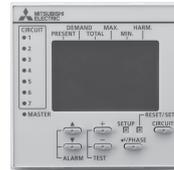


DISPLAY UNIT for (Energy Measuring Unit)

Model : EMU4-D65

Instruction manual (Simplified edition)

- Be sure to read this instruction manual and this equipment detail manual before use.
- After reading on, you keep it in a safe place where you can be seen at any time, please read when needed.
- Please send this instruction manual to the end user.
- You can download User's manual of this Unit from the following site.
- <http://www.mitsubishielectric.com/fa/worldwide/index.html>



EMU4-D65

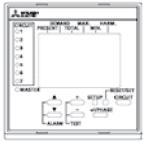
This product is the optional dedicated product only for Mitsubishi Energy Measuring Unit (EcoMonitorPlus, EcoMonitorPro) and Mitsubishi Measuring Unit for MDU Breakers (MDU2). It can not be used for other purpose.

1. Feature

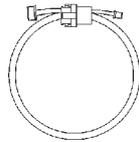
- The monitoring of measured data at Mitsubishi Energy Measuring Unit is possible.
- Easily viewable by backlight and dot matrix LCD display.
- Multiple circuit monitoring is possible using only one unit.
- It is possible to switch the display language (Japanese / English) in the setting.

2. Confirmation of contents of package

Each unit comes with the following accessories. Check for missing ones.



Main Body x 1



Connection cable x 1



Instruction manual
(Simplified edition) x 1



Switching board
Installation screw x 2

3. Precautions concerning working environment and conditions

3.1 Working environment and working conditions

This equipment, based on the assumption that it is used in the pollution degree 2 (Note 1) environment. If it is used in other degree of contamination, please do the protection on the device side to be incorporated. Measurement categories for measuring circuit for this equipment is CAT III (Note 1). The overvoltage category of the auxiliary power supply circuit (MA, MB) is CAT III (Note 1). Do not use the unit in any of the following places. Doing so may cause malfunction or reduction in service life.

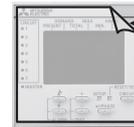
- Place where the ambient temperature exceeds the working temperature range (-5°C - +55°C)
- Place where the humidity exceeds the humidity range (30% - 85%RH) or condensation occurs
- Place with much dust, corrosive gas, salt or oily smoke
- Place where the unit may be exposed to rain or drops of water
- Place where metallic particles or inductive substances are dispersed
- Place where the daily mean temperature exceeds 35°C
- Place with much vibration or impact
- Place exposed to direct sunlight
- Place with strong electromagnetic field or much foreign noise
- Place where the altitude is over 2000m

This equipment is the open type equipment. (Electric shock protection of the instrument was designed to perform housed in another apparatus equipment) Please use are housed in a control panel etc. Always. For notes on when to adapt the equipment that you have configured in this equipment to the EMC Directive, please refer to the Instruction Manual (Detail edition).

Note 1: For a definition of pollution degree and the measurement categories, please refer to the EN61010-1 / 2010.

3.2 Preparation before using

- An installation place should keep the working environment and working conditions.
- The protection sheet for the crack prevention is put on the display part. Before use this product, remove the protection sheet. It is not unusual, although a LCD display part may light up by generating of static electricity in case it removes. After a while, it disappears by natural electric discharge.
- Following setup is need before using EMU4-D65.
The one always in one system is the Master set, Other display unit of, please to Slave configuration.
(The wrong setting and it does not work)



Please use after removing the protection sheet.

3.3 Installation and connection



- Before installing and connecting the unit, read the instruction manual without fail. For safety, the unit shall be installed and connected by experts in electrical work.
- When threading and wiring, take utmost care that cuttings and wire pieces do not enter the unit.
- Connect the wires carefully checking the wiring diagram. Improper wiring can cause unit failure, fire and electric shock.
- Perform wiring work in a dead state. Do not wire the unit in a live state. Doing so can cause electric shock, ground fault, unit failure and fire.

3.4 Precautions for Use

- **This unit cannot be used for deal and proof of electric energy measurement stipulated in Measurement Act.**
- **EMU4-PX4 and EMU4-AX4 is supported with later version 2.00. For information about how to determine the version, please refer to 7.2.7.**



- Use this unit within the ratings specified in this manual. If it is used outside the ratings, it may cause not only malfunction or failure but also fire burnout.
- Do not disassemble or modify this unit. It may cause failure, malfunction, injury or fire.
- Do not touch the live part such as connection terminal. It may cause electric shock, electric burn injury or burnout of the device. If any exposed conductor is found, stop the operation immediately, and take an appropriate action such as isolation protection.

3.5 Maintenance Precautions

- Use a soft dry cloth to clean off dirt of the unit surface. Do not let a chemical cloth remain on the surface for an extended period of time nor wipe the surface with thinner or benzene.
- Check for the following items to use this unit properly for long time.
 - (1) Daily maintenance
 - (a) No damage on this unit
 - (b) No abnormality with LED
 - (c) No abnormal noise, smell or heat
 - (2) Periodical maintenance (Once every 6 months to 1 year)
 - No looseness with installation and wire connection



Do periodical maintenance under the electric outage condition. Failure to do so may cause electric shock, failure of the unit or a fire. Tighten the terminal regularly to prevent a fire. In case a display unit is attached to a sensor unit, get off the display unit during maintaining or tightening terminals.

3.6 Storage Precautions

To store this unit, turn off the power and remove wires, and put it in a plastic bag.

For long-time storage, avoid the following places. Failure to follow the instruction may cause a failure and reduced life of the unit.

- Places the Ambient temperature exceeds the range -10°C - +60°C.
- Places the Relative humidity exceeds the range 30% - 85% or places with dewfall.
- Dust, corrosive gas, saline and oil smoke exist.
- Places the average daily temperature exceeds 35°C.
- Vibration and impact exceed the specifications.
- Places exposed to rain, water drop or direct sunlight.
- Places metal fragments or conductive substance are flying.

3.7 Disposal Precautions

When disposing of this unit, treat it as industrial waste.

3.8 About packaging materials and this manual

For reduction of environment load, packaging materials are produced with cardboard, and this manual is printed on recycled paper.

4. Part Names and Functions

Front

“Circuit” LED
A circuit number on display lights up. Moreover, LED of the circuit number blinks at the time of alarm occurring.

“Master” LED
The light is switched on at the time of operation.

[▲], [▼] key
Change of display item and selection of a menu are performed.

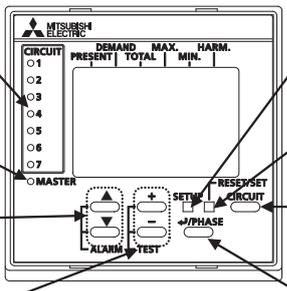
[+], [-] key
Display / Un-displaying of maximum or minimum value, and harmonics data at each order change of next data is performed.

[Setup] key
Shift to setup mode and closing of a setup are performed.

[Reset/Set] key
Reset/Set of Wh and varh data are performed.

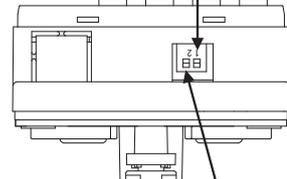
[Circuit] key
Change the display circuit number.

[←/Phase] key
The data of each phase of current and voltage is switched and displayed. Moreover, it is used when concerning a setting value



Bottom

Master / Slave setting switch (Switch 1)
Use setting to Master / Slave. When “OFF” will be Master. (Factory default, it is set to “Master”.) Configuration changes, please be sure to perform before the power is turned on. if you change settings during operation, please power on again.



Switch 2
Not use. Please use “OFF” setting in.

Back

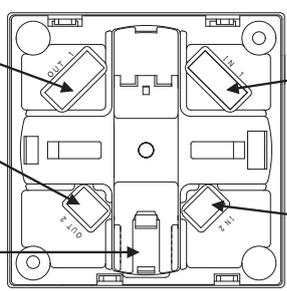
“OUT 1” Connector
Use for connection with a next display unit.

“OUT 2” Connector
Use for connection with a next display unit.

IEC rail attachment
Use when installing on IEC rail.

“IN 1” Connector
Use for connection with an Energy Measuring Unit, a next display unit.

“IN 2” Connector
Use for connection with an Energy Measuring Unit, a next display unit.

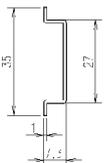


5. Installation

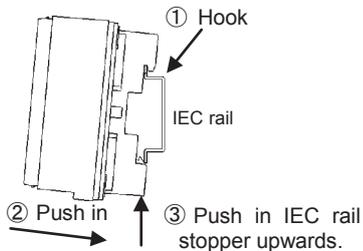
5.1 IEC rail installation

Fix the display unit to IEC rail using IEC rail attachment on the back. Changing the direction of IEC rail attachment, it can attach in both direction of vertical and horizontal.

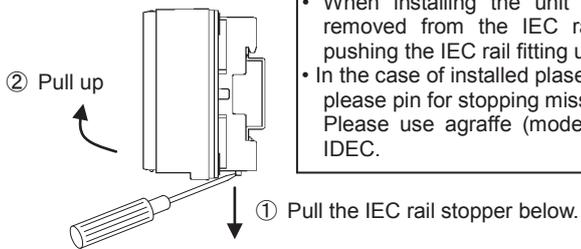
- Applicable IEC rail (35mm)



- Installation



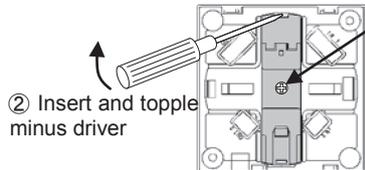
- Removal



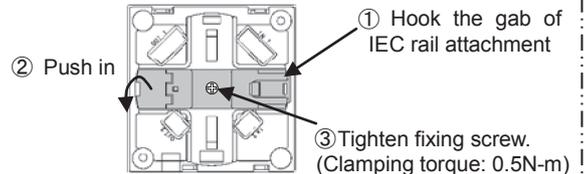
- Fit the IEC rail with M4 or M5 screws at distances of 25 to 100 mm.
- When installing the unit after once it was removed from the IEC rail, install it while pushing the IEC rail fitting upward.
- In the case of installed phase with much impact, please pin for stopping missed. Please use agraffe (model: BNL6) made by IDEC.

A method for changing the direction of IEC rail

- Removal of the IEC rail attachment

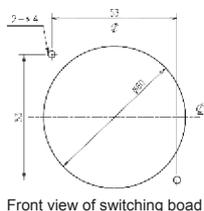


- Fitting of the IEC rail attachment

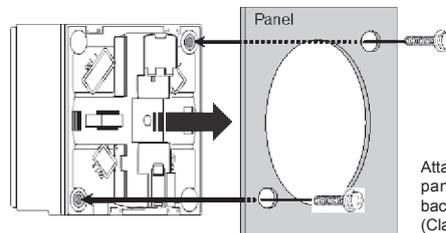


5.2 Panel mounting

- Cutout dimension



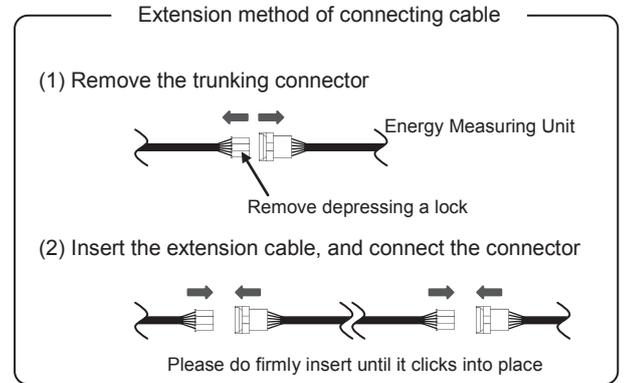
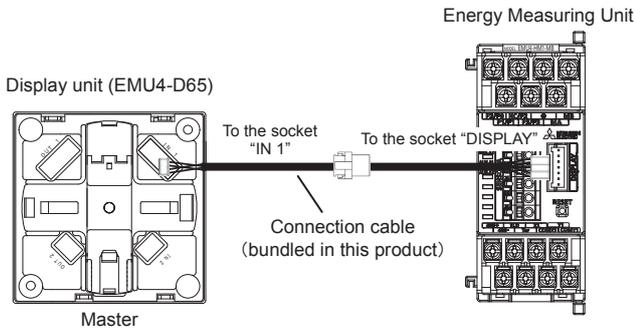
- Mounting



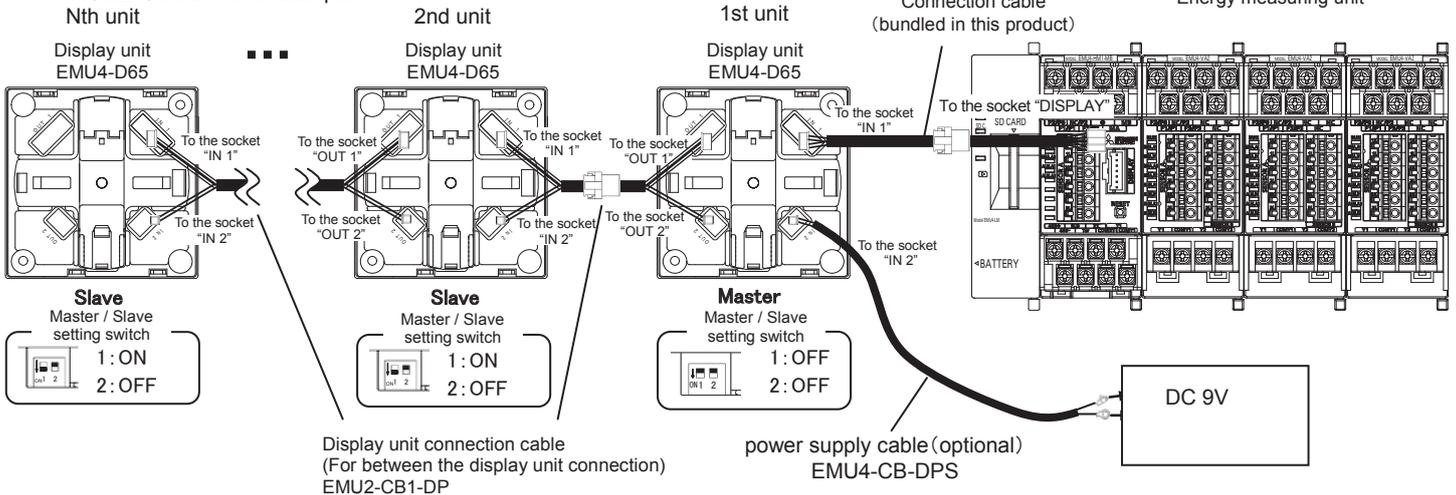
Attach the display unit from front side of panel, and tighten the screw from the backside.
(Clamping torque: 0.5N·m)

6. Connection method

1-to-1 Connection example



1-to-N (N ≤ 7) Connection example



* If the connection is two or more, you must have a power supply from commercial DC power supply (Model: PBA15F-9-N1, made in COSEL CO., LTD.). Also, the power supply cable (optional : EMU4-CB-DPS) on its connection is required.

* Extension cable (EMU2-CB-T * M), the sum of the length is less than 10m.

The one always in one system is the Master set, Other display unit of, please to Slave configuration. (The wrong setting and it does not work)

7. Operations of Instrument

7.1 Operation mode

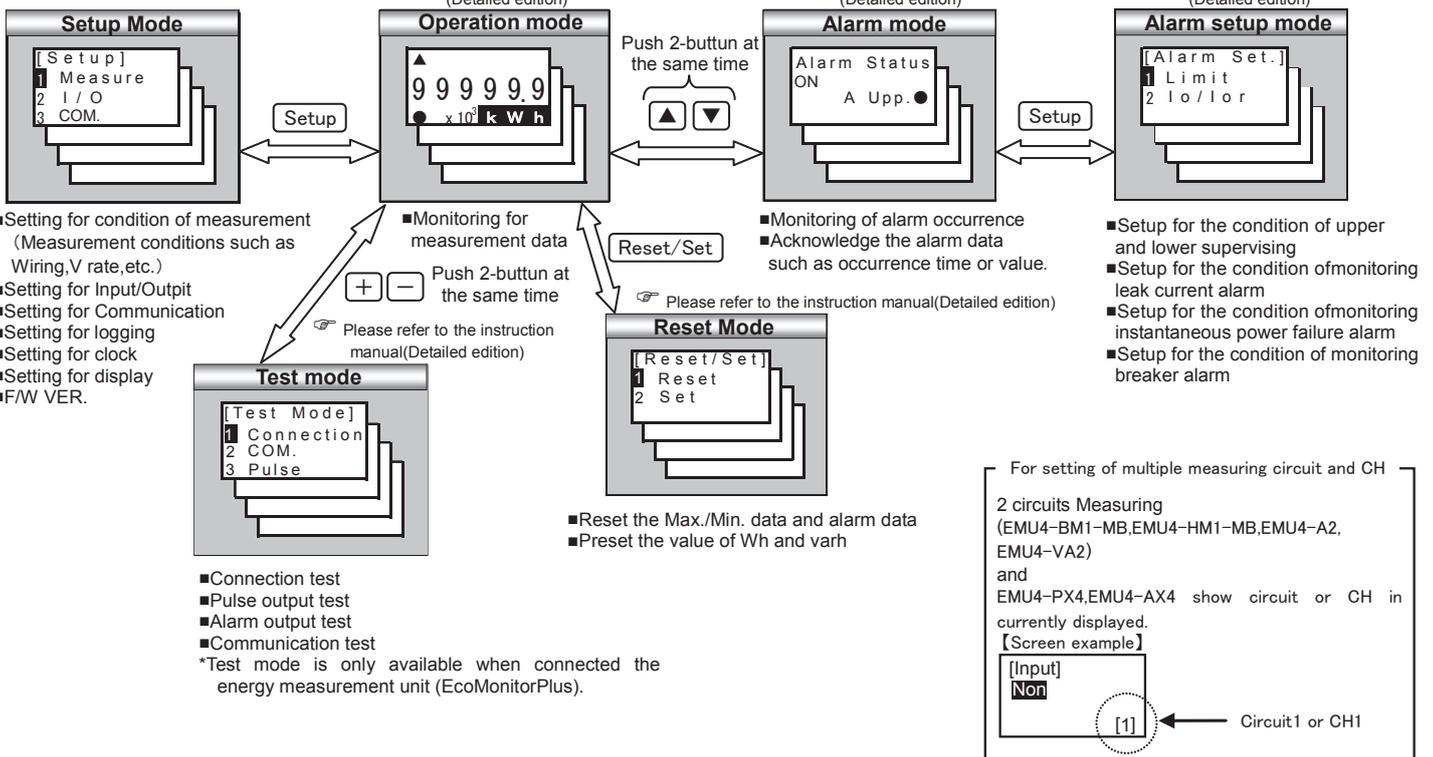
There are following modes of operation. This device is used to switch the operation mode depending on the application. Such as the following, View of measurement value, Setting for rating, display, clock, Setup for the condition of monitoring, Reset the Max./Min, Data and alarm data, Preset the value of Wh and varh. Immediately after the power is turned on, it will be the display of the operation mode.

Please refer to 7.2 and 7.3.

Please refer to the instruction manual (Detailed edition)

Please refer to the instruction manual (Detailed edition)

Please refer to the instruction manual (Detailed edition)



7.2 Setup about rating, clock and display unit in the case of the model to connect the EMU4-**. (Setup mode)

7.2.1 Measuring setup ... Setup the measuring condition of the energy measurement unit that is connected. EMU4-PX4 is not set.

Screen	Operation	Note
1 Transition to the setup mode		
1-1. [Setup] 1 Measure 2 I/O 3 COM. ▾	(1) Push the [Setup] key in operation mode (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "1 Measure", and push the [↵/Phase] key. (2) 2-1 will be displayed	
2 Setup the phase wire system (All models except for EMU4-PX4 and EMU4-AX4)		
2-1. [Measure] 1 Wiring 2 V rate 3 A rate ▾	(1) In 2-1, push the [▲] or [▼] key, and move the cursor to the "1 Wiring" (2) Push the [↵/Phase] key. (3) 2-2 will be displayed.	
2-2. [Wiring] 3P3W	(1) Push the [+] or [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 2-1 will be displayed.	[Wiring]: 1P2W ⇔ 1P3W ⇔ 3P3W ⇔ 3P4W ⇔ *If the basic unit is EMU4-BM1-MB, [Wiring] will be 1P2W, 1P3W, 3P3W only. *The setting value is set in same voltage system after confirmed setting value.
2-3. [2 circuits MEA.] Off	(1) Push the [+] or [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 2-1 will be displayed.	[2 circuits Measuring existence]: No ⇔ Yes ⇔ *The setting value is set in same voltage system after confirmed setting value.
3 Setup the primary voltage (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)		
3-1. [Measure] 1 Wiring 2 V rate 3 A rate ▾	(1) In 3-1, push the [▲] or [▼] key, and move the cursor to the "2 V rate". (2) Push the [↵/Phase] key. (3) 3-2 will be displayed.	*The setting value is set in same voltage system after confirmed setting value. [VT]: No ⇔ Yes ⇔ *1P3W is "No" fixed. 1P2W, 3P3W -----
3-2. [VT] No	(1) Push the [+] or [-] key, and select the VT use or non-use. (2) Push the [↵/Phase] key. (3) Transition to the following screen by the selection of VT use or non-use [No] setting → To 3-3 [YES] setting → To 3-4 (If Wiring is 3P4W, transition to 3-5)	When [VT]: "No" setting [Direct V]: 110V ⇔ 220V ⇔ 440V* ⇔ *If the basic unit is EMU4-BM1-MB, [Direct V] will be 110V, 220V only.
3-3. [Direct V] 220V	(1) Push the [+] or [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 3-1 will be displayed.	When [VT]: "Yes" setting [Primary V]: 440V ⇔ 690V ⇔ 1100V ⇔ 2200V ⇔ 3300V ⇔ 6600V ⇔ 11000V ⇔ 13200V ⇔ 13800V ⇔ 15000V ⇔ 16500V ⇔ 22000V ⇔ 24000V ⇔ 33000V ⇔ 66000V ⇔ 77000V ⇔ 110000V ⇔ SP ⇔
3-4. [Primary V] 440V	(1) Push the [+] or [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) transition to the following screen by the setting value of the primary voltage [SP] setting → To 3-5 Non-[SP] setting → To 3-1	When [Primary V] setting and SP setting [SP.PRI.V]: 1~110000V (440V) (1~99V: Can be set in the 1V step.) (100~110000V: Can be set in the 100V step.) [SP.2nd.V]: 1~220V (110V) (Can be set in the 1V step.) 1P3W ----- *No" fixed [Direct V]: 110V ⇔ 220V* ⇔
3-5. [SP.PRI.V] 000440V	(1) Push the [▲] [▼] [+] [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 3-6 will be displayed.	*If the basic unit is EMU4-BM1-MB, [Direct V] will be 110V 3P4W ----- When [VT]: "Yes" setting [Direct V]: 63.5V ⇔ 100V ⇔ 105V ⇔ 110V ⇔ 115V ⇔ 120V ⇔ 127V ⇔ 200V ⇔ 220V ⇔ 230V ⇔ 240V ⇔ 242V ⇔ 250V ⇔ 254V ⇔ 265V ⇔ 277V ⇔
3-6. [SP.2nd.V] 220V	(1) Push the [▲] [▼] [+] [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 3-1 will be displayed.	When [VT]: "Yes" setting [SP.PRI.V]: 1~63500V (440V) (1~99V: Can be set in the 1V step.) (100~63500V: Can be set in the 100V step.) [SP.2nd.V]: 1~220V (64V) (Can be set in the 1V step.)
4 Setup the primary current (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)		
4-1. [Measure] 1 Wiring 2 V rate 3 A rate ▾	(1) In 4-1, Push the [▲] or [▼] key, and move the cursor to the "3 A rate". (2) Push the [↵/Phase] key. (3) 4-2 will be displayed.	[Sensor]: Direct ⇔ 5A ⇔
4-2. [Sensor] Direct [PRI A] 100A [1] ↑ 1P2W only	(1) Push the [▲] or [▼] key, and move the cursor to the "Sensor" side. (2) Push the [+] or [-] key, and select sensor type. (3) Push the [▲] or [▼] key, and move the cursor to the "PRI A" side. (4) Push the [+] or [-] key, and change the primary current value. (5) Push the [↵/Phase] key, and confirm the setting value. (6) Transition to the following screen by the setting wiring type and primary current value. [SP] setting → To 4-3 Non-[SP] setting → To 4-1	When "Direct" setting [PRI A]: 50A ⇔ 100A ⇔ 250A ⇔ 400A ⇔ 600A ⇔ When "5A" setting [PRI A]: 5A ⇔ 6A ⇔ 7.5A ⇔ 8A ⇔ 10A ⇔ 12A ⇔ 15A ⇔ 20A ⇔ 25A ⇔ 30A ⇔ 40A ⇔ 50A ⇔ 60A ⇔ 75A ⇔ 80A ⇔ 100A ⇔ 120A ⇔ 150A ⇔ 200A ⇔ 250A ⇔ 300A ⇔ 400A ⇔ 500A ⇔ 600A ⇔ 750A ⇔ 800A ⇔ 1000A ⇔ 1200A ⇔ 1250A ⇔ 1500A ⇔ 1600A ⇔ 2000A ⇔ 2500A ⇔ 3000A ⇔ 4000A ⇔ 5000A ⇔ 6000A ⇔ 7500A ⇔ 8000A ⇔ 10000A ⇔ 12000A ⇔ 20000A ⇔ 25000A ⇔ 30000A ⇔ SP ⇔
4-3. [SP.PRI.A] 001000A [1]	(1) Push the [▲] [▼] [+] [-] key, and change the set value. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 4-1 will be displayed.	[SP.PRI.A]: 5.0~30000A (100A) 10A less than, the upper two digits. 10A or more is possible to set the upper three digits.
5 Setup the display mode (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)		
5-1. [Measure] 2 V rate 3 A rate 4 DISP.Mode ▾	(1) In 5-1, push the [▲] or [▼] key, and move the cursor to the "4 DISP.Mode". (2) Push the [↵/Phase] key. (3) 5-2 will be displayed.	Set the measurement elements to be displayed in the display unit.

Screen	Operation	Note														
5-2. [DISP.Mode] Wh+A+4 Harmonics	(1) Push the or key, and select the display mode. (2) Push the /Phase key. (3) Transition to the following screen by the selection of measurement mode. [Wh+A+4] setting → To 5-3 [Harmonics] setting → To 5-4	[DISP.Mode]: Wh+A+4 ⇔ Harmonics ⇔ *In case of the model EMU4-BM1-MB, the "Harmonics" not be displayed. Wh+A+4...In addition to the active energy and current, up to 4 items can be displayed by selection. (The harmonics data is only about total.) Harmonics...It can display about harmonic data at each order.														
5-3. [Element] V <input checked="" type="checkbox"/> W <input type="checkbox"/> var <input type="checkbox"/> VA <input type="checkbox"/> PF <input type="checkbox"/> Hz <input type="checkbox"/> CONV.Wh <input type="checkbox"/> PRD.Wh <input type="checkbox"/> OP.Time <input type="checkbox"/> REG.Wh <input type="checkbox"/> varh <input type="checkbox"/> PLS <input type="checkbox"/> UNB.A <input type="checkbox"/> UNB.V <input type="checkbox"/> HA <input type="checkbox"/> HV	(1) Push the or key, and move the cursor to target element. (In the actual display, it will be scrolling display of each three elements in one screen.) (2) Push the or key, and choose the selected or deselected. (3) When selecting the other measurement item, repeat the operation from (1) to (2). (4) Push the /Phase key, and determine the setting. (5) Transition to the following screen by the selection of measurement mode. Not check "HA" and "HV" → To 5-1 Check "HA" or "HV" → To 5-4 *Elements is showed follow. V: Voltage W: Electric power var: reactive power VA: apparent power PF: Power factor Hz: frequency Wh converted value: Electric energy (converted) Periodic Wh: Electric energy (regeneration) Regenerated Wh: Periodic electric energy varh: Reactive energy (consumption lag) PULSE: Pulse count value and pulse converted value UNB.A: Current unbalance rate UNB.V: Voltage unbalance rate HA: Harmonics current HV: Harmonics voltage	[Element]: V, W, var, VA, PF, Hz, CONV.Wh, PRD.Wh, OP.Time, REG.Wh, varh, CONV.PLS, UNB.V, HA, HV <input type="checkbox"/> (Deselected), <input checked="" type="checkbox"/> (Selected) *The selectable number of elements is up to 4. So, change the selection at the statethat already 4 items are selected, deselect the items before changing. * Elements can't select in follow table. <table border="1"> <thead> <tr> <th>Element</th> <th>In the case can not select</th> </tr> </thead> <tbody> <tr> <td>UNB.A UNB.V</td> <td>In the case of setting simplicity measuring mode</td> </tr> <tr> <td>Periodic Wh</td> <td>In the case of EMU4-BM1-MB, EMU4-A2, EMU4-VA2. External input is not contact input.</td> </tr> <tr> <td>Pulse</td> <td>In the case EMU4-BM1-MB, EMU4-A2, EMU4-VA2. Pulse input is not contact input.</td> </tr> <tr> <td>HA HV</td> <td>In the case EMU4-BM1-MB.</td> </tr> <tr> <td>VA</td> <td>In the case EMU4-BM1-MB, Wiring is 1P2W, 1P3W or 3P3W</td> </tr> <tr> <td>Wh converted value</td> <td>In the case EMU4-BM1-MB</td> </tr> </tbody> </table>	Element	In the case can not select	UNB.A UNB.V	In the case of setting simplicity measuring mode	Periodic Wh	In the case of EMU4-BM1-MB, EMU4-A2, EMU4-VA2. External input is not contact input.	Pulse	In the case EMU4-BM1-MB, EMU4-A2, EMU4-VA2. Pulse input is not contact input.	HA HV	In the case EMU4-BM1-MB.	VA	In the case EMU4-BM1-MB, Wiring is 1P2W, 1P3W or 3P3W	Wh converted value	In the case EMU4-BM1-MB
Element	In the case can not select															
UNB.A UNB.V	In the case of setting simplicity measuring mode															
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HA HV	In the case EMU4-BM1-MB.															
VA	In the case EMU4-BM1-MB, Wiring is 1P2W, 1P3W or 3P3W															
Wh converted value	In the case EMU4-BM1-MB															
5-4. [HA,HV] r.m.s.	(1) Push the or key, and change the "HA,HV" value. (2) Push the /Phase key. (3) 5-1 will be displayed.	[HA,HV]: r.m.s. ⇔ % * In case of the model EMU4-BM1-MB, "HA,HV" can not be set. r.m.s.... to display the RMS value of harmonic current or harmonic voltage. (The "%" not be displayed.) %... to display the distortion rate and content rate of harmonic current or harmonic voltage. (The "r.m.s." not be displayed.)														
6(1) Setup the measurement mode (EMU4-LG1-MB only)																
6(1)-1. [Measure] 3 A rate 4 DISP.Mode 5 MEA.Mode	(1) In 6(1)-1, push the or key, and move the cursor to the "5 MEA.Mode". (2) Push the /Phase key. (3) 6(1)-2 will be displayed.	Setup the measurement mode of "Io" or "Ior".														
6(1)-2. [MEA.Mode] High SENS. Low SENS.	(1) Push the or key, and select the measurement mode. (2) Push the /Phase key. (3) 6(1)-1 will be displayed.	[MEA.Mode]: High SENS. ⇔ Low SENS. ⇔ Low SENS....0~100mA1mAstep High SENS....0.00~100mA 0.01mAstep														
6(2) Setup the measurement mode (EMU4-AX4 only)																
6(2)-1. [Measure] 3 A rate 4 DISP.Mode 5 MEA.Mode	(1) In 6(2)-1, push the or key, and move the cursor to the "5 MEA.Mode". (2) Push the /Phase key. (3) 6(2)-2 will be displayed.	Setup the measurement mode of AD converted.														
6(2)-2. [MEA.Mode] 50ms SAMP. 1ms SAMP.	(1) Push the or key, and select the measurement mode. (2) Push the /Phase key. (3) 6(2)-1 will be displayed.	[MEA.Mode]: 50ms SAMP. ⇔ 1ms SAMP. ⇔ 50ms SAMP....AD converted in a cycle of 50ms. 1ms SAMP....AD converted in a cycle of 1ms.														
7(1) Setup the demand time (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)																
7(1)-1. [Measure] 4 DISP.Mode 5 MEA.Mode 6 Demand	(1) In 7-1, push the or key, and move the cursor to the "6 Demand". (2) Push the /Phase key. (3) 7(1)-2 will be displayed.	[Demand]: 0sec ⇔ 10sec ⇔ 20sec ⇔ 30sec ⇔ 40sec ⇔ 50sec ⇔ 1min ⇔ 2min ⇔ 3min ⇔ 4min ⇔ 5min ⇔ 6min ⇔ 7min ⇔ 8min ⇔ 9min ⇔ 10min ⇔ 11min ⇔ 12min ⇔ 13min ⇔ 14min ⇔ 15min ⇔ 20min ⇔ 25min ⇔ 30min ⇔														
7(1)-2. [Demand] A : 2min W : 2min	(1) Push the or key, and move the cursor to the A (Current). (2) Push the or key, and change the demand time value. (3) Push the or key, and move the cursor to the W (Electric power). (4) Push the or key, and change the demand time value. (5) Push the /Phase key, and confirm the setting value. (6) 7(1)-1 will be displayed.															

Screen	Operation	Note
7(2) Setup the demand time (EMU4-LG1-MB)		
7(2)-1 [Measure] 4 DISP.Mode 5 MEA.Mode 6 Demand	(1) In 7(2)-1, push the ▲ or ▼ key, and move the cursor to the "6 Demand". (2) Push the ←/Phase key and (3) 7(2)-2 will be displayed.	[Demand]: 0sec ⇄ 5min ⇄ 6min ⇄ 7min ⇄ 8min ⇄ 9min ⇄ 10min ⇄ 11min ⇄ 12min ⇄ 13min ⇄ 14min ⇄ 15min ⇄ 20min ⇄ 25min ⇄ 30min ⇄
7(2)-2 [Demand] lo/lor: 5min	(1) Push the + or - key, and change the lo/lor demand time value. (2) Push the ←/Phase key, and confirm the setting value. (3) 7(2)-1 will be displayed.	
8 Setup the electric energy equivalent rate (All models except for EMU4-LG1-MB)		
8-1. [Measure] 5 MEA.Mode 6 Demand 7 CONV.Wh	(1) In 8-1, push the ▲ or ▼ key, and move the cursor to the "7 CONV.Wh" (2) Push the ←/Phase key. (3) 8-2 will be displayed.	
8-2. [CONV.Rate] 1.000 [Unit] Non [1]	(1) Push the ▲ ▼ + - key, and change the "CONV.Rate" value and unit. (2) Push the ←/Phase key, and confirm the setting value. (3) Transition to the following screen by the setting wiring type. 2 circuit measurement → To 8-3 non-2 circuit measurement → To 8-1	[CONV.Rate]: 0.001 ~ 10000 (1.000) [Unit]: Non ⇄ Wh ⇄ kWh ⇄ MWh ⇄ J ⇄ m ² ⇄ m ³ ⇄ L ⇄ kL ⇄ sec ⇄ min ⇄ hour ⇄ piece ⇄ set ⇄ g ⇄ kg ⇄ t ⇄ ¥ ⇄ \$ ⇄
8-3. [CONV.Rate] 1.000 [Unit] Non [2]	(1) In a similar way as 8-2, change the "CONV.Rate" value and unit of the second circuit. (2) Push the ←/Phase key, and confirm the setting value. (3) 8-1 will be displayed.	
9 Setup the current cut-off rate (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)		
9-1. [Measure] 6 Demand 7 CONV.Wh 8 A Cut-off	(1) In 9-1, push the ▲ or ▼ key, and move the cursor to the "8 A Cut-off". (2) Push the ←/Phase key. (3) 9-2 will be displayed.	
9-2. [A Cut-off] 0.5% [1]	(1) Push the + or - key, and change the set value. (2) Push the ←/Phase key, and confirm the setting value. (3) Transition to the following screen by the setting wiring type. 2 circuit measurement → To 9-3 non-2 circuit measurement → To 9-1	[A Cut-off]: 0.1 ~ 50.0% (0.5) A cut-off rate... represent as the ratio of cut-off current to rated current. ※Measured value is 0A if it is less than the cut-off current.
9-3. [A Cut-off] 0.5% [2]	(1) In a similar way as 9-2, change the "A Cut-off" value of the second circuit. (2) Push the ←/Phase key, and confirm the setting value. (3) 9-1 will be displayed.	
10 Setup the Simple measurement (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)		
10-1. [Measure] 7 CONV.Wh 8 A Cut-off 9 SimpleMEA	(1) In 10-1, push the ▲ or ▼ key, and move the cursor to the "9 SimpleMEA". (2) Push the ←/Phase key. (3) 10-2 will be displayed.	
10-2. [SimpleMEA] Off	(1) Push the + or - key, and select SimpleMEA ([On]/[Off]). (2) Push the ←/Phase key, and confirm the setting value. (3) Transition to the following screen by the setting SimpleMEA ([On]/[Off]) [On] setting → To 10-3 [Off] setting → To 10-1	[SimpleMEA]: Off ⇄ On ⇄ SimpleMEA... The value set in the electric power and the power factor as the fixed value. By measuring the current only, and calculating the values of the measurement elements.
10-3. [FP Set] 1.000 [1]	(1) Push the ▲ ▼ + - key, and change the power factor value In the SimpleMEA. (2) Push the ←/Phase key, and confirm the setting value. (3) Transition to the following screen by the setting wiring type. 2 circuit measurement → To 10-4 non-2 circuit measurement → To 10-1	[FP Set]: -0.001 ~ 1.000 ~ 0.000
10-4. [FP Set] 1.000 [2]	(1) In a similar way as 10-3, change the power factor value of the second circuit. (2) Push the ←/Phase key, and confirm the setting value. (3) 10-1 will be displayed.	
11 Setup the lor difference conversion (EMU4-LG1-MB only)		
11-1. [Measure] 8 A Cut-off 9 SimpleMEA 10 DIF.CONV	(1) In 11-1, push the ▲ or ▼ key, and move the cursor to the "10 DIF.CONV". (2) Push the ←/Phase key. (3) 11-2 will be displayed.	[DIF.CONV]: Off ⇄ On ⇄ DIF.CONV... To calculate the amount of change from the lor difference converted value.
11-2. [DIF.CONV] Off	(1) Push the + or - key, and select the lor difference converted value ([On]/[Off]) (2) Push the ←/Phase key, and confirm the setting value. (3) Transition to the following screen by the setting DIF.CONV ([On]/[Off]). [On] setting → To 11-3 [Off] setting → To 11-1	

Screen	Operation	Note
11-3. [DIF.Ior] 0.00 mA	(1) Push the key, and change the Ior difference converted reference value. (2) Push the / Phase key, and confirm the setting value. (3) 11-1 will be displayed.	High SENS mode [DIF.Ior]: 0.00 ~ 100.00mA Low SENS mode [DIF.Ior]: 0 ~ 1000mA
12 Setup the AD Converted (EMU4-AX4 only)		
12-1. [Measure] 9 SimpleMEA 10 DIF. CONV. 11 AD CONV.	(1) In 12-1, push the or key, and move the cursor to the "11 AD CONV." (2) Push the / Phase key. (3) 12-2 will be displayed.	
12-2. [AD CONV.] On [1]	(1) Push the or key, and select the AD converted ([On] / [Off]). (2) Push the / Phase key, and confirm the setting value. (3) Transition to the following screen by the setting AD CONV. ([On] / [Off]) [On] setting → To 12-3 [Off] setting → To 12-6	[AD CONV.]: Off ⇔ On ⇔ AD CONV.... The setting value is set in AD convert per CH.
12-3. [Range] Current [1]	(1) Push the or key, and select the input range. (2) Push the / Phase key, and confirm the setting value. (3) 12-4 will be displayed.	[Range]: Current ⇔ Voltage ⇔ [Moving average]: 001 ~ 100 (001)
12-4. [Moving average] 001 times [1]	(1) Push the key, and change the number of moving average. (2) Push the / Phase key, and confirm the setting value. (3) 12-5 will be displayed.	[Upp]: -32767 ~ 32767 (4095) [Low]: -32767 ~ 32767 (0)
12-5. [Scaling] Upp.: 04095 Low.: 00000 Unit: Non [1]	(1) Push the key, and change the upper limit, lower limit, and unit. (2) Push the / Phase key, and confirm the setting value. (3) 12-6 will be displayed.	[Unit]: Non ⇔ A ⇔ mA ⇔ kA ⇔ V ⇔ kV ⇔ W ⇔ kW ⇔ MW ⇔ Hz ⇔ N ⇔ kN ⇔ Pa ⇔ kPa ⇔ MPa ⇔ C ⇔ deg ⇔ % ⇔
12-6. [AD CONV.] On [2]	(1) Push the or key, and select the AD converted ([On] / [Off]). (2) Push the / Phase key, and confirm the setting value. (3) Transition to the following screen by the setting AD CONV. ([On] / [Off]) [On] setting → To 12-7 [Off] setting → To 12-10	
12-7. [Range] Current [2]	(1) Push the or key, and select the input range. (2) Push the / Phase key, and confirm the setting value. (3) 12-8 will be displayed.	
12-8. [Moving average] 001 times [2]	(1) Push the key, and change the number of moving average. (2) Push the / Phase key, and confirm the setting value. (3) 12-9 will be displayed.	
12-9. [Scaling] Upp.: 04095 Low.: 00000 Unit: Non [2]	(1) Push the key, and change the upper limit, lower limit, and unit. (2) Push the / Phase key, and confirm the setting value. (3) 12-10 will be displayed.	
12-10. [AD CONV.] On [3]	(1) Push the or key, and select the AD converted ([On] / [Off]). (2) Push the / Phase key, and confirm the setting value. (3) Transition to the following screen by the setting AD CONV. ([On] / [Off]) [On] setting → To 12-11 [Off] setting → To 12-14	
12-11. [Range] Current [3]	(1) Push the or key, and select the input range. (2) Push the / Phase key, and confirm the setting value. (3) 12-12 will be displayed.	
12-12. [Moving average] 001 times [3]	(1) Push the key, and change the number of moving average. (2) Push the / Phase key, and confirm the setting value. (3) 12-13 will be displayed.	
12-13. [Scaling] Upp.: 04095 Low.: 00000 Unit: Non [3]	(1) Push the key, and change the upper limit, lower limit, and unit. (2) Push the / Phase key, and confirm the setting value. (3) 12-14 will be displayed.	
12-14. [AD CONV.] On [4]	(1) Push the or key, and select the AD converted ([On] / [Off]). (2) Push the / Phase key, and confirm the setting value. (3) Transition to the following screen by the setting AD CONV. ([On] / [Off]) [On] setting → To 12-15 [Off] setting → To 12-1	
12-15. [Range] Current [4]	(1) Push the or key, and select the input range. (2) Push the / Phase key, and confirm the setting value. (3) 12-16 will be displayed.	
12-16. [Moving average] 001 times [4]	(1) Push the key, and change the number of moving average. (2) Push the / Phase key, and confirm the setting value. (3) 12-17 will be displayed.	

Screen	Operation	Note
12-17. [Scaling] Upp.: 04095 Low.: 00000 Unit: Non [4]	(1) Push the \uparrow \downarrow $+$ $-$ key, and change the scaling upper limit, lower limit, and unit. (2) Push the \leftarrow /Phase key, and confirm the setting value. (3) 12-1 will be displayed.	[Upp]: -32767~32767 (4095) [Low]: -32767~32767 (0) [Unit]: Non \leftrightarrow A \leftrightarrow mA \leftrightarrow kA \leftrightarrow V \leftrightarrow kV \leftrightarrow W \leftrightarrow kW \leftrightarrow MW \leftrightarrow Hz \leftrightarrow N \leftrightarrow kN \leftrightarrow Pa \leftrightarrow kPa \leftrightarrow MPa \leftrightarrow C \leftrightarrow deg \leftrightarrow % \leftrightarrow
13 Setup the Number Limit (EMU4-AX4 only)		
13-1. [Measure] 10DIF.CONV. 11AD CONV. 12 Num.Limit \updownarrow	(1) In 13-1, push the \uparrow or \downarrow key, and move the cursor to the "12 Num.Limit". (2) Push the \leftarrow /Phase key. (3) 13.1-1 will be displayed.	Num.Limit...Set any limit. *If the scaling value over the limit, Number Limit countup.
13.1 Setup the Limit A, Limit B, Limit C, and Limit D (EMU4-AX4 only)		
13.1-1. [Num.Limit] 1 Limit A 2 Limit B 3 Limit C \downarrow	(1) In 13.1-1, push the \uparrow or \downarrow key, and move the cursor to the "1 Limit A". (2) Push the \leftarrow /Phase key. (3) 13.1-2 will be displayed.	Limit B, Limit C, and Limit D is done in the same way as the setting of Limit A.
13.1-2. [Limit A] 32767 [1]	(1) Push the \uparrow \downarrow $+$ $-$ key, and change the set value. (2) Push the \leftarrow /Phase key. (3) 13.1-3 will be displayed.	Limit...Set any scaling value. You can configure the four different limits for limit A, limit B, limit C, and limit D.
13.1-3. [Limit A] 32767 [2]	(1) Push the \uparrow \downarrow $+$ $-$ key, and change the set value. (2) Push the \leftarrow /Phase key. (3) 13.1-4 will be displayed.	[Limit A]: Scaling Low ~Scaling Up *If scaling setting value is set "Scaling Low > Scaling Up", default setting is Scaling Up.
13.1-4 [Limit A] 32767 [3]	(1) Push the \uparrow \downarrow $+$ $-$ key, and change the set value. (2) Push the \leftarrow /Phase key. (3) 13.1-5 will be displayed.	
13.1-5 [Limit A] 32767 [4]	(1) Push the \uparrow \downarrow $+$ $-$ key, and change the set value. (2) Push the \leftarrow /Phase key. (3) 13.1-1 will be displayed.	
13.2 Setup the multiplying factor (EMU4-AX4 only)		
13.2-1. [Num.Limit] 3 Limit C 4 Limit D 5 Factor \updownarrow	(1) In 13.2-1, push the \uparrow or \downarrow key, and move the cursor to the "5 Factor". (2) Push the \leftarrow /Phase key. (3) 13.2-2 will be displayed.	
13.2-2. [Factor] x1 [1]	(1) Push the $+$ or $-$ key, and select the multiplying factor displayed. (2) Push the \leftarrow /Phase key. (3) 13.2-3 will be displayed.	[Factor]: x1 \leftrightarrow x10 \leftrightarrow x100 \leftrightarrow x1000 \leftrightarrow
13.2-3. [Factor] x1 [2]	(1) Push the $+$ or $-$ key, and select the multiplying factor displayed. (2) Push the \leftarrow /Phase key. (3) 13.2-4 will be displayed.	Factor...Set up the multiplying factor displayed of Number Limit.
13.2-4 [Factor] x1 [3]	(1) Push the $+$ or $-$ key, and select the multiplying factor displayed. (2) Push the \leftarrow /Phase key. (3) 13.2-5 will be displayed.	
13.2-5 [Factor] x1 [4]	(1) Push the $+$ or $-$ key, and select the multiplying factor displayed. (2) Push the \leftarrow /Phase key. (3) 13.2-1 will be displayed.	
14 Save the settings		
14-1. Quit Setup 1 Save 2 Not Save 3 Cancel	(1) After setting all of the items, and push the Setup key. (2) 14-1 will be displayed. (3) When save the settings, push the \uparrow or \downarrow key, move the cursor to the "1 Save", and push the \leftarrow /Phase key.	1 Save \rightarrow Save settings and return to the operation mode. 2 Not Save \rightarrow Discard the changes and return to the operation mode. 3 Cancel \rightarrow Continue the setup.
14-2. Completed OK	(4) After completing the settings saving, 14-2 will be displayed. Push the \leftarrow /Phase key. (5) Return to the operation mode.	

*Setting for condition of the measurement mode can only configure in the display unit is set to master. (Setting for condition of the measurement mode can not configure in the display unit is set to slave.)

*If you change a settings, please push the \leftarrow /Phase key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

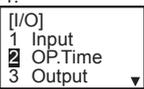
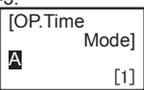
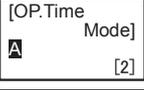
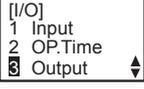
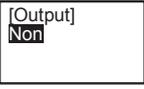
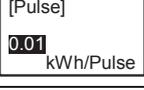
*If you want to set the other circuit, push the Circuit key on the "Setup" screen (1-1), select the circuit, make the setting.

*Same voltage system is same setting in wire system, primary voltage, 2 circuits Measuring existence, Simple measurement.

7.2.2 Input/Output setup—the settings for the external Input/Output. EMU4-LG1-MB is not set.

Screen	Operation	Note
1 Transit to the Setup mode		
1-1. [Setup] 1 Measure 2 I/O 3 COM. \updownarrow	(1) Push the Setup key in operation mode. (2) 1-1 will be displayed. (1) Push the \uparrow or \downarrow key, and move the cursor to the "2 I/O". Push the \leftarrow /Phase key. (2) 2-1 will be displayed.	

Screen	Operation	Note
2 Setup input (EMU4-HM1-MB, EMU4-PX4)		
2-1. 	(1) In 2-1, Push the or key, and move the cursor to the "1 Input". (2) Push the key. (3) 2-2 will be displayed.	
2-2. 	(1) Push the or key, and select the input method. (Non/ Contact /Pulse) (2) Push the key. (3) Transition to the following screen by the model and setting input method. [Non] setting Model: EMU4-HM1-MB → To 2-1 Model: EMU4-PX4 → To 2-5 [Pulse] setting → To 2-3 [Contact] setting → To 2-4	<EMU4-HM1-MB> [Input]: Non ⇄ Contact ⇄ Pulse ⇄ <EMU4-PX4> [Input]: Pulse ⇄ Contact ⇄ Non ⇄ [CONV.Rate]: 0.001~10000 (1.000) [Unit]: Non ⇄ Wh ⇄ kWh ⇄ MWh ⇄ J ⇄ m ² ⇄ m ³ ⇄ L ⇄ kL ⇄ sec ⇄ min ⇄ hour ⇄ 個 ⇄ 台 ⇄ g ⇄ kg ⇄ t ⇄ ¥ ⇄ \$ ⇄ [ResetMode]: Auto ⇄ Hold ⇄ Auto...Contact input state is reset automaticaly when contact input is less. Hold...Contact input state is hold until contact input released even thought contact input is less. (For information about how to release of the contact input, please refer to the instruction manual (Detailed edition))
2-3. 	(1) Push the key, and change the "CONV.Rate" value and unit. (2) Push the key, and confirm the setting value. (3) Transition to the following screen by the model. Model: EMU4-HM1-MB → To 2-1 Model: EMU4-PX4 → To 2-5	
2-4. 	(1) Push the or key, and select the reset mode. (2) Push the key. (3) Transition to the following screen by the model. Model: EMU4-HM1-MB → To 2-1 Model: EMU4-PX4 → To 2-5	
2-5. 	(1) Push the or key, and select the input method. (Non/ Contact /Pulse) (2) Push the key. (3) Transition to the following screen by the setting input method. [Non] setting → To 2-8 [Pulse] setting → To 2-6 [Contact] setting → To 2-7	
2-6. 	(1) Push the key, and change the "CONV.Rate" value and unit. (2) Push the key, and confirm the setting value. (3) 2-8 will be displayed.	
2-7. 	(1) Push the or key, and select the reset mode. (2) Push the key. (3) 2-8 will be displayed.	
2-8. 	(1) Push the or key, and select the input method. (Non/ Contact /Pulse) (2) Push the key. (3) Transition to the following screen by the setting input method. [Non] setting → To 2-11 [Pulse] setting → To 2-9 [Contact] setting → To 2-10	
2-9. 	(1) Push the key, and change the "CONV.Rate" value and unit. (2) Push the key, and confirm the setting value. (3) 2-11 will be displayed.	
2-10. 	(1) Push the or key, and select the reset mode. (2) Push the key. (3) 2-11 will be displayed.	
2-11. 	(1) Push the or key, and select the input method. (Non/ Contact /Pulse) (2) Push the key. (3) Transition to the following screen by the setting input method. [Non] setting → To 2-1 [Pulse] setting → To 2-12 [Contact] setting → To 2-13	
2-12. 	(1) Push the key, and change the "CONV.Rate" value and unit. (2) Push the key, and confirm the setting value. (3) 2-1 will be displayed.	
2-13. 	(1) Push the or key, and select the reset mode. (2) Push the key. (3) 2-1 will be displayed.	

Screen	Operation	Note														
3 Setup the operation time measurement (All models except for EMU4-LG1-MB)																
3-1. 	(1) In 3-1, Push the  or  key, and move the cursor to the "2 OP.Time". (2) Push the  /Phase key. (3) 3-2 will be displayed.	[OP.Time]: Off⇔On⇔ EMU4-HM1-MB [OP.Time Mode]: A⇔x⇔														
3-2.  Model: EMU4-PX4 or 2 circuits measuring only	(1) Push the  or  key, and select the operation time measurement. (On/Off) (2) Push the  /Phase key. (3) Transition to the following screen by the model, and setting wiring type and existence of the operation time measurement. Model: EMU4-PX4 → To 3-4 Model: Other than EMU4-PX4 2 circuit measurement and [Off] setting → To 3-4 non-2 circuit measurement and [Off] setting → To 3-1 [On] setting → To 3-3	EMU4-BM1-MB, EMU4-A2, EMU4-VA2 [OP.Time Mode]: A EMU4-PX4 Input setting value is set contact, this CH is not displayed. Operating time is integrated time while the current measured value is higher than the rated current, Current cut-off rate when select A. Operating time is integration time while Contact input is ON when Contact input.														
3-3.  2 circuits measuring only	(1) Push the  or  key, and select the operation time measurement mode. (2) Push the  /Phase key. (3) Transition to the following screen by the setting wiring type. 2 circuit measurement → To 3-4 non-2 circuit measurement → To 3-1															
3-4. 	(1) Push the  or  key, and select the operation time measurement. (2) Push the  /Phase key. (3) Transition to the following screen by the model, and setting existence of the operation time measurement. Model: EMU4-PX4 → To 3-6 Model: Other than EMU4-PX4 [Off] setting → To 3-1 [On] setting → To 3-5															
3-5. 	(1) Push the  or  key, and select the operation time measurement mode. (2) Push the  /Phase key. (3) 3-1 will be displayed.															
3-6. 	(1) Push the  or  key, and select the operation time measurement. (2) Push the  /Phase key. (3) 3-7 will be displayed.															
3-7. 	(1) Push the  or  key, and select the operation time measurement. (2) Push the  /Phase key. (3) 3-1 will be displayed.															
4 Setup Output (EMU4-HM1-MB, EMU4-A2, EMU4-VA2, EMU4-PX4, EMU4-AX4)																
4-1. 	(1) In 4-1, Push the  or  key, and move the cursor to the "3 Output". (2) Push the  /Phase key. (3) 4-2 will be displayed.	EMU4-HM1-MB, EMU4-A2, EMU4-VA2 [Output]: Non⇔Pulse⇔Alarm⇔ EMU4-PX4, EMU4-AX4 [Output]: Non⇔Alarm⇔Contact⇔														
4-2. 	(1) Push the  or  key, and select the output signal type. (2) Push the  /Phase key. (3) Transition to the following screen by the model, and setting wiring type and the output signal type. Model: EMU4-PX4 or EMU4-AX4 → To 4-1 Model: EMU4-HM1-MB, EMU4-A2 or EMU4-VA2 [Non] setting → To 4-1 2 circuit measurement and [Pulse] setting → To 4-3 non-2 circuit measurement and [Pulse] setting → To 4-4 2 circuit measurement and [Alarm] setting → To 4-3 non-2 circuit measurement and [Alarm] setting → To 4-1	The pulse output unit changes by the full load power. [Pulse]: <table border="1"> <thead> <tr> <th>Full load power (kW)</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>Wfull<12kW</td> <td>0.001⇔0.01⇔0.1⇔1⇔</td> </tr> <tr> <td>12kW ≤ Wfull < 120kW</td> <td>0.01⇔0.1⇔1⇔10⇔</td> </tr> <tr> <td>120kW ≤ Wfull < 1200kW</td> <td>0.1⇔1⇔10⇔100⇔</td> </tr> <tr> <td>1200kW ≤ Wfull < 12000kW</td> <td>1⇔10⇔100⇔1000⇔</td> </tr> <tr> <td>12000kW ≤ Wfull < 120000kW</td> <td>10⇔100⇔1000⇔10000⇔</td> </tr> <tr> <td>120000kW ≤ Wfull</td> <td>100⇔1000⇔10000⇔100000⇔</td> </tr> </tbody> </table>	Full load power (kW)	Setting range	Wfull<12kW	0.001⇔0.01⇔0.1⇔1⇔	12kW ≤ Wfull < 120kW	0.01⇔0.1⇔1⇔10⇔	120kW ≤ Wfull < 1200kW	0.1⇔1⇔10⇔100⇔	1200kW ≤ Wfull < 12000kW	1⇔10⇔100⇔1000⇔	12000kW ≤ Wfull < 120000kW	10⇔100⇔1000⇔10000⇔	120000kW ≤ Wfull	100⇔1000⇔10000⇔100000⇔
Full load power (kW)	Setting range															
Wfull<12kW	0.001⇔0.01⇔0.1⇔1⇔															
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12000kW ≤ Wfull < 120000kW	10⇔100⇔1000⇔10000⇔															
120000kW ≤ Wfull	100⇔1000⇔10000⇔100000⇔															
4-3. 	(1) Push the  or  key, and select the output target. (2) Push the  /Phase key. (3) Transition to the following screen by setting output signal type. [Pulse] setting → To 4-4 [Alarm] setting → To 4-1	[Output]: 1⇔2⇔ * It is set which circuit it does external output, because it inputs 2 circuits per a terminal block for 1P2W. If the target of external output is 1K, 1L connection side circuit, Set "1". If the target of external output is 3K, 3L connection side circuit, Set "2".														
4-4. 	(1) Push the  ,  ,  or  key, and change the pulse output unit. (2) Push the  /Phase key. Confirm the setting value. (3) 4-1 will be displayed.															

Screen	Operation	Note
5 Save the settings		
5-1. <div style="border: 1px solid black; padding: 2px;"> Quit Setup 1 Save 2 Not Save 3 Cancel </div>	(1) After setting all of the items, push the [Setup] key. (2) 5-1 will be displayed. (3) When save the settings, push the [▲] or [▼] key, move the cursor to the "1 Save", and Push the [↵/Phase] key. (4) After completing the settings saving, "Completed" message will be displayed. Push the [↵/Phase] key. (5) Return to the operation mode.	1 Save → Save settings and return to the operation mode. 2 Not Save → Discard the changes and return to the operation mode. 3 Cancel →Continue the setup.

*Full load is calculated by following formula. (Full load)=(Primary voltage) x (Primary current) x (Coefficient) / 1000[kW]

*1: In case 3P4W, apply the not phase voltage but line voltage as primary voltage.

*2: Coefficient is varies according to the phase wire system. 1P2W →1, 3P3W/3P4W →1.73

*If you change a settings, please push the **[↵/Phase]** key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

*If you want to set the other circuit, push the **[Circuit]** key on the "Setup" screen (1-1), select the circuit, make the setting.

7.2.3 Communication setup—the settings for the MODBUS communication (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB only)

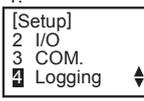
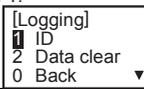
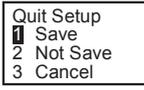
Screen	Operation	Note
1 Transition to the setup mode		
1-1. <div style="border: 1px solid black; padding: 2px;"> [Setup] 1 Measure 2 I/O 3 COM. </div>	(1) Push the [Setup] key in operation mode. (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "3 COM.", push the [↵/Phase] key. (2) 2-1 will be displayed.	
2 Setup MODBUS address (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
2-1. <div style="border: 1px solid black; padding: 2px;"> [COM.] 1 Address 2 Baud rate 3 Parity </div>	(1) In 2-1, Push the [▲] or [▼] key, and move the cursor to the "1 Address". (2) Push the [↵/Phase] key. (3) 2-2 will be displayed.	[Address]: 001~255
2-2. <div style="border: 1px solid black; padding: 2px;"> [Address] 001 </div>	(1) Push the [▲] , [▼] , [+] , [-] key, and change the address. (2) Push the [↵/Phase] key, and confirm the setting value. (3) 2-1 will be displayed.	
3 Setup the baud rate (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
3-1. <div style="border: 1px solid black; padding: 2px;"> [COM.] 1 Address 2 Baud rate 3 Parity </div>	(1) In 3-1, Push the [▲] or [▼] key, and move the cursor to the "2 Baud rate". (2) Push the [↵/Phase] key. (3) 3-2 will be displayed.	[Baud rate]: 2400⇔4800⇔9600⇔ <u>19200</u> ⇔38400⇔
3-2. <div style="border: 1px solid black; padding: 2px;"> [Baud rate] 19200bps </div>	(1) Push the [+] or [-] key, and select the baud rate. (2) Push the [↵/Phase] key. (3) 3-1 will be displayed.	
4 Setup the parity (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
4-1. <div style="border: 1px solid black; padding: 2px;"> [COM.] 1 Address 2 Baud rate 3 Parity </div>	(1) In 4-1, Push the [▲] or [▼] key, and move the cursor to the "3 Parity". (2) Push the [↵/Phase] key. (3) 4-2 will be displayed.	[Parity]: Non⇔ <u>Even</u> ⇔Odd⇔
4-2. <div style="border: 1px solid black; padding: 2px;"> [Parity] Even </div>	(1) Push the [+] or [-] key, and select the parity. (2) Push the [↵/Phase] key. (3) 4-1 will be displayed.	
5 Setup the stop bit (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
5-1. <div style="border: 1px solid black; padding: 2px;"> [COM.] 2 Baud rate 3 Parity 4 Stop bit </div>	(1) In 5-1, Push the [▲] or [▼] key, and move the cursor to the "4 Stop bit". (2) Push the [↵/Phase] key. (3) 5-2 will be displayed.	[Stop bit]: 1⇔2⇔
5-2. <div style="border: 1px solid black; padding: 2px;"> [Stop bit] 1 </div>	(1) Push the [+] or [-] key, and select the stop bit. (2) Push the [↵/Phase] key. (3) 5-1 will be displayed.	
6 Save the settings		
6-1. <div style="border: 1px solid black; padding: 2px;"> Quit Setup 1 Save 2 Not Save 3 Cancel </div>	(1) After setting all of the items, push the [Setup] key. (2) 6-1 will be displayed. (3) When save the settings, push the [▲] or [▼] key, move the cursor to the "1 Save", and Push the [↵/Phase] key. (4) After completing the settings saving, "Completed" message will be displayed. Push the [↵/Phase] key. (5) Return to the operation mode, and it will be displayed electric energy screen.	1 Save → Save settings and return to the operation mode. 2 Not Save → Discard the changes and return to the operation mode. 3 Cancel →Continue the setup.

*If you change a settings, please push the **[↵/Phase]** key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

*If you want to set the other circuit, push the **[Circuit]** key on the "Setup" screen (1-1), select the circuit, make the setting.

7.2.4 Logging setup—the settings for the logging ID (Set only EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB connected the EMU4-LM.)

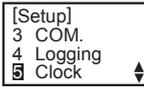
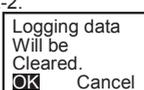
Screen	Operation	Note
1 Transition to the setup mode		
1-1. 	(1) Push the [Setup] key in operation mode. (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "4 Logging", and push the [↵/Phase] key. (2) 2-1 will be displayed.	
2 Setup the logging unit ID (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
2-1. 	(1) In 2-1, Push the [▲] or [▼] key, and move the cursor to the "1 ID". (2) Push the [↵/Phase] key. (3) 2-2 will be displayed.	[ID]: <u>001</u> ~255
2-2. 	(1) Push the [▲] [▼] [+] [-] key, and change the logging unit ID. (2) Push the [↵/Phase] key. Confirm the setting value. (3) 2-1 will be displayed.	
3 Save the settings		
3-1. 	(1) After setting all of the items, push the [Setup] key. (2) 3-1 will be displayed. (3) When save the settings, push the [▲] or [▼] key, move the cursor to the "1 Save", and Push the [↵/Phase] key. (4) After completing the settings saving, "Completed" message will be displayed. Push the [↵/Phase] key. (5) Return to the operation mode, and it will be displayed electric energy screen.	1 Save → Save settings and return to the operation mode. 2 Not Save → Discard the changes and return to the operation mode. 3 Cancel →Continue the setup.

*If you change a settings, please push the **[↵/Phase]** key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

*If you want to set the other circuit, push the **[Circuit]** key on the "Setup" screen (1-1), select the circuit, make the setting.

7.2.5 Clock setup—the settings for the clock. (Set only EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB connected the EMU4-LM)

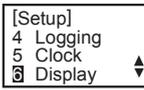
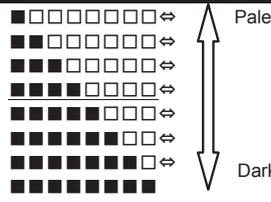
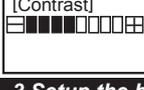
Screen	Operation	Note
1 Transition to the setup mode		
1-1. 	(1) Push the [Setup] key in operation mode. (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "5 Clock", push the [↵/Phase] key. (2) 2-1 will be displayed.	
2 Clock Setup (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
2-1. 	(1) In 2-1, Push the [▲] or [▼] key, and move the cursor to the "Year". (2) Push the [+] or [-] key. Change the set value. (3) Push the [▼] key, and move the cursor to the "Month". (4) Push the [+] or [-] key. Change the set value. (5) In a similar way, change the "Day", "Hour", "Minute". ^{Note 1}	[Year]: 00⇔01⇔02⇔...⇔ <u>13</u> ⇔...⇔99⇔ [Month]: <u>01</u> ⇔02⇔03⇔04⇔...⇔12⇔ [Day]: <u>01</u> ⇔02⇔...⇔29⇔30⇔31⇔ [Hour]: <u>00</u> ⇔01⇔...⇔12⇔13⇔...23⇔ [Minute]: <u>00</u> ⇔01⇔...⇔59⇔
2-2. 	(6) After setting all of the items, push the [▲] or [▼] key, and move the cursor to the "OK". (7) Push the [↵/Phase] key, and clock setting changed. ^{Note 2} (8) 2-2 will be displayed. (9) When to exit the clock setup, push the [+] or [-] key, and move the cursor to the "OK", and push the [↵/Phase] key. (If select the "Cancel", return to 1-1) (10) After completing the settings saving, and 1-1 will be displayed.	Note 1: The setting range of the day changes with setting in the year and the month. Note 2: It becomes "00" second when the timing of pushing the [↵/Phase] key at the clock setup screen. Note 3: The logging data stored in EMU4-LM is deleted if clock setting is changed. Measured data stored in SD card is not deleted.

*If change a settings, please push the **[↵/Phase]** key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

*If you want to set the other circuit, push the **[Circuit]** key on the "Setup" screen (1-1), select the circuit, make the setting.

7.2.6 Display setup—Setup about display such as LCD contrast or backlight lighting pattern.

Screen	Operation	Note
1 Transition to the setup mode		
1-1. 	(1) Push the [Setup] key in operation mode. (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "6 Display", push the [↵/Phase] key. (2) 2-1 will be displayed.	
2 Setup the LCD contrast		
2-1. 	(1) In 2-1, push the [▲] or [▼] key, and move the cursor to the "1 Contrast". (2) Push the [↵/Phase] key. (3) 2-2 will be displayed.	[Contrast] : 
2-2. 	(1) Push the [+] or [-] key, and change the LCD contrast value. (2) Push the [↵/Phase] key. (3) 2-1 will be displayed.	
3 Setup the backlight		
3-1. 	(1) In 3-1, push the [▲] or [▼] key, and move the cursor to the "2 Backlight". (2) Push the [↵/Phase] key. (3) 3-2 will be displayed.	[Backlight]: <u>Auto OFF</u> ⇔Always ON Auto OFF... If 5 minute has passed since the last key operation, backlight will be OFF automatically. There are any key operation, backlight will be lighted again. Always ON... Backlight is always lighted.

Screen	Operation	Note
3-2. [Backlight] Auto OFF Always ON	(1) Push the or key, and select the backlight condition. (Auto OFF/ Always ON) (2) Push the key. (3) 3-1 will be displayed.	
4 Save the settings		
4-1. Quit Setup 1 Save 2 Not Save 3 Cancel	(1) After setting all of the items, push the key. (2) 4-1 will be displayed. (3) When save the settings, push the or key, move the cursor to the "1 Save", and Push the key. (4) After completing the settings saving, "Completed" message will be displayed. Push the key. (5) Return to the operation mode, and it will be displayed electric energy screen.	1 Save → Save settings and return to the operation mode. 2 Not Save → Discard the changes and return to the operation mode. 3 Cancel → Continue the setup.

*If you change a settings, please push the key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

*If you want to set the other circuit, push the key on the "Setup" screen (1-1), select the circuit, make the setting.

7.2.7 FW VER. setup—Display the F/W Version of Energy Measuring Unit.

Screen	Operation	Note
1 Display the F/W Version.		
1-1. [Setup] 5 Clock 6 Display 7 F/W VER.	(1) Push the key in operation mode. (2) 1-1 will be displayed.	
	(1) Confirm that the cursor focuses the "7 F/W VER.", push the key. (2) 1-2 will be displayed.	
1-2. [F/W VER.] 1.00 MODEL: EMU4-BM1-MB	(1) Transition to the following screen by push the specific key push. Push the key → To 1-1 Push the key → To 1-2 (different circuit) Push the or key → To 1-3	Display the model and F/W Version of energy measurement unit that is connected. ※In ver.1.05 : 1-3 is not displayed, when push or keys.
1-3. [F/W VER.] 2.00 MODEL: EMU4-D65	(1) Transition to the following screen by push the specific key push. Push the key → To 1-1 Push the key → To 1-2	Display the model and F/W Version of display unit. ※In ver.1.05 : 1-3 is not displayed.

7.3 In the case of the model EMU2-** and the model MDU2-**, to be connected, the settings for measurement, clock, display. (Setup mode)

7.3.1 Measuring setup ... Setup the measuring condition of the energy measurement unit that is connected.

Screen	Operation	Note
1 Transition to the setup mode		
1-1. [Setup] 1 Measure 2 Clock 3 Display	(1) Push the key in operation mode. (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "1 Measure", push the key. (2) 2-1 will be displayed.	
2 Setup the phase wire system (All models)		
2-1. [Measure] 1 Wiring 2 V rate 3 A rate	(1) In 2-1, Push the or key, and move the cursor to the "1 Wiring". (2) Push the key. (3) 2-2 will be displayed.	[Wiring]: 1P2W⇔1P3W⇔ 3P3W ⇔3P4W⇔ **"3P4W" setting is EMU2-RD□ - Δ-4W only. (3P4W fixed) * □=2,4, Δ=C
2-2. [Wiring] 3P3W	(1) Push the or key, and change the set value. (2) Push the key, and confirm the setting value. (3) 2-1 will be displayed.	*In the case of the model MDU2-□-Δ, displays all 1P2W ~ 3P4W, but can not be set for 3P4W in the case of connection breaker 3 pole products.
3 Setup the primary voltage (EMU2-BM1-B, EMU2-HM1-Δ, EMU2-PM1-P, EMU2-VS1-P, EMU2-RD□-Δ)		
3-1. [Measure] 1 Wiring 2 V rate 3 A rate	(1) In 3-1, Push the or key, and move the cursor to the "2 V rate". (2) Push the key. (3) 3-2 will be displayed.	1P2W, 3P3W----- [V rate]: 110V Direct⇔ 220V Direct ⇔440V⇔690V⇔1100V ⇔2200V⇔3300V⇔6600V⇔11000V⇔13200V⇔ 13800V⇔15000V⇔16500V⇔22000V⇔24000V⇔ 33000V⇔66000V⇔77000V⇔110000V⇔
3-2. [V rate] 220V Direct	(1) Push the or key, and change the set value. (2) Push the key, and confirm the setting value. (3) 3-1 will be displayed.	1P3W----- [V rate]: 110V Direct only 3P4W (display the phase voltage / line voltage.)----- [V rate]: 63.5V/110V⇔110V/190V⇔120V/208V⇔ 220V/380V ⇔240V/415V⇔254V/440V⇔
*1 : In case of the model EMU2-BM1-B, EMU2-HM1-B, EMU2-VS1-P, set only value of 110V Direct, 220V Direct, 440V. *2 : In case of the model EMU2-RD□-Δ-4W settings about voltage surveillance is common for circuit1 and circuit2, or circuit3 and circuit4. For example, if you change the primary voltage of the circuit 1, circuit 2 will also be changed at the same time. Similarly, if you change the primary voltage of the circuit 2, circuit 1 will also be changed at the same time.		
4 Setup the primary current (EMU2-BM1-B, EMU2-HM1-Δ, EMU2-PM1-P, EMU2-VS1-P, EMU2-RD□-Δ)		
4-1. [Measure] 1 Wiring 2 V rate 3 A rate	(1) In 4-1, Push the or key, and move the cursor to the "3 A rate". (2) Push the key. (3) 4-2 will be displayed.	[Sensor]: Direct ⇔5A⇔ Direct setting [A rate]: 50A⇔ 100A ⇔250A⇔400A⇔600A⇔
4-2. [Sensor] 5A [A rate] 100A	(1) Push the or key, and move the cursor to the "Sensor". (2) Push the or key, and select sensor type. (3) Push the or key, and move the cursor to the "A rate". (4) Push the or key, and change the primary current value. (5) Push the key, and confirm the setting value. (6) 4-1 will be displayed.	5A setting [A rate]: 5A⇔6A⇔7.5A⇔8A⇔10A⇔12A⇔15A⇔ 20A⇔25A⇔30A⇔40A⇔50A⇔60A⇔75A⇔80A⇔ 100A ⇔120A⇔150A⇔200A⇔250A⇔300A⇔400A⇔ 500A⇔600A⇔750A⇔800A⇔1000A⇔1200A⇔ 1500A⇔1600A⇔2000A⇔2500A⇔3000A⇔4000A⇔ 5000A⇔6000A⇔7500A⇔8000A⇔10000A⇔ 12000A⇔20000A⇔25000A⇔30000A⇔

Screen	Operation	Note														
5 Setup the measurement mode (EMU2-RD□-Δ, MDU2□-Δ)																
5-1. [Measure] 2 V rate 3 A rate 4 Mode	(1) In 5-1, Push the ▲ or ▼ key, and move the cursor to the "4 Measure". (2) Push the ←/Phase key. (3) 5-2 will be displayed.															
5-2. [Mode] Wh+A+4 Harmonics	(1) Push the ▲ or ▼ key, and select the "Mode". (2) Push the ←/Phase key. (3) Transition to the following screen by the selection of measurement mode. [Wh+A+4] setting → To 5-3 [Harmonics] setting → To 5-4	[Mode]: Wh+A+4 ⇔ Harmonics ⇔ Wh+A+4...In addition to the active energy and current, up to 4 items can be displayed by selection. (The harmonics data is only about total.) Harmonics...It can display about harmonic data at each order. (Maximum and minimum values, demand, reactive power can not be displayed.)														
5-3. [Element] ✓V ✓W □var	(1) Push the ▲ or ▼ key, and move the cursor to target element. (In the actual display, it will be scrolling display of each three elements in one screen.) (2) Push the + or - key, and choose the selected or deselected. (3) When selecting the other measurement item, repeat the operation from (1) to (2). (4) Push the ←/Phase key, and determine the setting. (5) Transition to the following screen by the selection of measurement mode. Not check "HA" and "HV" → To 5-1 Check "HA" or "HV" → To 5-4	[Element]: V, W, var, PF, Hz, varh, Demand, HA, HV, Ie, Hle □ (Deselected), ✓ (Selected) *The selectable number of elements is up to 4. So, change the selection at the state that already 4 items are selected, deselect the items before changing.														
5-4. [HA, HV] r.m.s.	(1) Push the + or - key, and change the "HA, HV" value. (2) Push the ←/Phase key. (3) 5-1 will be displayed	[HA, HV]: r.m.s. ⇔ % ⇔ r.m.s....Display the RMS value of harmonic current or harmonic voltage. (Not display harmonic current and harmonic voltage.) %... Display the distortion rate and content rate of harmonic current or harmonic voltage. (Not display the r.m.s.)														
6 Setup the demand time (All models *However, EMU2-BM1-B, EMU2-PM1-P is only Current demand.)																
6-1. [Measure] 3 A rate 4 Mode 5 Demand	(1) In 6-1, Push the ▲ or ▼ key, and move the cursor to the "5 Demand". (2) Push the ←/Phase key. (3) 6-2 will be displayed.	[Demand]: 0sec ⇔ 10sec ⇔ 20sec ⇔ 30sec ⇔ 40sec ⇔ 50sec ⇔ 1min ⇔ 2min ⇔ 3min ⇔ 4min ⇔ 5min ⇔ 6min ⇔ 7min ⇔ 8min ⇔ 9min ⇔ 10min ⇔ 11min ⇔ 12min ⇔ 13min ⇔ 14min ⇔ 15min ⇔ 20min ⇔ 25min ⇔ 30min ⇔														
6-2. [Demand] A : 2min W : 2min	(1) Push the ▲ or ▼ key, and move the cursor to the A (Current). (2) Push the + or - key, and change the demand time value. (3) Push the ▲ or ▼ key, and move the cursor to the W (Electric power). (4) Push the + or - key, and change the demand time value. (5) Push the ←/Phase key, and confirm the setting value. (6) 6-1 will be displayed.															
7 Setup the pulse unit (EMU2-PM1-P, EMU2-VS1-P)																
7-1. [Measure] 4 Mode 5 Demand 6 Pulse	(1) In 7-1, Push the ▲ or ▼ key, and move the cursor to the "6 Pulse". (2) Push the ←/Phase key. (3) 7-2 will be displayed.	The pulse output unit changes by the full load power. [Pulse]:														
7-2. [Pulse] 10 kWh/pulse	(1) Push the + or - key, and change the set value. (2) Push the ←/Phase key, and confirm the setting value. (3) 7-1 will be displayed.	<table border="1"> <thead> <tr> <th>Full load power (kW)</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>Wfull < 12kW</td> <td>⇔ 0.001 ⇔ 0.01 ⇔ 0.1 ⇔ 1 ⇔</td> </tr> <tr> <td>12kW ≤ Wfull < 120kW</td> <td>⇔ 0.01 ⇔ 0.1 ⇔ 1 ⇔ 10 ⇔</td> </tr> <tr> <td>120kW ≤ Wfull < 1200kW</td> <td>⇔ 0.1 ⇔ 1 ⇔ 10 ⇔ 100 ⇔</td> </tr> <tr> <td>1200kW ≤ Wfull < 12000kW</td> <td>⇔ 1 ⇔ 10 ⇔ 100 ⇔ 1000 ⇔</td> </tr> <tr> <td>12000kW ≤ Wfull < 120000kW</td> <td>⇔ 10 ⇔ 100 ⇔ 1000 ⇔ 10000 ⇔</td> </tr> <tr> <td>120000kW ≤ Wfull</td> <td>⇔ 100 ⇔ 1000 ⇔ 10000 ⇔ 100000 ⇔</td> </tr> </tbody> </table>	Full load power (kW)	Setting range	Wfull < 12kW	⇔ 0.001 ⇔ 0.01 ⇔ 0.1 ⇔ 1 ⇔	12kW ≤ Wfull < 120kW	⇔ 0.01 ⇔ 0.1 ⇔ 1 ⇔ 10 ⇔	120kW ≤ Wfull < 1200kW	⇔ 0.1 ⇔ 1 ⇔ 10 ⇔ 100 ⇔	1200kW ≤ Wfull < 12000kW	⇔ 1 ⇔ 10 ⇔ 100 ⇔ 1000 ⇔	12000kW ≤ Wfull < 120000kW	⇔ 10 ⇔ 100 ⇔ 1000 ⇔ 10000 ⇔	120000kW ≤ Wfull	⇔ 100 ⇔ 1000 ⇔ 10000 ⇔ 100000 ⇔
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120000kW ≤ Wfull	⇔ 100 ⇔ 1000 ⇔ 10000 ⇔ 100000 ⇔															
8 Setup 1-3Change (MDU2□-Δ)																
8-1. [Measure] 5 Demand 6 Pulse 7 1-3Change	(1) In 8-1, Push the ▲ or ▼ key, and move the cursor to the "7 1-3Change". (2) Push the ←/Phase key. (3) 8-2 will be displayed.	[1-3Change]: Standard ⇔ Change ⇔														
8-2. [1-3Change] Standard	(1) Push the + or - key, and change the set value. (2) Push the ←/Phase key, and confirm the setting value. (3) 8-1 will be displayed.	Standard...From breaker of the left pole, turn to 1,2,3 (R, S, T) assigned in phase. Change...From breaker of the right pole, turn to 3,2,1 (T, S, R) assigned in phase.														
9 Save the settings																
9-1. Quit Setup 1 Save 2 Not Save 3 Cancel	(1) After setting all of the items, push the Setup key. (2) 9-1 will be displayed. (3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the ←/Phase key.	1 Save → Save settings and return to the operation mode. 2 Not Save → Discard the changes and return to the operation mode. 3 Cancel → Continue the setup.														
9-2. Completed OK	(4) After completing the settings saving, 9-2 will be displayed. Push the ←/Phase key. (5) Return to the operation mode, and it will be displayed electric energy screen.															

*Setting for the measurement mode can only be in the display unit is set to master. (Setting for the measurement mode can not be in the display unit is set to slave.)

*Full load is calculated by following formula. (Full load)=(Primary voltage) x (Primary current) x (Coefficient) / 1000[kW]

*1: In case 3P4W, apply the not phase voltage but line voltage as primary voltage. *2: Coefficient is varies according to the phase wire system. 1P2W →1, 3P3W/3P4W →1.73

*Primary voltage setting value x primary current setting value can not be set in excess of 88665kW. For example, if the primary current is set to 30,000 A when the primary voltage setting is 110,000 V, the primary voltage setting is automatically initialized to 220 V. If the primary voltage is set to 110,000 V when the primary current setting is 30,000 A, the primary current setting is automatically initialized to 100 A.

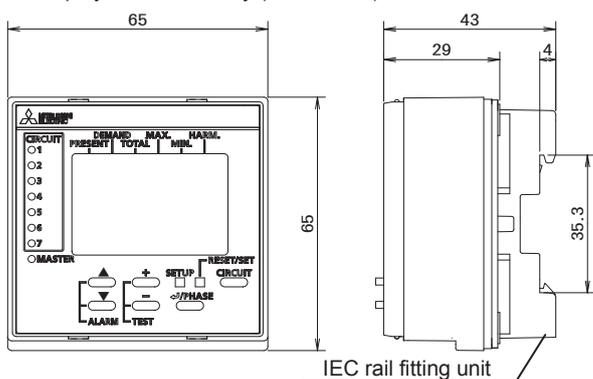
*If you change a settings, please push the **←/Phase** key and be sure to determine changes. If without determine, the changes will be discarded.

*The underline means the default of setting. After you have been set, even if a power failure occurs does not disappear setting.

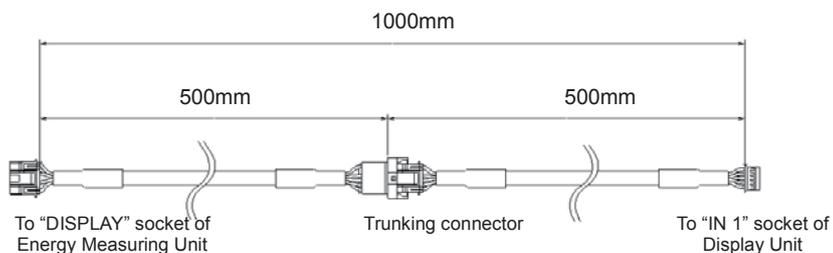
*If you want to set the other circuit, push the **Circuit** key on the "Setup" screen (1-1), select the circuit, make the setting.

8. Outline drawing

■ Display Unit main body (EMU4-D65)



■ Display unit connection cable



9. Specifications

Product name	Display unit
Model name	EMU4-D65
Display part	Dot matrix Liquid Crystal Display (with backlight)
Rating	9V DC
Math	0.1 kg
Applicable model	Energy Measuring Unit (EcoMonitorPlus) Energy Measuring Unit (EcoMonitorPro) Mitsubishi Measuring Units for MDU Breakers (MDU2)
Connecting method	Connecting by dedicated cable (Bundled in this product. Length: 1m)
Number of connected	For a single Energy Measuring Unit until seven*
Maximum extension distance	10m (However, the sum of the length of the extension cable that was connected to a single unit)

*If the connection is two or more, you must have a power supply from commercial DC power supply (Model: PBA15F-9-N1, made in COSEL CO., LTD.), the power supply cable (optional : EMU4-CB-DPS) and display unit connection cable (for between the display unit connection) Model: EMU2-CB1-DP.

10. Warranty

If you have any questions or the product is broken down, contact our sales representative near you.

- The charge-free warranty is effective until the earlier of 1 year after the date of your purchase or 18 months after manufacturing. Repair shall be charged for the case failures occur due to your intent or fault even during the charge-free warranty period.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Our company shall not be liable to compensate for any loss arising from events not attributable to our company, opportunity loss and lost earning of the customer due to failure of the product, and loss, secondary loss, accident compensation, damage to other products besides our products and other operations caused by a special reason regardless of our company's predictability.

⚠Caution If an abnormal sound, bad-smelling smoke, fever break out from this unit, switch it off promptly and don't use it.

11. Customer Service

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, Japan

Please refer to "catalog" or "user's manual (Details)" for more detail.