.KS2).



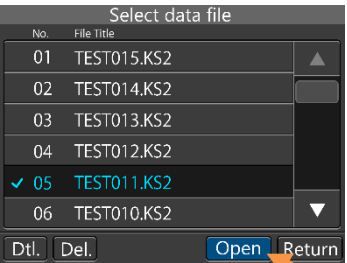
1) Click the [Folder] button.



2) The filenames, recorded in the CF card, appear.

MEMO

- The latest files appear from No. 01.
- The number of files is up to 10.
- To display the No.5 to No.10 files, click the [↓] button.



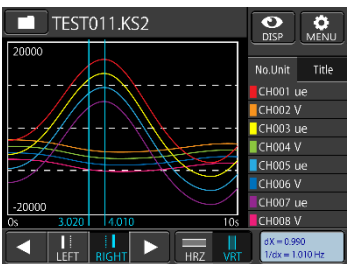
3) Click the [05 TEST011.KS2] button.

The button is highlighted, and a check mark is placed.

Click the [Open] button.

The file (TEST011.KS2) opens.

To cancel, click the [Return] button.



4) The measured data saved in the file appears on the Y-Time graph.

8-1-2 To set display conditions

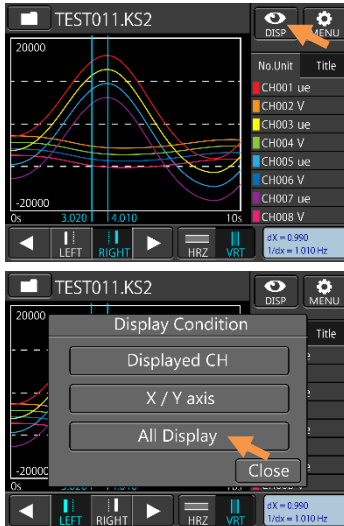
Set the display conditions (display channel selections and x/y-axis settings) of the Y-Time graph for checking data.

NOTE

The display conditions on the measuring window are not the same as that of the “Data check” window. To set the display conditions on the measuring window, click the [DISP] button on the measuring window for settings.

8-1-3 All Display

This section describes how to load all measured channel data of the total recording time from the files and displays the assigned display channels (total 8 channels) on a single window of the Y-Time graph. When the display channel exceeds the range, the [OVER] icon appears next to the target channel on the [No.Unit/Title] tab.



1) Click the [DISP] button.

2) Click the [All Display] button.

The Y-Time graph window appears.

The measured data of the assigned display channels (total 8 channels) appear on a single window.

■ All Display and x-axis scale

To display the total recording time, calculate the x-axis scale as follows.

X-axis start point: 0 s

X-axis endpoint: Calculate the total recording time as follows and round up at the once place.

Total recording time: (Number of data/CH) ÷ (sampling frequency)

Example)

Number of data/CH: 19900, sampling frequency: 1k Hz (1000 Hz)

$19900 \div 1000 = 19.9 \rightarrow$ Round up at the once place $\rightarrow$ * X-axis endpoint: 20s

■ All Display and y-axis scale

To auto-scale, the y-axis scale is calculated as follows.

By using the range, calibration constant, and offset of each display channel, calculate the scale value as follows.

Scale value: $\text{Range} \times \text{calibration constant} + \text{offset}$

Y-axis start point: The minimum value of the scale value of all display channels.

Y-axis endpoint: The maximum value of the scale value of all display channels.

Example)

CH001 range: 10.0 V, calibration constant: 9.876, offset: 0

CH002 range: 500ue, calibration constant: 5.432, offset: -200

CH003 range: 20kue, calibration constant: 1.234, offset: 320

Calculated value of the CH001: $10.0 \times 9.876 + 0 = 98.76$ (min.)

Calculated value of the CH002: $500 \times 5.432 - 200 = 2516$

Calculated value of the CH003: $20000 \times 1.234 + 320 = 25000$ (max.)

* Y-axis start point: 98.76 (min.), Y-axis endpoint: 25000 (max.)

NOTE

- After the all display, the settings of the x/y-axis scale changes to the above scale values.
- Before the all display, set the above total recording time (round up at the once place) as the x-axis endpoint of the x-axis scale

When the display channel exceeds the range, the [OVER] icon appears next to the target channel on the [No.Unit/Title] tab.

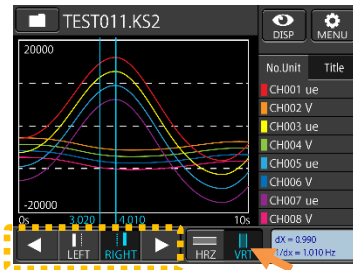
8-2 TO DISPLAY THE CURSORS

This section describes how to display vertical/horizontal cursors on the Y-Time graph.

[VRT] mode: The difference (sec) between the cursors on the x-axis and frequency (Hz) appear.

[HRZ] mode: The difference between the cursors on the y-axis appears.

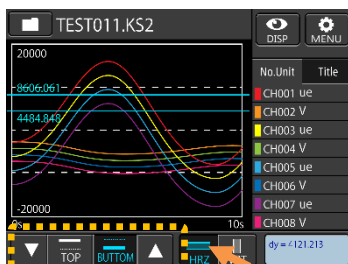
8-2-1 To change the cursor mode



1) Click the [VRT] button.

The mode changes to the [VRT] mode and the cursor direction changes to the vertical direction.

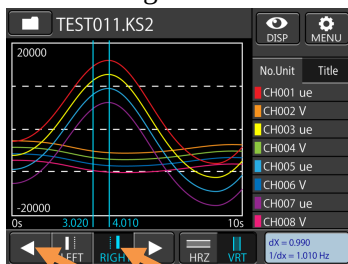
The [Cursor switch] button changes to the [LEFT]/[RIGHT] button and the [Move cursor] button changes to the left and right direction.



2) Click the [HRZ] button. The mode changes to the [HRZ] mode and the cursor direction changes to the horizontal direction.

The [Cursor switch] button changes to the [TOP]/[BOTTOM] button and the [Move cursor] button changes to the up and down direction.

8-2-2 To change/move the cursors



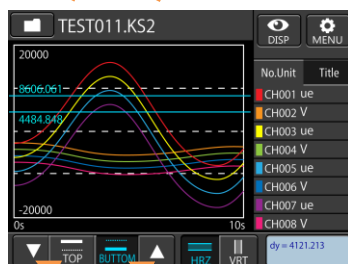
1) [VRT] mode

[LEFT] button: Selects the cursors on the left side.

[RIGHT] button: Selects the cursors on the right side.

To move the selected cursors to the left and right, click the [←]/[→] button.

The cursor's x-axis value (sec) appears.



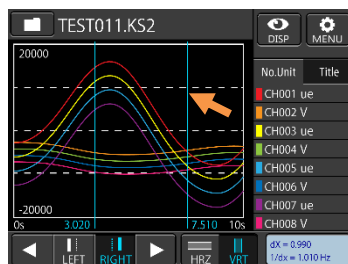
2) [HRZ] mode

[TOP] button: Selects the cursors on the upper side.

[BOTTOM] button: Selects the cursors on the lower side.

To move the selected cursors to the up and down, click the [↑]/[↓] button.

The cursor's y-axis value appears.



MEMO

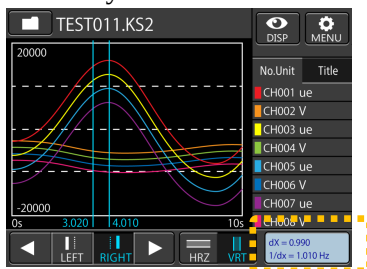
To move the selected cursors to an arbitrary position, click an arbitrary position on the Y-Time graph.

Example)

When the mode is [VRT] mode and selecting the right side cursors.

As you click the position (approx. 7.5 s), the cursors move to the position.

8-2-3 Analyzed information



1) [VRT] mode: The difference (sec) between the cursors on the x-axis and frequency (Hz) appear.

Example)

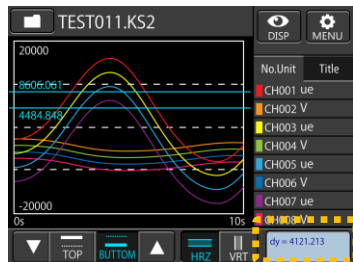
Right cursor: 4.010

Left cursor: 3.020

The difference between the cursors on the x-axis is as follows.

$dx: 4.010 - 3.020 = 0.990 \text{ s}$

Frequency $1/dx: 1/0.990 = 1.010 \text{ Hz}$



2) [HRZ] mode: The difference between the cursors on the y-axis appears.

Example)

Upper cursor: 8606.061

Lower cursor: 4484.848

The difference between the cursors on the y-axis is as follows.

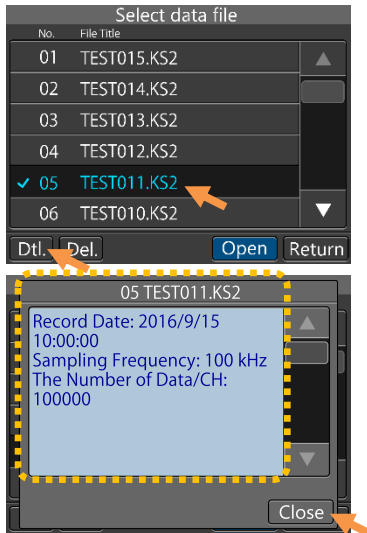
$8606.061 - 4484.848 = 4121.213$

8-3 TO DISPLAY/DELETE INFORMATION OF FILES

This section describes how to display the detailed information of the files and how to delete the files.

8-3-1 To display the detailed information of files

Example) This section describes how to display the detailed information of the file (05 TEST011.KS2).



1) Click the [05 TEST011.KS2] button.

The button is highlighted, and a check mark is placed.

Click the [Detail] button.

2) The following information appears.

Filenames, recorded date and time, sampling frequency,

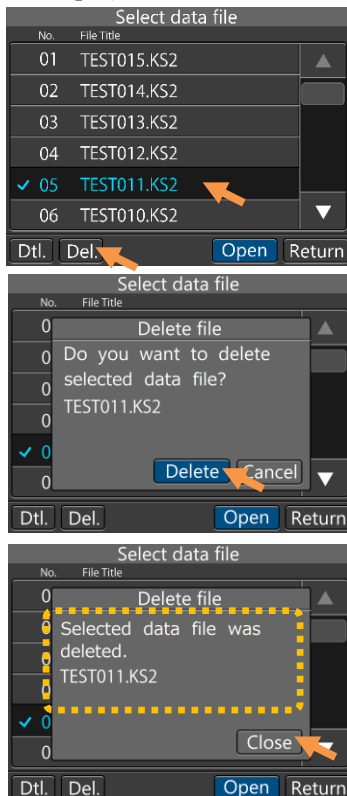
Number of data/CH (The number of total data per channel)

Click the [Close] button.

The “Select File” appears.

8-3-2 To delete the files

Example) This section describes how to delete the file (05 TEST011.KS2).



1) Click the [05 TEST011.KS2] button.

The button is highlighted, and a check mark is placed.

Click the [Delete] button.

The “Delete File” window appears.

2) Click the [Delete] button.

The EMOND-20A deletes the TEST011.KS2.

3) The left message appears.

Click the [Close] button.

The “Select File” window appears.

NOTE

After deleting the files, the “Select File” window still has the deleted filenames.

After deleting the files, the deleted file name disappears from the “Select File” window and becomes blank.

To display latest 10 files after deleting the file, open the "Data Check" window and click the "Folder" button.

9 PRECAUTIONS FOR USE

This section describes the informational notes when using the EMON-20A.

For details of the EDX-100A/200A, see “EDX-100A INSTRUCTION MANUAL (FOR HARDWARE)” and “EDX-200A INSTRUCTION MANUAL (FOR HARDWARE).”

9-1 PRECAUTIONS FOR EDX-200A SERIES

9-1-1 Limitations for dual sampling

When selecting the dual sampling in the measuring conditions of the EDX-200A, you are not able to monitor the data on the Y-Time graph/numeric window since the measured data is unable to be assigned to the display channel.

Note that you are able to start/stop recording the data.

9-1-2 Limitations for optional cards

When the EDX-200A has the following optional cards, you are not able to assign the measured data of the optional cards to the display channel.

Optional card model: ECAN-40A, ETIM-40A, EGPC-40A

Note that you are able to start/stop recording the optional cards.

9-1-3 Limitations for external clock

When selecting the “external clock input” as the sampling clock of the EDX-200A, you are not able to monitor the data on the Y-Time graph/numeric window.

You are not able to set the sampling frequency also.

9-2 PRECAUTIONS FOR SYNCHRONOUS OPERATION

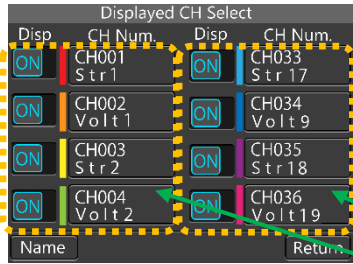
9-2-1 Precautions for display channels

The selecting conditions of the display channels vary as follows.

- Y-Time graph
 - *Unable to select multiple channels of multiple EDX units during the synchronous operation.
 - *Able to select multiple channels of single EDX unit during the synchronous operation.
- Numeric window
 - *Able to select multiple channels of multiple EDX units during the synchronous operation.

Example) Operating 2 EDX-200A units in synchronous operation

■Y-Time graph

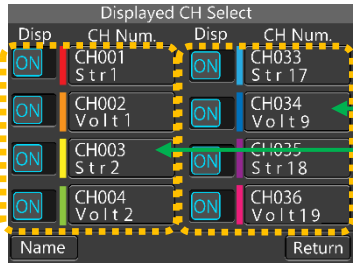


You are not able to select the CH001 to CH004 of the 1st EDX-200A (ID:0) and CH033 to CH036 of the 2nd EDX-200A (ID:1) as the display channels.

You are able to select the CH001 to CH004 of the 1st EDX-200A (ID:0) or CH033 to CH036 of the 2nd EDX-200A (ID:1) as the display channels.

- CH033 to CH036 of the 2nd EDX-200A (ID:1)
- CH001 to CH004 of the 1st EDX-200A (ID:0)

■Numeric window



You are able to select the CH001 to CH004 of the 1st EDX-200A (ID:0) and CH033 to CH036 of the 2nd EDX-200A (ID:1) as the display channels.

- CH033 to CH036 of the 2nd EDX-200A (ID:1)
- CH001 to CH004 of the 1st EDX-200A (ID:0)

9-2-2 Limitations for the number of EDX-100A/200A units

The number of EDX-100A/200A units, connected to the EMON-20A, is up to 3.

Do not connect 4 or more units. When you connect 4 or more units, the error message appears on the EMON-20A.

9-3 PRECAUTIONS FOR CHECKING DATA

- Selectable files on the “Select File” window
 - The latest 10 files.
 - To select the hidden files, operate as follows.
 - * Delete the files on the “Select File” window.
 - * Move the latest files on the PC and delete them from the CF card.
- To insert the CF cards with the recorded files
 - Unable to display the recorded files on the “Select File” window when you recorded the files in the CF card on the EDX-100A and inserted the CF card in the EDX-200A.
 - Unable to display the recorded files on the “Select File” window when you recorded the files in the CF card on the EDX-200A and inserted the CF card in the EDX-100A.
- To check data during synchronous operation
 - Able to check the data of the master EDX-100A/200A (ID: 0).
 - Unable to check the data of the slave EDX-100A/200A units.
- Data checking and available files
 - KS2 files including the analog-channel measured data only
 - When the file includes the digital-channel measured data, you are not able to check the digital channels.
 - Unable to select the files recorded on the optional cards.

Although you are able to select the files including the measured data recorded on the CAN-40A/41A, you are not able to select the CAN-CH as the display channel on the “Displayed CH Select” window. Note that you are able to select the analog-channel measured data as the display channel.
 - Unable to select the recorded files of the dual sampling.
- CF card
 - When the file capacity of the CF card is large and the number of files saved in the CF card is large, the EMON-20A takes time to display the files on the “Select File” window and takes time to draw the waveforms on the Y-Time graph.
 - The EMON-20A accesses to the CF card frequently while opening the “Data check” window.

Do not, therefore, remove the CF card while opening the “Data check” window.
- Files including the pausing section
 - When the file includes the pausing section, the measured data during the pausing section does not appear on the “Data Check” window.
- EDX-100A/200A and key-lock function
 - The EDX-100A/200A is key locked while transiting from the “Menu” window to the “Data Check” window.

10 TROUBLE SHOOTING

In the event that the product does not operate as expected or in a stable manner, you should trace the factor(s) that may be causing such a condition before concluding that the system has failed.

Items to be checked and countermeasure against various phenomena are described in the following table.

If troubles are not solved despite countermeasures, contact Kyowa or our representatives.

If the product is damaged due to any causes other than as written in the Instruction Manual or if the user has disassembled or remodeled the product, Kyowa Electronic Instruments Co., Ltd. may not be able to offer repair service.

10-1 TROUBLES

Trouble	Checked items and countermeasures
Cannot turn ON the POWER LED when using the AC adapter.	◆ Make sure the AC power outlet has the specified voltage. Check the voltage with a tester. For details, see “4-3 TO CONNECT THE POWER SUPPLY.” ◆ Make sure the power cable is connected correctly.
Cannot turn ON the POWER LED when using the DC power supply.	◆ Make sure the DC power supply has the specified voltage. Check the voltage with a tester. For details, see “4-3 TO CONNECT THE POWER SUPPLY.” ◆ Make sure the power cable is connected correctly. ◆ Make sure the polarity of power supply is connected properly. ◆ Make sure the DC power supply has enough capacity.
Takes time to refresh data on the windows.	◆ When using the EMON-20A below the operating temperature range, it takes time to refresh data on the windows. Use the product within the operating temperature & humidity range.
The measured value is incorrect. The measured value varies. The data on the window is not stable. The window is black.	◆ The operation failed due to noise. Take appropriate countermeasures for removing the noise. For details, see the following MEMO.

- Inductive interference

Using the product, near equipment generating strong magnetic field, generates induction noise.

The equipment includes large motors, transformer, and ferro-resonant constant voltage transformer.

Locating the product, far away from measuring points, also generates induction noise.

Take the following measures to protect against induction noise.

- Separately locate the product from the power source.
- Put the EMON-20A dedicated cables inside metal pipes to decrease effects due to the external noise.

Be sure to connect the metal pipes, etc. to the ground.

- Potential interference

Potential interference occurs when the target to be measured has a DC/AC potential.

At this time, grounding the product is not necessarily a good thing. It may be appropriate to connect the target to be measured and product.

If there is induction noise or if the target to be measured has potential, it is rare to be solved by a simple method.

Especially nowadays, the number of electrical devices that are used together in the measuring environment are increasing resulting to affect with each other as the noise cause.

The above-mentioned countermeasures are mere examples. Fully consider the operational environment and take appropriate measures to obtain the excellent results.

10-2 ERROR MESSAGES

Error messages	Checked items and countermeasures
Hardware error occurred in EMON-20A.	◆ The EMON-20A is failure. Stop using the product. ⇒ Contact Kyowa or our representatives.
Memory error occurred in EMON-20A.	
An error occurred while communicating with EDX.	Make sure the LAN connector of the dedicated cable is connected to the EDX-100A/200A.
This value can not be set.	◆ Make sure the start point and endpoint are not the same value on the “X/Y Axis Scale” window. ◆ Make sure the CAN-CH Numbers are not overlapping on the “CAN-CH Select” window.
Monitor/recording can not be started because dual sampling is set.	◆ Make sure the EDX-200A sampling mode is not dual sampling. ⇒ Connect the EDX-200A and PC and cancel the dual sampling from the DCS-100A.
Monitor/recording can not be started because external clock is set.	◆ Make sure the EDX-200A sampling clock is not the external clock. ⇒ Connect the EDX-200A and PC and cancel the external clock from the DCS-100A.
CAN-40A/41A CH condithons can not be set.	◆ Make sure the EDX-100A/200A has the CAN-40A/41A and others. ⇒ Mount the conditioner cards (excluding the CAN-40A/41A).
Monitor/recording can not be started because unsupported card is mounted.	◆ Make sure the EDX-100A/200A does not have the not-applicable conditioner cards (including the custom-made products). ⇒ Dismount the not-applicable conditioner cards from the EDX-100A/200A.
CH conditon/dispray CH setting can not be performed because unsupported card is mounted.	
The number of connected EDX is four or more.	◆ The number of EDX-100A/200A units is 3 or less.
At Y-Time graph, display CH from multiple EDX can not be selected.	◆ Make sure the multiple channels of multiple EDX units are not selected as the display channels during the synchronous operation. ⇒ Select multiple channels of single EDX unit as the display channels during the synchronous operation.
Failed to read data file.	◆ Make sure the CF card is mounted on the EDX-100A/200A. ◆ Make sure the files are saved in the CF card.
Failed to delete data file.	◆ Make sure the CF card is mounted on the EDX-100A/200A. ◆ Make sure the CF card is not write protected.
The conditioner card is not mounted.	◆ Make sure the target conditioner cards are mounted on the EDX-100A/200A.
The value of X-axis start point exceeding the recording time.	◆ Make sure the value of X-axis start point is not exceeding the recording time. - Calculate recording time of the file. - For details, see page 70.

11 MAINTENANCE

For the product, the following items should be serviced for scheduled maintenance.

Maintenance service should be performed at the intervals specified below.

Replacement of limited life parts

Item	Description	Service intervals
LCD	Service life, depends on the frequency of use and ambient temperature, is approximately 5 years. Stuck pixels or dead pixels will appear, and LCD panel will fade. The product must be returned to Kyowa for replacements.	Once in every 5 years
AC adapter	Service life, depends on the frequency of use and ambient temperature, is approximately 5 years. We recommend you purchase a new product every 5 years.	Once in every 5 years
Aluminum electrolytic capacitor	Service life, depends on the frequency of use and ambient temperature, is approximately 5 years. We recommend you purchase a new product every 5 years.	Once in every 5 years

The replacement frequency of limited-life parts is about five years, assuming eight hours of use, 365 days a year.

The above figure is only a rough indication. We do not promise or guarantee that the product is error-free or will be repaired at no additional cost during the above period.

To operate the product normally, finding a sign of the product failure early by daily/periodic inspections and taking the corrective action are required.

Particularly if the product is used continuously for long periods of time, early replacement of parts is required for the purposes of safety and stable operation.

12 SPECIFICATIONS

12-1 MAIN BODY

(1) Name	Monitor unit
(2) Model	EMON-20A
(3) Applicable recorder	EDX-100A and EDX-200A (max. 3 units in synchronous operation)
(4) Display	LCD: 5.7-inch color TFT The number of dots: 320 dot×240 dot Touch panel: Analog resistance membrane POWER LED Lights up: power ON Blinks: Backlight OFF or updating Lights out: Power OFF
(5) Display contents	Y-Time graph: Max. 8 channels *Unable to select multiple channels of multiple EDX units during the synchronous operation. *Able to select multiple channels of single EDX unit during the synchronous operation. X-axis scale: 1 to 10 s (in units of 1 s) Y-axis scale: ±500000 Numeric window: Max. 8 channels *Able to select multiple channels of multiple EDX units during the synchronous operation. Data confirmation: Max. 8 channels
(6) Control items	Measuring items: Monitor start (MONITOR), stop (STOP), record (REC), and balance (BAL) Channel conditions: Measure ON/OFF, measuring range, mode, and LPF Measuring conditions: Sampling frequency
(7) Other functions	EMON-20A settings Languages selection (English/Japanese), background color (black/white), operating beep (ON/OFF), backlight (lighting time), network settings, setting value initialization EDX Information Model, the number of units, version, ID, IP address, subnet mask, and model of the conditioner cards
(8) Connection cable	Dedicated cable 5 m or less
(9) Power supply	10 to 36 VDC or a dedicated AC adapter
(10) Current consumption	450 mA or less at 12 V 200 mA or less at 24 V

- (11) Dimensions 166 mm (W) × 29 mm (H) × 128.5 mm (D) (excluding protrusions)
- (12) Weight Approx.550 g
- (13) Vibration resistance 29.4 m/s²(3G), 5 to 200 Hz
- (14) Impact resistance 147.0 m/s²(15G), 11 msec or less
- (15) Operating temperature range
 0 to 50°C, 20 to 80 %RH (noncondensing)
- (16) Applicable conditioner cards for data acquisition
 Strain/Voltage/Acceleration Measurement Card CVM-40A, CVM-41A
 Strain/Voltage Measurement Card CDV-40B/A, CDV-40B/A-F
 Dynamic Strain Measurement Card DPM-42B/A, DPM-42B/A-F, DPM-42B-I, DPM-42B-I-F
 Thermocouple Card CTA-40A
 F/V Converter Card CFV-40A
 Charge Amplifier Card CCA-40A, CCA-40A-F
 Strain/Voltage Measurement Insulation Card CDV-44AS
 Direct rated current expansion card CDA-44AS, CDA-45AS
 A/D Converter Card AD-40AS, AD-40AS-F
 CAN card (*1) CAN-40A, CAN-41A
 *1 For monitoring and recording data only. Checking the recorded data and changing the CAN
 condition settings are not available.
- (17) Applicable standards RoHS Directive: EN50581

12-2 OUTSIDE DRAWING

