

Small Type Display Unit for Energy Measuring Unit **MODEL** 



User's Manual (Details)

 Before operating the instrument, you should first read thoroughly this operation manual for safe operation and optimized performance of the product.
 Deliver this user's manual to the end user.

#### Thank you for purchasing the Energy Measuring Unit.

- This manual describes setup and usage for Energy Measuring Unit. Before using the product, please read this manual carefully to ensure correct use. Especially, in the case of where unit is to be installed, please read "1. Precautions for Use" to ensure correct use.
- Make sure that the end users read this manual and then keep the manual in a safe place for future reference.
- Make sure to deliver this manual to the end-user.
- If you are considering using this unit for special purpose such as nuclear power plants, aerospace, medical care, or passenger vehicles please refer to our sales representative. (For details, please see at the end of this manual.)

#### ■Notations in this manual

Use the following marks in this manual.

Mark	Meaning of the icons
<b>Caution</b> Indicates that incorrect handling may result in injury or property damage, ignoring this marking	
✓ Supplement	Indicates that precautions to avoid a malfunction and to work the unit properly.
	Indicates that the pages described that related matters.

#### ■Checking package contents

This following items for this device and included in package. Check that no items are missing.



Please use the certified watt-hour meter to be used for deal and proof of electric energy measurement stipulated.

### Features

- 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.

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#### Working environment and working conditions 1.1

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 CATII (Note 1). The overvoltage category of the auxiliary power supply circuit (MA, MB) is CATII (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 Place where the daily mean temperature exceeds +35°C (-5°C to +55°C) · Place with much vibration or impact · Place exposed to direct sunlight
- Place where the humidity exceeds the humidity range (30% to 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
- < For prevention of electric shock >
- This unit is designed to be housed within another device for prevention of electric shock. House this unit within the device such as the grounded control panel before use.
- To prevent persons with little knowledge about electric equipment from electric shock, panel must be taken either following measure.
  - ·Lock the panel so that only those who get an education about electric equipment and have sufficient knowledge can unlock, or shut off power supply automatically by opening the panel.
  - Cover the dangerous part of this unit. (Required protection code is higher than IP2X.)

Note 1 : For the definition of the pollution degree and the over voltage category, refer to EN61010-1/2010.

#### 1.2 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 an LCD display part may light up by generating of static electricity in case it removes. After a while, it disappears by natural electric discharge.
- Please use after removina the protection sheet

- 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)

#### Installation and connection 1.3

Before installing and connecting the unit, read the instruction manual without fail.

## **∕∴**Caution

- 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.

#### 1.4 Precautions for Use

F/W version is displayed after the power turned on.

[In the case of the model to connect the EMU4-\*\*]



[In the case of the model to connect the EMU2-\*\* or MDU2-\*\*]



- This unit cannot be used for deal and proof of electric energy measurement stipulated in Measurement Act.
- Model: EMU4-PX4 and Model: EMU4-AX4 is supported with later version 2.00. For information about how to determine the version. If you wish to upgrade, please contact us.
- In the event of a power outage during the setting, the unit is not set correctly. Please set again after power recovery.
- When using by connecting to EMU4-CNT-MB, a fixed value is displayed on the operation screen and the setting menu of EMU4-HM1-MB is displayed on the setting screen, so the operation status of the control unit and the control unit can be displayed. It cannot be set. For details on the operation, refer to "6.2 Operation Mode".

## ▲ Caution

- Do not disassemble or modify this unit. It may cause failure, malfunction, injury, or fire.
- 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 touch the live part. It may cause electric shock, electric burn injury or damage of the device. If any bare wire exists, stop the operation immediately, and take an appropriate action such as isolation protection.



· Place with strong electromagnetic field or much foreign noise

· Place where the altitude is over 2000m

## 1.5 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
  - 1 No damage on this unit
  - 2 No abnormality with LCD indicators
  - ③ No abnormal noise, smell, or heat
- (2) Periodical maintenance (Once every 6 months to 1 year)
  - •No looseness with installation and wire connection.

**Caution** 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.

#### 1.6 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 to +60°C.
  - Places the Relative humidity exceeds the range 30 to 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.

#### 1.7 Disposal Precautions

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

#### 1.8 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.

## 2. Disclaimer

- It is prohibited to reprint or copy all contents of this document in any form without our permission.
- The contents of this document will be updated to follow revisions to software and hardware, however under unavoidable circumstances it may not be synchronized.

#### Name and function of each part 3



#### LCD display: Display measured value by measuring unit and setting "Circuit" LED: A circuit number on display lights up. Moreover, LED of the circuit number blinks at the time of alarm is occuring. [Setup] key: Shift to setup mode and closing of a setup are DEMAND MAX. HARM. PRESENT TOTAL MIN. CIRCUIT 01 performed. ⊃2 "Master" LED : 3 The light is switched on at the time of operation. ⊖4 [Reset/Set] key: Reset/Set of Wh and varh data are performed. 05 6 [▲], [▼] key : Change of display item and selection of a menu **7** MAST [Circuit] key: are performed. Change the display circuit number. V **↓/PHASE** [⊷/ Phase] key: The data of each phase of current and voltage is [+], [-] key: ALARM Display / Un-displaying of maximum or minimum value, and harmonics data at each order change switched and displayed. Moreover, it is used when concerning a setting value. of next data is performed.

\_\_\_\_\_



#### ∎Bottom



#### ■Upper display in LCD

▲ is displayed in the upper items coincide measured value. Each meaning is in follw	
Example : Maximum demand current       PRESENT : Present value     DEMAND     Max.     Harm.       DEMAND : Demand value     PRESENT     TOTAL     MIN.       TOTAL : Total value     MIN. : Maximum value     MIN. : Minimum value	
HARM.:Harmonics 99999	
A	

## **≜**Caution

· 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.

#### IEC rail installation 4.1

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.



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.

•A method for changing the direction of IEC rail



#### 4.2

Cutout dimension



Mounting



Attach the display unit from front side of panel, and tighten the screw from the backside.

(Clamping torque: 0.5N-m)

## 5. Connection method

#### 5.1 1-to-1 Connection example



•The one always in one system is the Master set, other display unit of, please to Slave configuration. (<u>The wrong setting and it</u> <u>does not work</u>)

#### 5.2 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 equivalent, made in COSEL CO., LTD.). Also, the power supply cable (optional: EMU4-CB-DPS) on its connection is required.
- •Maximum connectable devices of display unit is 7.
- •Please display when connect other measuring units in condition that display unit power is turned off.
- •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)

#### 5.3 How to extend the connected cable

Connected cable in upper connected figure are extendable up to 10m. (1) Remove the trunking connector



Please do firmly insert until it clicks into place

(2) Insert the extension cable, and connect the connector

•Please use EMU2-CB-T1M, EMU-CB-T5M, EMU2-CB-T10M as a current sensor extension cable.

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

#### 6. How to use (In the case of the model to connect the EMU4-\*\*)

In this section, the use when connected the EMU4-\*\* models is described. **(T**). How to use (In the case of the model to connect the EMU2-\*\* and MDU2-\*\*)

#### 6.1 Display of circuits and CH

- 6.1.1 Two circuits measurement mode in 1P2W setting
  - If you set 1P2W and measure 2 circuits, you can measure 2 circuits by 1 terminal base when connect to EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2 or EMU4-VA2.

Current can be measured when current sensor connected to 1K1L and 3K3L of measure unit as shown in Fig. 6.1 and 6.2. **If rated voltage isn't same value, you can't measure the current.** \*Please reference to the operating instructions each measuring units.



Fig. 6.1 Connecting point



[1] is displayed when measuring 1 side of circuits and [2] is displayed when measuring 3 side of the circuit in LCD display of this products. (In fig.6.3 and Fig. 6.4)



Fig.6.3 Display example (Demand time setting display when 2 circuits measure setting)

Fig.6.4 Display example (Electric energy operating display in the setting 1P2W)

6.1.2 EMU4-PX4 or EMU4-AX4 connecting

[\*] is displayed when represent the CH\*. (\* = 1 to 4) (In fig.6.5 and Fig. 6.6)







#### 6.2 Operation mode

There are following modes of operation. This device is used to switch the operation mode depending on the application. Immediately after the power is turned on, it will be the display of the operation mode.



# 6.2.1 When used in combination with EMU4-CNT-MB The behavior when connected to EMU4-CNT-MB is shown below.

Behavior Mode EMU4-CNT-MB Expansion unit (Circuit number =1) (Circuit number=2 to 7) X Ο You cannot set. You can settings and confirm settings of the Setup mode The same screen is displayed when expansion unit. EMU4-HM1-MB is connected. × 0 You cannot alarm set. Alarm of expansion unit can be setup. Alarm setup mode The same screen is displayed when EMU4-HM1-MB is connected. × 0 You cannot use Test mode. Each test mode does You can use various test mode functions of the the following: expansion unit. Connection test \* It is necessary to change the control status to The fixed value is displayed. STOP. Communication test Test mode The fixed value is displayed when EMU4-HM1-MB connected. ·Pulse output test, Alarm output test The fixed value is displayed when EMU4-HM1-MB connected. There is no output from the control unit itself. 0 X You cannot monitor contact output and analog Measured value of expansion unit can be Operation mode output of EMU4-CNT-MB. displayed. A fixed value :999999kWh is displayed. 0 X You cannot monitor alarm status. Alarm status of expansion unit can be displayed. Alarm mode A fixed value is displayed, Alarm status:OFF, Contact input : Non X 0 You cannot use reset/ preset funstion. Integrated value of expansion unit can be reset / Reset/Preset mode The same screen is displayed when preset. EMU4-HM1-MB is connected.

O Function can be used

× Function can not be used

#### 6.3.1 Flow of the setup

Setup "(1)Measure", "(2)Input/Output", "(3)Communication", "(4)Logging", "(5)Clock", "(6)Display" when connected with EMU4-\*\*, setup in setup mode.

You can confirm the F/W version of connected measure unit in "(7)F/W version".

#### (1) Measure

Setting the measurement conditions connected energy measuring unit. (\*6.3.2 Measure setting



(2) Input/Output setup

Set for the external Input/Output. Only EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2, EMU4-PX4, EMU4-AX4 is set.



Setting Input / Output(EMU4)

(3) Communication setup

Set for the MODBUS communication. Only MU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB is set. ••••••6.3.4 Setup the communication

EMU4-BM1-MB	EMU4-HM1-MB	EMU4-LG1-MB			
T	Transition to the setup mode				
	↓ I				
	Address				
Ļ					
Baud rate					
Ļ					
	Parity				
Ļ					
Stop bit					
<b>↓</b>					
Save	the setting (End of setup	mode)			

#### (4) Logging setup

EMU4-BM1-MB EMU4-HM1-MB EMU4-LG1-MB			
Transition to the setup mode			
Ļ			
Logging unit ID			
Data clear			
Save the setting(End of setup mode)			

#### (5) Clock setup

Set for the clock. (Set only EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB connected the EMU4-LM.) ••••••6.3.6 Setup the cleck

EMU4-BM1-MB	EMU4-HM1-MB	EMU4-LG1-MB	
-	Transition to the setup mode	e	
Ļ			
Clock Setup			
1			
Save the setting (End of setup mode)			

#### (6) Display setup

Set for the display such as LCD contrast or backlight lighting pattern.

•6.3.7 Setup the display

EMU4-BM1-MB	EMU4-HM1-MB	EMU4-A2 EMU4-VA2	EMU4-LG1-MB	EMU4-PX4 EMU4-AX4	
	Transit	tion to the setup mode			
		↓			
	Setup the LCD contrast				
	↓				
	Setup the backlight				
Save the setting (End of setup mode)					

#### (7) F/W version

The model name of measure unit connected and F/W version are displayed. 1.8 Display the F/W version

6.3.2 Measuring setup(1) Please set the display language when the Display unit start-up for the first time

1 Transition to the setup mode			
Screen	Operation	Note	
1-1. 日本語 English	<ol> <li>Push the  or  key, and move the cursor to the language.</li> <li>Push the  /PHASE key.</li> <li>Version screen is displayed after a while, and transition to the operating mode.</li> </ol>		

# (2) Setup the measuring condition of the energy measurement unit that is connected. EMU4-PX4 is not set.

1 Transition to the setup mode			
Screen	Operation	Note	
1-1.	(1) Push the SETUP key in operation mode.		
[Setup]	(2) 1-1. will be displayed.		
Measure	(1) Confirm that the cursor focused the "1 Measure", push the <i>I</i> /PHASE key.		
2 1/0	(2) 2-1. will be displayed		
3 COM 🔻			

2 Setup the phase wire system (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)			
Screen Operation		Note	
2-1. [Measure] 1 Wiring 2 V rate 3 A rate ▼	<ul> <li>(1) In 2-1, Push ▲ or ▼ key, and move the cursor to the "1 Wiring".</li> <li>(2) Push the</li></ul>		
2-2. [Wiring] SPSW	<ul> <li>(1) Push the</li></ul>	[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.]	<ul> <li>(1) Push the</li></ul>	[2 circuits Measuring existence]∶ <u>No</u> ⇔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)			
Screen	Operation	Note	
3-1. [Measure] 1 Wiring ☑ V rate 3 A rate	<ul> <li>(1) In 3-1, Push the ▲ or ▼ key, and move the cursor to the "2 V rate".</li> <li>(2) Push the</li></ul>	*The setting value is set in same voltage system after confirmed setting value. [VT] : <u>No</u> ⇔Yes⇔ *1P3W is "No" fixed. 1P2W, 3P3W	
3-2.	<ul> <li>(1) Push the</li></ul>	When [VT] : "No" setting [Direct V] : 110V⇔220V⇔440V*⇔ *If the basic unit is EMU4-BM1-MB, [Direct V] will be 110V,220V only. When [VT] : "Yes" setting [Primary V] : 440V⇔690V⇔1100V⇔2200V⇔ 3300V⇔6600V⇔11000V⇔13200V⇔	
3-3. [Direct V] [220V]	<ul> <li>(1) Push the</li></ul>	13800V⇔15000V⇔16500V⇔ 22000V⇔24000V⇔33000V⇔ 66000V⇔77000V⇔110000V⇔SP⇔ When [Primary V] setting and SP setting [SP.PRI.V] : 1 to 110000V( <b>440V</b> ) (1 to 99V: Can be set in the 1V step.)	
3-4. [Primary V] 440V	<ol> <li>Push the  dr  er  er  er  er  er  er  value.</li> <li>Push the  r/PHASE  key, confirm the setting value.</li> <li>Transition to the following screen by the setting value of the primary voltage. [SP] setting → To 3-5 Non-[SP] setting → To 3-1</li> </ol>	(100 to 110000V: Can be set in the 1V step.) [SP.2nd.V] : 1 to 220V( <u>110V</u> ) (Can be set in the 1V step.) 1P3W	
3-5. [SP.PRI.V] <b>0</b> 00440V	<ul> <li>(1) Push the ▲, ♥, ⊕ or □ key, change the set value.</li> <li>(2) Push the</li></ul>	*For 3P4W, set the phase voltage.	
3-6. [SP.2nd.V] 220V	<ul> <li>(1) Push the ▲, ▼, + or - key, change the set value.</li> <li>(2) Push the  <i>√</i>/PHASE key, confirm the setting value.</li> <li>(3) 3-1 will be displayed.</li> </ul>	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	

	4 Setup the primary current (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)				
S	creen	Operation	Note		
4-	1. [Measure] 1 Wiring 2 V rate S A rate ♦	<ul> <li>(1) In 4-1, Push the  or  key, and move the cursor to the "3A rate".</li> <li>(2) Push the  //PHASE key.</li> <li>(3) 4-2 will be displayed.</li> </ul>	[Sensor]: <u>Direct</u> ⇔5A⇔ Direct setting [A rate]:50A⇔ <u>100A</u> ⇔250A⇔400A⇔600A⇔		
4-	2. [Sensor] Direci [PRI.A] 100A	<ul> <li>(1) Push the ▲ or  key, and move the cursor to the "Sensor"</li> <li>(2) Push the + or  key, and select sensor type.</li> <li>(3) Push the ▲ or  key, and move the cursor to the "A rate".</li> <li>(4) Push the + or  key, and change the primary current value.</li> <li>(5) Push the  √/PHASE key, and confirm the setting value.</li> <li>(6) Transition to the following screen by the setting wiring type and primary current value.</li> <li>[SP] setting → To 4-3. Non-[SP] setting → To 4-1.</li> </ul>	5Asetting [A rate]: 5A⇔6A⇔7.5A⇔8A⇔10A⇔12A⇔15A⇔ 20A⇔25A⇔30A⇔40A⇔50A⇔60A⇔75A⇔ 80A⇔ <u>100A</u> ⇔120A⇔150A⇔200A⇔250A⇔ 300A⇔400A⇔500A⇔600A⇔750A⇔800A⇔ 1000A⇔1200A⇔1250A⇔1500A⇔1600A⇔ 2000A⇔2500A⇔3000A⇔4000A⇔500A⇔ 6000A⇔7500A⇔8000A⇔1000A⇔12000A⇔ 20000A⇔2500A⇔3000A⇔5P⇔		
4-	3. [SP.PRI.A] <b>0</b> 01000A	<ul> <li>(1) Push the ▲, ♥, ⊕ or □ key, change the set value.</li> <li>(2) Push the</li></ul>	[SP.PRI.A] :5.0 to 30000A( <u>100A</u> ) 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)			
Screen	Operation	Note	
5-1. [Measure] 2 V rate 3 A rate ☑ DISP.Mode ♥	<ul> <li>(1) In 5-1, Push the ▲ or ▼ key, and move the cursor to the "4 DISP.Mode".</li> <li>(2) Push the</li></ul>	Set the measur display unit.	ement elements to be displayed in the
5-2. [DISP.Mode] Wh+A+4 Harmonics	<ul> <li>(1) Push the ▲ or ▼ key, and select the display mode.</li> <li>(2) Push the  //PHASE key.</li> <li>(3) Transition to the following screen by the selection of measurement mode. [Wh+A+4] setting → To 5-3 [Harmonics] setting → To 5-4</li> </ul>	[DISP.Mode]: <u>W</u> *In case of the r "Harmonics" is i Wh+A+4In ac up to (The HarmonicsIt o eas	I <u>h+A+4</u> ⇔Harmonics⇔ model EMU4-BM1-MB, the not displayed. ddition to the active energy and current, o 4 items can be displayed by selection. e harmonics data is only about total.) can display about harmonic data at ach order.
5-3. [Elements] UV UV UV UVA UVA UVA UPF Hz CONV.Wh DPRD.Wh OP.Time DREG.Wh Dvarh	<ul> <li>(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.)</li> <li>(2) Push the + or - key, and choose the selected or deselected.</li> <li>(3) When selecting the other measurement item, repeat the operation from (1) to (2).</li> <li>(4) Push the  //PHASE key, and determine the setting.</li> <li>(5) 5-1 will be displayed.</li> </ul>	[Element]: V, W, OP.TT UNB. □(Deselected), *The selectable So, change the items are selec changing.	y var, VA, PF, Hz, CONV.Wh, PRD.Wh, ime, REG.Wh, varh, CONV.PLS, V, HA, HV ☑(Selected) e number of elements is up to 4. e selection at the state that already 4 cted, deselect the items before
	*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	<ul> <li>*Elements can't</li> <li>Element</li> <li>UNB.A</li> <li>UNB.V</li> <li>Periodic</li> <li>Wh</li> <li>Pulse</li> <li>converted</li> <li>value</li> <li>HA</li> <li>HV</li> <li>VA</li> <li>Wh</li> <li>converted</li> <li>value</li> </ul>	t select in follow table. In the case cannot select Setting simplicity measuring mode In the case of EMU4-BM1-MB, EMU4-A2, EMU4-VA2. External input is not pulse input. In the case EMU4-BM1-MB, EMU4-A2, EMU4-VA2. Pulse input is not contact input. In the case EMU4-BM1-MB. In the case EMU4-BM1-MB, or Wiring type is 1P2W,1P3W,3P3W In the case EMU4-BM1-MB
5-4. [HA,HV] [IIIIIS]	<ul> <li>(1) Push the ▲ or ▼ key, and change the "HA, HV" value.</li> <li>(2) Push the</li></ul>	[HA,HV]: <u>r.m.s.</u> *In case of the r be set. r.m.sTo displ current %To display t harmonics (The "r.m.s	w% model EMU4-BM1, "HA, HV" cannot ay the RMS value of harmonics or harmonics voltage the distortion rate and content rate of current or harmonics voltage. " not be displayed)

6(1) Setup the measurement mode (EMU4-LG1-MB only)		
Screen	Operation	Note
6(1)-1. [Measure] 3 A rate 4 DISP.Mode S MEA.Mode ♦	<ul> <li>(1) In 6(1)-1, push the ▲ or ▼ key, and move the cursor to the "5 MEA.Mode"</li> <li>(2) Push the</li></ul>	Setup the measurement mode of "lo"or "lor".
6(1)-2. [MEA.Mode] High SENS Low SENS.	<ul> <li>(1) Push the ▲ or ▼ key, and select the measurement mode.</li> <li>(2) Push the</li></ul>	[MEA.Mode]: <u>High SENS.</u> ⇔Low SENS.⇔ High SENS0.00 to 100mA 0.01mA step Low SENS0 to 1000mA 1mA step

6(2) Setup the measurement mode (EMU4-AX4 only)		
Screen	Operation	Note
6(2)-1. [Measure] 3 A rate 4 DISP.Mode ■ MEA.Mode ♦	<ul> <li>(1) In 6(2)-1, push the ▲ or ▼ key, and move the cursor to the "5 MEA.Mode"</li> <li>(2) Push the  (√/PHASE) key.</li> <li>(3) 6(2)-2 will be displayed.</li> </ul>	Setup the measurement mode of AD converted.
6(2)-2. [MEA.Mode] 50ms SAMP. 1ms SAMP.	<ul> <li>(1) Push the ▲ or ▼ key, and select the measurement mode.</li> <li>(2) Push the</li></ul>	[MEA.Mode]: <u>50ms SAMP.</u> ⇔1ms SAMP.⇔ 50ms SAMPAD converted in a cycle of 50ms. 1ms SAMPAD converted in a cycle of 1ms.

7(1) Setup the demand time (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
7(1)-1. [Measure] 4 DISP.Mode 5 MEA.Mode ☑ Demand ♦	<ul> <li>(1) In 7(1)-1, push the ▲ or ▼ key, and move the cursor to the "6 Demand".</li> <li>(2) Push the</li></ul>	[Demand]:0sec⇔10sec⇔20sec⇔30sec⇔40sec⇔ 50sec⇔1min⇔2min⇔3min⇔4min⇔ 5min⇔6min⇔7min⇔8min⇔9min⇔ 10min⇔11min⇔12min⇔13min⇔ 14min⇔15min⇔20min⇔25min⇔
7(1)-2. [Demand] A : 2min W : 2min	<ol> <li>Push the ▲ or ▼ key, and move the cursor to the A(Current).</li> <li>Push the ± or − key, and charge the demand time value.</li> <li>Push the ▲ or ▼ key, and move the cursor to the W(Electric power).</li> <li>Push the ± or − key, and change the demand time value.</li> <li>Push the ± or − key, and confirm the setting value.</li> <li>Push the ⊄/PHASE key, and confirm the setting value.</li> <li>7(1)-1 will be displayed.</li> </ol>	30min⇔

7(2) Setup the demand time (EMU4-LG1-MB only)		
Screen	Operation	Note
7(2)-1. [Measure] 4 DISP.Mode 5 MEA.Mode ◙ Demand ♦	<ul> <li>(1) In 7(2)-1, push the ▲ or ▼ key, and move the cursor to the "6 Demand".</li> <li>(2) Push the</li></ul>	[Demand time]: 0sec⇔ <u>5min</u> ⇔6min⇔7min⇔ 8min⇔9min⇔10min⇔11min⇔ 12min⇔13min⇔14min⇔15min⇔ 20min⇔25min⇔30min⇔
7(2)-2. [Demand] Io/Ior: 5min	<ul> <li>(1) Push the + or  key, and change the lo/lor demand time value.</li> <li>(2) Push the  //PHASE key, and confirm the setting value.</li> <li>(3) 7(2)-1 will be displayed.</li> </ul>	

8 Setup the electric energy equivalent rate (EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
8-1. [Measure] 5 MEA.Mode 6 Demand <b>1</b> CONV.Wh <b>♦</b>	<ul> <li>(1) In 8-1, push the ▲ or ▼ key, and move the cursor to the "7 CONV.Wh".</li> <li>(2) Push the</li></ul>	
8-2. [CONV.Rate] [J.000 [Unit] Non [1] ↑ 2 circuits measuring only	<ul> <li>(1) Push the</li></ul>	[CONV.Rate]:0.001 to 10000( <u>1.000</u> ) [Unit]: <u>Non</u> ⇔Wh⇔kWh⇔MWh⇔J⇔m <sup>2</sup> ⇔m <sup>3</sup> ⇔L⇔ kL⇔sec⇔min⇔hour⇔piece⇔set⇔g⇔ kg⇔t⇔¥⇔\$⇔
8-3. [CONV.Rate] [000 [Unit] Non [2] ↑ 2 circuits measuring only	<ul> <li>(1) In a similar way as 8-2, change the "CONV.Rate" value and unit of the second circuit.</li> <li>(2) Push the <i>I</i>/PHASE key, and confirm the setting value.</li> <li>(3) 8-1 will be displayed.</li> </ul>	

9 Setup the current cut-off rate (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)		
Screen	Operation	Note
9-1. [Measure] 6 Demand 7 CONV.Wh ☑ A cut-off ♦	<ul> <li>(1) In 9-1, push the  or  we key, and move the cursor to the "8 A cut-off".</li> <li>(2) Push the  <i>P</i>/PHASE key.</li> <li>(3) 9-2 will be displayed.</li> </ul>	
9-2. [A cut-off] 0.5% [1] ↑ 2 circuits measuring only	<ul> <li>(1) Push the  <sup>+</sup> or  <sup>-</sup> key, and change the set value.</li> <li>(2) Push the  <sup>-</sup> <u></u> <u></u></li></ul>	<ul> <li>[A cut-off]: 0.1 to 50.0% (0.5)</li> <li>A cut-off raterepresent as the ratio of cut-off current to rated current.</li> <li>*Measured value is 0A if it is less than the cut-off current.</li> </ul>
9-3. [A cut-off] 00.5% [2] ↑ 2 circuits measuring only	<ul> <li>(1) In a similar way as 9-2, change the "A cut-off" value of the second circuit.</li> <li>(2) Push the  <i>↓</i>/PHASE key, and confirm the setting value.</li> <li>(3) 9-1 will be displayed.</li> </ul>	

10 Setup the Simple measurement (All models except for EMU4-LG1-MB, EMU4-PX4 and EMU4-AX4)			
Screen	Operation	Note	
10-1. [Measure] 7 CONV.Wh 8 A Cut-off Simple MEA	<ul> <li>(1) In 10-1, push the ▲ or ▼ key, and move the cursor to the "9 Simple MEA".</li> <li>(2) Push the</li></ul>		
10-2. [Simple MEA.]	<ul> <li>(1) Push the ± or  key, and select SimpleMEA ([On]/[Off]).</li> <li>(2) Push the  PHASE key, and confirm the setting value.</li> <li>(3) Transition to the following screen by the setting SimpleMEA ([On]/[Off]). [On] setting → To 10-3. [Off] setting → To 10-1.</li> </ul>	[SimpleMEA]: <u>Off</u> ⇔On⇔ SimpleMEAThe value set in the electric power and the power factor the fixed value. By measuring the current only, and calculating the values of the measurement elements. *After confirm the setting value, it is reflected to same voltage system	
10-3. [FP Set] 1.000 [1] 2 circuits measuring only	<ul> <li>(1) Push the</li></ul>	[FP Set]:-0.001 to <b>1.000</b> to 0.000	
10-4. [FP Set] 1.000 [2] ↑ 2 circuits measuring only	<ul> <li>(1) In a similar way as 10-3, changet the power factor value of the second circuit.</li> <li>(2) Push the  /PHASE key, and confirm the setting value.</li> <li>(3) 10-1 will be displayed.</li> </ul>		

11 Setup the lor difference conversion (EMU4-LG1-MB only)		
Screen	Operation	Note
11-1. [Measure] 8 A cut-off 9 SimpleMEA <b>™</b> DIF.CONV <b>↓</b>	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "10 DIF.CONV".</li> <li>(2) Push</li></ul>	DIF.CONV]: <u>Off</u> ⇔On⇔ DIF.CONVTo calculate the amount of change from the lor difference converted value.
11-2. [DIF.CONV. of lor]	<ul> <li>(1) Push the ± or  key, and select the lor difference converted value ([On]/[Off]).</li> <li>(2) Push the  //PHASE key, and confirm the setting value.</li> <li>(3) Transition to the following screen by the setting DIF.CNV([On]/[Off]).</li> <li>[On] setting → To 11-3.</li> <li>[Off] setting → To 11-1.</li> </ul>	
11-3. [DIF.lor Reference] 0.00 mA	<ul> <li>(1) Push the ▲ ▼ ⊕ ─ key, and change the lor difference converted reference value.</li> <li>(2) Push the</li></ul>	High SENS mode [DIF.lor]: <u>0.00</u> to 100.00mA Low SENS mode [DIF.lor]: <u>0</u> to 1000mA

12 Setup the AD Co	onverted (EMU4-AX4 only) *Please refer to manual of EMU4-AX4 for more details	3.
Screen	Operation	Note
12-1.	(1) In 12-1, push the 🔺 or 💌 key, and move the cursor to the "11 AD.CONV.".	
	(2) Push the (IMPHASE) key.	
10DIF CONV	(3) 12-2 will be displayed	
11AD.CONV.		
12-2.	(1) Push the $(+)$ or $(-)$ key and select the AD converted([On]/[Off])	[AD.CONV.]:Off⇔ <b>On</b> ⇔
[AD.CONV.]	(2) Puch the $\mathbf{\Psi}$ /PHASE key and confirm the setting value	[
On	(3) Transition to the following screen by the setting AD CONV ([On]/[Off])	AD.CONV The setting value is set in AD convert
[4]	[On] setting $\rightarrow$ To 12-3	per CH
	[Off] setting $\rightarrow$ To 12-6	
12-3.	(1) Push the $\pm$ or $\Box$ key, and select the input range.	[Range]: <b>Current</b> ⇔Voltage⇔
[Range]	(2) Push the $\mathbf{\Psi}$ /PHASE key and confirm the setting value	
Current	(3) 12-4 will be displayed.	
[11]		
12-4.	(1) Push the $\blacksquare$ $\blacksquare$ $\blacksquare$ $\blacksquare$ key, and change the number of moving average.	[Moving average]:001 to 100 ( <u>001</u> )
[Moving	(2) Push the (/PHASE) key, and confirm the setting value.	
01 times	(3) 12-5 will be displayed.	
[1]		
12-5	(1) Rugh the $\mathbf{A} \mathbf{\nabla} + \mathbf{\nabla}$ key and change the unper limit lower limit and unit of	[lipp], 20767 to 20767 ( <b>4005</b> )
[Scaling]		[Upp]:-32767 to 32767 ( <b>4035</b> )
Upp.: 04095	(2) Duch the UPHASE key and confirm the patting value	[Low]: -52707 (0.52700) (0.52700) (0.52700) (0.52700)))))))))))))))))))))))))))))))))))
Low.: 00000	(2) Fush the displayed	
Unit:Non [1]	(3) 12-0 will be displayed.	
12-6.	(1) Push the + or - key, and select the AD converted/(On)/(Off))	[AD.CONV.]:Off⇔ <b>On</b> ⇔
[AD.CONV.]	(2) Push the $\checkmark$ /PHASE key and confirm the setting value	· · · · · · ·
Ön	(3) Transition to the following screen by the setting AD CONV ([On]/[Off])	AD.CONV The setting value is set in AD convert
[2]	[On] setting $\rightarrow$ To 12-7	per CH
	[Off] setting $\rightarrow$ To 12-10	
12-7.	(1) Push the $\pm$ or $-$ key, and select the input range.	[Range]∶ <b>Current</b> ⇔Voltage⇔
[Range]	(2) Push the (/PHASE) key, and confirm the setting value.	
Current	(3) 12-8 will be displayed.	
[2]		
12-8.	(1) Push the $\blacksquare$ $\bigcirc$ (+) $\bigcirc$ key, and change the number of moving average.	[Moving average]:001 to 100 ( <b>001</b> )
[Moving	(2) Push the $\mathbf{\Psi}$ /PHASE key and confirm the setting value	
average]	(3) 12-9 will be displayed.	
	(-)	
12.0	(1) Duch the A T - key and shange the upper limit lower limit and upit of	[lipp], 20767 to 20767 ( <b>4005</b> )
[Scoling]		[Upp]:-32767 to 32767 ( <b>4035</b> )
Upp.: 04095	(2) Duch the <b>H</b> /PHASE key and confirm the patting value	[Low]: -52707 (0.52700) (0.52700) (0.52700) (0.52700)))))))))))))))))))))))))))))))))))
Low.: 00000	(2) Push the (1717) Key, and confirm the setting value.	
Unit:Non [2]		
12-10.	(1) Push the ⊥ or ∟ key, and select the AD converted([On]/[Off]).	[AD.CONV.]∶Off⇔ <u>On</u> ⇔
[AD.CONV.]	(2) Push the ( PHASE) key, and confirm the setting value.	AD CONV The setting value is set in AD convert
	(3) Transition to the following screen by the setting AD.CONV.([On]/[Off]).	per CH
[3]	[On] setting $\rightarrow$ To 12-11	
12 11	[OII] setting $\rightarrow$ 10 12-14 (1) Duch the $\oplus$ example of explore the input range	[Denge] Current#\/elteget
[Range]	(1) Fush the $\Box$ of $\Box$ key, and select the input range.	[Range]: <u>current</u> ~ vonage ~
Current	(2) Push the (PTRASE) key, and confirm the setting value.	
	(5) 12-12 will be displayed.	
3]		
12-12.	(1) Push the $\bigtriangleup$ $(\bullet)$ $(\pm)$ $(\pm)$ key, and change the number of moving average.	[Moving average]:001 to 100 ( <u>001</u> )
[Moving	(2) Push the ( PHASE) key, and confirm the setting value.	
001 times	(3) 12-13 will be displayed.	
[3]		
12-13.	(1) Push the 🛦 💌 🛨 🖃 key, and change the upper limit, lower limit, and unit of	[Upp]:-32767 to 32767 ( <b>4095</b> )
[Scaling]	scaling.	[Low]:-32767 to 32767 ( <b>0</b> )
Upp.: 04095	(2) Push the (/PHASE) key, and confirm the setting value.	[Unit]: <b>Non</b> ⇔A⇔mA⇔kA⇔V⇔kV⇔W⇔kW⇔MW⇔Hz⇔
Unit:Non [3]	(3) 12-14 will be displayed.	N⇔kN⇔Pa⇔kPa⇔MPa⇔C⇔deg⇔%⇔
12-14.	(1) Push the $\pm$ or $-$ key and select the $\Delta D$ converted/(On)/(Off))	[AD CONV1·Off⇔ <b>On⇔</b>
IAD CONV1	(1) Push the $\mathbf{\Psi}$ /PHASE key, and select the AD converted ([Only[Only].	[/.B.660111.].611.01 <u>011</u> .01
Ön Ön	(3) Transition to the following screen by the setting AD CONV (IOn1/IOff)	AD.CONV The setting value is set in AD convert
[41	[On] setting $\rightarrow$ To 12-15	per CH
	[Off] setting $\rightarrow$ To 12-1	
12 <u>-15</u> .	(1) Push the $\pm$ or $\Box$ key, and select the input range.	[Range]∶ <u>Current</u> ⇔Voltage⇔
[Range]	(2) Push the ( /PHASE) key, and confirm the setting value.	
Current	(3) 12-16 will be displayed.	
[4]		
12-16.	(1) Push the 🛦 💌 🛨 🚍 key, and change the number of moving average.	[Moving average]:001 to 100 ( <b>001</b> )
[Moving	(2) Push the /PHASE key, and confirm the setting value	
average]	(3) 12-17 will be displayed.	
[41]		
12-17	(1) Push the $\mathbf{A} = \mathbf{\nabla} + \mathbf{\nabla}$ key and change the unner limit lower limit and unit of	[Upp]:-32767 to 32767 ( <b>4095</b> )
[Scaling]	scaling.	[low]:-32767 to 32767 (0)
Upp.: 04095	(2) Push the $(\mathbf{\Psi}/\text{PHASE})$ key and confirm the setting value	$[\text{Unit}] \cdot \mathbf{Non} \Leftrightarrow A \Leftrightarrow mA \Leftrightarrow kA \Leftrightarrow V \Leftrightarrow kV \Leftrightarrow W \Leftrightarrow W \Leftrightarrow W \land W$
Low.: 00000	(3) 12-1 will be displayed.	Hz⇔N⇔kN⇔Pa⇔kPa⇔MPa⇔C⇔den⇔%⇔
Unitinon [4]		

13 Setup the Number Limit (EMU4-AX4 only)		
Screen	Operation	Note
13-1. [Measure] 10DIF.CONV 11AD.CONV. IIAD.CONV.	<ul> <li>(1) In 13-1, push the ▲ or  key, and move the cursor to the "12 Num.Limit".</li> <li>(2) Push the  <sup>→</sup>/PHASE key.</li> <li>(3) 13.1-1 will be displayed</li> </ul>	Num.LimitSet 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 (EMII/LAYA only)		
Screen	Operation	Note
13.1-1. [Num.Limit] 1 Limit A 2 Limit B 3 Limit C ▼	(1) In 13.1-1, push the ▲ or ▼ key, and move the cursor to the "1 Limit A". (2) Push the ∉/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]	<ul> <li>(1) Push the ▲ ▼ ⊕</li></ul>	LimitSet any scaling value. You can configure the four different limits for limit A, limit B, limit C, and limit D. [Limit A]: <b>Scaling Low</b> to Scaling Upp
13.1-3. [Limit A] 32767 [2]	<ul> <li>(1) Push the ▲ ▼ + - key, and change the set value.</li> <li>(2) Push the</li></ul>	*If scaling setting value is set "Scaling Low > Scaling Upp", default setting is Scaling Upp.
13.1-4. [Limit A] 32767 [3]	<ul> <li>(1) Push the ▲ ▼ ⊕</li></ul>	
13.1-5. [Limit A] 32767 [4]	<ul> <li>(1) Push the ▲ ▼ ⊕</li></ul>	

13.2 Setup the multiplying factor (EMU4-AX4 only)			
Screen Operation Note			
13.2-1. [Num.Limit] 3 Limit C 4 Limit D ■ Factor	<ul> <li>(1) In 13.2-1, push the ▲ or ▼ key, and move the cursor to the "5 Factor".</li> <li>(2) Push the</li></ul>	FactorSet up the multiplying factor displayed of Number Limit.	
13.2-2. [Factor] XI [1]	<ul> <li>(1) Push the ± or</li></ul>	[Factor]∶ <u>x1</u> ⇔x10⇔x100⇔x1000⇔	
13.2-3. [Factor] X1 [2]	<ul> <li>(1) Push the ± or  → key, and select the multiplying factor displayed.</li> <li>(2) Push the  ✓/PHASE key.</li> <li>(3) 13.2-4 will be displayed.</li> </ul>		
13.2-4. [Factor] XI [3]	<ul> <li>(1) Push the ± or  key, and select the multiplying factor displayed.</li> <li>(2) Push the  √/PHASE key.</li> <li>(3) 13.2-5 will be displayed.</li> </ul>		
13.2-5. [Factor] X1 [4]	<ul> <li>(1) Push the ± or  → key, and select the multiplying factor displayed.</li> <li>(2) Push the  ←/PHASE key.</li> <li>(3) 13.2-1 will be displayed.</li> </ul>		

te
Save       →Save setting and return to the operation mode.         Not Save       →Discard the changes and return to the operation mode.         Cancel       →Continue the setup.

\*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 cannot configure in the display unit is set to slave.)

\*If you change a setting, please push the *I*/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 <u>CIRCUIT</u> key on the "setup" screen (1-1), select the circuit, make the setting. \*In the case change or expand measuring unit, please reflect the setup value of wire phase system, rated voltage, and simple measuring to reference unit in same voltage system before setting. \*Same voltage system is same setting in wire system, primary voltage, 2 circuits Measuring existence, Simple measurement.

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

1 Transit to the Set	1 Transit to the Setup mode		
Screen	Operation	Note	
1-1. [Setup]	(1) Push the SETUP key in operation mode. (2) 1-1 will be displayed.		
1 Measure 2 I/O ▲ 3 COM. ▼	<ol> <li>Push the ▲ or ▼ key, and move the cursor to the "2 I/O".</li> <li>Push the ↓/PHASE key.</li> <li>2-1 will be displayed.</li> </ol>		

Storem         Descrition         Note           21         (1) In 2-1, path the L, or (1) key, and move the current of the "1 input".         (2) Put the UPHASE key.         (2) Put the UP	2 Setup input (EM	2 Setup input (EMU4-HM1-MB, EMU4-PX4)							
2-1       (1) Point The Lor (2) key, and move the cursor to the *1 input".       (2) Post the CHASS key.         2: Point the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Point the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Point the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Post the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Post the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Post the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Post the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Post the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         2: Post the CHASS key.       (2) Post the CHASS key.       (2) Post the CHASS key.         3: Transition to the following screent by the model.       (2) Post the CHASSS key.       (2) Post the CHASSS key.         2: Post the CHASSS key.       (2) Post the CHASSS key.       (2) Post the CHASSS key.       (2) Post the CHASSS key.         2: Post the CHASSS key.       (2) Post the CHASSS key.       (2) Post the CHASSS key.       (2) Post the CHASSS key.         2: Post the CHASSS key.       (2) Post the CHASSS key.       (2) Post the CHASSS key.       <	Screen	Operation	Note						
Implicit       22       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       23       22       24       25       25       25       26       26       26       26       26       26       26       26       26       26       26       27       26       27       26       27       26       27       26       27       27       27       26       27       27       27       27       27       28       29       29       29       29       24       26       27       27       27       27       27       28       29       29       29       29       24       29       24       20       29       24	2-1.	(1) In 2-1, push the  or  key, and move the cursor to the "1 input".							
Implifying the set of th	[I/O]	(2) Push the //PHASE key							
2 Output       0<	Input	(3) 2-2 will be displayed							
2.2.         (1) Push the [] or [] key, and select the input method. (Non/ContactPulse)	2 OP.Time								
2.2       (1) Plast the [] or [] key, and select the input method. (Non/ContactPluise)									
Imput       10       Push the C_PRESS_kay         10       3) Transition the following screen by the model and setting input method.       Input: Non-Contact=Pulse =          11       BMU4-PX4 enty       Nodel:EMU4-MM-MB = 70 2-1       Input: Non-Contact=Pulse =          2.3       Contact=EMU4-MM-MB = 70 2-1       Nodel:EMU4-PX4 - 170 2-5       Input: Non-Weicher Non-S         2.4       CONV.Fatel       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         11       Model: EMU4-PX4 - 170 2-5       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.4       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.4       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.4       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.5       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.5       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.6       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.6       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S       Input: Non-Weicher Non-S         2.7       Input: Non-Wei	2-2.	(1) Push the $\pm$ or $\Box$ key, and select the input method. (Non/Contact/Pulse)	<emu4-hm1-mb></emu4-hm1-mb>						
Image: Image	[Input]	(2) Push the $(\mathbf{\Psi}/\text{PHASE})$ key	[Input]∶ <u>Non</u> ⇔Contact⇔Pulse⇔						
11       Nonjsetting       Nonjsetting         11       Model:EMU4-PX4 - To 2-5       Pusite getting - To 2-3.         2.3       (Contact jetting - To 2-3.       (Contact jetting - To 2-3.         11       Pusite betting - To 2-3.       (Contact jetting - To 2-3.         12       (Dott/Rate)       (Dott/Rate)       (Contact jetting - To 2-4.         11       (Dott/Rate)       (Dott/Rate)       (Contact jetting - To 2-4.         11       (Dott/Rate)       (Dott/Rate)       (Contact jetting - To 2-4.         11       (Dott/Rate)       (Dott/Rate)       (Dott/Rate)         24.       (1)       (Dott/Rate)       (Dott/Rate)         11       (Dott/Rate)       (Dott/Rate)       (Dott/Rate)         25.       (1)       (Dott/Rate)       (Pot/Rate)       (Pot/Rate)         27.       (1)       (Dott/Rate)       (Pot/Rate)       (Pot/Rate)         28.       (1)       (Dott/Rate)       (Pot/Rate)       (Pot/Rate)         29.       (Dott/Rate)       (Pot/Rate)       (Pot/Rate)       (Pot/Rate)         29.       (Dott/Rate)       (Pot/Rate)       (Pot/Rate)       (Pot/Rate)         20.       (Dott/Rate)       (Pot/Rate)       (Pot/Rate)       (Pot/Rate)	Non	(3) Transition to the following screen by the model and setting input method.	<emu4-px4></emu4-px4>						
Model: EMU4-MM1-MB — To 2-1 (Dute) setting → To 2-3. [Contract [Setting → To 2-3. [Contract [Setting → To 2-3. [Contract [Setting → To 2-3. [Contract [Setting → To 2-4. [Contract [Push the l] (PT ] ] key, and confirm the setting value. (3) Push the l] (PT ] ] key, and setting the "CONV/Rate" value and unit. (3) Push the l] (PT HASE key, and setting the setting value. (3) Push the l] (PT HASE key, and setting the setting value. (4) Push the l] (PT HASE key, and setting the setting input method. (5) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the setting input method. (7) Push the l] (PT HASE key, and setting the CONV/Rate' value and unit. (7) Push the l] (PT HASE key, and setting input method. (7) Push the l] (PT HASE k	[1]	[Non] setting	[Input]∶ <b>Pulse</b> ⇔Contact⇔Non⇔						
BMULE-PX4 any         Model: EMUL4PX4 - To 2-5           23.         [Contact] setting → To 2-3.           [Contact] setting → To 2-3.         [Contact] setting → To 2-4.           [Contact] setting → To 2-4.         [Contact] setting → To 2-5           [Contact] To Push the ±/PEMASE key, and confirm the setting value.         [Uht] Mon eWh ek/Wh eMWh e Je m <sup>2</sup> co m <sup>2</sup> setting → To 2-5           [Contact] Push the ±/PEMASE key.         [ResetModel] Autor and the field of the reset mode.           [ResetModel] To De key, and select the reset mode.         [ResetModel] Autor and the field of the model.           [Contact input state is not anticontact input is less.         [ResetModel] Autor and the field of the field o		Model: EMU4-HM1-MB $\rightarrow$ To 2-1							
Public Setting → To 2-3.       [Control setting → To 2-4.         [CONV/Rate]: 0.001 to 10000( <u>1000</u> )         [CONV/Rate]: 0.001 to 1	EMU4-PX4 only	Model: EMU4-PX4 $\rightarrow$ To 2-5							
Contact getting → To 2.4.         CONV/Rate          CONV/Rate : 0.001 to 10000(1.000)           11 Push the (2/PEASE) key, and confirm the setting value.         Unit(): Non=Wh+ekWh+eAWh+0 ≤ m <sup>2</sup> ≤	,	[Pulse] setting $\rightarrow$ To 2-3.							
23.       (1) Push the [a] (□] □] (a) key, and change the "CONV/Rate" value and unit.       (DONV/Rate): 0.001 to 10000(1000)         (2) Push the (□/PMSE key, and confirm the setting value.       (DONV/Rate): 0.001 to 10000(1000)         (2) Push the (□/PMSE key, and confirm the setting value.       (DONV/Rate): 0.001 to 10000(1000)         (1) Push the (□) or [] key, and select the reset mode.       (PersetMode)         (1) Push the (□) or [] key, and select the reset mode.       (PersetMode)         (1) Push the (□) or [] key, and select the reset mode.       (PersetMode)         (1) Push the (□) or [] key, and select the reset mode.       (PersetMode)         (1) Push the (□) or [] key, and select the reset mode.       (PersetMode)         (1) Push the (□) or [] key, and select the input method. (Non/Contact/Pulse)       (PersetMode)         (2) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.       (Port) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.         (2) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.       (Port) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.         (2) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.       (Port) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.         (2) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and unit.       (Port) Push the (□) Push the [] or [] key, and change the "CONV/Rate" value and		[Contact] setting $\rightarrow$ To 2-4.							
CONVRAte Unit       (2) Push the (2/PEASE) key, and confirm the setting value.       (1) Init: Non=Wh+#kWh ⇔ Jem <sup>2</sup> ⇔ m <sup>3</sup> ⊂ LekL ⇔sec=min=hour         24.       1) Push the (1) or (1) key, and select the reset mode.       (2) Push the (2/PEASE) key.       (2) Push the (2/PEASE) key.         24.       1) Push the (1) or (1) key, and select the reset mode.       (2) Push the (2/PEASE) key.       (2) Push the (2/PEASE) key.         25.       (1) Push the (1) or (1) key, and select the input method.       (Non/Contact/Pulse)       (Mu4-PX4)         26.       (1) Push the (1) or (1) key, and select the input method.       (Non/Contact/Pulse)       (Mu4-PX4)         27.       (1) Push the (1) or (1) key, and select the input method.       (Non/Contact/Pulse)	2-3.	(1) Push the 🔟 💌 🛨 🖃 key, and change the "CONV./Rate" value and unit.	[CONV./Rate]:0.001 to 10000( <u>1.000</u> )						
Import Internation to the following screen by the model.       Model: EMUL4 PX4 → T0 2-5         Model: EMUL4 PX4 → T0 2-5       Model: EMUL4 PX4 → T0 2-5         Import Internation to the following screen by the model.       Model: EMUL4 PX4 → T0 2-5         ResetModel       (1) Push the (1) or (1) key, and select the reset mode.         (2) Push the (1) (2) Push the (1) or (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	[CONV.Rate]	(2) Push the (/PHASE) key, and confirm the setting value.							
Impart       Model: EMU4+MM1-MB → To 2-1         Model: EMU4+ZA only       Procession         24.       (1) Push the <u>1</u> or <u>1</u> key, and select the reset mode.         (2) Push the <u>1</u> or <u>1</u> key, and select the reset mode.       (2) Push the <u>1</u> or <u>1</u> key, and select the reset mode.         (2) Push the <u>1</u> or <u>1</u> key, and select the reset mode.       (ResetMode]: <u>Auto</u> ⇔Hold⇔         (2) Push the <u>1</u> or <u>1</u> key, and select the input method.       (Non/Contact/Puise)         (3) Push the <u>1</u> or <u>1</u> key, and select the reset mode.       (ResetMode): <u>1</u> ubit on the following screen by the setting input method.         (1) Push the <u>1</u> or <u>1</u> key, and change the "CONV/Rate" value and unit.       (2) Push the <u>1</u> or <u>1</u> key, and change the "CONV/Rate" value and unit.         (2) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.       (2) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.         (1) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.       (2) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.         (2) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.       (2) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.         (2)       (1) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.       (2) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.         (2)       (1) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.       (2) Push the <u>1 or <u>1</u> key, and select the reset mode.         (2)       (1) Push the <u>1</u> or <u>1</u> key, and select the Reset mode.       (2) Push the <u>1</u></u>	1.000 [  Init]	(3) Transition to the following screen by the model.	[Unit]∶ <u>Non</u> ⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔						
Model: EMU4+PX4 → To 2.5       piece ⊕steg ⇔kg ⇔t ⊕ ¥ ⊕ \$ ⊕         24.       (1) Push the U or key, and select the reset mode.       (2) Push the U or key, and select the reset mode.       (3) Transition to the following screen by the model.         (1)       (1) Push the U or (-) key, and select the input method. (Non/Contact/Pulse)       (4) Contact input state is reset automatically when contact input is reset.         (1)       (1) Push the U or (-) key, and select the input method. (Non/Contact/Pulse)       (4) Pulse estimp - To 2.4.         (2)       (1) Push the U or (-) key, and select the input method. (Non/Contact/Pulse)       (4) Pulse estimp - To 2.4.         (2)       (1) Push the U or (-) key, and select the reset mode.       (2) Push the U or (-) key, and confirm the setting value.         (1) Push the U or (-) key, and select the reset mode.       (2) Push the U or (-) key, and select the Reset mode.       (2) Push the U or (-) key, and select the Reset mode.         (2) Push the U or (-) key, and select the Reset mode.       (2) Push the U or (-) key, and select the Reset mode.       (2) Push the U or (-) key, and select the Reset mode.         (2)       (2) Push the U or (-) key, and select the input method. (Non/Contact/Pulse)       (2) Push the U or (-) key, and select the input method. (Non/Contact/Pulse)         (2)       (1) Push the U or (-) key, and select the input method. (Non/Contact/Pulse)       (2) Push the U or (-) key, and select the reset mode.         (2)       (2) Push the U or (-) key, and select the in	Non [1]	Model: EMU4-HM1-MB $\rightarrow$ To 2-1	m³⇔L⇔kL⇔sec⇔min⇔hour⇔						
EMUL4-PX4 only       Past the	<u></u>	Model: EMU4-PX4 $\rightarrow$ To 2-5	piece⇔set⇔g⇔kg⇔t⇔¥⇔\$⇔						
2.4.       (1) Push the U r → key, and select the reset mode.       [ResetMode]       [ResetMode]       Auto → Contact input state is reset automatically.         Model:EMU4+MI-MB → To 2-1       Model:EMU4+MI-MB → To 2-1       Model:EMU4+MI-MB → To 2-1       Hold → Contact input state is not not following screen by the model.         Model:EMU4+MI-MB → To 2-5       Model:EMU4+MI-MB → To 2-1       Hold → Contact input state is not not chart input is less.         [Input]       [Input]       [Input]       States is not not following screen by the setting input method.       [NonContact/Pulse]         [Input]       [Input]       [Input]       [Input]       States is not not not following screen by the setting input method.       [NonContact/Pulse]         [Input]       [Input]       [Input]       States is not	EMU4-PX4 only								
PresetModel Imputing	2-4	(1) Duch the the rest made							
Image: Section of the Section by the Section by the model.       AutoContact input state is reset automatically when contact input state is hold unit con	ResetModel								
Image: State in the state	Auto	(2) Push the $( - r)$ Key.	AutoContact input state is reset automatically						
Impute		(3) Transition to the following screen by the model.	when contact input is less.						
ENUL4-PX4 of U2-25       MUDUP: ENUL4-PX4 → 10 2-25       released even thought contact input is less. contact input, ● 6.8.3)         2-5.       (1) Push the (1) or (-) key, and select the input method. (Non/Contact/Pulse)       (2) Push the (1) Pulse	[1]	$Model: EMU4-RM I - MB \rightarrow 10 2-1$	HoldContact input state is hold until contact input						
EMU4-PX4 only       (For information about how to release of the contact input, ● 58.3)         2-5.       (1) Push the ① r _ key, and select the input method. (Non/Contact/Pulse)	<b>↑</b>	$NIOUEI: ENIO4-FA4 \to IOZ-S$	released even thought contact input is less.						
2-5.       (1) Push the ± or _ key, and select the input method. (Non/Contact/Pulse)       contact input, ● 5.8.3)         2-5.       (1) Push the ± Or _ key, and select the input method. (Non/Contact/Pulse)       (RMU4-PX4         (1) Push the ± Or _ 2-3.       (Pulse) setting → To 2-3.       (Input] • Pulse ⇔ Contact ⇔ Non ⇔         2-6.       (1) Push the ± Or _ 2-3.       (CONV.Rate)       (CONV.Rate)       (Input] • Pulse ⇔ Contact ⇔ Non ⇔         (2) Push the ± Or _ 2-3.       (1) Push the ± Or _ 2-3.       (Input] • Pulse ⇔ Contact ⇔ Non ⇔       (Input] • Pulse ⇔ Contact ⇔ Non ⇔         (2) Push the ± Or _ 2-3.       (1) Push the ± Or _ 2-3.       (Input] • Pulse ⇔ Contact ⇔ Non ⇔       (Input] • Pulse ⇔ Contact ⇔ Non ⇔         (2) Push the ± Or _ 2-3.       (2) Push the ± Or _ key, and confirm the setting value.       (Input] • Pulse ⇔ Contact ⇔ Non ⇔         (2) Push the ± Or _ key, and select the Reset mode.       (2) Push the ± Or _ key, and select the input method. (Non/Contact/Pulse)       (Input] • Pulse ⊕ Contact input is less. (For information about how to release of the contact input is less.         (2)       (1) Push the ± or _ 2-11.       (Non) setting → To 2-13.       (Input] • Pulse ⊕ Contact ⇔ Non ⇔         (2)       (1) Push the ± Or _ 2-11.       (Non) ≤ Pulse) ⊕ (PULSE) key, and change the *CONV/Rate' value and unit.       (Input] • Pulse ⊕ Contact ⇔ Non ⇔         (3)       (1) Push the ± Or _ key, and change the *CONV/Rate' value and unit.       (Inpu	EMU4-PX4 only		(For information about how to release of the						
2-5.       (1) Push the $\frac{1}{2}$ or $\frac{1}{2}$ key, and select the input method. (Non/Contact/Pulse) <emu4-px4>         [Input]       (2) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> A.       [Input]: <u>Pulse</u> <math>\Rightarrow</math> Contact <math>\Rightarrow</math> Non <math>\Rightarrow</math>         2-6.       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> A.       [CONV.Rate]       [Input]: <u>Pulse</u> <math>\Rightarrow</math> Contact <math>\Rightarrow</math> Non <math>\Rightarrow</math>         2-7.       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and confirm the setting value.       (2) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and select the Reset mode.       [Input]         2-7.       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and select the Reset mode.       [ResetMode]       [ResetMode]         2-8.       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and select the input method. (Non/Contact/Pulse)       [ResetMode]       AutoContact input is less.         2-8.       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and select the input method. (Non/Contact/Pulse)       [CONV.Rate]       (Input]         2-8.       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and select the input method. (Non/Contact/Pulse)       [CONV.Rate]       (Input]         3       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and change the "CONV.Rate" value and unit.       [CONV.Rate]       (Input]         3       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and change the "CONV.Rate" value and unit.       [CONV.Rate]       [Input]         3       (1) Push the <math>\frac{1}{2}</math> or <math>\frac{1}{2}</math> key, and change the "CONV.Rate" value and unit.       [CONV.Rate]</emu4-px4>			contact input, 🖝 6.8.3)						
Imput]       (2) Push the (2/PHASE) key.       [Input]: Pulse ⇔ Contact ⇔ Non ⇔         (3) Transition to the following screen by the setting input method. [Non] setting → To 2-8. [Contact] setting → To 2-7.       [Input]: Pulse] setting → To 2-7.         2-6.       (1) Push the (2/PHASE) key, and change the *CONV/Rate* value and unit. [2]       [CONV.Rate] [2]         (2) Push the (2/PHASE) key, and confirm the setting value. [3]       (1) Push the (1) or (-) key, and select the Reset mode. [2]       [CONV.Rate]         2-7.       (1) Push the (1) or (-) key, and select the Reset mode. [2]       (2) Push the (2/PHASE) key. [3]       [ResetMode]         2-7.       (1) Push the (1) or (-) key, and select the input method. (Non/Contact/Pulse) [2]       [ResetMode]       [ResetMode]         2-7.       (1) Push the (1) or (-) key, and select the input method. (Non/Contact/Pulse) [2]       [ResetMode]       [ResetMode]         [2]       (1) Push the (1) or (-) key, and select the input method. (Non/Contact/Pulse) [2]       [ResetMode]       [ResetMode]         [3]       (1) Push the (1) or (-) key, and change the "CONV/Rate" value and unit. [3]       [CONV/Rate]       [Input]: Pulse exting value. [3]       [CONV/Rate]: 0.001 to 10000(1_000)         [2-9.       (1) Push the (1) or (-) key, and confirm the setting value. [3]       [1) Push the (1) or (-) key, and confirm the setting value. [3]       [2]       [CONV/Rate]: 0.001 to 10000(1_000)         [2-9.       (1) Push the (1) or (	2-5.	(1) Push the 💾 or 🗔 key, and select the input method. (Non/Contact/Pulse)	<emu4-px4></emu4-px4>						
(3) Transition to the following screen by the setting input method. [Non] setting → To 2-8. [CONV.Rate] [Uote] setting → To 2-7.       [CONV.Rate]:0.001 to 10000( <u>1.000</u> )         2-6.       (1) Push the ▲ ♥ ➡ key, and change the "CONV.Rate" value and unit.       [CONV.Rate]         (1) Push the ▲ ♥ ➡ key, and select the Reset mode.       [Contact] setting → to 2-8.         (2)       (1) Push the ▲ ♥ ➡ key, and select the Reset mode.       [ResetMode]         (2)       (1) Push the ★ or ➡ key, and select the Reset mode.       [ResetMode]         (2)       (2)       (1) Push the ★ or ➡ key, and select the input method. (Non/Contact/Pulse)       [ResetMode]: Auto Contact input state is reset automatically when contact input is less.         (2)       (1) Push the ★ or ➡ key, and select the input method. (Non/Contact/Pulse)       (2) Push the ♥ / ₱ AE S.)       <	< <td>&lt;<td>&lt;<td>&lt;<td>&lt;<td></td><td>[Input]</td><td>(2) Push the () Key.</td><td>[Input]∶<b>Pulse</b>⇔Contact⇔Non⇔</td></td></td></td></td>	< <td>&lt;<td>&lt;<td>&lt;<td></td><td>[Input]</td><td>(2) Push the () Key.</td><td>[Input]∶<b>Pulse</b>⇔Contact⇔Non⇔</td></td></td></td>	< <td>&lt;<td>&lt;<td></td><td>[Input]</td><td>(2) Push the () Key.</td><td>[Input]∶<b>Pulse</b>⇔Contact⇔Non⇔</td></td></td>	< <td>&lt;<td></td><td>[Input]</td><td>(2) Push the () Key.</td><td>[Input]∶<b>Pulse</b>⇔Contact⇔Non⇔</td></td>	< <td></td> <td>[Input]</td> <td>(2) Push the () Key.</td> <td>[Input]∶<b>Pulse</b>⇔Contact⇔Non⇔</td>		[Input]	(2) Push the () Key.	[Input]∶ <b>Pulse</b> ⇔Contact⇔Non⇔
[2]       [Non] setting → To 2-8. [Contact] setting → To 2-7. [Contact] setting → To 2-7.       [Contact] setting → To 2-7. [Contact] setting → To 2-7.         [2]       (1) Push the [a] © ① ≥ key, and confirm the setting value.       [Unit]: Non@Wh⇔kWh⇔MWh⇔J⇔m²⇔ m³⇔t⊟kL@scc⇔min@hour⇔ piece⇔seteg@kg@tEw ¥ ⇔ \$ ⇔         [2]       (2) Push the [1] or ○ key, and select the Reset mode.       [Unit]: Non@Wh⇔kWh⇔MWh⇔J⇔m²⇔ m³⇔t⊟kL@scc⇔min@hour⇔ piece⇔seteg@t@twetw ¥ ⇔ \$ ⇔         [2]       (2) Push the [1] or ○ key, and select the Reset mode.       [ResetMode]: Auto → Hold⇔         [2]       (2) Push the [1] or ○ key, and select the input method. (Non/Contact/Pulse)       [ResetMode]: Auto → Hold⇔         [2]       (1) Push the [1] or ○ key, and select the input method. (Non/Contact/Pulse)       (2) Push the [1] or ○ key, and select the input method. [Non] setting → To 2-10.       (2) Push the [1] or ○ key, and confirm the setting value.       [CONV/Rate]:0.001 to 10000(1.000)         [3]       (1) Push the [1] or ○ key, and confirm the setting value.       [CONV/Rate]:0.001 to 10000(1.000)       (2) Push the [1] or ○ key, and confirm the setting value.       [CONV/Rate]:0.001 to 10000(1.000)         [3]       (1) Push the [1] or ○ key, and select the Reset mode.       [CONV/Rate]:0.001 to 10000(1.000)       [Unit]: Non ⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔ m³⇔L⇔kL@sec@min@hour⇔ piece⇔set@g@kg@tW ¥ ⇔ \$ ©         [2-0.       (1) Push the [1] or ○ key, and select the Reset mode.       [CONV/Rate]:0.001 to 10000(1.000)       [Unit]: Non ⇔Wh⇔kWh ⇔MWh⇔J⇔m²⇔ m³⇔L ⇔kL@sec@tmin@hour⇔ piece⇔set@g@kg	NON	(3) Transition to the following screen by the setting input method.							
Image: Setting → To 2-6.       [CONV/Rate]: 0.001 to 10000(1_000)         2-6.       (1) Push the Image: Setting → To 2-7.         2-6.       (1) Push the Image: Setting → To 2-7.         (2) Push the Image: Setting → To 2-7.       [Unit]: Non⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔         (2) Push the Image: Setting → To 2-7.       [Unit]: Non⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔         (2) Push the Image: Setting → To 2-7.       [Unit]: Non⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔         (2) Push the Image: Setting → To 2-7.       [I] Push the Image: Setting → To 2-7.         (2)       (1) Push the Image: Setting → To 2-7.       [I] Push the Image: Setting → To 2-7.         (2)       (1) Push the Image: Setting → To 2-7.       [ResettMode]: Auto Setting → To 2-7.         (2)       (1) Push the Image: Setting → To 2-7.       [ResettMode]: Auto Setting → To 2-7.         (2)       (1) Push the Image: Setting → To 2-7.       [ResettMode]: Auto Setting → To 2-7.         (2)       (1) Push the Image: Setting → To 2-7.       [I] Push the Image: Setting → To 2-7.         (3)       (1) Push the Image: Setting → To 2-7.       [I] Push the Image: Setting → To 2-7.         (3)       (1) Push the Image: Setting → To 2-7.       [I] Push the Image: Setting → To 2-7.         (3)       (1) Push the Image: Setting → To 2-7.       [I] Push the Image: Setting → To 2-7.         (3)       (2) Push the Image: Setting → To 2-7.       [I] Push the Image: Seting	[2]	[Non] setting $\rightarrow$ To 2-8							
2-6.       (1) Push the 10 2-7.         2-6.       (1) Push the 10 1 10 key, and confirm the setting value.         (2) Push the 10 1 10 key, and confirm the setting value.       (2) Push the 10 10000(1.000)         (1) Push the 11 or 1 key, and select the Reset mode.       (2) Push the 10 or 1 key, and select the Reset mode.         (2) Push the 11 or 1 key, and select the Reset mode.       (2) Push the 11 or 1 key, and select the Reset mode.         (2) Push the 11 or 1 key, and select the Reset mode.       (2) Push the 11 or 1 key, and select the input method. (Non/Contact input state is reset automatically when contact input is less.         (1) Push the 11 or 1 key, and select the input method. (Non/Contact/Pulse)       (2) Push the 11 or 1 key, and select the input method. (Non/Contact/Pulse)         (2) Push the 11 or 1 key, and select the input method. (Non/Contact/Pulse)       (2) Push the 12 or 1 key, and select the input method. (Non/Contact/Pulse)         (3) Z-8.       (1) Push the 12 or 1 key, and confirm the setting input method. (Non/Contact/Pulse)       (2) Push the 12 or 2 Pulse         (3) Transition to the following screen by the setting input method.       (Non) setting - To 2 Pulse       (2) Push the 12 or 2 Pulse         (1) Push the 12 or 12 key, and confirm the setting value.       (2) Push the 12 or 2 Pulse       (2) Push the 12 or 2 Pulse         (3) 2-11 will be displayed.       (1) Pulse key, and select the Reset mode.       (2) Push the 12 or 2 key, and select the Reset mode.         (2) Push the 12 or		[Pulse] setting $\rightarrow$ 10 2-6.							
2-0.       (1) Push the ▲ ○ □ ▲ Sey, and change the CONV/Rate value and unit.       (2) CONV.Rate]         (1) Push the ▲ ○ □ ★ Sey, and change the CONV/Rate value and unit.       (3) 2-8 will be displayed.       (1) Push the ▲ ○ □ ★ Sey         2-7.       (1) Push the ★ ○ □ ★ Sey, and select the Reset mode.       (2) Push the ★ ○ □ ★ Sey       (1) Push the ★ ○ □ ← Sey         2-7.       (1) Push the ★ ○ □ ← Key, and select the Reset mode.       (2) Push the ★ ○ □ ← Key, and select the Reset mode.       (2) Push the ★ ○ □ ← Key, and select the input method. (Non/Contact/Pulse)         (2)       (2)       (1) Push the <code> + or = key</code> , and select the input method. (Non/Contact/Pulse)       (For information about how to release of the contact input is less.         (2)       (1) Push the <code> + or = key</code> , and select the input method. (Non/Contact/Pulse)       (For information about how to release of the contact input is less.         (3)       (1) Push the ▲ ○ □ ▲ key, and change the *CONV/Rate* value and unit.       (Input] • Pulse exting → To 2-10.         2-9.       (1) Push the ▲ ○ □ ▲ key, and change the *CONV/Rate* value and unit.       (IONV/Rate) • Doto1 to 10000(1_000)         (Input]       (3)       (1) Push the ▲ ○ □ ▲ key, and change the *CONV/Rate* value and unit.       (IONV/Rate) • Doto1 to 10000(1_000)         (I) Push the ▲ ○ □ ▲ key, and change the *CONV/Rate* value and unit.       (IONV/Rate) • Doto1 to 10000(1_000)       (Input) • Pulse • Contact input state is reset automatically wheh contact input state is reset automaticall	2.6	[Contact] setting $\rightarrow$ 10 2-7.	[CONV//Deta]: 0.001 to 10000( <b>4.000</b> )						
[2] Push the @_PPHASE       key, and confirm the setting value.       [Unit]: Non⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔         [3]       [1] Push the ± or _ key, and select the Reset mode.       [ResetMode]       [ResetMode]: Auto⇔Hold⇔         [2]       [2]       [1] Push the ± or _ key, and select the Reset mode.       [ResetMode]: Auto⇔Hold⇔         [2]       [2]       [2]       [2]       [2]       [2]         [2]       [2]       [3] 2-8 will be displayed.       [ResetMode]: Auto …Contact input state is reset automatically when contact input is less.         [2]       [2]       [2]       [2]       [2]         [2]       [2]       [2]       [2]       [2]         [2]       [2]       [2]       [2]       [2]         [2]       [2]       [2]       [2]       [2]         [2]       [2]       [2]       [2]       [2]         [2]       [2]       [2]       [3]       [2]         [2]       [3]       [3]       [3]       [3]       [4]         [1]       Push the ± or _ key, and select the input method. [Non/Contact/Pulse]       [1]       [1]         [1]       Pulse] setting → To 2-9.       [2]       [2]       [1]       [1]         [2]       [2]       [1]       Pus	Z-0.		[CONV./Rate]:0.001 to 10000( <u>1.000</u> )						
Initition       [2]       [3] 2-8 will be displayed.       [0] Initition       Initition <td< td=""><td></td><td>(2) Push the ( PHASE) key, and confirm the setting value.</td><td><math>[l nit] \cdot Non \oplus (A/h \oplus l_{1}/A/h \oplus M/A/h \oplus l_{2}) \oplus m^{2} \oplus</math></td></td<>		(2) Push the ( PHASE) key, and confirm the setting value.	$[l nit] \cdot Non \oplus (A/h \oplus l_{1}/A/h \oplus M/A/h \oplus l_{2}) \oplus m^{2} \oplus$						
Image: Set	[Unit]	(3) 2-8 will be displayed.							
2-7.       (1) Push the ① or _ key, and select the Reset mode.       [ResetMode]         [2]       (1) Push the ① or _ key, and select the Reset mode.       [ResetMode]: Auto ⇔Hold ↔         [2]       (2) Push the ② or _ key, and select the input method.       [ResetMode]: Auto ⇔Hold ↔         [2]       (1) Push the ① or _ key, and select the input method. (Non/Contact/Pulse)       [ResetMode]: Auto ⇔Hold ↔         [2]       (1) Push the ① or _ key, and select the input method. (Non/Contact/Pulse)       (For information about how to release of wen though to contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For information about how to release of the contact input is less. (For info	Non [2]								
2-7.       (1) Push the U or ⊆ key, and select the Reset mode.       (2) Push the U/PHASE key.         (3) 2-8 will be displayed.       (3) 2-8 will be displayed.       AutoContact input state is reset automatically when 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, Telese Contact Pulse)         2-8.       (1) Push the U/PHASE key.       (3) Transition to the following screen by the setting input method. (Non/Contact/Pulse) <emu4-px4>         [Input]       (3)       (1) Push the I Or ⊆ key, and change the "CONV/Rate" value and unit. [CONV/Rate] to the divertise the setting value.       [CONV.Rate]       (1) Push the I Or ⊆ key, and confirm the setting value.         [Input]       (3)       (1) Push the I Or ⊆ key, and select the Reset mode.       [CONV.Rate]       [CONV.Rate]         [Input]       (3)       (1) Push the I Or ⊆ key, and confirm the setting value.       [Input]       [Input]         [Input]       (3)       (1) Push the I Or ⊆ key, and select the Reset mode.       [ResetMode]       [Input]         [Input]       (3)       (1) Push the I Or ⊆ key, and select the Reset mode.       [ResetMode]       [Input]         [Input]       (3)       (1) Push the I Or ⊆ key, and select the Reset mode.       [ResetMode]       [ResetMode]         [Input]       (3)       (1) Push the I Or ⊆ key, and select the Reset mode.       [ResetMode]&lt;</emu4-px4>	2.7								
[2]       (2) Push the (2/PHASE) key.       (3) 2-8 will be displayed.       AutoContact input state is reset automatically when contact input is less.         [2]       (3) 2-8 will be displayed.       HoldContact input state is reset automatically when contact input is less.         [2]       (1) Push the ± or = key, and select the input method. (Non/Contact/Pulse)          [1]       [1] Push the ± or = key, and select the input method. (Non/Contact/Pulse)          [1]       [1] Push the ± or = key, and select the input method. (Non/Contact/Pulse)          [3]       (1) Push the ± or = key, and select the input method. (Non/Contact/Pulse)          [3]       (2) Push the (2/PHASE) key.       (3) Transition to the following screen by the setting input method. [Non] setting → To 2-9. [Contact] setting → To 2-10.       [Input]: Pulse setting → To 2-10.         [1]       [2]       Push the (2/PHASE) key. and confirm the setting value.       [CONV.Rate]       [Unit]: Non ⇔Wh ⇔ kWh ⇔ MWh ⇔ J⇔m <sup>2</sup> ⇔ m <sup>3</sup> ⊕ L⇔ L⇔ sec ⇔ min ⇔ hour ⇔ piece ⇔set ⇔g ⇔kg ⇔t ⇔ Y ⇔ S ⇔         [2-10.       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]       [ResetMode]         [3]       (3) 2-11 will be displayed.       [ResetMode]       [ResetMode]: AutoContact input state is reset automatically when contact input release of the contact input is less.         [3]       (3) 2-11 will be displayed.       [AutoContact input state is hold until con	Z=7.	(1) Push the $\Box$ or $\Box$ key, and select the Reset mode.							
[2]       (3) 2-8 Will be displayed.       Paids in 60 fact input state is hold until contact input states is hold until contact input states.         [2]       (3) 2-8 Will be displayed.       When contact input state is hold until contact input states.         [2]       (3) 2-8 Will be displayed.       When contact input state is hold until contact input released even thought contact input is less.         [2]       (1) Push the ± or	Auto	(2) Push the ( PHASE) key.	Auto Contact input state is reset automatically						
[2]       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, ● 6.8.3)         2-8.       (1) Push the		(3) 2-8 Will be displayed.	when contact input state is reset automatically						
2-8.       (1) Push the ± or = key, and select the input method. (Non/Contact/Pulse) <emu4-px4>         [Input]       (2) Push the ✔/PHASE key.       (3) Transition to the following screen by the setting input method. (Non/Contact/Pulse)       <emu4-px4>         [3]       (3) Transition to the following screen by the setting input method. (Non/Contact/Pulse)       <emu4-px4>         [1] Push the ✔/PHASE key.       (3) Transition to the following screen by the setting input method. (Non/Contact/Pulse)       <emu4-px4>         [3]       (1) Push the ④ ⑦ ⊕ 1-2.10.       (Contact] setting → To 2-10.       (CONV.Rate]         [1] 000       (1) Push the ④ ⑦ ⊕ 1-2.10.       (CONV.Rate]       (ION)         (2) Push the ④ ⑦ ⊕ 1-2.10.       (CONV.Rate] * 0.001 to 10000(1.000)       (2) Push the ④ ⑦ ⊕ key, and confirm the setting value.       (ION)         [3]       (1) Push the ④ ⑦ ⊕ 1-2.40.       (ION)       (ION)       (ION)         [3]       (2) Push the ④ ⑦ ⊕ key, and confirm the setting value.       (ION)       (ION)         [3]       (1) Push the ① 0 ─ key, and select the Reset mode.       (ION)       (IN)       (ION)         [3]       (1) Push the ① 0 ─ key, and select the Reset mode.       (IR)       (IR)       (IN)       (IN)         [3]       (2) Push the ④ ⑦ ─ key, and select the Reset mode.       (IR)       (IR)       (IR)       (IR)       <t< td=""><td>[2]</td><td></td><td>HoldContact input state is hold until contact input</td></t<></emu4-px4></emu4-px4></emu4-px4></emu4-px4>	[2]		HoldContact input state is hold until contact input						
2-8.       (1) Push the ± or = key, and select the input method. (Non/Contact/Pulse) <emu4-px4>         [Input]       (2) Push the ⊄/PHASE key.       (3) Transition to the following screen by the setting input method.       [Input]: Pulse ⇔ Contact ⇔ Non ⇔         [3]       [3]       (1) Push the ▲ ♥/PHASE key.       [Input]: Pulse ⇔ Contact ⇔ Non ⇔         [3]       [3]       (1) Push the ▲ ♥ = key, and change the "CONV./Rate" value and unit.       [CONV./Rate]         [1]       [1] Pulse be displayed.       [Input]: Pulse ⇔ Contact ⇔ Non ⇔         [3]       (1) Push the ▲ ♥ ± = key, and change the "CONV./Rate" value and unit.       [CONV./Rate]         [1]       [0] Push the ▲ ♥ ± = key, and confirm the setting value.       [Input]: Non ⇔ Wh ⇔ kWh ⇔ MWh ⇔ J ⇔ m<sup>2</sup> ⇔ m<sup>3</sup> ⇔ L ⇔ k L ⇔ sec ⇔ min ⇔ hour ⇔ piece ⇔ set ⇔ g ⇔ kg ⇔ t ⇔ S ⇔         [2-10.       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]: Auto Contact input state is reset automatically when contact input is less.         [3]       [3]       (2) Push the € /PHASE key.       [3] 2-11 will be displayed.         [3]       [3]       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]: Auto Contact input state is reset automatically when contact input is less.         [3]       [3]       (2) Push the € /PHASE key.       [3] 2-11 will be displayed.       [3] 2-11 will be displayed.         [3]       [3]       (2) -1</emu4-px4>			released even thought contact input is less.						
2-8.       (1) Push the $\frac{1}{4}$ or $_{\mathbb{C}}$ key, and select the input method. (Non/Contact/Pulse) <emu4-px4>         [Input]       (3) Transition to the following screen by the setting input method.       (Input]: Pulse ⇔ Contact ⇔ Non ⇔         [3]       [3]       (1) Push the <math>\frac{1}{4}</math> or <math>_{\mathbb{C}}</math> - 2-9.       [Input]: Pulse] setting → To 2-11.         [Von] setting → To 2-10.       [CONV.Rate]       (Input]: Pulse] setting → To 2-10.         2-9.       (1) Push the <math>\frac{1}{4}</math> or <math>\frac{1}{2}</math> exp, and change the "CONV./Rate" value and unit.       [CONV.Rate]: 0.001 to 10000(1.000)         [Unit]       (3) 2-11 will be displayed.       [Unit]: Non ⇔ Wh⇔ kWh⇔ MWh⇔ J⇔m<sup>2</sup>⇔         2-10.       (1) Push the <math>\frac{1}{4}</math> or <math>\frac{1}{2}</math> key, and select the Reset mode.       [ResetMode]         [3]       (1) Push the <math>\frac{1}{4}</math> or <math>\frac{1}{2}</math> key.       [ResetMode]: AutoContact input state is reset automatically when contact input is less.         [3]       (1) Push the <math>\frac{1}{4}</math> or <math>\frac{1}{2}</math> key.       [ResetMode]: AutoContact input state is hold until contact input released even thought contact input is less.         [3]       [3]       (2) Further event hought contact input is less.       [NotContact input state is hold until contact input released of the contact input is less.         [3]       (3) 2-11 will be displayed.       [Contact input state is hold until contact input released even thought contact input is less.         [3]       (3) 2-11 will be displayed.</emu4-px4>			(For information about how to release of the						
2-8.       (1) Push the ± or ± key, and select the input method. (Non/Contact/Pulse) <emu4-px4>         [Input]       (3) Transition to the following screen by the setting input method.       [Input]: <u>Pulse</u>⇔ Contact⇔Non⇔         [3]       (3) Transition to the following screen by the setting input method.       [Input]: <u>Pulse</u>⇔ Contact⇔Non⇔         [1] Push setting → To 2-1.       [Pulse] setting → To 2-9.       [Contact] setting → To 2-10.         [2]       (1) Push the ▲ ● ● E = key, and change the "CONV/Rate" value and unit.       [CONV.Rate]: 0.001 to 10000(<u>1.000</u>)         [2]       (2) Push the ● ● ● PHASE key, and confirm the setting value.       [Unit]: <u>Non</u>⇔Wh⇔kWh⇔MWh⇔J⇔m<sup>2</sup>⇔         [1]       [000       [Unit]       [Unit]       Non ⇔ Wh⇔kWh⇔MWh⇔J⇔m<sup>2</sup>⇔         [2]       Push the ● ● ● PHASE key, and select the Reset mode.       [Unit]: <u>Non</u>⇔Hold⇔         [2]       [1]       Push the ● O = key, and select the Reset mode.       [ResetMode]: <u>Auto</u>⇔Hold⇔         [3]       [3]       (1) Push the ● O = key, and select the Reset mode.       [ResetMode]: <u>Auto</u>⇔Hold⇔         [3]       [3]       (2) Push the ● O = key, and select the Reset mode.       [ResetMode]: <u>Auto</u>⇔Hold⇔         [3]       [3]       (2) Push the ● O = key, and select the Reset mode.       [ResetMode]: <u>Auto</u>⇔Hold⇔         [3]       [3]       (2) Push the ● O = key, and select the Reset mode.       <td< th=""><th></th><th></th><th>contact input, (C6.8.3)</th></td<></emu4-px4>			contact input, (C6.8.3)						
Imputi       (2) Push the U/PHASE key.       [Input]: Pulse ⇔ Contact⇔ Non ⇔         [3]       (3) Transition to the following screen by the setting input method.       [Input]: Pulse ⇔ Contact⇔ Non ⇔         [3]       [Non] setting → To 2-10.       [Input]: Pulse ⇔ Contact⇔ Non ⇔         2-9.       (1) Push the I T + C key, and change the "CONV./Rate" value and unit.       [CONV.Rate]: 0.001 to 10000(1.000)         [1000]       (2) Push the U/PHASE key, and confirm the setting value.       [Unit]: Non ⇔ Wh ⇔ kWh ⇔ MWh ⇔ J⇔ m <sup>2</sup> ⇔         [3]       (1) Push the ± or ⊂ key, and select the Reset mode.       [Unit]: Non ⇔ Wh ⇔ kWh ⇔ MWh ⇔ J⇔ m <sup>2</sup> ⇔         [3]       (1) Push the ± or ⊂ key, and select the Reset mode.       [ResetMode]: Auto ⇔ Hold⇔         [3]       (3) 2-11 will be displayed.       [ResetMode]: Auto ⇔ Hold⇔         [3]       [3]       (1) Push the ± or ⊂ key.       [S]         [3]       (3) 2-11 will be displayed.       [ResetMode]: Auto …Contact input state is reset automatically when contact input is less.         [3]       [3]       (3) 2-11 will be displayed.       [Contact input state is hold until contact input is less.         [4]       [3]       (3) 2-11 will be displayed.       [Contact input state is hold until contact input is less.         [6]       [6]       [6]       [6]       [6]	2-8.	(1) Push the 💾 or 🗔 key, and select the input method. (Non/Contact/Pulse)	<emu4-px4></emu4-px4>						
[3]       (3) Transition to the following screen by the setting input method. [Non] setting → To 2-11 [Pulse] setting → To 2-10. [Contact] setting → To 2-10.       [CONV/Rate]:0.001 to 10000(1.000)         2-9.       (1) Push the ▲ ▼ + □ key, and change the "CONV/Rate" value and unit. [0.000 [Unit]]       [CONV/Rate]:0.001 to 10000(1.000)         2-9.       (1) Push the ▲ ▼ + □ key, and confirm the setting value. (3) 2-11 will be displayed.       [CONV/Rate]:0.001 to 10000(1.000)         2-10.       (1) Push the + or □ key, and select the Reset mode. (2) Push the € /PHASE key. (3) 2-11 will be displayed.       [ResetMode]: Auto ⇔Hold⇔         [3]       (1) Push the + or □ key, and select the Reset mode. (2) Push the € /PHASE key. (3) 2-11 will be displayed.       [ResetMode]: Auto ⇔Hold⇔         [3]       (3) -11 will be displayed.       (3) 2-11 will be displayed.       [ResetMode]: AutoContact input state is reset automatically when contact input is less. HoldContact input state is hold until contact input released even though toomat how to release of the contact input, ● 6.8.3)	[Input]	(2) Push the /PHASE key.	[Input]∶ <u><b>Pulse</b></u> ⇔Contact⇔Non⇔						
[3]       [Non] setting → To 2-11 [Pulse] setting → To 2-9. [Contact] setting → To 2-10.       [CONV.Rate]:0.001 to 10000(1.000)         2-9.       (1) Push the ▲ ▼ + □ key, and change the "CONV./Rate" value and unit.       [CONV.Rate]:0.001 to 10000(1.000)         [2000       (2) Push the ✔/PHASE key, and confirm the setting value.       [Unit]: Non ⇔Wh⇔kWh⇔MWh⇔J⇔m <sup>2</sup> ⇔ m <sup>3</sup> ⇔L⇔kL⇔sec⇔min⇔hour⇔ piece⇔set⇔g⇔kg⇔t⇔¥ ⇔ \$⇔         2-10.       (1) Push the + or □ key, and select the Reset mode.       [ResetMode]: (2) Push the ✔/PHASE key.       [ResetMode]: Auto ⇔Hold⇔         [3]       [3]       (1) Push the ∉ /PHASE key.       [3]       [4]         [3]       [3]       [3]       [4]       [4]         [3]       [3]       [4]       [5]       [6]         [3]       [3]       [3]       [4]       [5]         [4]       [5]       [6]       [6]       [6]         [3]       [3]       [3]       [4]       [5]       [6]         [4]       [6]       [6]       [6]       [6]       [6]         [6]       [6]       [6]       [6]       [6]       [6]         [6]       [7]       [6]       [6]       [6]       [6]         [6]       [6]       [6]       [6]       [6]       [6]       [6]	NOI	(3) Transition to the following screen by the setting input method.							
Image: Public Publi	[3]	[Non] setting $\rightarrow$ To 2-11							
Image: Contact setting → Io 2-10.         2-9.       (1) Push the Image: The Image: The Image: Conv./Rate image: The Image: The Image: Converting the Image: The Ima		[Pulse] setting $\rightarrow$ To 2-9.							
2-9.       (1) Push the I I I L key, and change the "CONV./Rate" value and unit.       [CONV./Rate]: 0.001 to 10000( <u>1.000</u> )         Image: Ima	0.0	$[\text{Contact] setting} \rightarrow \text{Io } 2-10.$							
CONV.Natej Unitj       (2) Push the [ ✓/PHASE] key, and confirm the setting value.       [Unit]: Non ⇔Wh⇔kWh⇔MWh⇔J⇔m²⇔ m³⇔L⇔kL⇔sec⇔min⇔hour⇔ piece⇔set⇔g⇔kg⇔t⇔¥⇔ \$⇔         2-10.       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]: (2) Push the ✓/PHASE] key.         [3]       (3) 2-11 will be displayed.       [ResetMode]: (3) 2-11 will be displayed.         [3]       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]: Auto ⇔Hold⇔         [3]       (3) 2-11 will be displayed.       [AutoContact input state is reset automatically when contact input is less.         [3]       [3]       (3) 2-11 will be displayed.       [4]	Z-9.	(1) Push the L 🔽 🛨 🗁 key, and change the "CONV./Rate" value and unit.	[CONV./Rate]:0.001 to 10000(1.000)						
[Unit]       [3]       [3]       [3]       [3]       [3]       [3]       [3]       [3]       [3]       [3]       [1] Push the ± or = key, and select the Reset mode.       [ResetMode]       [ResetMode]       [ResetMode]       [3]       [		(2) Push the ( HASE) key, and confirm the setting value.	[1] nit Non $(1/h) = 1/h = 1/h = 2$						
Non       [3]       m°⇔L⇔kL⇔sec⇔min⇔hour⇔ piece⇔set⇔g⇔kg⇔t⇔¥⇔\$         2-10.       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]: Auto         [2]       [2] Push the ⊄/PHASE key.       [ResetMode]: Auto         [3]       [3]       [3]	[Unit]	(3) 2-11 Will be displayed.							
2-10.       (1) Push the ± or = key, and select the Reset mode.       [ResetMode]         [2]       (2) Push the  √/PHASE key.       [ResetMode]         [3]       (3) 2-11 will be displayed.       [ResetMode]         [3]       (3) 2-11 will be displayed.       [ResetMode]         [3]       (5) Push the  ∞/PHASE key.       [ResetMode]         [3]       (3) 2-11 will be displayed.       [ResetMode]         [3]       (1) Push the  ∞/PHASE key.       [ResetMode]         [3]       (3) 2-11 will be displayed.       [ResetMode]         [4]       (1) Push the  ∞/PHASE key.       [ResetMode]         [5]       (2) Push the  ∞/PHASE key.       [ResetMode]         [6]       (1) Push the  ∞/PHASE key.       [ResetMode]         [6]       (1) Push the  ∞/PHASE key.       [ResetMode]         [7]       (2) Push the  ∞/PHASE key.       [ResetMode]         [8]       (3) Push the  ∞/PHASE key.       [ResetMode]         [9]       (1) Push the  ∞/PHASE key.       [ResetMode]         [1]       (3) Push the  ∞/PHASE key.       [ResetMode]         [1]       (2) Push the  ∞/PHASE key.       [ResetMode]         [3]       (3) Push the  ∞/PHASE key.       [ResetMode]         [3]       (3) Push the  ∞/PHASE key.	Non [3]								
Image: ResetMode]       (1) Push the the or the key, and select the Reset mode.       [ResetMode]: Auto         Image: ResetMode]       (2) Push the Image: PHASE key.       (3) 2-11 will be displayed.         Image: ResetMode]       (3) 2-11 will be displayed.       AutoContact input state is reset automatically when contact input is less.         Image: ResetMode]       (3) 2-11 will be displayed.       HoldContact input state is hold until contact input released even thought contact input is less.         Image: ResetMode]       (5) Push the Image: Reset Automatically when contact input is less.       (6) Push the Image: Reset Automatically when contact input is less.         Image: ResetMode]       (7) Push the Image: Reset Automatically when contact input is less.       (7) Push the Image: Reset Automatically when contact input is less.         Image: ResetMode]       (7) Push the Image: Reset Automatically when contact input is less.       (7) Push the Image: Reset Automatically when contact input is less.         Image: ResetMode]       (7) Push the Image: Reset Automatically when contact input is less.       (7) Push the Image: Reset Automatically when contact input is less.         Image: ResetMode]       (7) Push the Image: Reset Automatically rest Automatically rest Automati	2 10								
[3]       (2) Push the (*/PHASE) key.         [3]       (3) 2-11 will be displayed.    (3) 2-11 will be displayed. (3) 2-11 will be displayed. (4) AutoContact input state is reset automatically when contact input is less. HoldContact input state is hold until contact input is less. (For information about how to release of the contact input, (* 6.8.3)	Z-1U.	(1) Push the 🛨 or 🗀 key, and select the Reset mode.	[Keseuviode]: <u>Auto</u> ⇔Hoid⇔						
[3]       (3) 2-11 will be displayed.       AutoContact input state is reset automatically when contact input is less.         [3]       HoldContact input state is hold until contact input released even thought contact input is less.         (For information about how to release of the contact input, <a>6.8.3</a> )	Auto	(2) Push the ( <i>PHASE</i> ) key.	Auto Contact input state is react automatically						
[3] HoldContact input state is hold until contact input is less. HoldContact input state is hold until contact input is less. (For information about how to release of the contact input, • 6.8.3)		(3) 2-11 will be displayed.	when contact input is less						
(For information about how to release of the contact input is less. (For information about how to release of the contact input, • 6.8.3)	[3]		HoldContact input state is hold until contact input						
(For information about how to release of the contact input, <b>@</b> 6.8.3)			released even thought contact input is less						
contact input, 🖝 6.8.3)			(For information about how to release of the						
			contact input, (Caller 6.8.3)						

Screen	Operation	Note
2-11. [Input] Non	<ul> <li>(1) Push the ± or</li></ul>	<emu4-px4> [Input]∶<b>Pulse</b>⇔Contact⇔Non⇔</emu4-px4>
[4]	[Pulse] setting $\rightarrow$ To 2-12. [Contact] setting $\rightarrow$ To 2-13.	
2-12. [CONV.Rate] [1.000 [Unit] Non [4]	<ul> <li>(1) Push the ▲ ▼ + - key, and change the "CONV./Rate" value and unit.</li> <li>(2) Push the</li></ul>	[CONV./Rate]:0.001 to 10000( <u>1.000</u> ) [Unit]: <u>Non</u> ⇔Wh⇔kWh⇔MWh⇔J⇔m <sup>2</sup> ⇔ m <sup>3</sup> ⇔L⇔kL⇔sec⇔min⇔hour⇔ piece⇔set⇔g⇔kg⇔t⇔¥⇔\$⇔
2-13. ResetMode] Auto [4]	<ol> <li>Push the ± or = key, and select the Reset mode.</li> <li>Push the  //PHASE key.</li> <li>2-1 will be displayed.</li> </ol>	[ResetMode]: <u>Auto</u> ⇔Hold⇔ AutoContact input state is reset automatically when contact input is less. HoldContact input state is hold until contact input released even thought contact input is less. (For information about how to release of the contact input, <b>●</b> 6.8.3)

3 Setup the operating time measurement (All models except for EMU4-LG1-MB and EMU4-AX4)			
Screen	Operation	Note	
3-1	(1) In 3-1, Push the ▲ or ▼ key, and move the cursor to the "2 OP.Time".	[OP.Time]∶ <b>Off</b> ⇔On⇔	
[I/O]	(2) Push the 🖌/PHASE key.		
	(3) 3-2 will be displayed.	EMU4-HM1-MB	
3 Output		[OP.TIme]: <u>A</u> ⇔x⇔	
2.0		EMU/A-RM1-MB EMU/A-A2 EMU/A- $\sqrt{A2}$	
J-2.	(1) Push the $\pm$ or $\equiv$ key, and select the operating time measurement. (On/Off)	$[OPTime] \cdot \mathbf{\Delta}$	
	(2) Push the ( PHASE) key.		
Off	(5) Transition to the following screen by the model, setting winning type and existence	EMU4-PX4	
[1]	Model $\cdot$ FMI I4-PX4 $\rightarrow$ To 3-4	If input setting value is set to anything other than	
↑ Î	Model: Other than FMI I4-PX4	contact, this CH is not displayed.	
Model:EMU4-PX4 or	2 circuit measurement and [Off] setting $\rightarrow$ To 3-4		
only	Non-2 circuit measurement and [Off] setting $\rightarrow$ To 3-1.	Operating time is integrated time while the current	
,	[On] setting →To 3-3	currentsCurrent cut-off rate when select Current	
3- <u>3.</u>	(1) Push the $\pm$ or $-$ key, and select the operating time measurement mode.	Operating time is integration time while Contact	
OP.Time	(2) Push the ( /PHASE) key.	input is ON when Contact input.	
Modej	(3) Transition to the following screen by the setting wiring type.		
[1]	2 circuit measurement $\rightarrow$ To 3-4		
<b>↑</b>	Non-2 circuit measurement $\rightarrow$ To 3-1		
2 circuit measuring			
only			
3-4.	(1) Push the $\pm$ or $\Box$ key, and select the operating time measurement.		
[OP.Time]	(2) Push the (+/PHASE) key		
	(3) Transition to the following screen by the model, and setting existence of the		
[2]	operating time measurement.		
121	Model: EMU4-PX4 $\rightarrow$ To 3-6		
	Model:Other than EMU4-PX4		
	[Off] setting $\rightarrow$ To 3-1		
0.5	[On] setting→ To 3-5		
3-5.	(1) Push the $\pm$ or $\Box$ key, and select the operating time measurement mode.		
[OP.Time Model	(2) Push the ( // PHASE J key.		
A	(3) 3-1 will be displayed.		
[2]			
3-6	(1) Push the $\pm$ or $\Box$ key, and select the operating time measurement.		
[OP.Time]	(2) Push the VPHASE key		
	(3) 3-7 will be displayed.		
[3]			
3-7.	(1) Push the + or - key and select the operating time measurement		
[OP.Time]	(2) Push the $\mathbf{\Psi}$ /PHASE key		
	(3) 3-1 will be displayed		
	(0) 0-1 will be displayed.		
[4]			

4 Setup Output (EMU4-HM1-MB, EMU4-A2, EMU4-VA2, EMU4-PX4, EMU4-AX4)			
Screen	Operation	Note	
4-1. [I/O] 1 Input 2 OP.Tilme <b>5</b> Output <b>♦</b>	<ul> <li>(1) In 4-1, push the ▲ or ▼ key, and move the cursor to the "3 Output".</li> <li>(2) Push the</li></ul>	EMU4-HM1-MB, EMU4-A2, EMU4-VA2 [Output]: <u>Non</u> ⇔Pulse⇔Alarm⇔ EMU4-PX4, EMU4-AX4 [Output]: <u>Non⇔Alarm⇔Contact⇔</u>	
4-2. [Output] Non	<ul> <li>(1) Push the ± or  → key, and select the output signal type.</li> <li>(2) Push the  //PHASE key.</li> <li>(3) Transition to the following screen by the model, 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 circuits measurement and [Pulse] setting → To 4-3 Non-2 circuit measurement and [Pulse] setting → To 4-4</li> </ul>	The pulse output unit changes by the full load power. [Pulse]: Full load power (kW) Setting range Wfull<12kW $0.001 \Leftrightarrow 0.01 \Leftrightarrow 0.1 \Leftrightarrow 1.0 \Leftrightarrow 12kW \le Wfull < 120kW 0.01 \Leftrightarrow 0.1 \Leftrightarrow 1.0 \Leftrightarrow 120kW \le Wfull < 0.1 \Leftrightarrow 1.0 \Leftrightarrow 100 \Leftrightarrow 1200kW \le Wfull < 0.1 \Leftrightarrow 1.0 \Leftrightarrow 100 \Leftrightarrow 1000 \Leftrightarrow 1200kW \le Wfull < 0.0 \Leftrightarrow 100 \Leftrightarrow 1000 \circlearrowright 10000 \circlearrowright 1000 \circlearrowright 1000 \circlearrowright 10000 \circlearrowright 1000 \circlearrowright 1$	
4-3.	2 circuits measurement and [Alarm] setting → To 4-3 Non-2 circuit measurement and [Alarm] setting → To 4-3 (1) Push the + or - key, and select the output target. (2) Push the	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
4-4. [Pulse] JOI kWh/Pulse	<ul> <li>[Pulse] setting → To 4-4</li> <li>[Alarm] setting → To 4-1</li> <li>(1) Push the  <ul> <li>(1) Push the  <ul> <li>(1) Push the  <ul> <li>(1) Push the  <ul> <li>(2) Push the  <ul> <li>(3) 4-1 will be displayed.</li> </ul> </li> </ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul>	<ul> <li>[Output] : 1⇔2⇔</li> <li>*It is set which circuit it does external output, because it inputs 2 circuits per a terminal block for 1P2W.</li> <li>If the target of external output is 1K, 1L connection side circuit, Set "1".</li> <li>If the target of external output is 3K, 3L connection side circuit, Set "2".</li> </ul>	

5 Save the setting			
Screen	Operation	Note	
5-1. Quit Setup Save 2 Not Save 3 Cancel	<ol> <li>(1) After setting all of the items, push the SETUP key.</li> <li>(2) 5-1 will be displayed.</li> <li>(3) When save the setting, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the</li></ol>	1 Save 2 Not Save 3 Cancel	<ul> <li>→ Save settings and return to the operation mode.</li> <li>→ Discard the changes and return to the operation mode.</li> <li>→Continue the setup.</li> </ul>

\*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, 1P3W→2, 3P3W→1.732, 3P4W →3
 \*If you change a setting, please push the *LPHASE* 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.

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

1 Transition to the setup mode		setup mode	
	Screen	Operation	Note
	1-1. [Setup] 1 Measure 2 I/O € COM ↓	<ul> <li>(1) Push the <u>SETUP</u> key in operation mode.</li> <li>(2) 1-1 will be displayed.</li> <li>(1) Confirm that the cursor focuses the "3 COM.", push the <u>/PHASE</u> key.</li> <li>(2) 2-1 will be displayed.</li> </ul>	

2 Setup MODBUS a	2 Setup MODBUS address (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
Screen	Operation	Note	
2-1. [COM] 1 Address 2 Baut rate 3 Parity ▼	<ul> <li>(1) In 2-1, push the  or  key, and move the cursor to the "1 Address".</li> <li>(2) Push the  //PHASE key.</li> <li>(3) 2-2 will be displayed.</li> </ul>	[Address]: <b>001</b> to 255	
2-2. [Address] <b>0</b> 01	<ul> <li>(1) Push the</li></ul>		

	3 Setup the baud rate (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
05	Screen	Operation	Note
3	}-1. [COM] 1 Address 2 Baut rate 3 Parity ↓	<ul> <li>(1) In 3-1, push the  or  key, and move the cursor to the "2 Baut rate".</li> <li>(2) Push the  //PHASE key.</li> <li>(3) 3-2 will be displayed.</li> </ul>	[Baut rate]:2400⇔4800⇔9600⇔ <u>19200</u> ⇔38400⇔
3	}-2. [Baut rate] <b>19200</b> bps	<ul> <li>(1) Push the</li></ul>	

4 Setup the parity (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)			
Screen	Operation	Note	
4-1. [COM] 1 Address 2 Baut rate S Parity ♦	<ul> <li>(1) In 4-1, push the ▲ or ▼ key, and move the cursor to the "3 Parity".</li> <li>(2) Push the</li></ul>	[Parity]∶Non⇔ <u>Even</u> ⇔Odd⇔	
4-2. [Parity] Even	<ul> <li>(1) Push the</li></ul>		

5 Setup the stop bit (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)		
Screen	Operation	Note
5-1. [COM] 2 Baut rate 3 Parity <b>1</b> Stop bit ♦	<ul> <li>(1) In 5-1, push the ▲ or ▼ key, and move the cursor to the "4 Stop bit".</li> <li>(2) Push the</li></ul>	[Stop bit]∶ <u>1</u> ⇔2⇔
5-2. [Stop bit]	<ul> <li>(1) Push the</li></ul>	

6 Save the settings			
Screen	Operation	Note	
6-1. Quit setup Save 2 Note Save 3 Cancel	<ol> <li>(1) After setting all of the items, push the SETUP key.</li> <li>(2) 6-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and push the  <i>PHASE</i> key.</li> <li>(4) After completing the settings saving, "Completed" message will be displayed. Push the  <i>P(PHASE</i> key.</li> <li>(5) Return to the operation mode, and it will be displayed electric energy screen.</li> </ol>	<ol> <li>Save → Save settings and return to the operation mode.</li> <li>Not Save → Discard the changes and return to the operation mode.</li> <li>Cancel → Continue the setup.</li> </ol>	

\*If you change a setting, 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.

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

1 Transition to the setup mode		
Screen	Operation	Note
1-1. [Setup]	(1) Push the <u>SETUP</u> key in operation mode. (2) 1-1 will be displayed.	
3 COM Ⅰ Logging ♦	<ul> <li>(1) Confirm that the cursor focuses the "4 Logging", and push the (/PHASE) key.</li> <li>(2) 2-1 will be displayed.</li> </ul>	

2 Setup the logging	a unit ID (EMII4-BM1-MB_EMII4-HM1-MB_EMII4-I G1-MB)	
Screen	Operation	Note
2-1. [Logging] 1D 2 Data clear 0 Back ▼	<ul> <li>(1) In 2-1, push the ▲ or ▼ key, and move the cursor to the "1 ID".</li> <li>(2) Push the</li></ul>	[ID]: <u>001</u> to 255
2-2.	<ul> <li>(1) Push the</li></ul>	

3 Save the settings			
Screen	Operation	Note	
3-1. Quit Setup Save 2 Not Save 3 Cancel	<ol> <li>(1) After setting all of the items, push the <u>SETUP</u> key.</li> <li>(2) 3-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and push the <i>I</i>/PHASE key.</li> <li>(4) After completing the settings saving, "Completed" message will be displayed. Push the <i>I</i>/PHASE key.</li> <li>(5) Return to the operation mode, and it will be displayed electric energy screen.</li> </ol>	1 Save → Save s operat 2 Not Save → Discar the op 3 Cancel → Contin	ettings and return to the ion mode. rd the changes and return to peration mode. hue the setup.

\*If you change a setting, 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.

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

1 Transition to the setup mode			
Screen	Operation	Note	
1-1. [Setup]	(1) Push the SETUP key in operation mode. (2) 1-1 will be displayed.		
4 Logging ▲ S Clock ▼	<ul> <li>(1) Confirm that the cursor focuses the "5 Clock", push the <i>\PHASE</i> key.</li> <li>(2) 2-1 will be displayed.</li> </ul>		

2 Clock Setup (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-LG1-MB)			
Screen	Operation	Note	
2-1. [Clock] 20 <b>[3</b> /01/01 00:00 OK Cancel 2-2. Logging data will be cleared. <b>©K</b> Cancel	<ul> <li>(1) In 2-1, Push the  a or  key, and move the cursor to the "Year".</li> <li>(2) Push the  or  key. Change the set value.</li> <li>(3) Push the  key, and move the cursor to the "Month".</li> <li>(4) Push the  or  key. Change the set value.</li> <li>(5) In a similar way, change the "Day", "Hour", "Minute". Note 1</li> <li>(6) After setting all of the items, push the  or  key, and move the cursor to the "OK".</li> <li>(7) Push the  //PHASE key, and clock setting changed. Note2</li> <li>(8) 2-2 will be displayed.</li> <li>(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)</li> <li>(10) After completing the settings saving, and 1-1 will be displayed.</li> </ul>	[Year]:00⇔01⇔02⇔⇔13⇔⇔99⇔ [Month]:01⇔02⇔03⇔04⇔⇔12⇔ [Day]:01⇔02⇔03⇔04⇔⇔12⇔ [Hour]:00⇔01⇔⇔12⇔13⇔23⇔ [Minute]:00⇔01⇔⇔59⇔ 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 you change a setting, please push the *H*/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. \*Setup value is stored in Logging unit (EMU4-LM).

#### 6.3.7 Display setup - Setup about display such as LCD contrast or backlight lighting pattern.

	1 Transition to the setup mode		
S	Screen	Operation	Note
1	-1. [Setup]	(1) Push the <u>SETUP</u> key in operation mode. (2) 1-1 will be displayed.	
	5 Cloock 5 Display ↓	(1) Confirm that the cursor focuses the "6 Display, push the //PHASE key. (2) 2-1 will be displayed.	

Screen	Operation	Note	
2-1. [Display] [] Contrast 2 Backlight 0 Back	<ul> <li>(1) In 2-1, push the ▲ or ▼ key, and move the cursor to the "1 Contrast".</li> <li>(2) Push the</li></ul>	[Contrast]:	A Pale
2-2. [Contrast] □■■■■■□□□□⊞	<ul> <li>(1) Push the ± or</li></ul>		  / Dark

3 Setup the backlig	ht	
Screen	Operation	Note
3-1. [Display] 1 LCD 2 Backlight 0 Back	<ul> <li>(1) In 3-1, push the  or  key, and move the cursor to the "2 Backlight".</li> <li>(2) Push the  //PHASE key.</li> <li>(3) 3-2 will be displayed.</li> </ul>	Auto OFFIf 5 minutes have passed since the last key operation, backlight will be OFF automatically. There are any key operation, backlight will be lighted again. Always ONBacklight is always lighted.
3-2. [Backlight] Auto OFF Always On	<ol> <li>Push the ▲ or ▼ key, and select the backlight condition. (Auto OFF/Always ON)</li> <li>Push the</li></ol>	

4 Save the settings			
Screen	Operation	Note	
4-1. Quit Setup Save 2 Not Save 3 Cancel	<ol> <li>(1) After setting all of the items, push the SETUP key.</li> <li>(2) 4-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the</li></ol>	<ul> <li>1 Save → Save settings and return to the operation mode.</li> <li>2 Not Save → Discard the changes and return to the operation mode.</li> <li>3 Cancel → Continue the setup.</li> </ul>	

\*If you change a setting, please push the ( $\Psi/PHASE$ ) 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. \* Setup value is stored in Display unit (EMU4-D65). \*If you want to set the other circuit, push the (CIRCUIT) key on the "Setup" screen (1-1), select the circuit, make the setting.

#### 6.3.8 F/W VER. setup-Display the F/W Version of Energy Measuring Unit.

1 Transition to the setup mode			
Screen	Operation	Note	
1-1. [Setup]	(1) Push the <u>SETUP</u> key in operation mode. (2) 1-1 will be displayed.		
6 Display	<ul> <li>(1) Confirm that the cursor focuses the "7 F/W VER.", push the <i>P</i>/PHASE key.</li> <li>(2) 2-1 will be displayed.</li> </ul>		

2 Display the F/W version		
Screen	Operation	Note
2-1. [F/W VER.] 1.00 MODEL: EMU4-BM1-MB	<ul> <li>(1) Transition to the following screen by push the specific key push.</li> <li>Push the  <i>P</i>/PHASE key → To 1-1</li> <li>Push the  <u>CIRCUIT</u> key → To 2-1(defferent circuit)</li> <li>Push the  or  v key → To 2-2</li> </ul>	Display the model and F/W Version of energy measurement unit that is connected. *In ver.1.05: 2-2 is not displayed, when push  or version version ver
2-2. [F/W VER.] 2000 MODEL: [EMU4-D65	<ul> <li>(1) Transition to the following screen by push the specific key push.</li> <li>Push the  <i>PIASE</i> key → To 1-1</li> <li>Push the  <i>CIRCUIT</i> key → To 2-1</li> </ul>	Display the model and F/W Version of display unit. *In ver.1.05: 2-2 is not displayed.

#### 6.4 Alarm setup mode

6.4.1 Flow of alarm setting

"(1)Upper/Lower limit alarm", "(2)Leak current alarm" is setup when connected to EMU4-\*\* in alarm setting.

(1) Upper/Lower limit alarm

Setting for the Upper/Lower alarm of current, voltage, electric power and power factor in MU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2, EMU4-PX4 and EMU4-AX4. (16) 6.4.2 Setup the upper/lower limit alarm.



#### (2) Leak current alarm

The settings for the limit alarm of the Leak current Io, Ior EMU4-LG1-MB only. 6.4.3 Setup the monitoring leak current alarm

EMU4-LG1-MB
Transition to the alarm setting mode (Leak current alarm)
lo monitoring element
1
lo1-alarm
<b>↓</b>
lo2-alarm
$\blacksquare$
lo1-alarm count
lo2-alarm count
1
lor monitoring element
1
lor1-alarm
lor2-alarm
lor1-alarm count
lor2-alarm count
1
Alarm output target
+
Alarm delay
+
Reset Mode
Save the setting (End of the alarm mode)

#### 6.4.2 Setup the upper/lower limit alarm condition

## Setup the upper/lower limit alarm condition. Setup in EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2, EMU4-PX4 and EMU4-AX4.

1(1) Transition to the Alarm setup mode (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
1(1)-1. [Alarm Set.] Limit 2 lo/lor	<ul> <li>(1) Push the SETUP key in alarm mode.</li> <li>(2) 1(1)-1 will be displayed.</li> <li>(1) Push the confirm the cursor on the "1 Limit" //PHASE key.</li> <li>(2) 1(1)-2 will be displayed.</li> </ul>	Push simultaneous
1(1)-2. 2 circuit measuring only ↓ [Alarm] [1] Ofi	<ul> <li>(1) Push the <u>+</u> or <u>-</u> key, and select alarm existence.</li> <li>(2) Push the <u> √/PHASE</u> key.</li> <li>(3) Transition to the following screen by the setting alarm existence. [Off] setting → To 1(1)-1 <sup>Note 1</sup> [On] setting → To 1(1)-3</li> </ul>	[Demand] <b>Off</b> ⇔On⇔ Note 1 : For 1P2W (with 2 circuit measurement), the screen for selecting whether or not to monitor the alarm for the 2nd circuit is displayed.
1(1)-3. 2 circuit measuring only ↓ [Elements] [1] 1 A upp. 2 A low. 3 V <sub>L-L</sub> Upp. 4 V <sub>L-L</sub> Low. 5 V <sub>L-N</sub> Upp. 6 V <sub>L-N</sub> Low. 7 W Upp. 8 W Low. 9 PF Upp. 10PF Low. 11A <sub>N</sub> Upp. 12 PLS.Upp. 13UNB.A Upp. 14UNB.V Low. 0 Back	A upper alarm $\rightarrow$ To 2 A lower alarm $\rightarrow$ To 3 V <sub>L-L</sub> upper alarm $\rightarrow$ To 4 V <sub>L-L</sub> lower alarm $\rightarrow$ To 5 V <sub>L-N</sub> lower alarm $\rightarrow$ To 6 V <sub>L-N</sub> lower alarm $\rightarrow$ To 7 W upper alarm $\rightarrow$ To 7 W upper alarm $\rightarrow$ To 8 W lower alarm $\rightarrow$ To 9 PF upper alarm $\rightarrow$ To 10 PF lower alarm $\rightarrow$ To 11 A <sub>N</sub> upper alarm $\rightarrow$ To 12 PULSE upper alarm $\rightarrow$ To 13 UNB.A upper alarm $\rightarrow$ To 14 UNB.V upper alarm $\rightarrow$ To 15	*When monitoring the upper and lower limit alarm of the voltage with the phase wire system 1P3W, set with "VL-L upper alarm" and "VL-L lower alarm".

1(2) Transition to the Alarm setup mode (EMU4-PX4, EMU4-AX4)			
Screen	Operation	Note	
1(2)-1. [Alarm Set.] 1 Limit 2 Io/Ior	<ul> <li>(1) Push the SETUP key in alarm mode.</li> <li>(2) 1(2)-1 will be displayed.</li> <li>(1) Push the confirm the cursor on the "1 Limit"  (✔/PHASE key.</li> <li>(2) Transition to the following screen by the model. Model : EMU4-PX4 → To 13 Model : EMU4-AX4 → To 16</li> </ul>	Push simultaneous <b>• v</b> key, and transition from in operation mode to alarm mode.	

2 Setup the upper limit alarm (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)			
Sc	reen	Operate	Note
2-	1	(1) In 2-1, Push the 🔺 or 💌 key, and move the cursor to the "1 A Upp.".	
	2 circuit measuring only	(2) Push the ( /PHASE) key.	
l r	<b>*</b>	(3) 2-2 will be displayed.	
	2 A Low.		
	3 VL-L Upp. 🗸		
2-	)	(1) Push the $\blacksquare$ $\blacksquare$ $\blacksquare$ $\blacksquare$ key and change the current upper limit	[A Upp 1 : 0 to 120% of primary current ( <b>100%</b> )
	2 circuit measuring only	(1) Fush the $\mathcal{I}$ /PHASE key and confirm the setting value	*The minimum step of settable value is varies by
	I I	(2) Push the ( <u>Philod</u> ) key, and commit the setting value.	primary current.
1	▼ [A     mm 1   [4]	(3) 2-3 will be displayed.	Less than 40A Step: 0.01A
	0100.0 A		40A or more and less than 400A Step: 0.1A
			400A or more and less than 4000A Step: 1A
			4000A or more Step: 10A
2-	3.	(1) Push the $\pm$ or $\Box$ key, and select the alarm delay time.	[Delay]: <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
	2 circuit measuring only	(2) Push the $(\checkmark/PHASE)$ key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
	ł	(3) 2-4 will be displayed.	4min⇔5min⇔
	[Delay] [1]		
	Osec		
2.	1	(1) Push the $\square$ or $\square$ key, and select the react mode	
_	2 circuit measuring only		Auto Alarm is reset automatically when measured
	L	(2) Push the (Princip key.	value is less then setting value
	[RecetMode] [1]	2 circuit measurement $\rightarrow$ To 2-5	HoldAlarm is hold until alarm released even thought
	Auto	Non-2 circuit measurement $\rightarrow$ To 1(1)-1	measured value is less than setting value.
			(Release alarm 🖝 6.8.3 Release alarm)
2-	). 2 circuit measuring only	(1) Push the $\pm$ or $\equiv$ key, and select the alarm existence of second circuit.	[Alarm]: Off⇔On⇔
		(2) Push the ( PHASE) key.	
		(3) Transition to the following screen by setting the alarm existence.	
	[Alarm] [2]	$[On] setting \rightarrow To 2-6$	
2-	δ.	(1) In 2-6, Push the 🔺 or 💌 key, and move the cursor to the "1 A Upp.".	
	2 circuit measuring only	(2) Push the <i>(2)</i> /PHASE key.	
	<del>\</del>	(3) 2-7 will be displayed.	
	[Element] [2]		
	A Upp.		
2-	7.	(1) Push the $\blacksquare$ $\blacksquare$ $\blacksquare$ $\blacksquare$ heve and change the current upper limit	[A Upp 1 · 0 to 120% of primary current ( <b>100%</b> )
Γ	2 circuit measuring only	(1) Fuch the $\mathcal{L}$ /PHASE key, and confirm the setting value	*The minimum step of settable value is varies by
	Ļ	(3) 2-8 will be displayed	primary current.
	[A Upp.] [2]		Less than 40A Step: 0.01A
	0100.0 A		40A or more and less than 400A Step: 0.1A
			400A or more and less than 4000A Step: 1A
			4000A or more Step:10A
2-	3.	(1) Push the $\pm$ or $-$ key, and select the alarm delay time of second circuit.	[Delay]: <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
	2 circuit measuring only	(2) Push the //PHASE key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
	•	(3) 2-9 will be displayed.	4min⇔5min⇔
	[Delay] [2]		
	USEC		
2-	<u> </u>	(1) Push the (+) or (-) key, and select the reset mode of second circuit	[ResetMode]: <b>Auto</b> ⇔Hold⇔
	2 circuit measuring only	(2) Push the H/PHASE key	AutoAlarm is reset automatically when measured
	Ť	(3) 1(1)-1 will be displayed.	value is less then setting value.
	[ResetMode] [2]		HoldAlarm is hold until alarm released even thought
	Auto		measured value is less than setting value.
			(Release alarm <b>*</b> 6.8.3 Release alarm)

	3 Setup the lower limit alarm (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
	Screen	Operate	Note
	3-1	(1) In 3-1, push the 🔺 or 💌 key and move the cursor to the "2 A Low.".	
	2 circuit measuring only	(2) Push the ( PHASE) key.	
	<del>\</del>	(3) 3-2 will be displayed.	
	[Element] [1]		
	1 A Upp		
	3-2.	(1) Push the (1) (1) (1) (1) Push the current lower limit.	[ALow]: 0 to 120% of primary current ( <u>0%</u> )
		(2) Push the <i>PHASE</i> key, and confirm the setting value.	nime minimum step of settable value is valies by
	<b>▼</b>	(3) 3-3 Will be displayed.	Less than 10A Sten: 0.01A
			40A or more and less than 400A Step: 0.1A
	<u>0</u> 000.1 A		400A or more and less than 4000A Step: 1A
			4000A or more Step: 10A
	3-3	(1) Push the + or - key and select the alarm delay time	[Delay]: <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
	2 circuit measuring only	(1) Fush the $\mathcal{H}$ /PHASE key	40sec⇔50sec⇔1min⇔2min⇔3min⇔
	L .	(2) Fush the displayed	
	[Delay] [1]	(5) 5-4 will be displayed.	
	Osec		
ļ	3-4.	(1) Push the $\pm$ or $-$ key, and select the reset mode.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
	2 circuit measuring only	(2) Push the VPHASE key.	AutoAlarm is reset automatically when measured
	• •	(3) Transition to the following screen by the setting wiring type.	value is less then setting value.
	[ResetMode] [1]	2 circuit measurement $\rightarrow$ To 3-5	HoldAlarm is hold until alarm released even thought
	Auto	Non-2 circuit measurement $\rightarrow$ To 1(1)-1	(Release alarm (Ref. 8.2), Release alarm)
	3-5	(1) Durph the (+) as (-) key, and calculate the clarm evictance of accord circuit	
	2 circuit measuring only		
	L J	(2) Push the (PPHASE) key.	
	[Alarm] [2]	[0] Transition to the following screen by setting the alarm existence.	
		[On] setting $\rightarrow$ To 3-6	
	3-6.	(1) In 3-6, Push the ▲ or ▼ key, and move the cursor to the "2 A Low.".	
	2 circuit measuring only	(2) Push the ( /PHASE) key.	
	<del>\</del>	(3) 3-7 will be displayed.	
	[Element] [2]		
	I A LOW		
	0 7 VE-LOPP ▼		
	2 circuit measuring only	(1) Push the (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	[ALOW]: 0 to 120% of primary current ( <u>0%</u> )
		(2) Push the ( PHASE) key, and confirm the setting value.	nimery current
	▼ [A Low 1 [2]	(3) 3-8 will be displayed.	Less than 40A Step: 0.01A
	0001 A		40A or more and less than 400A Step: 0.1A
			400A or more and less than 4000A Step: 1A
			4000A or more Step:10A
	3-8	(1) Push the + or - key and select the alarm delay time of second circuit	
	2 circuit measuring only	(1) I don't le $(1)$ key, and select the alarm delay time of second circuit.	10sec \$50sec \$1min \$2min \$3min \$
	, L , L , L , L , L , L , L , L , L , L	(2) Push the diaptaved (2) 2.0 will be diaptaved	
	[Delav] [2]	(5) 5-5 will be displayed.	
ļ	0sec		
ļ			
ļ	3-9.	(1) Push the $\pm$ or $\Box$ key, and select the reset mode of second circuit.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
ļ	2 circuit measuring only	(2) Push the ( /PHASE) key.	AutoAlarm is reset automatically when measured
ļ	↓	(3) 1(1)-1 will be displayed.	value is less then setting value.
ļ	[ResetMode] [2]		HoldAlarm is hold until alarm released even thought
ļ	Auto		(Release alarm (C6.8.3) Release alarm)
		1	

4 Setup the upper /lower limit alarm line voltage (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
4-1.	(1) In 4-1, Push the 🛦 or 🗵 key, and move the cursor to the" 3 VL-Upp.".	
2 circuit measuring only	(2) Push the //PHASE key	
+	(3) 4-2 will be displayed.	
[Element] [1]	(-)	
1 A Upp.		
2 A Low.		
VL-L Upp. 🔻		
4-2.	(1) Push the 🔟 🖳 🗄 └ key, and change the upper limit value of line voltage.	[V <sub>L-L</sub> Upp.]∶0 ≦primary voltage≦100%×15/11
2 circuit measuring only	(2) Push the <i>PHASE</i> key, and confirm the setting value.	( <u>110% of primary voltage</u> )
↓ <b>↓</b>	(3) 4-3 will be displayed.	The minimum step of settable value is varied by primary
[V <sub>L-L</sub> Upp.] [1]		Voltage.
<u>0</u> 00242 V		200V/ or more and less than 2000V/ Stop: 1V/
		3000V or more Step: 10V
		*For phase wire system 1P3W set the voltage value
		to a voltage of 1-2 or 2-3.
4-3.	(1) Push the $\pm$ or $\Box$ key, and select the delay.	[Delav]: <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
2 circuit measuring only	(2) Push the //PHASE key	40sec⇔50sec⇔1min⇔2min⇔3min⇔
+	(3) 4-4 will be displayed	4min⇔5min⇔
[Delav] [1]	(-) · · ································	
Ösec		
4-4. 2 circuit measuring only	(1) Push the $\pm$ or $\pm$ key, and select the Reset Mode.	
	(2) Push the ( /PHASE ] key.	AutoAlarm is reset automatically when measured
V	(3) Transition to the following screen by the selection of wiring type.	Hold Alarm is hold until alarm released even
Reset Modej [1]	2 circuit measurement $\rightarrow$ 10 4-5	thought measured value is less than setting
	Non-2 circuit measurement $\rightarrow$ 10 1-1	value.
		(Release alarm 🖝 6.8.3 Release alarm)
4-5.	(1) Push the $\pm$ or $\Box$ key, select the alarm existence of second circuit.	[Alarm]∶ <b>Off</b> ⇔On⇔
2 circuit measuring only	(2) Push the (PHASE) key.	
€	(3) Transition to the following screen by the setting the alarm existence.	
[Alarm] [2]	[Off] setting $\rightarrow$ To 1(1)-1	
	[On] setting $\rightarrow$ To 4-6	
4-6.	(1) In 4-6 push the 🔺 or 🖲 key and move the cursor to the "3 Vi Lupp"	
2 circuit measuring only	(2) Puch the $\mathcal{U}$ /PHASE key	
↓	(3) 4-7 will be displayed	
[Element] [2]		
1 A Upp.		
Z ALOW. Z Vu Upp ▲		
4 7		
4-7. 2 circuit measuring only	(1) Push the I I I I Key, and change the Upper limit value of line	[VL-L Upp.]: U≦Primary voltage ≥ 100%×15/11
L	Voltage. (0) Durch the $\mathbf{A}/\mathbf{D} \mathbf{A}$ SE have and even for $\mathbf{A}$ with $\mathbf{A}$	( <u>110% OT primary VOItage</u> ) The minimum step of settable value is varied by primary
[V.   Upp 1 [2]	(2) Push the $(\mathbf{\Psi}^{PHASE})$ key, and confirm the setting value.	voltage
000242 V	(5) 4-0 will be displayed.	Less than 300V Step: 0.1V
		300V or more and less than 3000V Step: 1V
		3000V or more Step: 10V
4-8.	(1) Push the $\pm$ or $-$ key, and the alarm delay time.	[Delay]∶ <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
2 circuit measuring only	(2) Push the 🖌/PHASE key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
<b>↓</b>	(3) 4-9 will be displayed.	4min⇔5min⇔
[Delay] [2]		
4-9.	(1) Push the 🛨 or 🗔 key, and select the Reset Mode.	[ResetMode]∶ <b>Auto</b> ⇔Hold⇔
2 circuit measuring only	(2) Push the (+/PHASE) key	AutoAlarm is reset automatically when measured
↓	(3) 1(1)-1 will be displayed.	value is less then setting value.
[Reset Mode] [2]		HoldAlarm is hold until alarm released even
Auto		thought measured value is less than setting
		(rkelease alarm 🖤 6.8.3 Release alarm)

5 Setup the lower limit alarm line voltage (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
5-1.	(1) In 5-1, Push the ▲ or ▼ key, and move the cursor to the" 4 V <sub>L-L</sub> Low.".	
2 circuit measuring only	(2) Push the (V/PHASE) key.	
↓ <b>↓</b>	(3) 5-2 will be displayed.	
[Element] [1]		
2 A Low.		
3 V <sub>L-L</sub> Upp.		
5-2.	(1) Push the ▲ ▼ + ⊢ key, and change the upper limit value of line	$[V_{L-L} Low.]: 0 \leq primary voltage \leq 100\% \times 15/11$
	voltage.	( <u>0% of primary voltage</u> )
•	(2) Push the <i>PHASE</i> key, and confirm the setting value.	I he minimum step of settable value is varied by primary
[V <sub>L-L</sub> Upp.] [1]	(3) 5-3 will be displayed.	Voltage.
00085 V		200V or more and less than 2000V Step: 1V
		3000V or more Step: 10V
		*For phase wire system 1P3W set the voltage value
		to a voltage of 1-2 or 2-3.
5-3.	(1) Push the (+) or (-) key and select the delay	[Delay] <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
2 circuit measuring only	(1) Push the $\mathcal{L}$ /PHASE key	40sec \(\approx 1\) for \(\approx 2\) for \(\app
↓ ↓	(3) 5-4 will be displayed	4min⇔5min⇔
[Delav] [1]	(o) o 4 will be displayed.	
Ösec		
5.4	(1) Duals the U or I key, and calest the Deast Made	
2 circuit measuring only		Auto Alerm is react automatically when measured
L on our moutouning only	(2) Push the ( PHASE) key.	AutoAlarm is less then setting value
[Depart Maria] [1]	(3) Transition to the following screen by the selection of wiring type.	Hold Alarm is hold until alarm released even
Auto	2 circuits measurement $\rightarrow$ 10 5-5	thought measured value is less than setting
	Non-2 circuits measurement $\rightarrow$ to $1(1)$ -1	value.
		(Release alarm 🖝 6.8.3 Release alarm)
5-5.	(1) Push the $\pm$ or $\Box$ key, select the alarm existence of second circuit.	[Alarm]: <b><u>Off</u>⇔On⇔</b>
2 circuit measuring only	(2) Push the $(\mathbf{\Psi}/\text{PHASE})$ key	· · -
↓ ↓	(3) Transition to the following screen by the setting the alarm existence.	
[Alarm] [2]	[Off] setting $\rightarrow$ To 1(1)-1	
Offi	[On] setting $\rightarrow$ To 5-6	
5.6		
2 circuit measuring only	(1) In 5-6, push the local of the key, and move the cursor to the 4 VL-L Low.	
	(2) Push the ( PHASE) key.	
<b>▼</b>	(3) 5-7 will be displayed.	
2 A Low		
3 V <sub>L-L</sub> Upp.		
VL-LLOW.		
5-7.	(1) Push the 🔺 💌 $+$ 🖃 key, and change the lower limit value of line	[V <sub>L-L</sub> Low.]:0≦Primary voltage≦100%×15/11
2 circuit measuring only	Voltage.	(0% of primary voltage)
	(2) Push the ( /PHASE) key, and confirm the setting value.	The minimum step of settable value is varied by primary
[V <sub>L-L</sub> Low.] [2]	(3) 5-8 will be displayed.	voltage.
00085 V		Less than 300V Step: 0.1V
		3000V or more and less than 3000V Step: 1V
<u> </u>	(4) Durp the $+$ or $-$ key and the clarm delay time	
2 circuit measuring only		
	(2) Push the ( PHASE) key.	
[Delav] [2]	(3) 5-9 will be displayed.	4min⇔5min⇔
Osec		
5-9.	(1) Push the $\pm$ or $\Box$ key, and select the Reset Mode.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
∠ circuit measuring only	(2) Push the (IVPHASE) key.	AutoAlarm is reset automatically when measured
<b>*</b>	(3) 1(1)-1 will be displayed.	value is less then setting value.
[Reset Mode] [2]		TouuAiaim is noid until alarm released even
		value
		(Release alarm <b>•</b> 6.8.3 Release alarm)

6 Setup the upper limit phase voltage (EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
6-1. [Element] 3 V <sub>L-L</sub> Upp. 4 V <sub>L-L</sub> Low. <b>5</b> V <sub>L-N</sub> Upp. <b>♦</b>	<ul> <li>(1) In 6-1 push ▲ or ▼ key, and move the cursor to the "5 V<sub>L-N</sub>Upp.".</li> <li>(2) Push the</li></ul>	
6-2. [V <sub>L-N</sub> Upp.] <b>0</b> 00242 V	<ul> <li>(1) Push the</li></ul>	[VL-N Upp]: 0≦Primary voltage≤100%×15/11 (110% of primary voltage)         The minimum unit of settable value is varied by primary voltage.         Less than 300V       Step: 0.1V         300V or more and less than 3000V       Step: 1V         3000V or more       Step: 10V
6-3. [Delay] Osec	<ul> <li>(1) Push the</li></ul>	[Delay]: <u><b>0sec</b></u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
6-4. [ResetMode]	<ul> <li>(1) Push the</li></ul>	[ResetMode]: <u>Auto</u> ⇔Hold⇔ AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value. (Release alarm ●6.8.3 Release alarm)

7 Setup the lower limit phase voltage (EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
7-1. [Element] 4 V <sub>L-L</sub> Low. 5 V <sub>L-N</sub> Upp. <b>3</b> V <sub>L-N</sub> Low. ♦	<ul> <li>(1) In 7-1, push the ▲ or ▼ key, and move the cursor to the "6 V<sub>L-N</sub> Low.".</li> <li>(2) Push the</li></ul>	
7-2. [V <sub>L-N</sub> Upp.] D0085 V	<ul> <li>(1) Push the</li></ul>	[V <sub>L-N</sub> Low]: 0≦Primary voltage≦100%×15/11 (0% of primary voltage)         The minimum step of settable value is varied by primary voltage.         Less than 300V       Step: 0.1V         3000V or more and less than 3000V       Step: 1V         3000V or more       Step: 10V
7-3. [Delay] <b>0sec</b>	<ul> <li>(1) Push the ± or _ key, and select the delay.</li> <li>(2) Push the  <i>ℓ</i>/PHASE key.</li> <li>(3) 7-4 Will be displayed.</li> </ul>	[Delay]: <u>0sec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
7-4. [ResetMode]	<ul> <li>(1) Push the ± or   ex, and select the ResetMode.</li> <li>(2) Push the   event  ev</li></ul>	[ResetMode]: <u>Auto</u> ⇔Hold⇔ AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value. (Release alarm <b>©</b> 6.8.3 Release alarm)

8 Setup the Upper demand electric energy (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
8-1.	(1) In 8-1, push the 🔺 or 💌 key, and move the cursor to the "7 W Upp.".	
2 circuit measuring only	(2) Push the (PHASE) key	
↓	(3) 8-2 will be displayed.	
[Element] [1]	(-)	
5 V <sub>L-N</sub> Upp.		
6 V <sub>L-N</sub> Low.		
8-2.	(1) Push the 🔺 💌 🖃 key, and change the W Upp	[W Upp]: -120≦Full load≦120%
2 circuit measuring only	(2) Push the ( PHASE) key, and confirm the setting value.	( <u>100% of full load</u> )
•	(3) 8-3 will be displayed.	The minimum unit of settable value is varies by full
[W Upp.] [1]		
<b>0</b> 01000 KVV		12kM < Mtull < 120kM Step: 0.001kW
		$120kW \le Wfull < 1200kW \qquad Step: 0.01kW$
		$1200kW \le W/full < 12000kW Step: 0.1kW$
		$12000kW \le Wfull < 12000kW = 5tep: 10kW$
		$120000 \text{kW} \le \text{Wfull}$ Step: $100 \text{kW}$
8-3	(1) Push the $(+)$ or $(-)$ key and select the Delay	[Delay]: <b>Osec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
2 circuit measuring only		
L L	(2) Push the $(\underline{e}^{\gamma})$ key.	
	(3) 8-4 Will be displayed.	4min⇔5min⇔
8-4.	(1) Push the ± or - key, and select the ResetMode	[ResetMode]: <b>Auto</b> ⇔Hold⇔
2 circuit measuring only	(2) Push the $\mathbf{\Psi}$ /PHASE key	AutoAlarm is reset automatically when measured
+	(3) Transition to the following screen by the setting wiring type	value is less then setting value.
[Resetmode] [1]	2 circuit measurement $\rightarrow$ To 8-5	HoldAlarm is hold until alarm released even
Auto	Non-2 circuit measurement $\rightarrow$ To 1(1)-1	thought measured value is less than setting
		value.
		(Release alarm 16.8.3 Release alarm)
8-5.	(1) Push the $\pm$ or $\Box$ key, and select alarm existence of second circuit.	[Alarm]∶ <b>Off</b> ⇔On⇔
2 circuit measuring only	(2) Push the (+/PHASE) key	
↓	(3) Transition to the following screen by the setting alarm existence.	
[Alarm] [2]	[Off] setting $\rightarrow$ To 1(1)-1	
Oiii	[On] setting $\rightarrow$ To 8-1	
8-6	(1) In 8-6 push the 🔺 or 💌 key and move the cursor to the "7 W Linn."	
2 circuit measuring only	(1) In $0-0$ , push the $\mathbf{\mu}$ /PHASE key	
⊥ <b>⊥</b>	(2) Push the displayed	
[Element] [2]	(5) 6-7 will be displayed.	
5 V <sub>I-N</sub> Upp.		
6 V <sub>L-N</sub> Low.		
🖬 W Upp. 🌲		
8-7.	(1) Push the 🔺 💌 🛨 🗔 key, and change the W Low. value.	[W Upp]: -120≦Full load≦120%
2 circuit measuring only	(2) Push the ()PHASE key, and confirm the setting value.	( <u>100% of full load</u> )
↓	(3) 8-8 will be displayed.	The minimum unit of settable value is varies by full
[W Low.] [2]		load (Wfull).
01000 kW		Wfull < 12kW Step: 0.001kW
		12kW ≤ Wfull < 120kW Step: 0.01kW
		120kW ≤ Wfull < 1200kW Step: 0.1kW
		1200kW ≤ Wfull < 12000kW Step: 1kW
		12000kW ≤ Wfull < 120000kW Step: 10kW
0.0		120000kW ≤ VVTUII Step: 100kW
0-0. 2 circuit measuring only	(1) Push the $(\pm)$ or $(\pm)$ key, and select the alarm time.	
	(2) Push the ( PHASE) key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
<b>*</b>	(3) 8-9 will be displayed.	4min⇔5min⇔
[Alarm] [2]		
8-9.	(1) Push the $\pm$ or $\Box$ key, and select the ResetMode	[ResetMode]∶ <b>Auto</b> ⇔Hold⇔
2 circuit measuring only	(2) Push the /PHASE key	AutoAlarm is reset automatically when measured
↓ ↓	(3) $1(1)$ -1 will be displayed	value is less then setting value.
[ResetMode] [2]		HoldAlarm is hold until alarm released even
Auto		thought measured value is less than setting
		value.
		(Release alarm 🖝 6.8.3 Release alarm)

9 Setup the Lower demand electric energy (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
9-1	(1) In 9-1, push the 🔺 or 💌 key, and move the cursor to the "8 W Low.".	
2 circuit measuring only	(2) Push the /PHASE key.	
↓ <b>↓</b>	(3) 9-2 will be displayed.	
[Element] [2]		
6 VL-N LOW.		
₩ Low.		
9-2	(1) Push the $\mathbf{A} \mathbf{\nabla} \pm \mathbf{\nabla}$ key and change the W Low	[W Low] · -120≤Full load≤120%
2 circuit measuring only	(1) I ush the $\mathbf{U}$ /PHASE key, and confirm the patting value	(0% of full load)
↓ ↓	(2) Push the displayed	The minimum unit of settable value is varies by full
[W Low.] [1]	(o) o-o will be displayed.	load (Wfull).
000010 <sup>°</sup> kW <sup>°</sup>		Wfull < 12kW Step: 0.001kW
		12kW ≤ Wfull < 120kW Step: 0.01kW
		120kW ≤ Wfull < 1200kW Step: 0.1kW
		$1200 \text{ kW} \leq \text{Wfull} < 12000 \text{ kW}$ Step: 1 kW
		$12000 \text{kW} \leq \text{Wfull} \leq 12000 \text{kW}$ Step: 100kW 120000kW $\leq \text{W/full}$ Step: 100kW
9-3	(1) Push the $+$ or $-$ key and select the Delay	
2 circuit measuring only	(1) Push the (1) / PHASE I	$\frac{1}{10} \frac{1}{10} \frac$
↓ ↓	(2) Push the $(\underline{r})$ respectively.	
[Delav] [1]	(5) 5-4 will be displayed.	
0sec		
9-4	(1) Rugh the $\square$ or $\square$ key, and select the Report Mode	
2 circuit measuring only		Auto Alarm is reset automatically when measured
↓	(2) Push the ( PPRASE) key.	value is less then setting value
[Resetmode] [1]	(3) Transition to the following screen by the setting wiring type.	HoldAlarm is hold until alarm released even
Auto	Non-2 circuit measurement $\rightarrow$ To 1(1)-1	thought measured value is less than setting
		value.
		(Release alarm T6.8.3 Release alarm)
9-5	(1) Push the $(\pm)$ or $(\pm)$ key, and select alarm existence of second circuit.	[Alarm]∶ <b>Off</b> ⇔On⇔
2 circuit measuring only	(2) Push the (PHASE) key.	
	(3) Transition to the following screen by the setting alarm existence.	
	$[Off] setting \rightarrow 10 1(1)-1$	
9-6	(1) In 9-6, push the ▲ or ▼ key, and move the cursor to the "8 W Low".	
2 circuit measuring only	(2) Push the ( <i>P</i> /PHASE) key.	
[Element] [2]	(3) 9-7 will be displayed.	
$6 V_{I-N}$ Low.		
7 W Upp.		
🛾 W Low. 🌲		
9-7	(1) Push the $\blacksquare$ $\blacksquare$ $\blacksquare$ $\blacksquare$ key, and change the W Low. value.	[W Low]: -120≦Full load≦120%
2 circuit measuring only	(2) Push the /PHASE key, and confirm the setting value.	( <u>0% of full load</u> )
<b>*</b>	(3) 9-8 will be displayed.	The minimum unit of settable value is varies by full
[W Low.] [2]		$M_{\rm full} < 12kM$ Step: 0.001kW
		$12kW \le Wfull < 120kW$ Step: 0.01kW
		120kW ≤ Wfull < 1200kW Step: 0.1kW
		1200kW ≤ Wfull < 12000kW Step: 1kW
		12000kW ≤ Wfull < 120000kW Step: 10kW
0.0		120000kW ≤ Wtull Step: 100kW
9-0 2 circuit measuring only	(1) Push the 🛨 or 🗀 key, and select the alarm time.	[Alarm]: <u>Usec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
	(2) Push the ( <i>P</i> /PHASE) key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
[Alarm] [2]	(3) 9-9 will be displayed.	4min⇔5min⇔
9-9	(1) Push the ⊥ or ∟ key, and select the ResetMode	[ResetMode]: <u>Auto</u> ⇔Hold⇔
∠ circuit measuring only	(2) Push the ( /PHASE) key.	AutoAlarm is reset automatically when measured
	(3) 1(1)-1 will be displayed.	Value is less then setting value.
[Resetwode] [2]		thought measured value is less than setting
		value.
		(Release alarm 🖝 6.8.3 Release alarm)

10 Setup the upper limit power factor (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
10-1	(1) In 10-1, push the 🔺 or 💌 key, and move the cursor to the "9 PFUpp.".	
2 circuit measuring only	(2) Push the ( /PHASE) key.	
•	(3) 10-2 will be displayed.	
[Element] [1]		
7 W Upp.		
ISI PF Upp. ≜		
10-2	(1) Push the ▲ ▼ + └ key, and change the PF upper limit.	[PF Upp.]:-0.050⇔-0.100⇔⇔-0.950⇔1.000⇔
2 circuit measuring only	(2) Push the ( /PHASE) key, and confirm the setting value and, confirm the	0.950⇔…⇔0.100⇔0.050⇔ ( <u>-0.500</u> )
↓	setting value.	
[PF Upp.] [1]	(3) 10-3 will be displayed.	
-0.500		
10-3	(1) Push the $\pm$ or $=$ key and select the delay time	[Alarm]: <b>0sec</b> \approx 5sec \approx 10sec \approx 20sec \approx 30sec \approx
2 circuit measuring only	(1) I ush the $\square$ /PHASE line.	10sec \$50sec \$1min \$2min \$3min \$
↓ ↓	(2) Push the diamle key.	
[Delav] [1]	(5) 10-4 will be displayed.	400000
Ösec		
10-4	(1) Push the $\pm$ or $\Box$ key, and select the ResetMode.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
2 circuit measuring only	(2) Push the $\left( \mathbf{\Psi} / \text{PHASE} \right)$ key	AutoAlarm is reset automatically when measured
↓ <b>↓</b>	(3) Transition to the following screen by the setting wiring type.	value is less then setting value.
[ResetMode] [1]	2 circuit measurement $\rightarrow$ To 10-5	HoldAlarm is hold until alarm released even
Auto	Non-2 circuit measurement $\rightarrow$ To 1(1)-1	thought measured value is less than setting
		value.
		(Release alarm <b>6</b> .8.3 Release alarm)
10-5	(1) Push the $\pm$ or $\equiv$ key, and select alarm existence of second circuit.	[Alarm]∶ <b>Off</b> ⇔hold⇔
2 circuit measuring only	(2) Push the ( /PHASE) key.	
•	(3) Transition to the following screen by the setting alarm existence.	
[Alarm] [2]	[Off] setting $\rightarrow$ To 1(1)-1	
	[On] setting $\rightarrow$ 10 10-6	
10-6	(1) In 10-6, push the 🔺 or 💌 key, and move the cursor "9 PFUpp.".	
2 circuit measuring only	(2) Push the <i>H</i> /PHASE key	
+	(3) 10-7 will be displayed	
[Element] [2]		
7 W Upp.		
8 W Low.		
10-7	(1) Push the ▲ ▼ + ← key, and change the PF Upp.	[PFUpp.]:-0.050⇔-0.100⇔⇔-0.950⇔1.000⇔
2 circuit measuring only	(2) Push the ( /PHASE) key, and, confirm the setting value.	0.950⇔…⇔0.100⇔0.050⇔ ( <u>-0.500</u> )
	(3) 10-8 will be displayed.	
[PFUpp.] [2]		
-0.000		
10-8	(1) Push the + or - key and select the alarm time	[Alarm]: 0sec⇔5sec⇔10sec⇔20sec⇔30sec⇔
2 circuit measuring only	(2) Duch the $\mathbf{H}$ /PHASE key	40sec⇔50sec⇔1min⇔2min⇔3min⇔
↓ ↓ ·	(2) Fush the displayed	
[Alarm] [2]	(0) 10-3 will be displayed.	
Osec		
10-9 2 simult modern in the	(1) Push the $\pm$ or $\pm$ key, and select the ResetMode.	[ResetMode]: <u>Auto</u> ⇔Hold⇔
∠ circuit measuring only	(2) Push the <i>PHASE</i> key.	AutoAlarm is reset automatically when measured
[BoootMade1 [2]	(3) 1(1)-1 will be displayed.	value is less then setting value.
		HoldAlarm is hold until alarm released even
		thought measured value is less than setting
		(Release alarm (C6 8 3)
11 Setup the upper limit power factor (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
---	---	--
Screen	Operation	Note
11-1	(1) In 11-1, push the 🔺 or 💌 key, and move the cursor to the "10 PFLow.".	
2 circuit measuring only	(2) Push the (+/PHASE) key.	
↓	(3) 11-2 will be displayed.	
[Element] [1]		
8 W Low.		
9 PF Upp.		
11-2	(1) Push the 🔳 💌 🛨 key, and change the PF lower limit.	[PF Low.]:-0.050⇔-0.100⇔⇔-0.950⇔1.000⇔
2 circuit measuring only	(2) Push the ( /PHASE) key, and confirm the setting value and, confirm the	0.950⇔…⇔0.100⇔0.050⇔ ( <u>0.500</u> )
↓ <b>↓</b>	setting value.	
[PF Low.] [1]	(3) 11-3 will be displayed.	
0.500		
11-3	(1) Push the $\pm$ or $\equiv$ key, and select the delay time	[Alarm]: <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
	(2) Push the ( /PHASE) key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
	(3) 11-4 will be displayed.	4min⇔5min⇔
11-4	(1) Push the (+) or (-) key and select the ResetMode	[ResetMode]: Auto⇔Hold⇔
2 circuit measuring only	(2) Push the $\mathcal{U}$ /PHASE key	AutoAlarm is reset automatically when measured
↓	(2) Fusifilitie (2) Fusification to the following screen by the setting wiring type	value is less then setting value.
[ResetMode] [1]	2 circuit measurement $\rightarrow$ To 11-5	HoldAlarm is hold until alarm released even
Auto	Non-2 circuit measurement $\rightarrow$ To 1(1)-1	thought measured value is less than setting
		value.
		(Release alarm T6.8.3 Release alarm)
11-5	(1) Push the $\pm$ or $\equiv$ key, and select alarm existence of second circuit.	[Alarm]∶ <b>Off</b> ⇔hold⇔
2 circuit measuring only	(2) Push the [ /PHASE] key.	
	(3) Transition to the following screen by the setting alarm existence.	
[Alarm] [2]	[Off] setting $\rightarrow$ To 1(1)-1	
	[On] setting $\rightarrow$ 10 11-6	
11-6	(1) In 10-6, push the ▲ or ▼ key, and move the cursor "10 PFLow.".	
2 circuit measuring only	(2) Push the $(\Psi/PHASE)$ key.	
↓ ↓	(3) 11-7 will be displayed.	
[Element] [2]	(-) · · · · · · · · · · · · · · · · · · ·	
8 W Low.		
9 PF Upp.		
2 circuit measuring only	(1) Push the (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	[PFLOW.]:-0.050 -0.100 -0.950 -1.000 -
L	(2) Push the ( PHASE) key, and, confirm the setting value.	0.950
[PFLow1 [2]	(3) 11-8 will be displayed.	
0.500		
11-8	(1) Push the $\pm$ or $\Box$ key, and select the alarm time.	[Alarm]: <b>0sec</b> ⇔5sec⇔10sec⇔20sec⇔30sec⇔
2 circuit measuring only	(2) Push the ()/PHASE key.	40sec⇔50sec⇔1min⇔2min⇔3min⇔
•	(3) 11-9 will be displayed.	4min⇔5min⇔
[ <u>Alar</u> m] [2]		
USEC		
11-9	(1) Push the (+) or (-) key and select the ResetMode	[ResetMode] • <b>Auto</b> ⇔Hold⇔
2 circuit measuring only	(2) Push the $\checkmark$ (PHASE) key	AutoAlarm is reset automatically when measured
↓	(2) Fush the $(-, -, -, -, -)$ rev. (3) $1(1)-1$ will be displayed	value is less then setting value.
[ResetMode] [2]		HoldAlarm is hold until alarm released even
Auto		thought measured value is less than setting
		value.
		(Release alarm <b>•</b> 6.8.3 Release alarm)

12 Setup the upper limit alarm N phase demand current (EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
12-1. [Element] 9 PF Upp. 10 PFLow. ∭A <sub>N</sub> Upp. ♦	<ul> <li>(1) In 12-1, push the ▲ or ▼ key, and move the cursor to the "11 A<sub>N</sub> Upp.".</li> <li>(2) Push the</li></ul>	*Only setup in 3P4W
12-2. [A <sub>N</sub> Upp.] <b>0</b> 0100 A	<ul> <li>(1) Push the  T  +  -  key, and change the N-phase current upper limit.</li> <li>(2) Push the  //PHASE key, and confirm the setting value.</li> <li>(3) 12-3 will be displayed.</li> </ul>	[A <sub>N</sub> Upp.]: 0≦Primary current≦120% ( <u>100% of primary current</u> )
12-3. [Alarm] Osec	<ul> <li>(1) Push the</li></ul>	[Alarm]: <u>0sec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
12-4. [ResetMode]	<ul> <li>(1) Push the</li></ul>	[ResetMode]: <u>Auto</u> ⇔Hold⇔ AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value. (Release alarm <b>●</b> 6.8.3)

13(1) Setup the upper	r limit alarm pulse converted value (EMU4-HM1-MB)	
Screen	Operation	Note
13(1)-1 2 circuit measuring only L	<ul> <li>(1) In 13(1)-1, push the ▲ or ▼ key, and move the cursor to the "12 PLS.</li> <li>Upp.".</li> <li>(2) Push the ▲ /PHASE key</li> </ul>	
[Element] [1] 10 PF Low. 11 A <sub>N</sub> Upp. ₽ PLS. Upp. ↓	(3) 13(1)-2 will be displayed.	
13(1)-2 2 circuit measuring only [PLS.Upp.] [1] 00.000	<ul> <li>(1) Push the</li></ul>	[PLS.Upp.]: 1 to 999.999( <u>100.000</u> )
Tubo-fukuyama@09	<ul> <li>(1) Push the</li></ul>	[Alarm]: <u>0sec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
13(1)-4 2 circuit measuring only [ResetMode] [1]	<ol> <li>Push the</li></ol>	[ResetMode]: <u>Auto</u> ⇔Hold⇔ AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value. (Release alarm <b>●</b> 6.8.3 Release alarm)
13(1)-5 2 circuit measuring only [Alarm] [2]	<ol> <li>Push the</li></ol>	[Alarm]∶ <b>Off</b> ⇔On⇔
13(1)-6 2 circuit measuring only ↓ [Element] [1] 10 PF Low. 11 A <sub>N</sub> Upp. 12 PLS.Upp. ↓	<ul> <li>(1) In 9-6, push the or vert key, and move the cursor to the "12 PLS.Upp."</li> <li>(2) Push the <i>P</i>/PHASE key.</li> <li>(3) 13(1)-7 will be displayed.</li> </ul>	
13(1)-7 2 circuit measuring only ↓ [PLS.Upp.] [2] 100.000	<ol> <li>Push the          (1) Push the          (1) Push the          (2) Push the          (2) Push the          (2) Push the          (2) PHASE         key, and confirm the setting value.         (3) 13(1)-8 will be displayed.     </li> </ol>	[PLS.Upp]:1~999999( <u>100000</u> )
13(1)-8 2 circuit measuring only [Delay] [2] 0sec	<ul> <li>(1) Push the ⊕ or  key, and select the alarm time.</li> <li>(2) Push the  //PHASE key.</li> <li>(3) 13(1)-9 will be displayed.</li> </ul>	[Alarm]: <u><b>0sec</b></u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
13(1)-9 2 circuit measuring only [ResetMode] [2]	<ul> <li>(1) Push the</li></ul>	[RsetMode]: <u>Auto</u> ⇔Hold⇔ Auto…Alarm is reset automatically when measured value is less then setting value. Hold…Alarm is hold until alarm released even thought measured value is less than setting value. ((Release alarm ●6.8.3 Release alarm)

13(2) Setup the upper limit alarm pulse converted value (EMU4-PX4 only)		
Screen	Operation	Note
13( <u>2)-1</u> [Alarm] [1] Ofi	<ol> <li>Push the</li></ol>	[Alarm]: Off⇔On⇔ *If input setting value is set to anything other than pulse, this CH is not displayed.
13(2)-2 [PLS.Upp.] [1] [0000.0 x10	<ul> <li>(1) Push the</li></ul>	[PLS.Upp.]:0.1 to 99999.9( <u>10000.0</u> )
13(2)-3 [Alarm] [2] Off	<ul> <li>(1) Push the  tor  key, and select the alarm existence.</li> <li>(2) Push the</li></ul>	[Alarm]: <b>Off</b> ⇔On⇔ *If input setting value is set to anything other than pulse, this CH is not displayed.
13(2)-4 [PLS.Upp.] [2] 10000.0 x10	<ul> <li>(1) Push the  ▼  +  -  key, and change the Pulse upper limit.</li> <li>(2) Push the  /PHASE key, and, confirm the setting value.</li> <li>(3) 13(2)-5 will be displayed.</li> </ul>	[PLS.Upp.]:0.1 to 99999.9( <b>10000.0</b> )
13(2)-5 [Alarm] [3] Off	<ul> <li>(1) Push the + or key, and select the alarm existence.</li> <li>(2) Push the  <i>√</i>/PHASE key.</li> <li>(3) Transition to the following screen by the setting alarm existence. [Off] setting → To 13(2)-7 [On] setting → To 13(2)-6</li> </ul>	[Alarm]: <b>Off</b> ⇔On⇔ *If input setting value is set to anything other than pulse, this CH is not displayed.
13(2)-6 [PLS.Upp.] [3] [0000.0 x10	<ul> <li>(1) Push the  ▼ + - key, and change the Pulse upper limit.</li> <li>(2) Push the  //PHASE key, and, confirm the setting value.</li> <li>(3) 13(2)-7 will be displayed.</li> </ul>	[PLS.Upp.]:0.1 to 99999.9( <u>10000.0</u> )
13(2)-7 [Alarm] [4] Off	<ul> <li>(1) Push the  to  key, and select the alarm existence.</li> <li>(2) Push the</li></ul>	[Alarm]: <b>Off</b> ⇔On⇔ *If input setting value is set to anything other than pulse, this CH is not displayed.
13(2)-8 [PLS.Upp.] [4] [0000.0 x10	<ul> <li>(1) Push the  ▼</li></ul>	[PLS.Upp.]:0.1 to 99999.9( <u>10000.0</u> )
13(2)-9 [Alarm target CH]	<ul> <li>(1) Push the ± or  → key, and select the CH to output the alarm state from contact output terminals.</li> <li>(2) Push the  //PHASE key, and, confirm the setting value.</li> <li>(3) 1(2)-1 will be displayed.</li> </ul>	[Alarm target CH]: <u>Non</u> ⇔[1]⇔[2]⇔[3]⇔[4]⇔ *If alarm existence setting is set to off, this CH is not displayed.

14 Setup the upper limit alarm current unbalance rate (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
14-1 2 circuit measuring only ↓ [Element] [1]	<ul> <li>(1) In 14-1, push the ▲ or ▼ key, and move the cursor to the "13 UNB.AUpp.".</li> <li>(2) Push the ∉/PHASE key.</li> <li>(3) 44 0.0000 because descensed</li> </ul>	This can be set when the phase wire system is set to something other than 1P2W.
11 A <sub>N</sub> Upp. 12 PLS.Upp. ■ UNB.AUpp.		
14-2 2 circuit measuring only	<ul> <li>(1) Push the  () (+) (+) (+) (+) (+) (+) (+) (+) (+)</li></ul>	[UNB.AUpp.]:0.01 to 999.99%( <u><b>30.00</b></u> )
[UNB.AUpp.] [1] 010.00 %		
14-3 2 circuit measuring only ↓	<ol> <li>Push the</li></ol>	[Delay]: <u>0sec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
[Delay] [1] <mark>0sec</mark>		
14-4	(1) Push the $\pm$ or $\Box$ key, and select the ResetMode.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
2 circuit measuring only	(2) Push the 🖌/PHASE key.	AutoAlarm is reset automatically when measured
*	(3) 1(1)-1 will be displayed.	value is less then setting value.
[ResetMode] [1]		HoldAlarm is hold until alarm released even
		value
		(Release alarm <b>•</b> 6.8.3)

15 Setup the upper limit alarm voltage unbalance rate (EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2)		
Screen	Operation	Note
15-1 2 circuit measuring only ↓ [Element] [1] 12PLS.Upp. 13UNB.A Upp. 12UNB.V Upp.	<ul> <li>(1) In 15-1, push the ▲ or ▼ key, and move the cursor to the "14 UNB.V Upp.".</li> <li>(2) Push the  //PHASE key.</li> <li>(3) 15-2 will be displayed.</li> </ul>	This can be set when the phase wire system is set to something other than 1P2W.
15-2 2 circuit measuring only ↓ [UNB.VUpp.] [1] 001.00 %	<ul> <li>(1) Push the  T T + C key, and change the current unbalance rate.</li> <li>(2) Push the  //PHASE key, and confirm the setting value.</li> <li>(3) 15-3 will be displayed.</li> </ul>	[UNB.V upper]:0.01 to 999.99%( <b>3.00</b> )
15-3 2 circuit measuring only ↓ [Delay] [1] 0sec	<ul> <li>(1) Push the</li></ul>	[Delay]: <u>0sec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
15-4 2 circuit measuring only ↓ [ResetMode] [1]	<ul> <li>(1) Push the</li></ul>	<ul> <li>[ResetMode]: <u>Auto</u>⇔Hold⇔</li> <li>AutoAlarm is reset automatically when measured value is less then setting value.</li> <li>HoldAlarm is hold until alarm released even thought measured value is less than setting value.</li> <li>(Release alarm ●6.8.3 Release alarm)</li> </ul>

16 Setup the limit ala	rm scaling value (EMU4-AX4 only)	Ni-t-
Screen	Operation	
[Alarm] [1]	<ul> <li>(1) Push the  (1) Push the  (2) Push the  (2)</li></ul>	TAlamij: <u>Nom</u> o Opp.o Low.o Opp.aclow.o
	[Non] setting $\rightarrow$ 10 16-5 Other setting $\rightarrow$ To 16-2	
16-2.	(1) Push the $\mathbf{A} \mathbf{\nabla} \pm \mathbf{\nabla}$ key and change the scaling alarm value	[Scaling alarm value Upp 1: Scaling Low to
[Scaling [1] alarm value] Upp.: <b>[</b> 4095 Low.: 00000	<ul> <li>(1) Fush the ∠/PHASE key, and confirm the setting value.</li> <li>(3) 16-3 will be displayed.</li> </ul>	*If you set Scaling Upp. <scaling default="" is<br="" low.,="" the="">Scaling Low.</scaling>
		[Scaling alarm value Low.]: <u>Scaling Low.</u> to Scaling Upp *If you set Scaling Upp. <scaling default="" is<="" low.,="" td="" the=""></scaling>
16.3	(1) Duply the $+$ or $-$ key, and called the elerm time	
[Delay] [1] Osec	<ul> <li>(1) Fush the  (1) Fush the  (1)</li></ul>	40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
16-4.	(1) Push the $\pm$ or $\Box$ key, and select the ResetMode.	[ResetMode]: <b>Auto</b> ⇔Hold⇔
[ResetMode] [1]	<ul> <li>(2) Push the</li></ul>	AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value. (Release alarm (26.8.3))
16-5	(1) Push the + or - key and select the alarm existence	[Alarm]: Non⇔Linn ⇔Low ⇔Linn & ow ⇔
[Alarm] [2] Non	<ul> <li>(1) Fush the  <sup>1</sup>/PHASE key.</li> <li>(3) Transition to the following screen by the setting alarm existence. [Non] setting → To 16-9 Other setting → To 16-6</li> </ul>	[/ admij. <u></u> opp com opp.a.com
16-6.	(1) Push the 🛋 💌 🛨 🚍 key, and change the scaling alarm value.	[Scaling alarm value Upp.]:Scaling Low. to
[Scaling [2] alarm value] Upp.: <b>0</b> 4095 Low.: 00000	<ul> <li>(2) Push the <i>(</i><u>/PHASE</u>) key, and confirm the setting value.</li> <li>(3) 16-7 will be displayed.</li> </ul>	Scaling Upp. *If you set Scaling Upp. <scaling default="" is<br="" low.,="" the="">Scaling Low.</scaling>
		[Scaling alarm value Low.]: <u>Scaling Low.</u> to Scaling Upp. *If you set Scaling Upp. <scaling default="" is<="" low.,="" td="" the=""></scaling>
16-7	(1) Push the $+$ or $-$ key and select the alarm time	Scaling Upp.
[Delay] [2] Osec	<ul> <li>(1) Fush the  <i>U</i>/PHASE key.</li> <li>(2) Push the  <i>U</i>/PHASE key.</li> <li>(3) 16-8 will be displayed.</li> </ul>	40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
16-8.	(1) Push the $+$ or $-$ key, and select the ResetMode.	[ResetMode]∶ <b>Auto</b> ⇔Hold⇔
[ResetMode] [2]	(2) Push the ₩/PHASE key. (3) 16-9 will be displayed.	<ul> <li>AutoAlarm is reset automatically when measured value is less then setting value.</li> <li>HoldAlarm is hold until alarm released even thought measured value is less than setting value.</li> <li>(Release alarm (C6.8.3))</li> </ul>
16-9.	(1) Push the + or - key and select the alarm existence	[Alarm]: <b>Non</b> $\Leftrightarrow$ Upp. $\Leftrightarrow$ Low. $\Leftrightarrow$ Upp. &Low. $\Leftrightarrow$
[Alarm] [3] Non	<ul> <li>(2) Push the  <i>I</i>/PHASE key.</li> <li>(3) Transition to the following screen by the setting alarm existence. [Non] setting → To 16-13 Other setting → To 16-10</li> </ul>	
16-10.	(1) Push the 🔺 💌 🛨 🗔 key, and change the scaling alarm value.	[Scaling alarm value Upp.]:Scaling Low. to
[Scaling [3] alarm value] Upp.: <b>0</b> 4095 Low.: 00000	<ul> <li>(2) Push the <i>(PHASE)</i> key, and confirm the setting value.</li> <li>(3) 16-11 will be displayed.</li> </ul>	Scaling Upp. *If you set Scaling Upp. <scaling default="" is<br="" low.,="" the="">Scaling Low.</scaling>
		[Scaling alarm value Low.]: <u>Scaling Low.</u> to Scaling Upp. *If you set Scaling Upp. <scaling default="" is<="" low.,="" td="" the=""></scaling>
16 11		Scaling Upp.
[Delay] [3] [Delay] [3]	<ul> <li>(1) Push the to react key, and select the alarm time.</li> <li>(2) Push the react react key.</li> <li>(3) 16-12 will be displayed.</li> </ul>	[Delay]: <u>Usec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
16- <u>12.</u>	(1) Push the $\pm$ or $\Box$ key, and select the ResetMode.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
[ResetMode] [3] Auto	(2) Push the <i>I</i> /PHASE key. (3) 16-13 will be displayed.	AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value
		(Release alarm 🖝 6.8.3)

Screen	Operation	Note
16-13. [Alarm] [4] Non	<ul> <li>(1) Push the  <sup>+</sup> or  <sup>-</sup> key, and select the alarm existence.</li> <li>(2) Push the  <sup>ℓ</sup>/PHASE key.</li> <li>(3) Transition to the following screen by the setting alarm existence. [Non] setting → To 16-17 Other setting → To 16-14</li> </ul>	[Alarm]∶ <b>Non</b> ⇔Upp.⇔Low.⇔Upp.&Low.⇔
16-14. [Scaling [4] alarm value] Upp.∎04095 Low.: 00000	<ul> <li>(1) Push the</li></ul>	[Scaling alarm value Upp.]: Scaling Low. to Scaling Upp.           *If you set Scaling Upp. <scaling default="" is<br="" low.,="" the="">Scaling Low.           [Scaling alarm value Low.]: Scaling Low.           *If you set Scaling Upp.<scaling default="" is<br="" low.,="" the="">Scaling Upp.</scaling></scaling>
16-15. [Delay] [4] <b>0sec</b>	<ul> <li>(1) Push the</li></ul>	[Delay]: <u>0sec</u> ⇔5sec⇔10sec⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔
16-16. [ResetMode] [4]	<ul> <li>(1) Push the</li></ul>	[ResetMode]: <u>Auto</u> ⇔Hold⇔ AutoAlarm is reset automatically when measured value is less then setting value. HoldAlarm is hold until alarm released even thought measured value is less than setting value. (Release alarm ●6.8.3)
16-17. [Alarm target CH]	<ol> <li>Push the</li></ol>	[Alarm target CH]: <u>Non</u> ⇔[1]⇔[2]⇔[3]⇔[4]⇔ *If alarm existence setting is set to non, this CH is not displayed.
16-18. [Output] Upp.Alarm	<ul> <li>(1) Push the  <sup>+</sup> or  <sup>−</sup> key, and select the output alarm state.</li> <li>(2) Push the  <sup>ℓ</sup>/PHASE key.</li> <li>(3) 1(2)-1 will be displayed.</li> </ul>	OutputSetting the output alarm state from external output terminal. [Output]: Upp.Alarm⇔Low.Alarm⇔ Upp.&Low.Alarm⇔

Screen Operation	Note	
	1 Sovo sottings and return to	6
Quit Setup       Quit Setup         Save       (2) 17-1 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.         Return to the alarm mode, and it will be displayed alarm list screen.	<ul> <li>a Save Settings and return to the alarm mode.</li> <li>2 Not Save → Discard the changes and return to the alarm mode.</li> <li>3 Cancel → Continue the setup (1(1)-1 or 1(2))</li> </ul>	<u>'</u> )-1).

\*Setting for the measurement mode can only be in the display unit is set to master.(Setting for the measurement mode cannot be in the display unit is set to slave.) \*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 <u>CIRCUIT</u> key on the "Setup" screen (1(1)-1 or 1(2)-1), select the circuit, make the setting.

## 6.4.3 Leak current condition setup-The settings for the limit alarm of the Leak current lo, lor. EMU4-LG1-MB only.

1 Transition to the alarm setup mode		
Screen	Operation	Note
1-1.	(1) Push the SETUP key in alarm mode.	Push simultaneous 🚺 💌 key, and transition from
[Alarm Set]	(2) 1-1 will be displayed.	in operation mode to alarm mode.
1 Limit	(1) Push the ▲ or ▼ key, and move the cursor to the "2 lo/lor".	
lo/lor	Push the <i>H</i> /PHASE key.	
	(2) 2-1 will be displayed.	

2 Setup the leak of	current alarm	
Screen	Operation	Note
2-1.	(1) In 2-1, Push the ▲ or 💌 key, and select the Io-Alarm.	[lo-Alarm] : <u>Current VAL.</u> ⇔Demand.VAL.⇔
[lo-Alarm]	(2) Push the /PHASE key.	
Current \/AL	(3) 2-2 will be displayed.	
Current VAL.		
2.2		Low SENS mode
	(1) Push the $\square$ $\square$ $\square$ $\square$ key, and change the Io2-Alarm.	
[101-Alarm]	(2) Push the ( PHASE ) key, and confirm the setting value.	
	(3) 2-3 will be displayed.	High SENS mode
		[lo1 Alarm] : 0.00 to 100.00mA
		* If value is set 0, alarm monitoring is not conducted
2-3	(1) Bush the $\blacksquare$ $\blacksquare$ $\blacksquare$ $\models$ key and shange the lo2 Alarm	Low SENS mode
		[lo2-Alarm] : 0 to 1000 mA
1000 mA	(2) Push the $(-7)$ resp. and confirm the setting value.	[
	(5) 2-4 will be displayed.	High SENS mode
		[lo2-Alarm] : 0.00 to 100.00mA
		* If value is set 0, alarm monitoring is not conducted.
2-4.	(1) Push the 🔺 💌 🛨 🚍 key, and change the Io1-Alarm count.	[lo1-Alarm count] : <u>0</u> to 999999
[lo1-Alarm	(2) Push the $(\mathbf{\Psi}/\text{PHASE})$ key and confirm the setting value	* If value is set 0, clarm manifering is not conducted
count]	(3) 2-5 will be displayed.	If value is set 0, alarm monitoring is not conducted.
00100		
		[le2 Alarm count] + <b>0</b> to 000000
2-5.	(1) Push the $\square$ $\square$ $\square$ $\square$ key, and change the Io2-Alarm count.	[102-Alami count] . <u>0</u> to 999999
count]	(2) Push the ( /PHASE) key, and confirm the setting value.	* If value is set 0, alarm monitoring is not conducted.
000100	(3) Transition to the following screen by the setting wiring type.	-
_	$1P2W, 1P3W, 3P3W \rightarrow 10.2-6$	
2.6	$3P4W \rightarrow 10$ 2-11 (1) Push the $\blacksquare$ or $\blacksquare$ key and change the lor Alerm	[ler Alerm] . Current VAL & Demand VAL +
[lor-Alarm]		
Current VAL.	(2) 2 7 will be diaplayed	DIF.VAL.⇔
	(3) 2-7 will be displayed.	Alann about for carri be setup in 5F4W.
2-7.	(1) Push the 🔺 💌 🛨 🗔 key, and change the lor1-Alarm.	Low SENS mode
[lor1-Alarm]	(2) Push the /PHASE key, and confirm the setting value.	[lor1-Alarm] : <u>0</u> to 1000mA
1000 mA	(3) 2-8 will be displayed.	
		High SENS mode
		[lor1-Alarm] : <u>0.00</u> to 100.00mA
		* If value is set 0, alarm monitoring is not conducted.
2-8.	(1) Push the $\square$ $\square$ $\square$ $\square$ key, and change the lor2-Alarm.	Low SENS mode
[Ior2-Alarm]	(2) Push the ( /PHASE) key, and confirm the setting value.	[Ior2-Alarm] : <u>U</u> to 1000mA
	(3) 2-9 will be displayed.	High SENS mode
		$[lor_2-Alarm]$ : <b>0.00</b> to 100.00mA
		* If value is set 0, alarm monitoring is not conducted
2-9	(1) Push the $\Lambda$ $\nabla$ $\pm$ $-$ key and change the lor1-Alarm count	[lor1-Alarm count] : 0 to 999999
[lor1-Alarm	(1) Fush the $\mathbf{H}$ /PHASE key confirm the patting value	
count]	(2) Fush the displayed	* If value is set 0. alarm monitoring is not conducted.
00100	(3) 2-10 will be displayed.	, <b>, , ,</b>
2-10.	(1) Push the 🔺 🔽 🛨 😑 key, and change the lor2-Alarm count.	[lor2-Alarm count] : 0 to 999999
[lor2-Alarm	(2) Push the $\checkmark$ /PHASE key and confirm the setting value	
count]	(3) 2-11 will be displayed.	* If value is set 0, alarm monitoring is not conducted.
<b>0</b> 00100		
2 11	(1) Duch the A or V key and change the Output	
2-11.		
[Output]	(2) 2 12 will be dieplayed	
lo1-Alarm	(5) 2-12 will be displayed.	
		IOF I-Alarm count⇔IOFZ-Alarm count⇔
		terminal
2-12	(1) Push the $+$ or $-$ key and change the alarm delay time	
[Delav]	(1) Fush the H/PHASE line	10sec \$50sec \$1min \$2min \$3min \$
Osec	(2) Fush the $(-7, -7, -7, -7, -7, -7, -7, -7, -7, -7, $	4min⇔5min⇔
2-13.	(1) Push the $\pm$ or $\Box$ key, and select the reset mode.	[ResetMode]∶ <u>Auto</u> ⇔Hold⇔
[ResetMode]	(2) Push the /PHASE key.	AutoAlarm is reset automatically when measured
Auto	(3) 1-1 will be displayed.	value is less then setting value.
		HoldAlarm is hold until alarm released even
		thought measured value is less than setting
		Value. (Release alarm (F6.8.3, Release alarm)
L	1	

3 Save the settings			
Screen	Operation	Note	
3-1. Quit Setup Save 2 Not Save 3 Cancel	<ol> <li>(1) After setting all of the items, push the SETUP key.</li> <li>(2) 3-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the         <ul> <li>"1 Save", and push the</li></ul></li></ol>	<ol> <li>Save → Save settings and return to the alarm mode.</li> <li>Not Save → Discard the changes and return to the alarm mode.</li> <li>Cancel → Continue the setup (1-1).</li> </ol>	

#### 6.5.1 About test mode

Test mode has the functions which you can utilize in such as the launch of equipment. The functions in test mode are as follows:

Test menu	Details
1.Discrimination support function for improper connection	For EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2, indicate phase angle of current and voltage, electric power, voltage and current of each phase. You can discriminate easily whether the input connection for measurement (voltage and current) is proper or not by checking each indicated values.
2.Communication test	For the device with communication function, it can send back the fixed numerical data without the input of measurement (voltage and current). Use for such as the opposing test to host system.
3.Pulse output test	For EMU4-HM1-MB, EMU4-A2, EMU4-VA2, you can check the pulse output without the input of measurement (voltage and current). Use for such as the check of the connection to the receiving device.
4.Alarm output test	You can check the alarm output without the input of measurement (voltage and current). Use for such as the check of the connection to the receiving device.
*In the case of master of display unit M	IASTER LED is light while in test mode.

"In test mode" is displayed in LCD display of slave unit.

	EMU4-BM1-MB	EMU4-HM1-MB	EMU4-A2 EMU4-VA2	EMU4-LG1-MB	EMU4-PX4 EMU4-AX4
Discrimination support function for improper connection	O*1	O*1	O*1	-	-
Communication test	0	0	0	0	0
Pulse output test	-	0	0	-	-
Alarm output test	_	0	0	0	0

\*1 If setting 1P2W in wiring type, you cannot use this function.

# 6.5.2 Support of incorrect wiring discrimination

1 Transition to the	alarm setup mode
Screen	Operation
1-1. Do you run test mode? OK Cance	(1) Push the
1-2. [Test mode] 1 Connection 2 COM. 3 Pulse ▼	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  <i>√</i>/PHASE key.</li> <li>(2) 1-2 will be displayed after a whille displayed transition screen to test mode.</li> <li>(3) Push the ▲ or ▼ key, and move the cursor to the "1 incorrect wiring discrimination " and push the <i>√</i>/PHASE key.</li> </ul>





<Example for three-phase 4-wire>



Display example of discrimination support function for improper connection For display examples for each connection pattern, pp. 47 - 56.

■ Display example of discrimination support function for improper connection Display example (Connection example for three-phase 3-wire) Indicates improper connection

	P				At th	ne averaç	ge curre	nt (V12=	=V23、I1	=I3)				
No.	Power factor (Input)	PI	hase anç	gle displ	ay	Electric disp	; power blay	Vol	tage dis	play	Cu	rrent disp	olay	Wiring
	(input)	∠V12	∠V23	∠l1	∠lз	W1	Wз	V12	V23	V31	l1	12	l3	
	Forward 0.707			345	225	W12	>W3					, , , , , , , , , , , , , , , , , , , ,		1 2 3
	Forward 0.866			0	240									
Normal status	1	0	300	30	270	W1=	=W3	V12	=V23=	V31	l	11=l2=l3	ł	
	Delayed 0 866			60	300									
	Delayed			75	315	VV1<	< VV 3							
	Forward 0.707			165	45									Connection between P1 and P2 are reserved.
	Forward			180	60	W1=N	egative							
1	1	0	60	210	90	va	lue	V12	=V23=	V31	l	1=l2=l3	ł	
	Delayed 0.866			240	120	vv3=P val	'ositive ue							
	Delayed 0.707			255	135									
	Forward 0.707			165	45									Connection of VT side "1"is reversed.
	Forward 0.866			180	60	W1=N val	egative ue							
2	1	0	120	210	90			V12	=V23<	V31		1=12=13		
	Delayed 0.866			240	120	vv3=P val	ue							
	Delayed 0.707			255	135									P3
	Forward 0.707			165	225									Connection of CT on side "1" is reversed. 1 $\frac{2}{3}$
	Forward 0.866			180	240	W1=N	egative							К 1К
3	1	0	300	210	270	val wa-p	ue	V12	=V23=	V31		l1=l3 <l2< td=""><td>2</td><td></td></l2<>	2	
	Delayed 0.866			240	300	val	ue							
	Delayed 0.707			255	315									
	Forward 0.707			225	345	W1=N val	egative ue							CT side "1" and "3" are swapped.
	Forward 0.866			240	0	W3=P val	ositive ue							К 1К 1L
4	1	0	300	270	30	W1=W	N3=0	V12	=V23=	V31	l	1=12=13		к 3К
	Delayed 0.866			300	60	W1=P val	ositive ue							
	Delayed 0.707			315	75	W3=N val	egative ue							
	Forward			225	105	W1=N val	egative ue							Connection of VT's terminals in order of P2, P3, P1 to measuring
	Forward 0.866			240	120	W3=N val	egative ue							instrument's terminals P1, P2, P3.
5	1	0	300	270	150	W1 W3=N	=0 egative	V12	=V23=	V31		1=l2=l3	ł	
	Delayed 0.866			300	180	W1=P val	ositive ue							3L U U U V E E E E
	Delayed 0.707			315	195	W3=N val	egative ue							P2

# Display example (Connection example for single-phase 3-wire)

----- Indicates improper connection

				A	t the ave	erage c	urrent	(V12=)	√23 <b>、</b> I	1=I3)								Conn	ection
No.	Power factor (Input)	Ρ	hase a	ingle dis	play	Elec pov disp	ctric wer olay	Volta	ge di	splay	Curr	ent dis	splay	v	oltaç	je	Cur	rent	Connecting diagram
		∠V12	∠V23	∠l1	∠l3	W1	W3	V12	V23	V31	<b>I</b> 1	<b>l</b> 2	l3	1	2	3	CT(sid e "1")	CT(sid e "3")	
	Forward 0.707			315	135		-												1 2 3
NI	Forward 0.866			330	150							L la							
INORMA	1	0	180	0	180	W1=	=W3	V12=	=V23 <	<v31< td=""><td></td><td>11=13</td><td></td><td>P1</td><td>P2</td><td>P3</td><td>1K 1L Forward</td><td>3K 3L Forward</td><td><u>к</u> <u>зк</u></td></v31<>		11=13		P1	P2	P3	1K 1L Forward	3K 3L Forward	<u>к</u> <u>зк</u>
status	Delayed 0.866			30	210							12=0							
	Delayed 0.707			45	225														
	Forward 0 707			135	315														Connection between P1 and P2 are reserved.
	Forward			150	330	W1= Negati	ve	V12=V23 <v31< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></v31<>											
1	1	0	0	180	0	value						I1=I3		P2	P1	P3	1K 1L Forward	3K 3L Forward	
	Delayed			210	30	W3= Positiv	/e					l2=0							3L P1
	Delayed			225	45	value													P3
	Forward			135	315														Connection of P1, P2, P3 terminals of measuring instrument
	Forward			150	330	W1= Negati	ve												is reversed (P2, P3, P1).
2	1	0	0	180	0	value		V12>V23=V31		l1=13 l2=0	P2	P3	P1	1K 1L Forward	3K 3L Forward				
	Delayed 0 866			210	30	W3= Positiv	/e									3L			
	Delayed 0.707			225	45	value	e												P2 P3
	Forward 0.707			315	315														Connection of CT side "3" is reversed.
	Forward 0 866			330	330	VV1= Positiv	/e												
3	1	0	180	0	0	value		V12=	=V23<	<v31< td=""><td>l1</td><td>=13&lt;</td><td>12</td><td>P1</td><td>P2</td><td>P3</td><td>3K 3L Forward</td><td>3K 3L Revers</td><td>1L 3K</td></v31<>	l1	=13<	12	P1	P2	P3	3K 3L Forward	3K 3L Revers	1L 3K
	Delayed 0.866			30	30	W3= Negati	ve											e	P1
	Delayed 0.707			45	45	value													P2 P3
	Forward 0.707			135	315														CT side "1" and "3" are swapped. $\begin{bmatrix} 1 & 2 & 3 \\ 1 & 2 & 1 \end{bmatrix}$
	Forward 0.866			150	330	Negati	ve												к 1К 1L
4	1	0	180	180	0	value		V12=	=V23<	<v31< td=""><td></td><td>11=13</td><td></td><td>P1</td><td>P2</td><td>P3</td><td>3K 3L Forward</td><td>1K 1L Forward</td><td>ЗК L 3L</td></v31<>		11=13		P1	P2	P3	3K 3L Forward	1K 1L Forward	ЗК L 3L
	Delayed 0.866			210	30	₩3= Negati	ve					12=0							P1 P2
	Delayed 0.707			225	45	value													P3
	Forward 0.707			135	315														Connection of P1, P2, P3 terminals of measuring instrument
	Forward 0.866			150	330	Negati	ve												is reversed (P3, P2, P1).
5	1	0	180	180	0	value	V12=	=V23<	<v31< td=""><td></td><td>11=13</td><td></td><td>Р3</td><td>P2</td><td>P1</td><td>1K 1L Forward</td><td>3K 3L Forward</td><td></td></v31<>		11=13		Р3	P2	P1	1K 1L Forward	3K 3L Forward		
	Delayed 0.866			210	30	W3= Negati	W3= Negative					12=0							3L P1
	Delayed 0.707			225	45	value												P2	

<u> </u>	Power		_					At the average current	(V1N=V2N=V	3N, I1=I2=I3)	
No.	factor		Phas	se angl	e disp	lay		Electric power display	Voltage display	Current display	Wiring
	(input)	∠V1N	∠V2N	∠Vзм	∠lı	∠l2	∠l₃	W1 W2 W3	V1N V2N V3N	l1 l2 l3	
	Forward 0.707				315	75	195				
	Forward 0.866				330	90	210				
Normal status	1	0	120	240	0	120	240	W1=W2=W3	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				30	150	270				
	Delayed 0.707				45	165	285				
1	Forward 0.707				315	75	195				Negative phase sequence 1     Negative phase sequence 2       1     2     3     0       1     1     2     3
	Forward 0.866				330	90	210				
	1	0	120	240	0	120	240	W1=W2=W3	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				30	150	270				
2	0.707				45	165	285	W1=Negative value			$\left  \left[ \right] \left[ \left[ \bigcup_{v \in V} \frac{2s}{v} \right] \right]^{\frac{ P ^2}{2}} \right] \left  \left[ \left[ \right] \right] \left[ \bigcup_{v \in V} \frac{2s}{v} \right]^{\frac{ P ^2}{2}} \right]$ Connection between P1 and P2
	0.707				190	315	75	W <sub>2</sub> =Positive value W <sub>3</sub> =Positive value W <sub>1</sub> =Negative value	-		are reserved. $1 \xrightarrow{2} 3 \xrightarrow{0} 0$ $1 \xrightarrow{1} 1 \xrightarrow{2} 3 \xrightarrow{0} 0$ $1 \xrightarrow{1} 1 \xrightarrow{1} 1 \xrightarrow{1} 1$
	0.866				210	330	90	W2=0 W3=Positive value W1=Negative value			
	1 Delaved	0	240	120	240	0	120	W <sub>2</sub> =Negative value W <sub>3</sub> =Positive value W <sub>1</sub> =0	V1N=V2N=V3N	l1=l2=l3	
	0.866 Delaved				270	30	150	W <sub>2</sub> =Negative value W <sub>3</sub> =Positive value W <sub>1</sub> =Positive value	-		
3	0.707				285	45	165	W2=Negative value W3=Positive value W1=Positive value			Connection between P2 and P3
	0.707 Forward				315	75	195	W <sub>2</sub> =Negative value W <sub>3</sub> =Positive value W <sub>1</sub> =Positive value			$\begin{array}{c c} \text{are reserved.} \\ 1 & 2 & 3 & 0 \\ \hline \\$
	0.866	0	240	120	330	120	210	W2=Negative value W3=0 W1=Positive value W2=Negative value	V1N=V2N=V3N	11=12=13	
	Delayed		2.10	120	30	150	270	W <sub>2</sub> =Negative value W <sub>1</sub> =Positive value W <sub>2</sub> =0			
	0.866 Delayed				45	165	285	W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value W <sub>2</sub> =Positive value			
4	Forward 0.707				75	195	315	W3=Negative value W1=Positive value W2=Positive value			Connection between P1 and P3 are reserved.
	Forward 0.866				90	210	330	W1=0 W2=Positive value W3=Negative value			
	1	0	240	120	120	240	0	W1=Negative value W2=Positive value W3=Negative value	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				150	270	30	W1=Negative value W2=Positive value W3=0	]		
	Delayed 0.707				165	285	45	W1=Negative value W2=Positive value W3=Positive value			
5	Forward 0.707				135	255	15				Connection between P1 and P0 are reserved.
	Forward 0.866				150	270	30				
	1	0	330	30	180	300	60	W1=Negative value W2=Positive value W3=Positive value	V1N <v2n=v3n< th=""><th>I1=I2=I3</th><th></th></v2n=v3n<>	I1=I2=I3	
	Delayed 0.866				210	330	90				$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	Delayed 0.707				225	345	105				

	Power		Phas	se angl	e disp	lav		At the average current	(V1N=V2N=V	3N, I1=I2=I3)	
No.	factor (input)	/\/1N	/\/2\			, Zh	1/2	display	display	display	Wiring
	Forward 0.707		ZVZN	ZVSN	345	105	225	VVI VV2 VV3	V IN V2N V3N	11 12 13	Connection between P2 and P0 are reserved.
	Forward 0.866				0	120	240				
6	1	0	330	300	30	150	270	W1=Positive value W2=Negative value	V1n=V3n>V2n	I1=I2=I3	
	Delayed 0.866				60	180	300	W3—POSITive value			
	Delayed 0.707				75	195	315				
	Forward 0.707				285	45	165				Connection between P3 and P0 are reserved.
	Forward 0.866				300	60	180				
7	1	0	60	30	330	90	210	W1=Positive value W2=Positive value W3=Negative value	V1N=V2N>V3N	I1=I2=I3	
	Delayed 0.866				0	120	240	V₃=Negative value			
	Delayed 0.707				15	135	255				
	Forward 0.707				135	75	195				Connection of CT on side "1" is reserved.
	Forward 0.866				150	90	210				
8	1	0	120	240	180	120	240	W1=Negative value W2=Positive value W3=Positive value	V1N=V2N=V3N	I1=I2=I3	
	Delayed 0.866				210	150	270				
	Delayed 0.707				225	165	285				
	Forward 0.707				315	255	195				Connection of CT on side "2" is reserved.
	Forward 0.866				330	270	210				
9	1	0	120	240	0	300	240	W1=Positive value W2=Negative value W3=Positive value	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				30	330	270				
	Delayed 0.707				45	345	285				
	Forward 0.707				315	75	15				reserved.
	Forward 0.866				330	90	30	W1=Positive value			
10	1	0	120	240	0	120	60	W <sub>2</sub> =Positive value W <sub>3</sub> =Negative value	V1N=V2N=V3N	I1=I2=I3	$\begin{array}{c} 2K \\ 1 \\ K \\ \hline \end{array} = = = = 3K \\ \hline \end{array}$
	Delayed 0.866				30	150	90				
	Delayed 0.707			Ļ	45	165	105	W1=Positive value			CT side "1" and "2" are swapped.
	Forward 0.707				75	315	195	W2=Negative value W3=Positive value W1=0			
	0.866				90	330	210	W2=Negative value W3=Positive value W1=Negative value	2 2 3 4 4 4 4 5		
11	1 Delaved	0	120	240	120	0	240	W <sub>2</sub> =Negative value W <sub>3</sub> =Positive value W <sub>1</sub> =Negative value		ı l1=l2=l3	/1N=V2N=V3N  1= 2= 3
	0.866				150	30	270	W2=0 W3=Positive value W1=Negative value			
	Delayed 0.707				165	45	285	W <sub>2</sub> =Positive value W <sub>3</sub> =Positive value			

	Power		Phas	e angle	e disp	lav		At the average current	(V1N=V2N=V3	3N, I1=I2=I3)	
No.	factor (input)			e angi	, alob	,		display	display	display	Wiring
	,	∠V1N	∠V2N	∠Vзм	∠lı	∠l2	∠l3	W1         W2         W3           W1=Positive value         V	V1N V2N V3N	1  2  3	CT side "2" and "3" are swapped
	Forward 0.707				315	195	75	W1=1 ositive value W2=Positive value W3=Negative value			
	Forward 0.866				330	210	90	W1=Positive value W2=0			
12	1	0	120	240	0	240	120	W <sub>1</sub> =Positive value W <sub>2</sub> =Negative value	V1N=V2N=V3N	11=12=13	
	Delayed					2.10	.20	W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value			
	0.866				30	270	150	W <sub>2</sub> =Negative value W <sub>3</sub> =0			
	Delayed 0.707				45	285	165	W1=Positive value W2=Negative value W3=Positive value			
	Forward 0.707				195	75	315	W1=Negative value W2=Positive value W3=Positive value			CT side "1" and "3" are swapped.
	Forward 0.866				210	90	330	W1=Negative value W2=Positive value			
13	1	0	120	240	240	120	0	W1=Negative value W2=Positive value	V1N=V2N=V3N	l1=l2=l3	
	Delayed				270	150	30	W <sub>3</sub> =Negative value W <sub>1</sub> =0 W <sub>2</sub> =Positive value			
	Delayed				285	165	45	W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value W <sub>2</sub> =Positive value			
	0.707 Forward				205	100	43	W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value			Connection between P1 and P2
	0.707				15	315	75	W <sub>2</sub> =Positive value W <sub>3</sub> =Positive value W <sub>1</sub> =Positive value			are reserved. And connection of CT on side "1" is reserved.
	0.866				30	330	90	W <sub>2</sub> =0 W <sub>3</sub> =Positive value			
14	1	0	240	120	60	0	120	W1=Positive value W2=Negative value W3=Positive value	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				90	30	150	W1=0 W2=Negative value W3=Positive value			
	Delayed 0.707				105	45	165	W1=Negative value W2=Negative value W3=Positive value			
	Forward 0.707				135	75	195	W1=Negative value W2=Negative value W2=Positive value			Connection between P2 and P3 are reserved. And connection of CT on side "1" is reserved.
	Forward 0.866				150	90	210	W1=Negative value W2=Negative value			$\begin{vmatrix} 1 & 2 & 3 & 0 \\   -1 &   -1 &   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &   -1 &   \\   -1 &$
15	1	0	240	120	180	120	240	W <sub>1</sub> =Negative value W <sub>2</sub> =Negative value	V1N=V2N=V3N	l1=l2=l3	
	Delayed				210	150	270	W <sub>3</sub> =Negative value W <sub>1</sub> =Negative value W <sub>2</sub> =0			
	0.866 Delayed				225	105	205	W <sub>3</sub> =Negative value W <sub>1</sub> =Negative value			
	0.707 Forward				225	105	200	W <sub>2</sub> =Positive value W <sub>3</sub> =Negative value W <sub>1</sub> =Negative value			Connection between P1 and P3
	0.707				255	195	315	W2=Positive value W3=Negative value W1=0			are reserved. And connection of CT on side "1"s reserved.
	0.866				270	210	330	W <sub>2</sub> =Positive value W <sub>3</sub> =Negative value			$\begin{vmatrix} \mathbf{k} \\ \mathbf{k} \\ \mathbf{k} \end{vmatrix} = = \mathbf{k} = \mathbf{k} - \mathbf{k} - \mathbf{k}$
16	1	0	240	120	300	240	0	W1=1 Ositive value W2=Positive value W3=Negative value	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				330	270	30	W1=Positive value W2=Positive value W3=0			
	Delayed 0.707				345	285	45	W1=Positive value W2=Positive value W3=Positive value			
	Forward 0.707				315	255	15				Connection between P1 and P0 are reserved. And connection of CT on side "1" is reserved.
	Forward 0.866				330	270	30				
17	1	0	330	30	0	300	60	W <sub>1</sub> =Positive value W <sub>2</sub> =Positive value	V1n <v2n=v3n< td=""><td>I1=I2=I3</td><td></td></v2n=v3n<>	I1=I2=I3	
	Delayed				30	330	90	vv3—rositive value			
	Delayed				45	345	105				
	0.707										I · · · · · · ↓

	Power		Phas	se angl	e disp	lay		At the average current Electric power	(V1N=V2N=V Voltage	3N, I1=I2=I3) Current					
No.	factor (input)	01	() (	04	21	21.	215	display	display	display	Wiring				
	Forward 0.707	∠V1N	∠V2N	∠V3N	∠lı 165	∠l <sub>2</sub> 105	∠l₃ 225	W1 W2 W3	V1N V2N V3N	I1 I2 I3	Connection between P2 and P0 are reserved. And connection of CT on side "1" is reserved.				
	Forward 0.866				180	120	240								
18	1	0	330	300	210	150	270	W1=Negative value W2=Negative value W3=Positive value	V1N=V3N>V2N	I1=I2=I3					
	Delayed 0.866				240	180	300								
	Delayed 0.707				255	195	315								
	Forward 0.707				105	45	165				Connection between P3 and P0 are reserved. And connection of CT on side ″1″ is reserved.				
	Forward 0.866				120	60	180				$ \begin{array}{c c} 1 & 2 & 3 & 0 \\   &   &   &   \\   &   &   \\ \hline \Box = = = = =$				
19	1	0	60	30	150	90	210	W1=Negative value W2=Positive value W3=Negative value	V1N=V2N>V3N	I1=I2=I3					
	Delayed 0.866				180	120	240	w3—Negative value							
	Delayed 0.707				195	135	255								
	Forward 0.707				195	135	75	W1=Negative value W2=Negative value W3=Positive value			Connection between P1 and P2 are reserved. And connection of CT on side "2" is reserved.				
	Forward 0.866				210	150	90	W1=Negative value W2=0 W3=Positive value							
20	1	0	240	120	240	180	120	W1=Negative value W2=Positive value W3=Positive value W1=0 W2=Positive value W3=Positive value W1=Positive value	V1N=V2N=V3N	I1=I2=I3	$\Box = = = + \frac{1 - 1 - 1 - 2K}{2L}$				
	Delayed 0.866				270	210	150								
	Delayed 0.707				285	225	165	W1=Positive value W2=Positive value W3=Positive value			Connection between P2 and P3 are				
	Forward 0.707				315	255	195	W1=Positive value W2=Positive value W3=Positive value	ł		reserved. And connection of CT on side "2" is reserved.				
	Forward 0.866				330	270	210	$W_1 = Positive value$ $W_2 = Positive value$ $W_3 = 0$ $W_1 = Positive value$							
21	1	0	240	120	0	300	240	W <sub>2</sub> =Positive value W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value	V1N=V2N=V3N	I1=I2=I3					
	0.866				30	330	270	W <sub>2</sub> =0 W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value							
	0.707				45	345	285	W2=Negative value W3=Negative value W1=Positive value			Connection between P1 and P3 are				
	0.707				75	15	315	W2=Negative value W3=Negative value W1=0			reserved. And connection of C1 on side "2" is reserved.				
00	0.866			400	90	30	330	W2=Negative value W3=Negative value W1=Negative value							
22	Delayed	U	240	120	120	60	0	W2=Negative value W3=Negative value W1=Negative value	V1N=V2N=V3N	11=12=13					
	0.866 Delayed				165	90	30	W2=Negative value W3=0 W1=Negative value							
	0.707 Forward				135	75	15	W3=Positive value			│ │ │ │ ↓ ∨ ↓ Connection between P1 and P0 are reserved. And connection of CT on				
	0.707 Forward				150	90	30								
23	1	0	330	30	180	120	60	W1=Negative value W2=Negative value	V1N <v2n=v3n< td=""><td>I1=I2=I3</td><td><math display="block"> \begin{array}{c}                                     </math></td></v2n=v3n<>	I1=I2=I3	$ \begin{array}{c}                                     $				
	Delayed 0.866				210	150	90	W₃=Positive value	3=Positive value						
	Delayed 0.707				225	165	105								

	_							At the average current	(V1N=V2N=V3	3N, I1=I2=I3)	
No	Power factor (input)         Phase angle display         At the average current (VIN=V2N=V3N, I1=U=I3)           Value         Value         Value         Value           Value         Value         Value         Value	Wiring									
	(input)	<i>///</i>	()/	/\/~··	71.	Z 14	<u> </u>	display	display	display	
		Z V 1N	Z V2N	Z V3N	211	∠ 12	∠13	VV1 VV2 VV3	V1N V2N V3N	11 12 13	Connection between P2 and P0
	Forward				345	285	225				are reserved. And connection of
	0.707										CT on side "2" is reserved.
	Forward				0	300	240				
	0.866				Ŭ	000	240				
								W1=Positive value	., .,		
24	1	0	330	300	30	330	270	W <sub>2</sub> =Positive value W <sub>3</sub> =Positive value	V1N=V3N>V2N	11=12=13	
	Deleveral										
	0.866				60	0	300				
	Delayed				75	15	315				$  \downarrow \downarrow$
	0.707										V Ļ
	Forward				285	225	165				Connection between P3 and P0 are reserved. And connection of
	0.707				200	220					CT on side "2" is reserved.
	Forward										
	0.866				300	240	180				
								W1=Positive value			
25	1	0	60	30	330	270	210	W2=Negative value	V1N=V2N>V3N	1=12=13	
								W3-Negative value			
	Delayed 0.866				0	300	240				
	Delayed				15	315	255				
	0.707										
	Forward				105	245	255	W1=Negative value			Connection between P1 and P2 are reserved. And connection of
	0.707				195	315	255	W3=Negative value			CT on side "3" is reserved.
	Forward							W1=Negative value	Ì		1 2 3 0
	0.866				210	330	270	W <sub>2</sub> =0 W <sub>3</sub> =Negative value			
								W <sub>1</sub> =Negative value	•		
26	1	0	240	120	240	0	300	W2=Negative value	V1N=V2N=V3N	I1=I2=I3	
								Wi=0			
	Delayed				270	30	330	W1=0 W2=Negative value			
	0.000							W3=Negative value			
	Delayed				205	45	245	W1=Positive value			
	0.707				200	45	345	W3=Negative value			
	Forward							W1=Positive value			Connection between P2 and P3
	0.707				315	75	15	W <sub>2</sub> =Negative value W <sub>3</sub> =Negative value			are reserved. And connection of CT on side "3" is reserved.
	Ferward							W1=Positive value			
	0.866				330	90	30	W2=Negative value			
								W <sub>3</sub> =0 W <sub>1</sub> =Positive value			
27	1	0	240	120	0	120	60	W2=Negative value	V1N=V2N=V3N	I1=I2=I3	
								W <sub>3</sub> =Positive value	-		
	Delayed				30	150	90	W1=Positive value W2=0			
	0.866							W3=Positive value			
	Delayed				45	165	105	W1=Positive value			
	0.707				43	105	105	W <sub>3</sub> =Positive value			
	Forward							W1=Positive value			Connection between P1 and P3
	0.707				75	195	135	W <sub>2</sub> =Positive value W <sub>3</sub> =Positive value			are reserved. And connection of CT on side "3" is reserved.
	Economi							W1=0			
	0.866				90	210	150	W2=Positive value			
								W <sub>3</sub> =Positive value	+		
28	1	0	240	120	120	240	180	W2=Positive value	V1N=V2N=V3N	I1=I2=I3	
								W <sub>3</sub> =Positive value			
	Delayed				150	270	210	W1=Negative value W2=Positive value			
	0.866							W3=0			
	Delayed				405	005	005	W1=Negative value			
	0.707				165	285	225	W <sub>2</sub> =Positive value W <sub>3</sub> =Negative value			
	Forward										Connection between P1 and P0
	0.707				135	255	195				are reserved. And connection of CT on side "3" is reserved
	_				-						
	Forward				150	270	210				
	0.000							M M			
29	1	0	330	30	180	300	240	W1=Negative value W2=Positive value	V1N <v2n=v3n< td=""><td>1=12=13</td><td></td></v2n=v3n<>	1=12=13	
		-						W3=Negative value			
	Delayed				240	200	270				
	0.866				210	330	210				
	Delayed										
	0.707				225	345	285				

----- Indicates improper connection

Diopie	.) onampre	(00		11 0/10	pr	,		At the average current	(V1N=V2N=V	3N 11=12=13)	
N	Power		Phas	e angle	e disp	lay		Electric power	Voltage	Current	Million a
INO.	(input)							display	display	display	winig
	Forward	∠V1N	∠V2N	∠V3N	∠lı 345	∠l <sub>2</sub>	∠l <sub>3</sub> 45	W1 W2 W3	V1N V2N V3N	l1 l2 l3	Connection between P2 and P0 are reserved. And connection of
	0.707 Forward				0	120	60				CT on side "3" is reserved.
30	0.866	0	330	300	30	150	90	W1=Positive value	V1N=V2N>V2	11=12=12	
	Delayed				60	190	120	W3=Negative value			
	0.866 Delayed				75	100	120				
	0.707 Forward				205	195	245				Connection between P3 and P0 are reserved. And connection of
	0.707 Forward				200	40	0				CT on side "3" is reserved.
21	0.866	0	60	30	220	00	20	W1=Positive value	V111-V21/2V2	4-12-12	
01	Delayed	Ū	00	00	000	120	60	W3=Positive value	• II4- • 2I4> • 3I	11-12-13	$\begin{array}{c} 2L \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $
	0.866 Delayed				15	135	75				
	0.707 Forward				315	195	75				Connection between P1 and P2 Connection between P2 and P3 Connection between P1 and P3 are reserved. And CT side "1" are reserved. And CT side "2" are reserved. And CT side "1"
	0.707 Forward				330	210	90				and "2" are swapped. and "3" are swapped. 1 2 3 0 
32	0.866	0	240	120	0	240	120	W1=W2=W3	V1N=V2N=V3N	l1=l2=l3	
	Delayed				30	270	150				
	Delayed				45	285	165				$\begin{array}{c c c c c c c c c c c c c c c c c c c $
	Forward 0.707				75	315	195				Connection between P2 and P3 Connection between P1 and P3 Connection between P1 and P3 are reserved. And CT side "1" are reserved. And CT side "2" are reserved. And CT side "1" are averaged are reserved. And CT side "1" are averaged are reserved. And CT side "1" are averaged and "2" are averaged are ave
	Forward 0.866				90	330	210				and z are swapped. and z are swapped. $1 2 3 0$ 1 2 3 0 1
33	1	0	240	120	120	0	240	W1=W2=W3	V1N=V2N=V3N	I1=I2=I3	
	Delayed 0.866				150	30	270				$\begin{array}{c c c c c c c c c c c c c c c c c c c $
	Delayed 0.707				165	45	285				
	Forward 0.707				195	75	315				Connection between P1 and P3 are reserved. And CT side "1" and "2" are swapped. Connection between P1 and P2 and P3 are reserved. And CT side "2" are reserved. And CT side "1" and "3" are swapped.
	Forward 0.866				210	90	330				
34	1	0	240	120	240	120	0	W1=W2=W3	V1N=V2N=V3N	l1=l2=l3	
	Delayed 0.866				270	150	30				
	Delayed 0.707				285	165	45				
	Forward 0.707				255	135	15	W1=Negative value W2=Negative value W3=Positive value			Connection between P1 and P0 are reserved. And CT side "1" and "2" are swapped.
	Forward 0.866				270	150	30	W1=0 W2=Negative value W3=Positive value			
35	1	0	330	30	300	180	60		V1N <v2n=v3m< td=""><td>I1=I2=I3</td><td></td></v2n=v3m<>	I1=I2=I3	
	Delayed 0.866				330	210	90	W1-Positive Value W2=Negative value W3=Positive value			$ \begin{array}{c c} & - & 3L \\ \hline & & - & P1 \\ \hline & & & & P2 \\ \hline & & & & & P2 \\ \hline \end{array} $
	Delayed 0.707				345	225	105				

	Dever							At the average current	(V1N=V2N=V	3N, I1=I2=I3)		
No.	factor		Phas	se angl	e disp	lay		Electric power	Voltage	Current	Wiring	
	(input)	∠V1N	∠V2N	∠V3N	∠lı	∠ 2	∠l₃	W1 W2 W3	V1N V2N V3N	l1 l2 l3		
	Forward 0.707				105	345	225				Connection between P2 and P0 are reserved. And CT side "1" and "2" are swapped.	
	Forward 0.866				120	0	240	W1=Negative value W2=Positive value W3=Positive value				
36	1	0	330	300	150	30	270		V1N=V3N>V2N	I1=I2=I3		
	Delayed 0.866				180	60	300	W1=Negative value W2=0 W3=Positive value				
	Delayed 0.707				195	75	315	W1=Negative value W2=Negative value W3=Positive value			P3 U350	
	Forward 0.707				45	285	165	W1=Positive value			Connection between P3 and P0 are reserved. And CT side "1" and "2" are swapped.	
	Forward 0.866				60	300	180	W <sub>3</sub> =Negative value				
37	1	0	60	30	90	330	210	W1=0 W2=0 W3=Negative value	V1N=V2N>V3N	I1=I2=I3		
	Delayed 0.866				120	0	240	W1=Negative value W2=Positive value				
	Delayed 0.707				135	15	255	W3=Negative value			Connection between P1 and P0	
	Forward 0.707				135	15	255	W1=Negative value W2=Positive value			are reserved. And CT side "2" and "3" are swapped.	
	Forward 0.866				150	30	270	W3=Negative value	ł			
38	1 Delayed	0	330	30	180	60	300	W2=0 W3=0	V1N <v2n=v3n< td=""><td>l1=l2=l3</td><td></td></v2n=v3n<>	l1=l2=l3		
	0.866				210	90	330	W1=Negative value W2=Negative value W3=Positive value			$\begin{array}{c c} & U & U \\ \hline & & U & U \\ \hline & & & V^2 V \\ \hline & & & & - V \\ \hline & & & & V^2 V \\ \hline & & & & & P3 \\ \hline & & & & & P3 \\ \hline \end{array}$	
	0.707 Forward				225	105	345	W1=Positive value			Connection between P2 and P0	
	0.707 Forward				345	225	105	W <sub>2</sub> =Negative value W <sub>3</sub> =Negative value W <sub>1</sub> =Positive value			are reserved. And C1 side "2" and "3" are swapped. 1 2 3 0 	
39	0.866	0	330	300	30	240	120	W2=0 W3=Negative value	V1N=V3N>V2N	11=12=13		
	Delayed				60	300	180	W1=Positive value W2=Positive value		I1=I2=I3		
	Delayed				75	315	195	W3=Negative value			$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	Forward 0.707				285	165	45				Connection between P3 and P0 are reserved. And CT side "2" and "3" are swapped	
	Forward 0.866				300	180	60	W1=Positive value W2=Negative value W3=Positive value				
40	1	0	60	30	330	210	90		V1N=V2N>V3N	I1=I2=I3		
	Delayed 0.866				0	240	120	W1=Positive value W2=Negative value W3=0				
	Delayed 0.707				15	255	135	W1=Positive value W2=Negative value W3=Negative value			Connection between P1 and P0	
	Forward 0.707				15	255	135	W1=Positive value			are reserved. And CT side "1" and "3" are swapped.	
	Forward 0.866				30	270	150	W <sub>2</sub> =Positive value W <sub>3</sub> =Negative value				
41	1 Delaved	0	330	30	60	300	180	W1=0	V1N <v2n=v3n< td=""><td rowspan="2">N  1= 2= 3</td><td>v<v2n=v3n  1=" 2= 3&lt;/td"><td></td></v2n=v3n></td></v2n=v3n<>	N  1= 2= 3	v <v2n=v3n  1=" 2= 3&lt;/td"><td></td></v2n=v3n>	
	0.866				90	330	210	W2=Positive value W3=Negative value W1=Negative value			P1 VF VF VF VF VF VF VF VF VF VF	
	0.707				105	345	225	W2=Positive value W3=Negative value				

FUWEI Dhase engle display					
No. factor Phase angle display Electric power Voltage Current	Wiring				
(input) display display display					
	ation between D2 and D0				
Forward 225 105 245	served And CT side "1"				
0.707 223 103 343 W1=Negative value and 13	" are swapped.				
W2=Negative value	2 3 0				
Forward 240 120 0 W3=Positive value					
W1=0					
42 1 0 330 300 270 150 30 W2=Negative value V1N=V3N>V2N I1=I2=I3	L 2L				
W3=0	КЗК				
Delayed					
0.866 300 180 60 W1=Positive value					
W2=Negative value					
Delayed 315 195 75 W3=Negative value					
0.707					
Conne Conne	ection between P3 and P0				
0.707 165 45 285 W2=Positive value are res	served. And CT side "1"				
W <sub>3</sub> =Negative value and "3	are swapped.				
Forward W1=Negative value					
0.866 180 60 300 W2=POsitive value	===== IK				
	K L L L L L L L L L L L L L L L L L L L				
42 1 0 60 30 210 90 330 V1N=V2N>V3N I1=I2=I3					
W1=Negative value					
0.866 240 120 0 W2=Positive value	P1				
W3=Positive value					
Delayed 255 125 15					
0.707					

3 End of test mode	
Screen	Operation
3-1. Do you exit connection test? OK Cance	<ul> <li>(1) Push the SETUP key in display of incorrect wiring discrimination.</li> <li>(2) 3-1 will be displayed.</li> </ul>
3-2. Test mode] Connection 2 COM 3 Pulse ▼	(1) Push the ▲ key, and move the cursor to the"OK", push the ✔/PHASE key. (2) 3-2 will be displayed.
3-3. Do you exit test mode? OK Cancel	<ul> <li>(1) Push the ▼ key, and move the cursor to the "5 Finish" and push the  () (2) 3-3 will be displayed.</li> <li>(3) Push the ▲ key, and move the cursor to the "OK" and push the  () () () () () () () () () () () () ()</li></ul>

# 6.5.3 Communication test

You can monitor non-zero values without voltage or current input.

	Monitoring the	fixed value determined by the set value (phase wire system, primary voltage, primary current) is possible.
	1 Transition to the t	est mode (communication test)
S	creen	Operation
1.	-1. Do you run test mode?	(1) Push the ⊕ and — key in Operation Mode. (2) 1-1 will be displayed.
	OK <u>Cancel</u>	
1.	2. [Test mode] 1 Connection 2 COM. 3 Pulse ↓	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  (</li></ul>

2 Communication test		
Display example (Wh) DEMAND MAX. HARM. PRESENT TOTAL MIN. 6 6 6 6 6 6 5 x 10 k W h Confirm by key operation		
Operation	Function	
Push the 🔺 💌	Change the elements	
Push the /PHASE	Change the phases	]

3 End of test mode	(communication test)
Screen	Operation
3-1. Do you exit COM. test? OK Cance	<ul> <li>(1) Push the SETUP key in communication test screen.</li> <li>(2) 3-1 will be displayed.</li> </ul>
3-2. [Test mode] 1 Connection 2 COM. 3 Pulse ↓	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  <i>I</i>/PHASE key.</li> <li>(2) 3-2. will be displayed after displayed in ending screen.</li> </ul>
3-3. Do you exit test mode? OK <b>Gence</b>	<ul> <li>(1) Push the  key, an d move the cursor to the "5 End" and push the  <i>P</i>/PHASE key.</li> <li>(2) 3-3 will be displayed.</li> <li>(3) Push the  key, and move the cursor to the "OK" and push the <i>P</i>/PHASE key.</li> <li>(4) Operating mode is displayed after exit test mode.</li> </ul>

## 6.5.4 Pulse output test

1 Transition to the	test mode (pulse output test)
Screen	Operation
1-1. Do you run test mode? OK Cancel	(1) Push the
1-2. [Test mode] 1 Connection 2 COM. <b>©</b> Pulse ↓	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  <i>I</i>/PHASE key.</li> <li>(2) 1-2 will be displayed after displayed in transition screen.</li> <li>(3) Push the ▲ or ▼ key, and move the cursor to the "3 Pulse output" and push the <i>I</i>/PHASE key.</li> <li>(4) 2-1 will be displayed.</li> </ul>

2 Pulse output te	est	
Screen	Operation	Note
2- <u>1.</u>	(1) Push the 🔺 or 💌 key, and the select the how to pulse output.	[Pulse output test]: Specific number⇔
[Pulse output] Set number Continous	<ul> <li>(2) Push the  <i>P</i>/PHASE key, and confirm the setting value.</li> <li>(3) Transition to the following screen by how to pulse output. Specific number output → To 2-2</li> </ul>	Continuous⇔
	Continuous output $\rightarrow$ 10 2-3	
2-2. [Pulse Test] 001 Pulse OK Cancel	<ul> <li>(1) Push the  key. and change the setting value.</li> <li>(2) Push the  key, and move the cursor to the "OK" and push the  key.</li> <li>(3) Return 2-2 after output specific number output.</li> <li>(4) Push the  key, and move the cursor to the "Cancel" and push the  key.</li> <li>(5) 2-1 will be displayed.</li> </ul>	[Specific number output]: <b>001</b> to 255
2-3. During Output pulse Stop	<ul> <li>(1) Push the <i>I</i><u>/PHASE</u> key after confirm the pulse output.</li> <li>(2) 2-1 will be displayed.</li> </ul>	

3 End of test mode	(Pulse output test)									
Screen	Operation									
3-1. Do you exit pulse test? OK <b>Cancel</b>	(1) Push the SETUP key in pulse output test. (2) 3-1 will be displayed.									
3-2. [Test mode] 1 Connection 2 COM. S Pulse ↓	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  <i>(PHASE)</i> key.</li> <li>(2) 3-2 will be displayed after displayed ending the pulse output test.</li> </ul>									
3- <u>3.</u> Do you exit test mode? OK <b>Cance</b>	<ul> <li>(1) Push the ▼ key, and move the cursor to the "5 END" and push the  <i>PHASE</i> key.</li> <li>(2) 3-3 will be displayed.</li> <li>(3) Push the ▲ key, and move the cursor to the "OK" and push the <i>PHASE</i> key.</li> <li>(4) Operating mode is displayed after exit test mode.</li> </ul>									

### 6.5.5 Alarm output test

0.0.0 /	
1 Transition to th	e test mode (alarm output test)
Screen	Operation
1-1. Do you run test mode? OK Cance	(1) Push the ⊕
1-2. [Test mode] 2 COM. 3 Pulse ☑ Alarm ♥	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  <i>PHASE</i> key.</li> <li>(2) 1-2 will be displayed after displayed in transition screen.</li> <li>(3) Push the ▲ or ▼ key, and move the cursor to the "4 Alarm output" and push the <i>PHASE</i> key.</li> <li>(4) 2-1 will be displayed.</li> </ul>

2 Alarm output test	
[Alarm output test] ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	Push the $\oplus$ $\boxdot$ key, and change On $\Leftrightarrow$ Off.

3 End of test mode	e (alarm output test)										
Screen	Operation										
3-1. Do you exit alarm test? OK <u>Cance</u>	(1) Push the SETUP key in alarm output test. (2) 3-1 will be displayed.										
3-2. [Test mode] 2 Com. 3 Pulse ☑ Alarm ♦	<ul> <li>(1) Push the ▲ key, and move the cursor to the "OK" and push the  <sup>(1)</sup>/PHASE) key.</li> <li>(2) 3-2 will be displayed after displayed ending the alarm output test.</li> </ul>										
3-3. Do you exit test mode? OK Cancel	<ul> <li>(1) Push the  key, and move the cursor to the "5 END" and push the  (PHASE) key.</li> <li>(2) 3-3 will be displayed.</li> <li>(3) Push the  key, and move the cursor to the "OK" and push the  (PHASE) key.</li> <li>(4) Operating mode is displayed after reset display unit.</li> </ul>										

6.6.1 Transition of display

Transition in operation mode is showed follow.













Phase of current and voltage can be changed by pushing *PHASE* key. Push the  $\pm$  or  $\Box$  key, maximum and minimum value is displayed. Push the  $\oplus$  or  $\bigcirc$  key, harmonics current and voltage is displayed changing degree of them. In 1P2W setting, push the  $\textcircled{\Psi/PHASE}$  key, and display 3 side circuits. When model is EMU4-PX4 or EMU4-AX4, display other CH by push the *I*/PHASE key.

\*Screen what display or not appear is different based on the models connected measure unit. (166.6.3 Detail of display)

#### 6.6.2 Correspondence of connected models and display.

Screen what display or not appear is different based on the models connected measure unit.

		EMU4-BM1-MB EMU4-HM1-MB						EMI 14-A2/	FMI14.VA2		EMU4-LG1-MB		EMI I4-AX4	EMU4-PX4	
						Detail of				Detail of		Low / High		LINOTIVIT	Emotify
		Wh+A+4	elements	Wn+A+4 elements		harmonics		Wh+A+4 elements		harmonics		Sensitivity		_	-
		1P2W	1P3W /3P3W	1P2W	1P3W /3P3W /3P4W	1P2W	1P3W /3P3W /3P4W	1P2W	1P3W /3P3W /3P4W	1P2W	1P3W /3P3W /3P4W	1P2W /1P3W /3P3W	3P4W	-	-
(1)Electric energy	Present value			•	•			•	•	•	•	_	_	—	_
(2) Electric energy converted	Present value	—	—	0	0	•	•	0	0	•	•	—	_	—	—
(3) Period electric energy	Present value		-	0	0	•	•		_		_	_	—	—	_
(4)Operating time	Present value	0	0	0	0	•	•	0	0	•	•	_	_	—	•
(5)Regeneration electric energy	Present value	0	0	0	0	•	•	0	0	•	•		_	_	-
(6)Pulse count value	Present value	_	_	0	0			_	_	_	_	_	_		•
(7)Pulse converted value	Present value			0	0	•	•								•
(8)Current	1,2,3,N, Total*'														
(9)Demand current	1,2,3,N*1	•	•	•	•	•	•	•	•	•	•	_	_	_	_
(10)Voltage	Max. and Min. 1-2,2-3,3-1,1-N, 2-N,3-N,Total <sup>**2</sup>	0	0	0	0	•	•	0	0	•	•	_	_		. –
(11)Electric power	Present value														
(12)Demand electric power	Present value Max., Min, value	0	0	0	0	•	•	0	0	•	•	-	_	_	—
(13) Reactive power	Present value	0	0	0	0	•	•	0	0	•	•	_	_	_	_
(14) Apparent power	Present value	—	—	_	O*7	-	—	_	O*7	-	O*7	—	_	—	—
(15) Power factor	Present value Max., Min. value	0	0	0	0	•	•	0	0	•	•	_	_	-	_
(16) Frequency	Present value	0	0	0	0	•	•	0	0	•	•	—	_	—	—
(17)(18) Harmonics current total effective / distortion	1,2,3,N <sup>₩3</sup>	I	_	0	0	O*5	O**5	0	0	O <sup>**5</sup>	O*5	_	I	_	_
(19) (20) Harmonics voltage total effective / distortion	1-2,2-3,3-1, 1-N,2-N,3-N <sup>涨⁴</sup>	I	-	0	0	O*5	O**5	0	0	O <sup>*5</sup>	O*5	-		_	-
(21)(22)1-13N harmonics current effective / distortion	1,2,3,N <sup>₩3</sup>		-		—	O*5	O*5		—	O**5	O*5	-		-	—
(23) (24) 1-13N harmonics voltage effective / distortion	1-2,2-3, 1-N,2-N,3-N <sup>**4</sup>	—	—	_	—	O**5	O*5	_	—	O**5	O*5	—	_	—	—
(25) Leak current	Present value	0	0	0	0	-	-	0	0	-	-	-	-	_	_
(26) Current unbalance rate	Present value Max. value	O*6	0	O**6	0	_	0	O <sup>%6</sup>	0	_	0	_	_	_	—
(27) Voltage unbalance rate	Present value Max. value	O**6	0	O <sup>**6</sup>	0	-	0	O <sup>**6</sup>	0	_	0				_
(28)Leak current	Present value	_	-	_	—	—	—	_	_	_	—	٠	•	—	—
(29)Demand leak current	Present value Max. value	_	-	-	_	-	-	-	—	—	-	•	•		_
(30)Leak current of resistance	Present value	-	-	-	-	-	-	-	-	-	-	•	_	—	_
(31) Demand leak current of resistance	Present value Max. value	_	_	_	_	_	_	_	_	_	_	•	_	_	_
(32)Differential conversion	Present value														
Value demand leak current of resistance	Max. value	_	—		_	—	—				—	● <sup>**8</sup>		_	_
(33) Scaling value	Present value Max., Min. value	_	_	_	—		—	—	_	_	—	_	—	•	_
(34) Number of times exceeding the Limit A	Present value														
(35) Number of times exceeding the Limit B	Present value	_	_	_	_		_	_	_	_	_	_	_	•	_
(36) Number of times exceeding the Limit C	Present value													-	
(37) Number of times exceeding the Limit D	Present value														
(38)Time	Present value	●**9	•*9	•**	•**	•**	●**9		—	_		•*9	•**	—	—
(39)Error	-		•	•		•		•				•	•	•	•

#### •...Displayed elements o...element displayed only setting -...Not displayed elements

\*1 2 and 3 phases is not displayed in wiring setting 1P2W. N phase is only displayed in 3P4W setting.

\*2 Between 2 and 3, 3 and 1 is not displayed in setting 1P2W1-N. Between 2 and N, 3 and N is displayed in 3P4W setting.

\*3 If wiring setting is 1P2W, 3 phase is not displayed. 2 phase is only displayed in setting 3P4W.

\*4 If wiring setting is 1P2W, between 2 and 3 is not displayed. Between 1 and N, 2 and N, 3 and N is only displayed.

\*5 Either effective value and content rate ,distortion by the setting elements of HA and HV.

\*6 Current unbalance rate, voltage unbalance rate is displayed 0% in 1P2W setting.

\*7 Apparent power is only measured in 3P4W setting

\*8 Measured value is displayed differential conversion setting is ON.

\*9 Present time is only displayed when connected EMU4-LM.

6.6.3 Detail of display

0	6 - m - m	Key operati	on	
Screen name	Screen	Key	Operation	Note
(1)	Measured value		Measured value in previous is	Integral power consumption is displayed.
Electric	DEMAND MAX. HARM.		displayed	"•" mark is displayed while measuring
energy			Key operation is invalid	•[1] and [2] is displayed as a measurement target
	115398		Key operation is invalid	circuit in the bottom left of the screen in 1P2W.
			Change 3 side circuit in the 1P2W	The phase type is displayed when other wiring.
			setting	Measured value is multiplied by the displayed value     and multipling factor is
	Multiplying factor		Transition to the Setue mode	displayed
	Mark of measure	(SETUP)	Transition to the Reset/Preset mode	
	Measurement	▲+▼	Transition to the Alarm mode	
	target circuit		Transition confirmation screen is	
			displayed	
(2)			Measured value in previous is	The value multiplied electric energy and setting
Electric	Converted value		Measured value in next is displayed	closific chergy converted value is displayed.
energy	DEMAND MAX. HARM. PRESENT TOTAL MIN.	+	Key operation is invalid	<ul> <li>[1] and [2] is displayed as a measurement target</li> </ul>
converted	CONV. Wh		Key operation is invalid	circuit in the bottom left of the screen in 1P2W.
value	3 4 3 7 1 5	✓/PHASE	setting	•Measured value is multiplied by the displayed value
	(1) x 10 <sup>3</sup> J		Change measured circuit	and multiplying factor if multiplying factor is
		(SETUP)	Transition to the Setup mode	displayed.
	factor	(RESET/SET)	Transition to the Reset/Preset mode	
		[▲]+[▼]	Transition to the Alarm mode	
	Measurement target circuit	++-	I ransition confirmation screen is displayed	
(3)	-		Measured value in previous is	Integral electric energy is displayed while contact
Periodic	Measured value		displayed	input is ON.
electric			Measured value in next is displayed.	
energy	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Key operation is invalid	•[1] and [2] is displayed as a measurement target circuit in the bottom left of the screen in 1P2W
5	PRD. Wh		Change 3 side circuit in the 1P2W	The phase type is displayed when other wiring.
	3642	(P/PHASE)	setting	<ul> <li>Measured value is multiplied by the displayed value</li> </ul>
	(1) $(x \ 10^3)$ k W h		Change measured circuit	and multiplying factor if multiplying factor is
	Multiplying factor		Transition to the Setup mode	displayed.
	Measurement		Transition to the Alarm mode	
	target circuit		Transition confirmation screen is	
		(+)+(-)	displayed	
(4)			Measured value in previous is	Operating time is displayed.
Operating	Operating time		Measured value in next is displayed.	•[1] and [2] is displayed as a measurement target
time	DEMAND MAX. HARM.	+	Key operation is invalid	circuit in the bottom left of the screen in 1P2W.
			Key operation is invalid	The phase type is displayed when other wiring.
	75624	✓/PHASE	setting	
	7 5 0 3 4		Change measured circuit	
	hour	SETUP	Transition to the Setup mode	
	Measurement	RESET/SET	Transition to the Reset/Preset mode	
	target circuit	▲+▼	Transition to the Alarm mode	
		++-	I ransition confirmation screen is	
(5)			Measured value in previous is	Integral power consumption in regenerated side is
Regeneration	Measured value		displayed	displayed.
electric	DEMAND MAX. HARM.		Measured value in next is displayed.	. [1] and [2] is displayed as a management target
enerav	PRESENT TOTAL MIN.		Key operation is invalid	circuit in the bottom left of the screen in 1P2W
	185022		Change 3 side circuit in the 1P2W	The phase type is displayed when other wiring.
	100933		setting	•Measured value is multiplied by the displayed value
	W (X 10 <sup>3</sup> ) k W h Multiplying factor		Change measured circuit	and multiplying factor if multiplying factor is displayed
		BESET/SET	Transition to the Reset/Preset mode	
	Measurement		Transition to the Alarm mode	1
	<ul> <li>target circuit</li> </ul>		Transition confirmation screen is	1
			displayed	
(6)			Measured value in previous is	Input pulse count value is displayed.
Pulse	Pulse count value		Measured value in next is displayed	•[1], [2], [3], [4] is displayed as a measurement target
count	DEMAND MAX. HARM	+	Key operation is invalid	circuit (Represent the CH) in the bottom left of the
value	PRESENT TOTAL MN. PLS.CNT		Key operation is invalid	screen if models is EMU4-PX4.
	258960	✓/PHASE	Display the other CH if models is EMU4-PX4	
			Change measured circuit	1
	₩	SETUP	Transition to the Setup mode	]
	The measurement	RESET/SET	Transition to the Reset/Preset mode	1
	target circuit	▲+▼	Transition to the Alarm mode	4
		++-	I ransition confirmation screen is	
				1

Screen	Saraan	Key operation		Noto
name	Screen	Key	Operation	Note
(7)			Measured value in previous is displayed	The value multiplied pulse count value and setting
Pulse	Converted value		Measured value in next is displayed	pulse.
converted			Key operation is invalid	Converted rate is displayed.
value	DEMAND MAX. HARM PRESENT TOTAL MIN.		Display the other CH if models is	•[1], [2], [3], [4] is displayed as a measurement target
	CCNV. PLS	✓/PHASE	EMU4-PX4	circuit (Represent the CH) in the bottom left of the
	406863		Change measured circuit	screen if models is EMU4-PX4.
		SETUP	Transition to the Setup mode	
	<u>x 10 0</u>	RESET/SET	Transition to the Reset/Preset mode	
	The measurement	▲+▼	Transition to the Alarm mode	
		(+)+(-)	Transition confirmation screen is	
(2)			displayed	
(8)			Measured value in previous is displayed	
Current	Measured value	+	Key operation is invalid	•Push the ( PTRASE) key, and change follow.
	PRESENT TOTAL MIN.		Key operation is invalid	[ <sup>1</sup> [1](1side*)→[2](3side*)
		✓/PHASE	Display by changed phase	→[1](1side total)→[2](3side total)
	1497		Change measured circuit	1P3W. 3P3W setting
		(SETUP)	Transition to the Setup mode	→ 1phase→2phase→3phase→total  ¬
		RESET/SET	Transition to the Reset/Preset mode	3P4W setting
	Dhoos display	▲+▼	Transition to the Alarm mode	→ 1phase→2phase→3phase →
	Phase display	++-	Transition confirmation screen is	→Nphaase→Total
			displayed	* Measured value connected to 1 side is displayed.
				* Measured value connected to 3 side is displayed.
(9)			Measured value in previous is displayed	Demand current value is displayed.
Demand			Measured value in next is displayed.	•Push the <i>PHASE</i> key, and change follow.
current	DEMAND MAX. HARM.	+	Maximum demand current value is	1P2W setting [1](1 side*)→[2](3 side*)
value			Minimum demand current value is	
			displayed	1P3W, 3P3W setting
	9999	✓/PHASE	Display by changed phase	F Tphase→2 phase→3 phase
		CIRCUIT	Change measured circuit	3P4W setting
	↓ + Max	(SETUP)	Transition to the Setup mode	→1 phase→2 phase→3 phase→N phase —
	DEMAND MAX. HARM.	RESET/SET	Transition to the Reset/Preset mode	* Measured value connected to 1 side is displayed.
	PRESENT TOTAL MIN.	▲+▼	Transition to the Alarm mode	* Measured value connected to 3 side is displayed.
		++-	Transition confirmation screen is	
	1512		displayed	-If you push the + or - key, Max/Min value
				Return the standard display if push same key again
	Measured value			Max/min value of 1 side circuit is displayed after
	Phase display			push $\pm$ or $\Box$ key in 1 side in1P2W setting.
	1 -			Max/min value of 3 side circuit is displayed after
	DEMAND MAX. HARM. PRESENT TOTAL MIN.			push $\pm$ or $\Box$ the key in 3 side.
	[]			
	Min			
(10)			Moosured value in providua is displayed	Present voltage is displayed
(10) Voltaga	DEMAND MAX. HARM.		Measured value in previous is displayed	Fresent voltage is displayed.
vollage	PRESENT TOTAL MIN.	<b>(+</b> )	Maximum voltage value is displayed.	•Push the $(\Psi/PHASE)$ key and change follow
			Minimum voltage value is displayed	1P2W setting
	2 3 8 9 Max.	(→/PHASE)	Display by changed phase	$[1](1side^*) \rightarrow [2](3side^*) \rightarrow$
			Change measured circuit	[1](1side total)→[2](3side total)
		(SETUP)	Transition to the Setup mode	1P3W, 3P3W setting
	Measured value	[RESET/SET]	Transition to the Reset/Preset mode	► 1-2→2-3→3-1→total
	DEMAND MAX. HARM.		Transition to the Alarm mode	3P4W setting
	PRESENT TOTAL MIN.	++-	Transition confirmation screen is	► $1-2\rightarrow 2-3\rightarrow 3-1\rightarrow 1-N\rightarrow 2-N\rightarrow 3-N\rightarrow total$
			aispiayea	* Measured value connected to 1 side is displayed.
	1/9.2			* Measured value connected to 3 side is displayed.
	1 – 2) V			▪If you push the 🛨 or 🗔 key, Max/Min value
	L Phase display			displayed.
	1-			Return the standard display if push same key again.
				push + or - kev in 1 side in1P2W setting
	DEMAND MAX. HARM. PRESENT TOTAL MIN			Max/min value of 3 side circuit is displayed after
				push $\pm$ or $\Box$ the key in 3 side.
	1599			
	└─ Min.			
			1	

Screen	Screen	Key operation		Note	
name	Scieen	Key	Operation	Note	
(11)			Measured value in previous is displayed	Present electric power is displayed.	
Electric	Measured value		Measured value in next is displayed	(1) and [0] is displayed as a measurement target	
energy	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Key operation is invalid	•[1] and [2] is displayed as a measurement target	
0,	▲		Change 3 side circuit in the 1P2W	The phase type is displayed when other wiring.	
	1234		setting	•Measured value is multiplied by the displayed value	
		CIRCUIT	Change measured circuit	and multiplying factor if multiplying factor is	
		(SETUP)	Transition to the Setup mode	displayed.	
	Multiplying	RESET/SET	Transition to the Reset/Preset mode		
	The measurement	▲+▼	Transition to the Alarm mode		
	target circuit	(+) <b>+</b> (-)	Transition confirmation screen is		
((2))			displayed		
(12)	PRESENT TOTAL MIN.		Measured value in previous is displayed	Present electric power is displayed.	
Demand			Maximum demand electric power value	•[1] and [2] is displayed as a measurement target	
electric	99999 Max.	+	is displayed	circuit in the bottom left of the screen in 1P2W.	
power	[1] $\times 10^2$ k W		Minimum demand electric power value is	The phase type is displayed when other wiring.	
	1		displayed	Measured value is multiplied by the displayed value	
	Measured value	✓/PHASE	Change 3 side circuit in the 1P2W	and multiplying factor if multiplying factor is	
	DEMAND MAX. HARM.		Change measured circuit	uispiayeu.	
	PRESENT OTAL MIN.		Transition to the Setup mode	·If you push the $\pm$ or $\Box$ key, Max/Min value	
	2 2 0 0 0	RESET/SET	Transition to the Reset/Preset mode	displayed.	
	28990		Transition to the Alarm mode	Return the standard display if push same key again.	
	([1]) <u>x 10<sup>2</sup> k</u> W		Transition confirmation screen is	Max/min value of 1 side circuit is displayed after	
	Multiplied factor	(±) <b>+</b> (=)	displayed	pusn 🛨 or 🗔 key in 1 side in1P2W setting.	
	The measurement			push + or - the key in 3 side	
	PRESENT TOTAL MIN.				
	999) Min.				
	[1] x 10 <sup>2</sup> k W				
(13)	LEAD/LAGD is play		Measured value in previous is displayed	Present reactive electric power value is displayed.	
Reactive	Measured value		Measured value in next is displayed	[4] and [0] is displayed as a measurement to not	
electric	DEMAND MAX. HARM.		Key operation is invalid	•[1] and [2] is displayed as a measurement target	
power	PRESENT TOTA. MIN.		Change 3 side circuit in the1P2W setting	The phase type is displayed when other wiring.	
p = = .			Change measured circuit		
	1 5 2 3		Transition to the Setup mode	•"Lead" is display when data is -, "LAG" is displayed	
	$[1]\mathbf{k} 10^2 \mathbf{k} \mathbf{v} \mathbf{a} \mathbf{r}$	RESET/SET	Transition to the Reset/Preset mode	when data is + in LEAD/LAG display	
	Multiplied value		Transition to the Alarm mode		
	The measurement target		Transition confirmation screen is		
		(+)+(-)	displayed		
(14)	Measured value		Measured value in previous is displayed	Present apparent power is displayed.	
Apparent	DEMAND MAX. HARM.		Measured value in next is displayed		
power			Key operation is invalid	•Apparent power is only measured in 3P4W setting.	
	95261	PHASE	Key operation is invalid	1	
			Change measured circuit		
	$\times 10^2$ k V A	[SETUP]	Transition to the Setup mode		
	Multiplied factor	RESET/SET	Transition to the Reset/Preset mode	1	
		▲+▼	Transition to the Alarm mode		
		( <b>+</b> ) <b>+</b> [-]	Transition confirmation screen is		
			displayed	-	
(15)			Measured value in previous is displayed	Present power factor is displayed.	
Power	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Invieasured value in next is displayed	•[1] and [2] is displayed as a measurement target	
factor		+	displayed	circuit in the bottom left of the screen in 1P2W	
		—	Minimum power factor value is displayed	The phase type is displayed when other wiring.	
			Change 3 side circuit in the 1P2W	If you push the 🛨 or 😑 key, Max/Min value	
	Μ C C S φ Max		setting	displayed.	
	<b>1</b> (F)		Change measured circuit	Return the standard display if push same key again.	
	Measured value		I ransition to the Setup mode	nush + or - key in 1 side in1P2W setting	
	DEMAND MAX. HARM. PRESENT TOTAL MIN		Transition to the Alarm mode	Max/min value of 3 side circuit is displayed after	
				push $\pm$ or $\Box$ the key in 3 side.	
		+ <b>+</b> -	displayed		
			····· · · · · · · · · · · · · · · · ·	1	
	LEAD/LAG display				
	DEMAND MAX. HARM. PRESENT TOTAL MIN.				
	Ξυσεφ				

Screen	Scroon	Key operation		Noto
name	Screen	Key	Operation	NOLE
(16)			Measured value in previous is displayed	Present frequency is displayed.
Frequency	Measured		Measured value in next is displayed	
ricqueriey	value	+	Key operation is invalid	
		<u> </u>	Key operation is invalid	
	PRESENT TOTAL MIN	(₽/PHASE)	Key operation is invalid	
			Change measured circuit	
	602	(SETUP)	Transition to the Setup mode	
		RESET/SET	Transition to the Reset/Preset mode	
	Hz	▲+▼	Transition to the Alarm mode	
		(+) <b>+</b> (-)	Transition confirmation screen is	
			displayed	
(17)			Measured value in previous is displayed	Harmonics current effective value is displayed.
Harmonics			Measured value in next is displayed	
current			Key operation is invalid	•Push the ( PHASE) key, and change follow.
total	Measured value		Display by changed phase	$r \geq 11/(1 \text{ side}^*)$ $(2)/(3 \text{ side}^*)$
effective	DEMAND MAX. HARM.		Change measured circuit	
value			Transition to the Setup mode	1P3W_3P3W setting
Value			Transition to the Reset/Preset mode	1phase→3phase
	99999		Transition to the Alarm mode	
	( <u>1</u> ) A		Transition confirmation screen is	3P4W setting
	Rhaas diaplay	++-	displayed	1phase→2phase→3phase→Nphase
	Phase display			
				* Measured value connected to 1 side is displayed
				* Measured value connected to 3 side is displayed.
(18)			Measured value in previous is displayed	Harmonics current total distortion is displayed
(10)			Measured value in provide is displayed	
Harmonics		+	Key operation is invalid	•Push the ( /PHASE) key and change follow
current			Key operation is invalid	1P2W setting
total	Measured value	(₽/PHASE)	Display by changed phase	▶ [1](1side <sup>*</sup> )→[2](3side <sup>*</sup> )
distortion	DEMAND MAX. HARM. PRESENT TOTAL MIN	CIRCUIT	Change measured circuit	
		SETUP	Transition to the Setup mode	1P3W, 3P3W setting
	1000	RESET/SET	Transition to the Reset/Preset mod	<sup>→</sup> 1phase→3 phase
		▲+▼	Transition to the Alarm mode	2D/IV/ softing
	(1) A %	( <b>+</b> ) <b>+</b> (-)	Transition confirmation screen is	$\rightarrow$ 1 phase $\rightarrow$ 2 phase $\rightarrow$ 3 phase $\rightarrow$ N phase $\rightarrow$
	Phase display		displayed	
				* Measured value connected to 1 side is displayed.
				* Measured value connected to 3 side is displayed.
(19)			Measured value in previous is displayed	Harmonics voltage total effective value is displayed.
Harmonics			Measured value in next is displayed	
voltage			Key operation is invalid	•Push the (PHASE) key, and change follow.
total	Measured value		Display by changed phase	$\frac{112}{12} = \frac{11}{12} \frac{11}{12} \frac{12}{12} \frac$
effective	DEMAND MAX. HARM.		Change measured circuit	
value	PRESENT TOTAL MIN.		Transition to the Setup mode	1P3W_3P3W setting
Value		RESET/SET	Transition to the Reset/Preset mode	▶ 1-2→2-3
	9999		Transition to the Alarm mode	
	1-2 V		Transition confirmation screen is	3P4W setting
		(+) <b>+</b> (-)	displayed	► 1-N→2-N→3-N
	Phase display			* Measured value connected to 1 side is displayed
				* Measured value connected to 3 side is displayed.
(00)	l			Llermenies veltere total distortion is disclosed
(20)			Measured value in previous is displayed	namonics voltage total distortion is displayed.
Harmonics			Key operation is invalid	Duph the HASE key and shanne follow
voltage	Measured value		Key operation is invalid	1P2W setting
total	DEMAND MAX. HARM.	PHASE	Display by changed phase	[1](1side*)→[2](3side*)
distortion	PRESENT TOTAL MIN.		Change measured circuit	
rate		SETUP	Transition to the Setup mode	1P3W, 3P3W setting
	1000	RESET/SET	Transition to the Reset/Preset mode	1-2→2-3
	1-2 V %		Transition to the Alarm mode	
	······································		Transition confirmation screen is	3P4W setting
	Phase display		displayed	▶ 1-N→2-N→3-N
				* Measured value connected to 1 side is displayed.
				* Measured value connected to 3 side is displayed.



Screen	Screen	Key operation		Note	
name		Key	Operation		
(24)			Measured value in previous is displayed	Harmonics voltage of contained rate each degree.	
Harmonics	Measured     value	▼	The order in next is displayed	$\mathbf{P}_{\text{Light}}$ the $\mathbf{P}_{\text{Light}}$ key and change follow	
voltage	DEMAND MAX. HARM.		The order in previous is displayed	1P2W setting	
1 <sup>st</sup> to13 <sup>th</sup>	PRESENT TOTAL MIN.	(→/PHASE)	Display by changed phase	→ [1](1side*)→[2](3side*)	
contained			Change measured circuit		
rate	1000	SETUP	Transition to the Setup mode	1P3W, 3P3W setting	
	1-2 3 rd V %	RESET/SET	Transition to the Reset/Preset mode	[ 1-2→2-3 ]	
		▲+▼	Transition to the Alarm mode	2P4W potting	
	DEMAND MAX. HARM.	(+) <b>+</b> (-)	Transition confirmation screen is	$\rightarrow 1-N \rightarrow 2-N \rightarrow 3-N \neg$	
			displayed		
				* Measured value connected to 1 side is displayed.	
	1000			* Measured value connected to 3 side is displayed.	
	1-2 5 th V %			Push the 🕂 key and change follow	
	│			$rac{1}{3}$ rd $\rightarrow$ 5th $\rightarrow$ 7th $\rightarrow$ 9th $\rightarrow$ 11th $\rightarrow$ 13 th $rac{1}{3}$	
	Phase Degree				
	display			<ul> <li>Push the    <ul> <li>key, and change follow.</li> </ul> </li> </ul>	
				→ $3rd \rightarrow 13th \rightarrow 11th \rightarrow 9th \rightarrow 7th \rightarrow 5th$	
	PRESENT TOTAL MIN.				
	1000				
	1-2 13th V 96				
(25)			Measured value in previous is displayed	Present reactive energy is displayed	
(20) Reactive	Measured value		Measured value in previous is displayed	i reconcreative energy is displayed.	
Reactive		+	Key operation is invalid	<ul> <li>Measured value is multiplied by the displayed value</li> </ul>	
electric	DEMAND MAX. HARM.	—	Key operation is invalid	and multiplying factor if multiplying factor is	
energy		✓/PHASE	Change 3 side circuit in the 1P2W	displayed.	
	999999		setting Change measured circuit		
			Transition to the Setun mode		
	X 10° K V a r h	RESET/SET	Transition to the Reset/Preset mode		
	Degree		Transition to the Alarm mode		
	Ŭ		Transition confirmation screen is		
		(±) <b>+</b>	displayed		
(26)			Measured value in previous is displayed	Max. and Min. current unbalance rate is displayed.	
Current	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Measured value in next is displayed		
unbalance			Key operation is invalid	•Push the 🖽 key, and display the maximum value,	
rate	999.99 Max	( → / PHASE )	Key operation is invalid	and push again return standard display.	
	UNB. A %	CIRCUIT	Change measured circuit		
	1 🗊	SETUP	Transition to the Setup mode		
	DEMAND MAX. HARM.	RESET/SET	Transition to the Reset/Preset mode		
	PRESENT TOTAL MIN.	▲+▼	I ransition to the Alarm mode		
		++-	displayed		
	999999		displayed		
	UNBA %				
	Measured value				
(27)			Measured value in previous is displayed	Max. and Min. voltage unbalance rate is displayed.	
Voltage			Measured value in next is displayed		
unbalance			Maximum voltage value is displayed	•Push the $\pm$ key, and display the maximum value,	
rate	99999 Max		Key operation is invalid	and push again return standard display.	
	UNB. V 96		Change measured circuit		
	<b>1</b> (+)		Transition to the Setup mode		
	DEMAND MAX. HARM.	RESET/SFT	Transition to the Reset/Preset mode		
		▲+▼	Transition to the Alarm mode		
	99999	++-	Transition confirmation screen is		
			displayed		
	Measured volute				
(28)	DEMAND MAX. HARM.		Measured value in previous is displayed	Max. and Min. leak current is displayed.	
Leak	PRESENT TOTAL MIN.		Measured value in next is displayed.		
current		+	iviaximum leak current value is		
	1 2 6.1 2 Max	<b>—</b>	Key operation is invalid		
	1 0 <b>m A</b>	✓/PHASE	Key operation is invalid		
	1 +		Key operation is invalid		
	DEMAND MAX. HARM. PRESENT TOTAL MIN.	SETUP	Transition to the Setup mode		
		RESET/SET	Transition to the Reset/Preset mode		
	10280	▲+▼	Transition to the Alarm mode		
	Io / m A	++-	I ransition confirmation screen is		
	Measured value		uispiayeu		
L	1				

Screen	Screen	Key		Note	
name	Scieen	Key	Operation	Note	
(29)	DEMAND MAX. HARM.		Measured value in previous is displayed	Demand leak current is displayed.	
Demand	PRESENT TOTAL MIN.		Measured value in next is displayed	Measured value is multiplied by the displayed value	
leak		+	displayed	and multiplying factor if multiplying factor is	
current	1 3 8.9 0 Max	—	Key operation is invalid	displayed	
	I o m A	(₽/PHASE)	Key operation is invalid	•Push the $\pm$ key, and display the maximum value,	
		CIRCUIT	Key operation is invalid	and push again return standard display.	
	PRESENT TOTAL MIN.	SETUP	Transition to the Setup mode		
		[RESET/SET]	Transition to the Reset/Preset mode		
	10/25	(▲)+(▼)	Transition to the Alarm mode		
	I o m A	++-	I ransition confirmation screen is		
	Measured value				
(30)	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Measured value in previous is displayed	Present and maximum value of leak current for	
Leak			Maximum leak current value is	resistance is displayed.	
Current		+	displayed		
for		—	Key operation is invalid		
resistance		(₽/PHASE)	Key operation is invalid		
			Key operation is invalid		
	PRESENT TOTAL MIN.		Transition to the Setup mode		
		(RESET/SET)	Transition to the Reset/Preset mode		
	6 5 8 4	▲)+(▼)	Transition confirmation screen is		
	lor <b>mA</b>	++-	displayed		
	Measured value				
(31)	DEMAND MAX. HARM. PRESENT TOTAL MIN		Measured value in previous is displayed	Demand and maximum demand value of leak current	
Demand	PRESENT TOTAL MUR		Measured value in next is displayed	for resistance is displayed.	
current		+	for resistance is displayed	•Push the 🛨 key, and display the maximum value.	
of	<u>89.76</u> Max	—	Key operation is invalid	and push again return standard display.	
resistance		PHASE	Key operation is invalid		
			Key operation is invalid		
	PRESENT TOTAL MIN.		Transition to the Setup mode		
		[RESET/SET]	Transition to the Reset/Preset mode		
	8537	▲)+(▼)	Transition to the Alarm mode		
	Ior <b>mA</b>	++-	I ransition confirmation screen is		
	Measured value				
(20)			Measured value in province in displayed	Dresent and maximum value of differential converted	
(32)	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Measured value in pert is displayed	leak current is displayed.	
Leak		<u> </u>	Maximum value of differential converted		
converted	10725 Max	(±)	leak current is displayed	•Push the $\pm$ key, and display the maximum value,	
value	DIF. Ior mA		Key operation is invalid	and push again return standard display.	
for	1 🗊		Key operation is invalid		
resistance			Transition to the Setup mode		
roolotarioo		RESET/SET	Transition to the Reset/Preset mode		
	10268	▲+▼	Transition to the Alarm mode		
			Transition confirmation screen is		
	Measured value		displayed		
				_	
(33)			Measured value in previous is displayed	Present, maximum, and minimum value of scaling	
Scaling value	DEMAND MAX. HARM		Maximum value of Scaling value is	value is uisplayeu.	
	PRESENT TOTAL MN.	+	displayed	·[1], [2], [3], [4] is displayed as a measurement target	
			Minimum value of Scaling value is	circuit (Represent the CH) in the bottom left of the	
	4095		displayed	screen.	
	[1] A		Uisplay the other CH	in you push the ⊥ or ∟ key, Max/Min Value	
	<b>1</b> +		Transition to the Setun mode	key again.	
		RESFT/SFT	Transition to the Reset/Preset mode		
	PRESENT TOTAL MN.	▲+▼	Transition to the Alarm mode		
			Transition confirmation screen is		
	4095		displayed		
	(1) A				
	The measurement				
	target circuit				
	PRESENT TOTAL MN.				
	0				
	[1]				
	Min				
		I			

Screen	Saraan	Кеу		Note	
name	Screen	Key	Operation	Note	
(34)			Measured value in previous is displayed	Present value of number of times exceeding the Limit	
Number of	Measured value		Measured value in next is displayed	A is displayed.	
times	DEMAND MX. HARM	+	Key operation is invalid	•[1] [2] [3] [4] is displayed as a measurement torg	
avcooding	Limit A		Key operation is invalid	•[1], [2], [3], [4] is displayed as a measurement target	
the Limit A	120	( PHASE	Display the other CH	circuit (Represent the CH) in the bottom left of the	
the Limit A			Key operation is invalid	Scieen.	
	(11) <u>x 10</u> t i m e s		Iransition to the Setup mode		
	Degree	[RESET/SET]	Transition to the Reset/Preset mode		
	The measurement	▲+▼	I ransition to the Alarm mode		
	target circuit	++-	displayed		
(35)			Measured value in previous is displayed	Present value of number of times exceeding the Limit	
Number of	Measured value		Measured value in next is displayed	B is displayed.	
times	DEMAND MAX. HARM	+	Key operation is invalid		
	Limit B		Key operation is invalid	•[1], [2], [3], [4] is displayed as a measurement target	
exceeding		(✔/PHASE)	Display the other CH	circuit (Represent the CH) in the bottom left of the	
the Limit B			Key operation is invalid	screen.	
	[11] <u>x 10</u> t i m e s	(SETUP)	Transition to the Setup mode		
	Degree	RESET/SET	Transition to the Reset/Preset mode		
	The measurement	▲+▼	Transition to the Alarm mode		
	target circuit	++-	Transition confirmation screen is		
(20)			uispiayed Measured value in provious is displayed	Procent value of number of times exceeding the Limit	
(36)			Measured value in previous is displayed	C is displayed	
Number of			Key operation is invalid	C is displayed.	
times	PRESENT TOTAL MN.		Key operation is invalid	•[1], [2], [3], [4] is displayed as a measurement target	
exceeding	▲ LimitC	/PHASE	Display the other CH	circuit (Represent the CH) in the bottom left of the	
the Limit C			Key operation is invalid	screen.	
			Transition to the Setup mode		
			Transition to the Reset/Preset mode		
	Degree		Transition to the Alarm mode		
	L The measurement		Transition confirmation screen is		
		++-	displayed		
(37)			Measured value in previous is displayed	Present value of number of times exceeding the Limit	
Number of	Measured value		Measured value in next is displayed	D is displayed.	
timos	DEMAND M.X. HARM	+	Key operation is invalid		
	PRESENT TOTAL MN.	<u> </u>	Key operation is invalid	•[1], [2], [3], [4] is displayed as a measurement target	
exceeding		(PHASE)	Display the other CH	circuit (Represent the CH) in the bottom left of the	
the Limit D			Key operation is invalid	screen.	
	[11] x 10 t imes		Transition to the Setup mode		
	Degree	RESET/SET	Transition to the Reset/Preset mode		
	The measurement	▲+▼	Transition to the Alarm mode		
	target circuit	++-	Transition confirmation screen is		
(00)		_	uispiayed	Dresent time is displayed	
(38)			Measured value in previous is displayed	Freseni ume is displayed.	
Present	DEMAND MAX. HARM.	<b>(+</b> )	Key operation is invalid	Display format is showed follow	
time			Key operation is invalid	Year/Month/Dav	
	PRESENT TOTAL MIN.	PHASE	Key operation is invalid	Hour: Minute	
			Key operation is invalid	1	
	12:34	SETUP	Transition to the Setup mode	*Only displayed when connected to EMU4-LM.	
		RESET/SET	Transition to the Reset/Preset mode		
		▲+▼	Transition to the Alarm mode	1	
			Transition confirmation screen is	1	
			displayed		
(39)	F Error number		Measured value in previous is displayed	Error number is displayed when there are error.	
Error			Measured value in next is displayed	It there are no error, "" is displayed.	
	DEMAND MAX. HARM. PRESENT TOTAL MIN.	<u>+</u>	Key operation is invalid	4	
	Error:		Key operation is invalid	4	
	N 0 . = 0 0 2 8 1		Key operation is invalid	4	
			Unange measured circuit	4	
			Transition to the Setup mode	4	
			Transition to the Alarm mode	4	
		(▲)+(▼)		4	
		++-	displayed		

6.6.4 Display significant digits

In this section, significant digits by measured method can be displayed. Resolution of measured data references to energy measure unit's manual.

■Electric energy(kWh), Periodic electric energy(kWh), Regeneration electric energy(kWh), Reactive electric energy(kvarh). Full load is calculated is below equation.

Full load [kW]=	Wiring coefficient×(VT)×(CT Primary current)		Wiring coefficient :1 2	Single-phase 2-wire Single-phase 3-wire
	1000		1.732 3	3-phase 3-wire 3-phase 4-wire

\*1. Using direct connection, replace VT primary voltage with direct voltage in calculation above.\*2. In case 3P4W, apply the not phase voltage but line voltage as primary voltage.

				1200kW< Eul	120000W/< Eull	More then
Full load	Less than 12kW	Load ≦120kW	Load ≦1200kW	Load ≦12000kW	Load ≦120000k	120000kW
Display significant digits	**** **	**** *	*****.* x10	*****.* x10 <sup>2</sup>	*****.* x10 <sup>3</sup>	*****.* x10 <sup>4</sup>
unit	kWh kvarh	kWh kvarh	kWh kvarh	kWh kvarh	kWh kvarh	kWh kvarh
Screen example	No multiplying factor 1 2 3 4 5 6 • k w h Measured value is =1234.56kWh	No multiplying factor 1 2 3 4 5 6 • k W h Measured value is =12345.6kWh	Multiplying factor"10" 1 2 3 4 5 6 • x 10 k W h Measured value is 12345.6x10 =123456kWh	Multiplying factor" $10^{2"}$ 1 2 3 4 5 6 • $\times 10^2$ k W h Measured value is 12345.6x100 =1234560kWh	Multiplying factor" $10^{3"}$ 1 2 3 4 5 6 • $\times 10^3$ K W h Measured value is 12345.6x1000 =12345600kWh	Multiplying factor" $10^4$ " 1 2 3 4 5 6 • $\times 10^4$ k W h Measured value is 345.6x10000 =123456000kWh

■Present electric power(kW), Demand electric power (kW), Reactive electric power (kvar), apparent power(kVA) Full load is present follow.

Full load	Less than 12kW	12kW≦ Full Load ≦120kW	120kW≦ Full Load ≦1200kW	1200kW≦ Full Load ≦12000kW	120000W≦ Full Load ≦120000kW	More than 120000kW
Display significant digits	** ***	*** **	**** *	****	***** x10	***** x10 <sup>2</sup>
Unit	kW kvar kVA	kW kvar kVA	kW kvar kVA	kW kvar kVA	kW kvar kVA	kW kvar kVA
Screen example	No multiplying factor 1 2 3 4 5 B K W Measured value is =12.345kW	No multiplying factor 1 2 3 4 5 k W Measured value is =123.45kW	No multiplying factor 1 2 3 4 5 k w Measured value is =1234.5kW	No multiplying factor 1 2 3 4 5 1 k w Measured value is =12345kW	Multiplying factor" 10" 1 2 3 4 5 1 2 3 4 5 1 x 10 k W Measured value is 12345x10 =123450kW	Multiplying factor" $10^{2"}$ 1 2 3 4 5 1 x $10^{2}$ k W Measured value is 12345x100 =1234500kW

#### ■Converted value of electric energy

Calculated by full load in follow. Unit is determined by setting for value of electric energy converted.

-	5	
(-6.3.2)	Measuring setup)	

	J  /					
Full load	Less than 12kW	12kW≦ Full Load ≦120kW	120kW≦ Full Load ≦1200kW	1200kW≦ Full Load ≦12000kW	120000W≦ Full Load ≦120000k	More than 120000kW
Display Significant digits	**** **	*****.*	*****.* x10	*****.* x10 <sup>2</sup>	*****.* x10 <sup>3</sup>	*****.* x10 <sup>4</sup>
Screen example	No multiplying factor CONV. PLS 1 2 3 4 5 6	No multiplying factor CONV. PLS 1 2 3 4 5 6 J	Multiplying factor"10" CONV. PLS: 1 2 3 4 5 6 x 10 7	Multiplying factor"10 <sup>2</sup> " CONV. PLS 1 2 3 4 5 6 x 10 <sup>2</sup> J	Multiplying factor" 10 <sup>3</sup> " CONV. PLS 1 2 3 4 5 6 x 10 <sup>3</sup> J	Multiplying factor" 10 <sup>4</sup> " CONV. PLS 1 2 3 4 5 6 x 10 <sup>4</sup> J
	Measured value is =1234.56J	Measured value is =12345.6 J	Measured value is 12345.6x10 =123456 J	Measured value is 12345.6x100 =1234560 J	Measured value is 12345.6x1000 =12345600 J	Measured value is 12345.6x10000 =123456000 J
■Converted value of pulse Calculated by converted value of pulse in follow. Unit is determined by setting for value of pulse converted. ((**•••6.3.3 Input/Output setup**)

0.5.5 11	put/Output setup	)				
Value of pulse converted	0.001 to 0.009	0.01 to 0.099	0.1 to 0.999	1 to 9.999	10 to 99.99	100 to 999.9
Display significant digits	*** ***	**** **	***** *	*****.* x10	*****.* x10 <sup>2</sup>	*****.* X10 <sup>3</sup>
Screen example	No multiplying factor CONV. PLS 1 2 3 4 5 6 J Measured value is =123.456 J	No multiplying factor CONV. PLS 1 2 3 4 5 6 J Measured value is =1234.56 J	No multiplying factor CONV. PLS 1 2 3 4 5 6 J Measured value is 12345.6 J	Multiplying factor"10" CONV. PLS. 1 2 3 4 5 6 x 10 J Measured value is 12345.6x10 =123456 J	Multiplying factor"10 <sup>2</sup> " ▲ CONV. PLS 1 2 3 4 5 6 × 10 <sup>2</sup> J Measured value is 12345.6x100 =1234560 J	Multiplying factor" 10 <sup>3</sup> " CONV. PLS 1 2 3 4 5 6 x 10 <sup>3</sup> J Measured value is 12345.6x1000 =12345600 J

Value of pulse converted	1000 to 10000	
Display significant digits	*****.* x10 <sup>4</sup>	
Screen example	Multiplying factor" 10 <sup>4</sup> " A CONV. PLS 1 2 3 4 5 6 x 10 <sup>4</sup> J Measured value is 12345.6x10000 =123456000 J	

#### Present current, Demand current, Harmonics current effective value Calculated by setup the primary voltage value.

Primary current	Less than 40A	40A≦primary current≦400A	400A≦primary current≦4000A	More than 4000A
Display significant digits	** **	*** *	***	****0
Unit	А	А	A	A
Screen example	No multiplying factor 1 2 3 4 0			

## ■Present voltage, Harmonics voltage effective value

Calculated by setup the primary voltage value.						
Primary voltage	Less than 300V	300V≦primary voltage≦3000V	More than 3000V			
Display significant digits	*** *	****	****0			
unit	V	V	V			
Screen example	No multiplying factor 1 2 3 4	No multiplying factor 1 2 3 4 1 - 2	No multiplying factor 1 2 3 4 0 1 - 2			

#### ■Power factor

Display significant digits	* ***
unit	—
Screen	No multiplying
example	factor
•	<b>▲</b>
	LAG 0.975
	c 0 8 Ø

### ■Frequency

Display significant digits	** *
unit	Hz
Screen example	No multiplying factor
	▲ 6 0.2

#### ■Harmonics current and voltage, Distortion, contained rate

Display significant	*** *			
orgrinioarit	-			
digits				
unit	%			
anne	70			
Screen	No multiplying			
example	factor			
onampio				
	1000			
	1 A %			

■Present scaling value				
Display significant digits	****			
Unit	Any unit			
Screen example	No multiplying factor 4 0 9 5			

■Number of times exceeding the limit

Display significant digits	***** x10 <sup>*</sup>	
Unit	Any unit	
Screen example	Multiplying factor"10'" (It can be set to any value) Limit A 1 2 8 [1] x 10 times	

#### 6.7 Alarm mode

- 6.7.1 Transition of display
  - In this section, transition of display is showed.
  - (1) Upper/lower limit alarm is available (Only can monitoring when connected to EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2, EMU4-PX4, EMU4-AX4)
    - In the case of EMU4-BM1-MB, EMU4-HM1-MB, EMU4-A2, EMU4-VA2 Push ▲ or ▼ key, Screen is transit in below figure.



Change 3 side ... Push the //PHASE key, and change display 2<sup>nd</sup> circuit In 1P2W (2 circuits measuring)

#### In the case of EMU4-PX4

Push *P*/PHASE key, Screen is transit in below figure. (If set external input is non, next display is showed.)



In the case of EMU4-AX4 Push Push key, Screen is transit in below figure. (If set external input is non, next display is showed.)



(2) Leakage alarm (Only can monitoring when connected to EMU4-LG1-MB) Push ▲ or ▼ key, Screen is transit in below figure.



6.7.2 Screen detail (1) Upper/lower limit alarm

Screen	Saraan	Key operation		Noto
name	Screen	Key	Operation	Note
(1)			Alarm display in the previous is displayed	Alarm state of elements is displayed
Upper/	Alarm contact output		Alarm display in the next is displayed	
lower	state	+	Key operation is invalid	Signs mean below.
			Key operation is invalid	"-"Not alarm monitoring(impossible)
alarm	📥 Alarm –	(✔/PHASE)	Change 3 side circuit in the 1P2W setting	"o"Alarm non-occurrence
state*1	0 N )		Change measured circuit	
	Allpp	SETUP	Transition to the alarm setting mode	
		RESET/SET	Key operation is invalid	
			Transition to the operate mode.	
			(displayed electric energy)	
Alarm condition	Alarm condition	++-	Key operation is invalid	
	The measurement			
	target circuit			
(2)			Alarm display in the previous is displayed	State that contact input is displayed.
Contact			Alarm display in the next is displayed	
point	– Alarm –	+	Key operation is invalid	
point			Key operation is invalid	
Input	Contact	(✔/PHASE)	Key operation is invalid	
state	Ť		Change measured circuit	
		SETUP	Transition to the alarm setting mode.	
		RESET/SET	Key operation is invalid	
	Alarm condition		Transition to the operate mode	
			(displayed electric energy)	
		+ <b>+</b> -	Key operation is invalid	

\*1 Elements in below table can be alarm monitoring. Please reference to below table about the existence of measurement target circuit.

Alarm element	Display	The existence of measurement target circuit in 1P2W (2 circuits measuring)
Upper limit Current	A upper	Yes
Lowe limit Current	Alower	Yes
Line voltage upper	V <sub>L-L</sub> upper	Yes
Line voltage lower	V <sub>L-L</sub> lower	Yes
Phase voltage upper	V <sub>L-N</sub> upper	No
Phase voltage lower	V <sub>L-N</sub> lower	No
Upper electric power	W upper	Yes
Lower electric power	W lower	Yes
Upper power factor	PF upper	Yes
Lower power factor	PF lower	Yes
N phase current upper	A <sub>N</sub> upper	No
Upper limit pulse	Pulse upper	Yes
Upper Current	UNB.A upper	No
unbalance rate upper		
Upper Voltage	UNB.V upper	No
unbalance rate upper		
Upper limit alarm of	Scaling upper	
Scaling value		-
Lower limit alarm of Scaling value	Scaling lower	-

(2) Leak	(2) Leak current alarm					
Screen	Sereen	Key operati	on	Noto		
name	Screen	Key	Operation	Note		
(1)			Alarm display in the previous is	lo(leak current) alarm state is displayed.		
lo	Alarm contact point		Alarm display in the next is displayed	Sign means below.		
alarm		+	Key operation is invalid	"o"Alarm non-occurrence		
Sidle	Alarm Status —	/PHASE	Key operation is invalid Key operation is invalid	•Alaminy		
			Key operation is invalid			
	$10^{\circ}1^{\circ}alarm = 0$	SETUP	Transition to the alarm setting mode			
		RESET/SET	Key operation is invalid			
	Alarming	▲+▼	(displayed electric energy)			
		++-	Key operation is invalid			
(2)			Alarm display in the previous is displayed	Count of lo upper current alarm is displayed.		
lo	Alarm contact point		Alarm display in the next is displayed	Sign means below.		
upper		+	Key operation is invalid	"o"Lo alarm count is not more than set number of		
of		/PHASE	Key operation is invalid Key operation is invalid	••"Lo alarm count is more than set number of		
alarm			Key operation is invalid	alarm count.		
count	lo 2 alarm	(SETUP)	Transition to the alarm setting mode			
state		[ RESET/SET ]	Key operation is invalid			
	Alarming 🤳	▲+▼	(displayed electric energy)			
		++-	Key operation is invalid			
(3)	lo1 alarm count		Alarm display in the previous is displayed	lo1-Alarm and lo2-Alarm count is displayed.		
lo			Alarm display in the next is displayed			
alarm	Alarm Count	+	Key operation is invalid			
count			Key operation is invalid			
	$I \circ 7: 9999999$		Key operation is invalid			
			Transition to the alarm setting mode			
	lo2 alarm count	[RESET/SET]	Key operation is invalid			
		▲+▼	(displayed electric energy)			
		++-	Key operation is invalid			
(4)	Alarm contact point		Alarm display in the previous is	lor(leak current) alarm state is displayed.		
lor	output state		Alarm display in the next is displayed	Sign means below.		
alarm	Alarm Status –	+	Key operation is invalid	"o"Alarm non-occurrence		
รเลเนร	ON		Key operation is invalid	•Alaming		
	lor 1 alarm		Key operation is invalid			
		(SETUP)	Transition to the alarm setting mode			
	Alarming	[ RESET/SET ]	Key operation is invalid			
		▲+▼	(displayed electric energy)			
		++-	Key operation is invalid			
(5)	Alarm contact point		Alarm display in the previous is displayed	Upper limit of lor alarm count is display.		
lor	output state		Alarm display in the next is displayed	Sign means below.		
upper alarm count	Alarm Count	+	Key operation is invalid	"o"Lo alarm count is not more than set number of		
alarm count			Key operation is invalid	••"Lo alarm count is more than set number of		
			Key operation is invalid	alarm count.		
	lor 2 alarm O		Transition to the alarm setting mod			
		(SETUP)	Key operation is invalid			
	Alarming _		Transition to the operate mode			
			(displayed electric energy)			
(0)	lord olarman and the	(+) <b>+</b> ()	Ney operation is invalid	Lort Alarm and lor? Alarm count is displayed		
(6) Ior			displayed	Lor r-Alarm and lorz-Alarm Count is displayed.		
alarm	Alorm Count		Alarm display in the next is displayed			
count	Alarm Count		Key operation is invalid			
	Ior1: 999999	(₽/PHASE)	Key operation is invalid			
	I o r 2 : 9 9 9 9 9 9		Key operation is invalid			
			I ransition to the alarm setting mode			
	lor2 alarm count		Transition to the operate mode			
			(displayed electric energy)			
		(+) <b>+</b> (-)	Key operation is invalid			

You can reset each max/min value and integral value, reset alarm value, and preset integral value. You can release the alarm and latch of contact input.

#### 6.8.1 Data reset

(1) Data can be reset

Data can be reset is differed in below table what models connect.

Reset target	Models	Reset data			
-		1P	1P3W, 3P3W, 3P4W		
		1side([1])	3side([2])		
Maximum (all data)	EMU4-BM1-MB	Current demand	Current demand	Current demand	
-only selected circuit	FMU4-HM1-MB	Voltage	Voltage	Voltage	
only concered encourt	EMU4-A2	Flectric power	Electric power	Electric power demand	
		demand	demand	Electric perior demand	
		Power factor	Power factor	Power factor	
				Current unbalance rate	
				Voltage unbalance rate	
	FMU4-I G1-MB	Present leak current			
		Leak current deman	d		
		Present leak current	for resistance		
		Current demand leal	k current for resistance	2	
		Differential conversion	on of leak current for re	esistance	
	EMU4-AX4	Scaling value			
	FMU4-PX4	_			
Minimum (all data)	EMU4-BM1-MB	Current demand	Current demand	Current demand	
-only selected circuit	EMU4-HM1-MB	Voltage	Voltage	Voltage	
only sciected circuit	EMU4-A2	Electric power	Electric power	Electric power demand	
		demand	demand	Electric perior demand	
		Power factor	Power factor	Power factor	
	EMU4-LG1-MB	-			
	FMU4-AX4	Scaling value			
	FMU4-PX4	_			
Integral value (Wh. varh)		Electric energy	Electric energy	Electric energy	
		Reactive electric	Liectric energy	Reactive electric energy	
		energy <sup>*1</sup>		Reactive electric energy	
		Operating time	Operating time	Operating time	
		Regeneration <sup>*1</sup>	Regeneration	Regeneration electric	
				energy	
		Electric energy	Electric energy	Electric operav	
		Popetive electric	Electric energy	Poactive electric energy	
				Reactive electric energy	
		Converted electric	Converted electric	Converted electric energy	
				Converted electric energy	
		Poriod electric	Poriod electric	Pariod electric operav <sup>2</sup>	
		Period electric	Period electric	Fellod electric energy	
		Operating time	Operating time	Operating time	
		Receneration	Regeneration	Regeneration electric	
				energy	
		Pulse count value <sup>*3</sup>	electric energy	Pulse count value <sup>*3</sup>	
		Pulse conversion <sup>*3</sup>		Pulse conversion <sup>*3</sup>	
		Floctric operav	Electric operav	Floetric operav	
		Reactive electric	Electric energy	Reactive electric energy	
	EIVIU4-VAZ			Reactive electric energy	
		Converted electric	Converted electric	Converted electric energy	
		energy	energy	Converted electric energy	
		Operating time	Operating time	Operating time	
		Regeneration	Regeneration	Regeneration electric	
		electric energy	electric energy	energy	
	FMU4-I G1-MR	_	electric chorgy		
		Number of times eve	pending the Limit		
		Pulso count value			
		Pulse conversion			
Alarm value	EMI IA-BM1-MP				
- only selected circuit		-			
		-			
	ENUL4-VA2			4 and IoO alarma a sust	
	ENU4-LG1-MB	Leak current, leak cu	urrent for resistance, lo	o and 102 alarm count	
	EMU4-AX4	-			
	EMU4-PX4	-			
Release alarm	All models	Alarm state			
Release contact input	EMU4-HM1-MB	Contact input state			
1	FMU4-PX4	1			

\*1 It becomes reset target only when it doesn't set 2 circuits measuring.

\*2 External input when it is contact input become only reset target.

\*3 External input when it is pulse input become only reset target.

(2) Reset data

1 Transition to the Reset/Preset mode				
Screen Operation Not	te			
1-1.       (1) Push the RESET/SET key in operation mode.         [Reset/Set]       (2) 1-1 will be displayed.         2 Set       (1) Push the ▲ or ▼ key, and move the cursor to the "1 Data Reset".         (2) Push the ✔/PHASE key.       (3) 2-1 will be displayed.				

2 Select the items v	vant to reset	
Screen	Operation	Note
2-1. [Reset] ∭IMAX.MIN ☑Integrate □Alarm	<ul> <li>(1) Push the CIRCUIT key, and select the measurement target circuit. (LED of the selected circuit is light.)</li> <li>(2) Push the  or  key, and move the cursor to the item you want to reset.</li> <li>(3) Push the  or  key, and check the check box.</li> <li>(If you push the  or  key, and check the all check box you want to reset.</li> <li>(4) Repeat (1) to (3) operation and check the all check box you want to reset.</li> <li>(5) Push the  or  key agter select all data.</li> <li>(6) Display transit to follow by the Checked/Non-checked in the models and setting of 2 circuits measuring existence. All items is non-checked → Return to operation display. Models is EMU4-PX4 or EMU4-AX4, or Checked either items in 1P2W(2 circuits measuring) → To 2-2 Other models and checked either items in Non-1P2W(2 circuits measuring)</li> </ul>	□(Non-checked), ☑(Checked)
2-2. [Target]	<ul> <li>(1) Push the ⊕ or ─ key, and select the measure target circuit.</li> <li>(2)</li></ul>	[measure target circuit] EMU4-PX4 or EMU4-AX4∶ <b>[1]</b> ⇔[2]⇔[3]⇔[4]⇔ 1P2W(2 circuits measuring∶ <b>[1]</b> ⇔[2]⇔
2-3. Do you really execute? OK Cance	<ul> <li>(1) Push the  key, and move the cursor to the "OK" and push the </li> <li>(PHASE) key.</li> <li>(Return to the 2-1, if you push cancel key.)</li> <li>(2) 2-4 will be displayed after rest data.</li> </ul>	
2-4. Completed	(1) Push the 🗗/PHASE key.	

### 6.8.2 Data preset

### (1) Data can be preset

Data can be preset is differs as below table by connected models.

	EMU4-BM1-MB	EMU4-HM1-MB	EMU4-A2 EMU4-VA2	EMU4-LG1-MB	EMU4-PX4	EMU4-AX4
Electric energy	0	0	0	-	-	-
Reactive electric energy	O*1	O*1	O*1	_	_	_
Conversion electric energy	-	0	0	-	-	_
Period electric energy	-	O*2	_	_	_	_
Operating time	0	0	0	-	O*2	_
Regeneration electric energy	0	0	0	_	_	_
Pulse count value	-	O*3	-	_	O*3	_
Pulse conversion	_	O*3	_	_	O*3	_

\*1 Can't preset when wiring type is 1P2W (2 circuits measuring).
\*2 Can preset only when input is contact input.
\*3 Can preset only when input is pulse input.

#### (2) Preset data

1 Transition to the	1 Transition to the Reset/Preset mode				
Screen	Operation	Note			
1-1. [Reset/Set]	(1) Push the <u>RESET/SET</u> key in operation mode. (2) 1-1 will be displayed.				
Set 3 AL.Release	<ul> <li>(1) Push the  or  key, and move the cursor to the "2 Data Preset" and push</li> <li>(2) 2-1 will be displayed.</li> </ul>				

2 Preset data(Exam	2 Preset data(Example :Electric energy					
Screen	Operation	Note				
2-1. [Set] 1 Wh 2 varh 3 CONV.Wh	<ul> <li>(1) In 2-1, push the  or  key, and move the cursor to the "1 Consumed Wh" and push the  /PHASE key.</li> <li>(2) 2-2 will be displayed.</li> </ul>					
2-2. [Wh] 2345.6 [1]	<ol> <li>Push the</li></ol>					
2-3. [Wh] [2345.6 kWh [2]	<ul> <li>(1) Set the electric energy of 2<sup>nd</sup> circuit.</li> <li>(2) Push the  <i>↓</i>/PHASE key.</li> <li>(3) 2-4 will be displayed.</li> </ul>					
2-3(1) [OP.Time] 000000 hour [1]	If models is EMU4-PX4 or EMU4-AX4, transition the 2-3(1) to (4). (exanple: Operating time) That CH is not displayed if measurement elements is different.					
2-3(2) [OP.Time] <b>0</b> 00000 hour [2]						
2-3(3) [OP.Time] <b>0</b> 00000 hour [3]						
2-3(4) [OP.Time] 000000 hour [4]						

Screen	Operation	Note
2-4. Do you really execute? OK Cance	<ol> <li>Push the</li></ol>	
2-5. Completed	(1) Push the ✔/PHASE key, and end preset.	

## 6.8.3 Release alarm (1) Release alarm

1 Transition to the reset/preset mode				
Screen	Operation	Note		
1-1. [Rese/Set] 1 Reset 2 Set <b>2</b> AL.Release	<ul> <li>(1) Push the <u>RESET/SET</u> key in the operation mode.</li> <li>(2) 1-1 will be displayed.</li> <li>(1) Push the  or  key, and move the cursor to the "3 Release alarm" and push the <u>PHASE</u> key.</li> <li>(2) 2-1 will be displayed.</li> </ul>			

2 Release alarm	2 Release alarm					
Screen	Operation	Note				
2-1. [Releasealarm] I⊈Alarm □Contact	<ul> <li>(1) In 2-1, push the ▲ or ▼ key, and move the cursor to the item to release alarm.</li> <li>(2) Push the ± or ─ key, and check the check box. (If you push the ± or ─ key again, Non-checked item turned to checked.)</li> <li>(3) Repeat (1) to (3) operation and check the all check box you want to reset.</li> <li>(4) Push the</li></ul>	□(Non-checked), ⊠(checked)				
2-2. Do you really execute? OK Cancel	<ul> <li>(1) Push the  key, and move the cursor to the "OK" and push the  key.</li> <li>(If you select cancel, return to 2-1)</li> <li>(2) After released alarm 2-3 will be displayed.</li> </ul>					
2-3. Completed	(1) Push the ✔/PHASE key, and end.					

#### 6.9 Change the setup circuit of same voltage system

6.9.1 Automatic reflect of setup value in same voltage system.

- Below caution is required about Wring type, 2 circuits measuring, Rating voltage and Simple measuring in using extension unit.
  - Setup value of same voltage system unit is automatically changed when Wring type, 2 circuits measuring, Rating voltage and Simple measuring are changed in using EMU4-D65.
  - Please be careful about the initialization of setup value even if setup value is changed in automatically. (Please reference to each manuals of measuring unit for check initialized items)
  - Items you need to change and automatically changed are below table.

		Changing setting value			
		Wiring	Voltage	2 circuit	Simple
		wiring	rating	measurement	measurement
lue	Wiring	0	0	0	×
lect g val	Voltage rating	0	0	0	×
Ref tting	2 circuit measurement	0	0	0	×
.əs	Simple measurement	×	×	×	0

\*Wiring type is only reflected in EMU4-LG1-MB.

\*Setup value of EMU4-PX4 and EMU4-AX4 is not changed because setup item is different.

Example of reflection of setup value is displayed in below.

(1) In the case of change the measuring unit (EMU4-BM1-MB/ EMU4-HM1-MB/ EMU4-LG1-MB) a. In the case of the unit of the right side is same voltage system expansion unit (EMU4-A2).



1 to 7 in the figure indicate the circuit number. Circuit numbers are assigned in order from the side closest to the basic unit.

The number of input circuits for each unit is as follows.

	Number of input circuits	
Basic Unit EMU4-BM1-MB,EMU4-HM1-MB, EMU4-LG1-MB,EMU4-CNT-MB		1
Forten eine Unit	EMU4-A2,EMU4-VA2	2
Extension Unit	EMU4-AX4,EMU4-PX4	1

b. In the case of the unit of the right side is different voltage system expansion unit (EMU4-VA2).



Change setup

Г				
	1	23	45	6 7
	EMU4- BM1/HM1 /LG1-MB	EMU4- VA2	EMU4- A2	EMU4- A2

c. In the case of the unit of the right side is pulse input unit(EMU4-PX4) or analog input unit (EMU4-AX4).



\*2 EMU4-AX4/PX4 is not reflected the setup value.

(2) In the case of change the same voltage expansion system (EMU4-A2).

a. In the case of the unit of the left side is same voltage system expansion unit (EMU4-A2).



b. In the case of the unit of left side is different voltage system expansion unit (EMU4-VA2).



\*6 EMU4-AX4/PX4 is not reflected the setup value.

c. In the case of the unit of left side is pulse input unit(EMU4-PX4) or analog input unit(EMU4-AX4).



\*④EMU4-AX4/PX4 is not reflected the setup value.

- (3) In the case of change the different voltage expansion system (EMU4-VA2).
- a. In the case of the unit of the left side is same voltage system expansion unit(EMU4-A2).



b. In the case of the unit of left side is different voltage system expansion unit (EMU4-VA2).



c. In the case of the unit of left side is pulse input unit(EMU4-PX4) or analog input unit(EMU4-AX4).



\*④EMU4-AX4/PX4 is not reflected the setup value.

- 6.9.2 Operation in the case of the setup value is different in same voltage system Below error is displayed when the setup value of same voltage system is different in the exchange and expansion of units.
  - Please push *Please* key to transition setup mode.

ЖErrorЖ
Same voltage
different
setting OK

Please operate below in basis unit of same voltage system for reflect setting value.

- (1) Please setup any one of "Wiring, voltage, 2 circuit measurements" for reflect setting value to same voltage system.
- (2) Please setup "simple measurement" for reflect setting value to same voltage system.

### Operation method (when connected to EMU2-\*\* to MDU2-\*\*)

In this section operation method is showed when connected EMU2-\*\* and MDU2-\*\*.

Reference to **(C**). Operation method (connected to EMU4-\*\*) when connected to EMU4 -\*\*.

#### 7.1 Operation mode



#### 7.2 Setup mode

7.2.1 Follow of setup

Setup the "(1)Measure setting", "(2)Clock setting", "(3)Display setting" in setup mode when connected EMU2-\*\* and MDU2-\*\*.

(1) Measure setting · · · Setup the measure conditions of connected measure unit. (7.2.2 Measure setup



(2) Clock setting · · · Setup the clock of connected measure unit. (7.2.3 Setup clock All models except EMU2-BM1-B and EMU2-PM1-P.

		_		-		
EMU2-HM1-B EMU2-HM1-C		EMU2-VS1-P		EMU2-RD□-F EMU2-RD□-B EMU2-RD□-C EMU2-RD□-L EMU2-RD□-△-4W	MDU2-□-B MDU2-□-C MDU2-□-L	
Transition to the clock						
Ļ						
Set for Clock						
End the setup						

(3) Display setting · · · Setup about display such as LCD contrast or backlight lighting pattern. (7.2.4 Setup display

EMU2-BM1-B	EMU2-HM1-B EMU2-HM1-C	EMU2-PM1-P	EMU2-VS1-P	EMU2-RDD-F EMU2-RDD-B EMU2-RDD-C EMU2-RDD-L EMU2-RDD-A-4W	MDU2-□-B MDU2-□-C MDU2-□-L		
		Trasition to the	ne Setup Mode				
↓							
LCD Contrast							
Backlight							
Save the setting (End of setup mode)							

### 7.2.2 Measure setup

1 Transition to the Setup			
Screen	Operation	Note	
1-1. [Setup] 1 Measure	(1) Push the <u>SETUP</u> key in Operation Mode. (2) 1-1 will be displayed. (1) Confirm that the cursor focuses the "1 Measure", push the <i>✔/</i> PHASE key.		
3 Display ▼	(2) 2-1 will be displayed.		

2 Setup the phase wire system(All models)			
Screen	Operation	Note	
2-1.	(1) In 2-1, push the 🗻 or 💌 key, and move the cursor to the "1 Wiring".	[Wiring]: 1P2W⇔1P3W⇔3P3W⇔3P4W⇔	
[Measure]	(2) Push the 🖌/PHASE key.		
1 Wiring	(3) 2-2 will be displayed.	*"3P4W" setting is EMU2-RD□-Δ-4W only.	
2 V rate		(3P4W fixed)	
3 A rate 🔻		* □=2,4, △=B, C, L	
2-2.	(1) Push the $\pm$ or $-$ key, and change the setting value.		
[Wring]	(2) Push the ( /PHASE) key, and confirm the setting value.	*In the case of the model MDU2-□-△, displays all	
3P3W	(3) 2-1 will be displayed.	1P2W to 3P4W, but cannot be set for 3P4W in the	
		case of connection breaker 3 pole products.	

3 Setup the primary voltage(EMU2-BM1-B, EMU2-HM1-∆, EMU2-PM1-P, EMU2-VS1-P, EMU2-RD□-∆)				
Screen	Operation	Note		
3-1. [Measure] 1 Wiring 2 V rate 3 A rate ↓ 3-2. [V rate] 220V Direct	<ul> <li>(1) In 3-1, push the ▲ or ▼ key, and move the cursor to the "2 V rate".</li> <li>(2) Push the  <i>✓</i>/PHASE key.</li> <li>(3) 3-2 will be displayed.</li> <li>(1) Push the + or  key, and change the setting value.</li> <li>(2) Push the  <i>✓</i>/PHASE key, and confirm the setting value.</li> <li>(3) 3-1 will be displayed.</li> <li>*1: In case of the model EMU2-BM1-B,EMU2-HM1-B,EMU2-VS1-P, set only value of 1</li> <li>*2: In case of the model EMU2-BM1-B,EMU2-HM1-B,EMU2-VS1-P, set only value of 1</li> <li>*2: In case of the model EMU2-RD□-△-4W settings about voltage surveillance is comm For example, if you change the primary voltage of the circuit 1, circuit 2 will also b</li> </ul>	1P2W, 3P3W		

4 Setup the prima	ary current (EMU2-BM1-B, EMU2-HM1-∆, EMU2-PM1-P, EMU2-VS1-P, EMU2-RD□-∆)	
Screen	Operation	Note
4-1. [Measure] 1 wiring 2 V rate S A rate ♦	<ul> <li>(1) In 4-1, push the ▲ or ▼ key, and move the cursor to the "3 A rate".</li> <li>(2) Push the</li></ul>	[Sensor]∶ <u>Direct</u> ⇔5A⇔ Direct setting [A rate]∶50A⇔ <u>100A</u> ⇔250A⇔400A⇔600A⇔
4-2. [Sensor] [A rate] 100A	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "Sensor".</li> <li>(2) Push the + or - key, and select sensor type.</li> <li>(3) Push the ▲ or ▼ key, and move the cursor to the "A rate".</li> <li>(4) Push the + or - key, and change the primary current value.</li> <li>(5) Push the ✔/PHASE key, and confirm the setting value.</li> <li>(6) 4-1 will be displayed.</li> </ul>	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⇔750A⇔8000A⇔ 10000A⇔12000A⇔20000A⇔25000A⇔30000A⇔

5 Setup the measurement mode(EMU2-RD□-Δ, MDU2-□-Δ)				
Screen	Operation	Note		
5-1. [Measure] 2 V rate 3 A rate ☑ Mode ♦	<ul> <li>(1) In 5-1, Push the ▲ or ▼ key, and move the cursor to the "4 Measure".</li> <li>(2) Push the</li></ul>			
5-2. [Mode] Wh+A+4 Harmonics	<ul> <li>(1) Push the  a or  key, and select the "Mode".</li> <li>(2) Push the  //PHASE key.</li> <li>(3) Transition to the following screen by the selection of measurement mode. [Wh+A+4] setting → To 5-3 [Harmonics] setting → To 5-4</li> </ul>	[Mode]: <u>Wh+A+4</u> ⇔Harmonics⇔ Wh+A+4In addition to the active energy and current, up to 4 items can be displayed by selection. (The harmonics data is only about total.) HarmonicsIt can display about harmonic data at each order. (Maximum and minimum values, demand, reactive power cannot be displayed.)		
5-3. [Element] ☑V ☑W □var	<ul> <li>(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.)</li> <li>(2) Push the ± or □ key, and choose the selected or deselected.</li> <li>(3) When selecting the other measurement item, repeat the operation from (1) to (2).</li> <li>(4) Push the € //PHASE key, and determine the setting.</li> <li>(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</li> </ul>	[Element]:V, W, var, PF, Hz, varh, Demand, HA, HV, le, Hle □(Deselected), ☑ (Selected) *The selectable number of elements is up to4. So, change the selection at the state that already 4 items are selected, deselect the items before changing.		
5-4. [HA, HV] IMS	<ul> <li>(1) Push the ± or = key, and change the "HA, HV" value.</li> <li>(2) Push the  <i> </i></li></ul>	<ul> <li>[HA, HV]: <u>r.ms.</u>⇔%⇔</li> <li>r.m.sDisplay the RMS value of harmonic current or harmonic voltage. (Not display harmonic current and harmonic voltage.)</li> <li>% Display the distortion rate and content rate of harmonic current or harmonic voltage.</li> <li>(Not display the r.m.s.)</li> </ul>		

6 Setup the dema	and time (All models *However, EMU2-BM1-B, EMU2-PM1-P is only Current demand.)	
Screen	Operation	Note
6-1. [Measure] 3 A rate 4 Mode 5 Demand ∳	<ul> <li>(1) In 6-1, Push the ▲ or ▼ key, and move the cursor to the "5 Demand".</li> <li>(2) Push the  √PHASE key.</li> <li>(3) 6-2 will be displayed.</li> </ul>	Demand]:0sec⇔10sec⇔20sec⇔30sec⇔40sec⇔ 50sec⇔1min⇔ <mark>2min</mark> ⇔3min⇔4min⇔5min⇔ 6min⇔7min⇔8min⇔9min⇔10min⇔ 11min⇔12min⇔13min⇔14min⇔15min⇔ 20min⇔25min⇔30min⇔
6-2. [Demand] A : 2min W : 2min	<ol> <li>Push the ▲ or ▼ key, and move the cursor to the A(Current).</li> <li>Push the ↔ or - key, and change the demand time value.</li> <li>Push the ▲ or ▼ key, and move the cursor to the W(Electric power).</li> <li>Push the ↔ or - key, and change the demand time value.</li> <li>Push the ✔/PHASE key, and confirm the setting value.</li> <li>6) 6-1 will be displayed.</li> </ol>	

		7 Setup the pulse unit (EMU2-PM1-P, EMU2-VS1-P)			
Screen Operation No	ote				
7-1.       (1) In 7-1, push the  or  key, and move the cursor to the "6 Pulse".       T         [Measure]       (2) Push the  //PHASE key.       [F         (3) 7-2 will be displayed.       [F         7-2.       (1) Push the  or  key, and change the set value.       [1]         [Pulse]       (2) Push the  //PHASE key, and confirm the setting value.       [1]         (3) 7-1 will be displayed.       [1]         1       [1]       [1]	The pulse output unit cha [Pulse]: Full load power (kW) Wfull<12kW 12kW ≤ Wfull < 120kW 120kW ≤ Wfull < 1200kW ≤ Wfull < 12000kW ≤ Wfull < 12000kW ≤ Wfull < 120000kW ≤ Wfull < 120000kW ≤ Wfull	nges by the full load power. Setting range ⇔ 0.001 ⇔ 0.01 ⇔ 0.1 ⇔ 1 ⇔ ⇔ 0.1 ⇔ 0.1 ⇔ 1 ⇔ 10 ⇔ ⇔ 0.1 ⇔ 1 ⇔ 10 ⇔ 100 ⇔ ⇔ 1 ⊕ 10 ⇔ 100 ⇔ 1000 ⇔ ⇔ 100 ⇔ 1000 ⇔ ⊕ 100 ⇔ 1000 ⇔ ⊕ 100 ⇔ 1000 ⇔			

8 Setup 1-3Change(MDU2-□-Δ)				
Screen	Operation	Note		
8-1.	(1) In 8-1, Push the ▲ or ▼ key, and move the cursor to the "7 1-3Change".	[1-3Change]: <b>Standard</b> ⇔Change⇔		
[Measure]	(2) Push the <i>H</i> /PHASE key.			
5 Demand	(3) 8-2 will be displayed.	StandardFrom breaker of the left pole, turn to		
6 Pulse		1,2,3 (R, S, T) assigned in phase.		
I 1-3Change				
8-2.	(1) Push the 🔄 or 🖃 key, and change the set value.	ChangeFrom breaker of the right pole, turn to		
[1-3Change]	(2) Push the 🖌/PHASE key, and confirm the setting value.	3,2,1 (T, S, R) assigned in phase.		
Standard	(3) 8-1 will be displayed.			

9 Save the settings					
Screen	Operation	Note			
9-1. Quit Setup Save 2 Not Save 3 Cancel 9-2.	<ul> <li>(1) After setting all of the items, push the Setup key.</li> <li>(2) 9-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the  <i>d</i>/PHASE key.</li> <li>(4) After completing the settings saving, 9-2 will be displayed. Push the <i>d</i>/PHASE key.</li> </ul>	<ol> <li>Save → Save settings and return to the operation mode.</li> <li>Not Save → Discard the changes and return to the operation mode.</li> <li>Cancel → Continue the setup.</li> </ol>			
Completed	(5) Return to the operation mode, and it will be displayed electric energy screen.				

### 7.2.3 Clock setup-the settings for the clock.

Setup the clock connected measure unit.

1 Transition to the setup mode		
Screen	Operation	Note
	(1) Push the SETUP key in operation mode. (2) 2-1 will be displayed.	

2 Clock setup(EMU2-HM1-Δ, EMU2-VS1-P, EMU2-RDΔ, MDU2Δ)			
Screen	Operation	Note	
2-1. [Setup] 1 Measure 2 Clock 3 Display	<ul> <li>(1) In 2-1, push the ▲ or ▼ key, and move the cursor to the "Clock".</li> <li>(2) Push the</li></ul>	[Year]:00⇔01⇔02⇔ <u>03</u> ⇔04⇔⇔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]:00⇔01⇔⇔59⇔	
2-2. [Clock] 20 <b>[5</b> /01/01 00:00 OK Cancel	<ul> <li>(1) Push the  ives in the interval of interva</li></ul>	Note 1: Setting range of day will change depending on the setting of the year and month. Note 2: It becomes "00" second when the timing of pushing the <i>ℓ</i> /PHASE key at the clock setup screen.	

3 To exit the the setup mode			
Screen	Operation	Note	
3-1. Quit Setup I Save 2 Not Save 3 Cancel	<ol> <li>In 2-1, Push the SETUP key.</li> <li>Push the ▲ or ▼ key, and move the cursor to the "2 Not Save"<sup>Note1</sup> Push the ✔/PHASE key.</li> <li>Return to the operation mode, and it will be displayed electric energy screen.</li> </ol>	Note 1: If change the measurement settings and the display settings, select the "1 Save".	

\*In case of the model EMU2-BM1-B, EMU2-PM1-P, you cannot clock set because it does not have a clock function. \*Setting for clock can only be in the display unit is set to master. (Setting for clock cannot be in the display unit is set to slave.) \*If you change a setting, please push the *L/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.

#### 7.2.4 Setup the display

Setup about display such as LCD contrast or backlight lighting pattern.

1 Transition to the setup mode			
Screen	Operation	Note	
1-1. [Setup] 1 Measure 2 Clock 3 Display	<ol> <li>Push the SETUP key in operation mode.</li> <li>1-1 will be displayed.</li> <li>In 1-1, push the ▲ or ▼ key, and move the cursor to the "Display".</li> <li>Push the</li></ol>		

Γ	2 Setup the LCD contrast		
0	Screen	Operation	Note
	2-1. [Display] 1 Contrast 2 Backlight 0 Back	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "1 Contrast".</li> <li>(2) Push the</li></ul>	[Contrast]: ■□□□□□□ ⇔ ■□□□□□□ ⇔ ■■□□□□□ ⇔ ■■□□□□□ ⇔ ■■□□□□□ ⇔
CV V	2-2. [Contrast] ☐■■■■□□□□□ ☐	<ul> <li>(1) Push the ± or</li></ul>	→→→→→ ↓ →→→→→ ↓ Dark

3 Setup the backlight			
Screen	Operation	Note	
3-1. [Display] <u>1</u> Contrast	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "2 Backlight".</li> <li>(2) Push the</li></ul>	[Backlight]:Auto OFF⇔ <u>Always ON</u> Auto OFF: If 5 minutes has passed since the	
Backlight 0 Back		last key operation, backlight will be OFF automatically. There are	
3-2. [Backlight] Auto OFF Always ON	<ul> <li>(1) Push the ▲ or ▼ key, and select the backlight condition.</li> <li>(2) Push the</li></ul>	any key operation, backlight will be lighted again. Always ON: Backlight is always lighted.	

4 Save the settings			
Screen	Operation	Note	
4-1. Quit Setup I Save 2 Not Save 3 Cancel	<ul> <li>(1) After setting all of the items, push the <u>SETUP</u> key.</li> <li>(2) 4-1 will be displayed.</li> <li>(3) When save the settings, push the  or  key, move the cursor to the "1 Save", and Push the <i>\PHASE</i> key.</li> <li>(4) After completing the settings saving, "Completed" message will be displayed. Push the <i>\PHASE</i> key.</li> <li>(5) Return to the operation mode, and it will be displayed electric energy screen.</li> </ul>	<ol> <li>Save → Save settings and return to the operation mode.</li> <li>Not Save → Discard the changes and return to the operation mode.</li> <li>Cancel → Continue the setup.</li> </ol>	

\*If you change settings, please push the *PPHASE* 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.

#### 7.3 Alarm setup mode

#### 7.3.1 Follow of alarm setting

- Setup"(1)Upper/lower limit alarm", "(2)Voltage sag alarm", "(3)BreakerAL" when connected to EMU2-\*\* and MDU2-\*\*. (1) Upper/lower limit alarm
  - Setup upper/lower limit alarm for current, voltage, electric power, and power factor. (You can't setup upper/lower limit alarm when EMU2-BM1-P, EMU2-VS1-P)



#### (2) Voltage sag alarm setting

Setup the condition of Voltage sag alarm setting up to 4. (Only EMU2-VS1-P)



#### (3) Breaker alarm

Setup condition of breaker alarm monitoring. (Only setup MDU2-D-A.)



# 7.3.2 Upper / lower limit alarm condition setup The settings for the upper / lower limit alarm of current, voltage, electric power, power factor.

1 Transition to the alarm setup mode			
Screen	Operation	Note	
1-1. [Alarm Set] 1 Limit	(1) Push the <u>SETUP</u> key in alarm mode. (2) 1-1 will be displayed.		
2 Vsag	(1) Confirm that the cursor focuses the "1 Limit", push the <i>I</i> /PHASE key. (2) 2-1 will be displayed.		

2 Setup the current upper/lower limit alarm(EMU2-PM1-P, EMU2-HM1-Δ, EMU2-RD□-Δ, MDU2-□-Δ)			
Screen	Operation	Note	
2-1.	(1) Push the 🔳 or 💽 key, and move the cursor to the check box of A Upper.	[A Upper]:0A to (Prin	nary current)A
[Limit]	(2) Push the ( /PHASE) key.	[A Lower]: 0A to (Prin	nary current)A
A LIMIT	(3) 2-2 will be displayed.		
3 W Limit		*The minimum step of primary current.	settable value is varied by
2 <u>-2.</u>	(1) Push the 🛦 or 💌 key, and move the cursor to the check box of A Upper.	5A to 30A	Step:0.01A
A Upper	(2) Push the 🛨 or 🖃 key, and setting A Upper limit alarm existence.	40A to 300A	Step:0.1A
30000A	(3) If it is set to alarm, push the 🔺 or 💌 key, and move the cursor, and change the	400A to 3000A	Step:1A
	limit value.	4000A to 30000A	Step:10A
00000/1	(4) In a similar way, setting the A Lower limit alarm.		·
	(5) Push the ( <i>P</i> /PHASE) key, and confirm the setting value.		
1	(6) 2-1 will be displayed		

3 Setup the Voltage upper/lower limit alarm(EMU2-PM1-P, EMU2-HM1-Δ, EMU2-RD□-Δ, MDU2-□-Δ)		
Screen	Operation	Note
3-1. [Limit] 1 A Limit	(1) Push the ▲ or ▼ key, and move the cursor to the "2 V Limit". (2) Push the ✔/PHASE key. (3) 3-2 will be displayed	[V Upper]:0V to (Primary voltage×15/11)V [V Lower]: <u>0V</u> to (Primary voltage×15/11)V
<ul> <li>☑ V Limit</li> <li>③ W Limit</li> </ul>		*The minimum step of settable value is varied by primary voltage.
3-2.	(1) In a similar way as 2-2, change the setting of the voltage limit alarm.	Less than 440V         Step:0.1V           440V to 2200V         Step:1V           3300V to 110000V         Step:10V
	Note 1: In case of the model EMU2-RD□-△-4W,Upper and lower limits of the voltage for the the upper limit lower limit value of the voltage in the circuit 1, the same value is also limits of the voltage for the circuit 3 and circuit 4 set in the circuit 3. If you set the up circuit 3, the same value is also set in the circuit 4. The circuit of even number is no the voltage. (Setting is invalid.) Note 2: Upper and lower limits of the voltage is monitored at the <u>line voltage</u> . It is not possible to the voltage is monitored at the <u>line voltage</u> .	c circuit 1 and circuit 2 set in the circuit 1.If you set set in the circuit 2. Similarly, Upper and lower per limit lower limit value of the voltage in the t used for setting upper and lower limits value of ble to monitor the phase voltage.

4 Setup the electric power upper/lower limit alarm(EMU2-HM1-∆, EMU2-RD□-∆, MDU2-□-∆)			
Screen	Operation	Note	
4- <u>1.</u>	(1) Push the ▲ or ▼ key, and move the cursor to the "3 W Limit".	[W Upper]:0W to (Full load)W	
[Limit]	(2) Push the 🖌/PHASE key.	[W Lower]: 0W to (Full load)W	
1 A Limit	(3) 4-2 will be displayed.	*The minimum step of settable va	alue is varies
Z V Linnit ▲		by full load(Wfull).	
		Wfull<12kW Step: 0.001kW	
4-2.	<ol> <li>In a similar way as 2-2, change the setting of the electric power limit alarm.</li> </ol>	$12kW \le Wfull < 120kW$	Step: 0.01kW
W Upper		120kW ≤ Wfull < 1200kW	Step: 0.1kW
11410 10 <sup>2</sup> kW		1200kW ≤ Wfull < 12000kW	Step: 1kW
VV Lower     00114 102kW		12000kW ≤ Wfull < 120000kW	Step: 10kW
		120000kW ≤ Wfull	Step: 100kW

5 Setup the Power factor upper/lower limit alarm(EMU2-HM1-∆, EMU2-RD□-∆, MDU2-□-∆)		
Screen	Operation	Note
5-1. [Limit] 2 V Limit 3 W Limit ☑ PF Limit ♦	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "4 PF Limit".</li> <li>(2) Push the</li></ul>	[PF Upper]: <u>-0.500</u> ⇔-0.550⇔⇔-0.950⇔ 1.000⇔0.950⇔⇔0.500⇔ [PF Lower]:-0.500⇔-0.550⇔⇔-0.950⇔ 1.000⇔0.950⇔⇔0.950⇔
5-2.	(1) In a similar way as 2-2, change the setting of the power factor limit alarm.	

6 Setup for alarm delay time(EMU2-PM1-P, EMU2-HM1-∆, EMU2-RD□-∆, MDU2-□-∆)							
Screen	Operation	Note					
6-1. [Limit] 3 W Limit 4 PF Limit ፪ Delay ♦	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "5 Delay".</li> <li>(2) Push the</li></ul>	[Delay]:0sec⇔5sec⇔ <u>10sec</u> ⇔20sec⇔30sec⇔ 40sec⇔50sec⇔1min⇔2min⇔3min⇔ 4min⇔5min⇔					
6-2. [Delay]	<ul> <li>(1) Push the ▲ or ▼ key, and change the alarm delay time.</li> <li>(2) Push the</li></ul>	ver limits of voltage for the circuit 2 use the alarm Ind lower limits of voltage for the circuit 4 use the er does not affect the monitoring of upper and lower					

7 Save the setting	gs		
Screen	Operation	Note	
7-1. Quit Setup Save 2 Not Save 3 Cancel	<ul> <li>(1) After setting all of the items, push the <u>SETUP</u> key.</li> <li>(2) 7-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the <u>√PHASE</u> key.</li> <li>(4) After completing the settings saving, "Completed" message will be displayed. Push the <u>√PHASE</u> key.</li> </ul>	1 Save 2 Not Save 3 Cancel	<ul> <li>→ Save settings and return to the operation mode.</li> <li>→ Discard the changes and return to the operation mode.</li> <li>→Continue the setup.</li> </ul>

(5) Return to the alarm mode, and it will be displayed alarm list screen. \*In case of the model EMU2-BM1-B, the alarm setup mode cannot be used. \*Setting for alarm mode can only be in the display unit is set to master. (Setting for alarm mode cannot be in the display unit is set to slave.) \*If you change a setting, 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.

7.3.3 Setup the Voltage sag alarm Setup the Voltage decreasing rate and duration of Voltage sag alarm. (Only EMU2-VS1-P)

1 Transition to the alarm setup mode				
Screen	Operation	Note		
1-1. [Alarm Set] 1 Limit 2 Vsag 3 Breaker	<ul> <li>(1) Push the <u>SETUP</u> key in alarm mode.</li> <li>(2) 1-1 will be displayed.</li> <li>(1) Confirm that the cursor focuses the "2 Voltage sag alarm", push the <i>IPHASE</i> key.</li> <li>(2) 2-1 will be displayed.</li> </ul>	-		

### 2 Setup the monitoring condition of Voltage sag alarm. (EMU2-VS1-P)

Screen	Operation	Note
Screen 2-1. Vsag] Alarm A 2 Alarm B 3 Alarm C ↓ 2-2. Sag Rate : 01000ms Sag Rate : 20% Duration : 01000ms	Operation         (1) Push the ▲ or ▼ key, and move the cursor to the "1 _Alarm A".         (2) Push the ✔/PHASE key.         (3) 2-2 will be displayed.         (1) Push the ▲ or ▼ key, and move the cursor to the item decreasing rate of V.         (2) Push the ★ or ▼ key, and setup decreasing rate of voltage sag.         (3) Push the ★ or ▼ key, and move cursor to the voltage sag time.         (Cursor is moved by 1 digit.)         (4) Push the ★ or ► key, and setup the voltage sag time.         (5) Repeat (3) to (4) operation and setup all digits         (6) Push the ✔/PHASE key, and confirm the setting value.         (7) Return to 2-1.	Note <v decreasing="" rate=""> 0% to 100% (1% step)         <duration> 20ms to 10000ms (10ms step)         *Alarm is not monitored when voltage decreasing rate is set 0%.</duration></v>
	(1) In a similar way, setup alarm B, C, D.	-

3 Return to default setting of voltage sag alarm(EMU2-VS1-P)					
Screen	Operation	Note			
3-1.	(1) Push the 🔺 or 💌 key, and move the cursor to the "5 Return default"	Default value is in below.			
[Vsag] 3 Alarm C 4 Alarm D 5 Default    ♦	(2) Push the Let /PHASE key.	V decreasing rate Duration Alarm A 20% 1000ms Alarm B 30% 500ms Alarm C 50% 200ms			
$\begin{matrix} \textbf{3-2.} \\ \textbf{A 20\% } 1000^{m}{}_{s} \\ \textbf{B 30\% } 500^{m}{}_{s} \\ \textbf{C 50\% } 200^{m}{}_{s} \\ \textbf{D 100\% } 20^{m}{}_{s} \end{matrix}$	<ol> <li>Push the ( PHASE) key, after confirming the default setting value. (Voltage decreasing rate and duration return to the default value.)</li> <li>3-1 will be displayed.</li> </ol>	Alarm D 100% 20ms			

4 Save the settin	gs	
Screen	Operation	Note
4-1. Quit Setup I Save 2 Not Save 3 Cancel	<ol> <li>After setting all of the items, push the SETUP key.</li> <li>(2) 4-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the</li></ol>	<ol> <li>Save → Save settings and return to the operation mode.</li> <li>Not Save → Discard the changes and return to the operation mode.</li> <li>Cancel → Continue the setup.</li> </ol>

\*If you change settings, please push the (/PHASE) key and be sure to determine changes. If without determine, the changes will be discarded.

### 7.3.4 Setup breaker alarm

Setup for breaker alarm monitoring (Only MDU2-□-△ models)

1 Transition to the alarm setup mode					
Screen	Operation	Note			
1-1. [Alarm Set] 1 Limit 2 Vsag S Breaker	<ol> <li>Push the <u>SETUP</u> key in alarm mode.</li> <li>1-1 will be displayed.</li> <li>Confirm that the cursor focuses the "3 Breaker" and <i>PHASE</i> key.</li> <li>2-1 will be displayed.</li> </ol>				

2 Setup PAL/EPA	2 Setup PAL/EPAL (Only MDU2/_models)					
Screen	Operation	Note				
2-1. [Breaker] PAL/EPAL 2 Reset 3 Return	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "1 PAL/EPAL".</li> <li>(2)</li></ul>	<pal> 70% to 100% (1% step) <epal> 0mA to rated leak current for measure×1/2</epal></pal>				
2-2. [PAL] [EPAL] 0000mA [PAL] 100% [EPAL] 0000mA	<ul> <li>(1) Push the ▲ or ♥ key, and move the cursor to the "PAL".</li> <li>(2) Push the   or   key, and change the PAL setting value.</li> <li>(3) Push the ▲ or ♥ key, and move the cursor to the "EPAL".</li> <li>(Cursor is moved by 1 digit.)</li> <li>(4) Push the   or   key, and change the EPAL setting value.</li> <li>(5) Repeat (3) to (4) operation and setup all digits.</li> <li>(6) Push the   //PHASE key, and confirm the setting value.</li> <li>(7) 2-1 will be displayed.</li> </ul>	<ul> <li>(1mA step)</li> <li>*Alarm monitoring is not work when EPA is set 0mA.</li> <li>*The items are different by the connected models.</li> <li>•PAL: setup only when less than 250A frames.</li> <li>"" is displayed when connected models can't setup (more than 400A frames)</li> <li>•EPAL: leakage breaker, Leak current alarm can be setup. You can operate the change the value but setup value is not.</li> </ul>				
	(1) When you setup other circuits, push the <u>CIRCUIT</u> key, and select the circuit and repeat above operation.	(Fixed VA)				

3 Setup Reset Mo	3 Setup Reset Mode of Breaker alarm(MDU2-□-△)					
Screen	Operation	Note				
3-1. [Breaker] 1 PAL/EPAL 2 ResetMode 3 Rerturn 3-2. [Reset mode] Auto reset	<ul> <li>(1) Push the ▲ or ▼ key, and move the cursor to the "2 ResetMode".</li> <li>(2) Push the</li></ul>	Auto Reset, ····Auto Reset is automatically worked if removed the cause of each alarm PAL, EPAL, ECA. Hold ····Alarm is hold if removed the cause of each alarm PAL, EPAL, ECA .(Reset is worked at breaker AL reset 7.6.1 Reset measured data)				
	(1) When you setup other circuits, push the CIRCUIT key, and select the circuit and repeat above operation.					

4 Save the settings						
Screen	Operation	Note				
4-1. Quit Setup I Save 2 Not Save 3 Cancel	<ul> <li>(1) After setting all of the items, push the SETUP key.</li> <li>(2) 4-1 will be displayed.</li> <li>(3) When save the settings, push the ▲ or ▼ key, move the cursor to the "1 Save", and Push the  (√/PHASE) key.</li> <li>(4) After completing the settings saving, "Completed" message will be displayed. Push the  (√/PHASE) key.</li> <li>(5) Return to the alarm mode</li> </ul>	<ul> <li>1 Save → Save settings and return to the alarm mode.</li> <li>2 Not Save → Discard the changes and return to the alarm mode.</li> <li>3 Cancel → Continue the setup(1-1).</li> </ul>				

\*If you change a setting, please push the (+PHASE) key and be sure to determine changes. If without determine, the changes will be discarded.

### 7.4.1 Transition of display

Transition of display in operation mode is showed below.



.. Push the *PHASE* key, and display switched phase of current or voltage.

... Push the $\pm$  or  $\Box$  key, and showed the Max and Min value.

... Push the  $\pm$  or  $\Box$  key, and display switched degree of harmonics current or voltage.

\*Displayed screen is different by the connected models and setup. (• 7.4.2 Connected model and Correspondence of connected models and display screen) \*Record measured target in operation mode at 10 minutes period. When turned on after power outage, screen before power outage will be displayed. \*Measured circuit by more than 2 circuits measure unit is switched and displayed in any screen except (20) error by push the CIRCUIT key. 7.4.2 Correspondence of connected models and display screen Screen what display or not appear is different based on the models connected measure unit.

				Dienla	wed data in eac	h models			
				Dispid	iyeu uala ili eac		Δ Π Λ <sup>*6</sup>	1	
Data		EMU2-BM1-B	EMU2-HM1-B,C	EMU2-PM1-P	EMU2-VS1-P	EMU2-RDI	□-Δ-4W <sup>*6</sup>	MDU2-	· <b>□-</b> Δ <sup>*6</sup>
		-	-	-	-	Wh+A +4elements	Detail of harmonics	Wh+A +4 elements	Detail of harmonics
(1)Electric energy		•	•	•	•	•	•	•	•
(2)Present current	R, S, T, N, total *1	•	•	•	•	•	•	•	•
(3)Demand current	R. S. T. N *1	•	•	•	•	•	•	•	•
	Max., Min, value	•	•	_	_	•	_	•	_
	When measured max and min value	_	•	_	_	•	_	•	_
(4)Demand voltage	R-S, S-T, T-R, total *2 R-N, S-N, T-N	-	٠	٠	•		•		•
	Max., Min. value	-	•	_	-	0	-	0	_
	When measured max and min value	_	٠	_	_		_		_
(5)Present electric power		_	•	_	•		•		•
(6)Demand electric power	Present	_	•	_	•		•		•
	Max., Min. value	_	•	_	—	0	-	0	_
	When measured max and min value	_	٠	_	_		_		_
(7)Reactive electric power		_	—		—	0	•	0	•
(8)Power factor	Present	_	•	_	•		•		•
	Max., Min. value	-	•	_	-	0	-	0	_
	When measured max and min value	_	٠	_	_	0	_	0	_
(9)Frequency		_	_	_	-	0	•	0	•
(10) Voltage sag	R-S, S-T, T-R *2	_	—	_	•	_	_	_	—
(11),(12)Total effective value and distortion of harmonics current "5	R, S, T '3	_	_	_	_	0	•	0	•
(13),(14) Total effective value and distortion of harmonics voltage <sup>*5</sup>	R-S, S-T <sup>™</sup> R-N, S-N, T-N	_	_	_	_	0	•	_	—
(15),(16)1st to 13th Effective value/ content rate of harmonics current <sup>*5</sup>	R, S, T '3	_	_	_	_	_	•	_	•
(17),(18) 1st to 13th Effective value/ content rate of harmonics voltage <sup>*5</sup>	R-S, S-T <sup>™</sup> R-N, S-N, T-N	_	_	_	1		•		—
(19) Simple demand		—	•	_	-	0		—	—
(20) Error		•	•	•	•	•	•	•	•
(21) Reactive power		—	-	_	-	0		0	—
(22) Present leak current value		_	_	_	_	_	_		•
(23)Demand leak	Present	_	—	_	_	_	_		•
current value	Max./Min.	_	_	_	_	_	_	0	_
	When measured max and min value	_	_	_	_	_	_		_
(24) Present value of harmonic	s including leak current	—	-	-	—	_	_		•
(25)Demand value of leak	Present	—	_	_	—	_	_		•
current including harmonics	Max./Min.	—	_	_	—	_	_	0	_
	When measured max and min	_	_	_	_	_			_

Displayed elements	Oelement displayed only setting	<ul> <li>—Not displayed elements</li> </ul>
--------------------	---------------------------------	---

\*1 S and T phase are not displayed when the wiring set 1P2W. N phase is displayed only setup 3P4W. All phases that in breakers are displayed in MDU2 regardless of wiring.

\*2 S-T and T-R are not displayed when the wiring set 1P2W. R-N, S-N, T-N is displayed only setup 3P4W.

All values of between the lines of breaker are displayed in MDU2 regardless of wiring.

\*3 T phase is not displayed when the wiring set 1P2W. S phase is displayed only setup 3P4W. All values are displayed in MDU2 regardless of wiring.

\*4 S-T is not displayed when the wiring set 1P2W. R-N, S-N, T-N are only displayed in 3P4W. Harmonics voltage is measured as phase voltage in 3P4W. It is displayed in between the lines. Please read replace R-S⇒R-N, S-T⇒S-N, T-R⇒T-N.

\*5 Either effective value/ content rate or distortion is displayed by the setup of HA,HV.

\*6  $\Box$ ...number of measure circuit 1 to 7,  $\triangle$ ...Communication specification B(B/NET), C(CC-Link), L(LONWORKS).

7.4.3 Detail of display



Screen	Scroon	Key operation	n	Noto
name	Screen	Key	Operation	Note
(6)			Measured value in previous is	Demand electric power is displayed.
Demand	When max measured		displayed	
electric	DEMAND MAX. HARM.		Measured value in next is displayed	<ul> <li>Measured value is multiplied by the displayed value and multiplying factor if multiplying factor</li> </ul>
power		+	displayed	is displayed.
	04/01 12:05 499 Max	—	Minimum demand electric power value is displayed	Push the      the      key, and display the maximum value and push again return standard display
	x 10 <sup>2</sup> k W	✓/PHASE	Key operation is invalid	•Time when measured max and min is displayed
	1 + Measured	CIRCUIT	Change measured circuit	MM/DD hh:mm.
	PRESENT TOTAL MAX. HARM. Value	(SETUP)	Transition to the Setup mode	
		RESET/SET	Transition to the Reset/Preset mode	
	Multiplying 20,6	▲+▼	Transition to the Alarm mode	
	$x 10^2$ k W			
	1 -			
	DEMAND MAX. HARM. PRESENT TOTAL MIN.			
	04/0112:05			
	$\times 10^2$ k W			
	When min measured			
(7)			Measured value in previous is displayed	Reactive electric power is displayed.
Reactive			Measured value in next is displayed	Measured value is multiplied by the displayed
electric	PRESENT TOTAL MIN.	+	Key operation is invalid	value and multiplying factor if multiplying factor
power	ÂG C 7		Key operation is invalid	is displayed.
	LEAD 9.7		Key operation is invalid	<ul> <li>LEAD and LAG is displayed in left side of</li> </ul>
	x 10 <sup>2</sup> k v a r		Transition to the Setup mode	measured value.
	Multiplying factor		Transition to the Deset/Preset mode	
	Progress/Lag		Transition to the Alarm mode	
(8)	When may manufad		Measured value in previous is displayed	Power factor is displayed.
Power			Measured value in next is displayed	
factor	PRESENT TOTAL MIR.	+	Maximum power factor value is displayed	Push the + key, and display the maximum
laotor	03/01 18:05		Minimum power factor value is displayed	<ul> <li>Value, and push again return standard display.</li> <li>Time when measured max and min is displayed</li> </ul>
	LAG <u>0,999</u> Max	✓/PHASE	Key operation is invalid	MM/DD hh:mm.
	Measure		Change measured circuit	<ul> <li>LEAD and LAG is displayed in left side of</li> </ul>
	DEMAND MAX. HARM.	SETUP	Transition to the Setup mode	measured value.
			Transition to the Reset/Preset mode	
		(▲)+(▼)	Transition to the Alam mode	
	Progress 1 — When min			
	LEAD 0721 Min			
	c o s ¢			
(9)			Measured value in previous is displayed	Present frequency is displayed.
Frequency	DEMAND MAX. HARM.		Measured value in next is displayed	
	PRESENT TOTAL MIN.	+	Key operation is invalid	
			Key operation is invalid	
	002	(+/PHASE)	Key operation is invalid	
	H z			
			Transition to the Setup mode	
			Transition to the Alarm mode	
(10)			Measured value in previous is displayed	Present voltage sag is displayed
Voltage	– Measured value		Measured value in pext is displayed	
sad	DEMAND MAX. HARM. PRESENT TOTAL MIN.		Key operation is invalid	•Push the <i>P</i> /PHASE key, switch below.
Jay	▲ <u>/</u>		Key operation is invalid	1P2W setting
	1092	( PHASE)	Display by changed phase	1P3W, 3P3W setting
	R-S sag V	CIRCUIT	Key operation is invalid	R-S→S-T→T-R
	Bhase	SETUP	Transition to the Setup mode	
	- Phase	RESET/SET	Transition to the Reset/Preset mode	
1		(▲)+(▼)	I ransition to the Alarm mode	

Screen	Screen	Key operation		Note
name	Screen	Key	Operation	Note
(11)	Measured value		Measured value in previous is displayed	Total effective value of harmonics current is
Total	DEMAND MAX. HARM.		Measured value in next is displayed	displayed.
effective	PRESENT TOTAL MIN.	+	Key operation is invalid	•Push the <i>•</i> /PHASE key, and switch below.
value	0000		Key operation is invalid	1P2W setting
of	9999	(✔/PHASE)	Display by changed phase	R pnase 1P3W. 3P3W setting
narmonics			Change measured circuit	R phase→T phase
current	Phase		Transition to the Setup mod	3P4W setting
	1 Habb	RESET/SET	Transition to the Reset/Preset mode	$\rightarrow$ R phase $\rightarrow$ S phase $\rightarrow$ T phase $\neg$
(12)	_ Measured value		Measured value in previous is displayed	Total distortion of harmonics current is displayed.
Total	DEMAND MAX. HARM.	<b>▼</b>	Key operation is invalid	•Push the <i>erevention of the provided and the provided an</i>
distortion	PRESENT TOTAL MIN.		Key operation is invalid	1P2W setting
Of however		(✔/PHASE)	Display by changed phase	R phase
narmonics			Change measured circuit	$\rightarrow$ R phase $\rightarrow$ T phase $\rightarrow$
current	R A %	(SETUP)	Transition to the Reset/Preset mode	
	Phase	▲+▼	Transition to the Alarm mode	$\rightarrow$ R phase $\rightarrow$ S phase $\rightarrow$ T phase $\rightarrow$
(13)	Measured volue		Measured value in previous is displayed	Total effective value of harmonics voltage.
Total			Measured value in next is displayed	Duch the WOHLS key and system between
effective	PRESENT TOTAL MIN.		Key operation is invalid	•Push the $(\underline{\Psi}/\underline{PHASE})$ key, and switch below. 1P2W setting
value		(+/PHASE)	Display by changed phase	R-S
of	9999		Change measured circuit	1P3W, 3P3W setting → R-S→S-T →
harmonics	R – S V		Transition to the Setup mode	
voltage	Phase	(RESET/SET)	Transition to the Alarm mode	3P4W setting
				K-3→3-1→1-K
				Please read replace R-S⇒R-N, S-T⇒S-N, T-R⇒
				T-N.
(14)	Measured value		Measured value in previous is	Total distortion of harmonics voltage is displayed
Total	DEMAND MAX. HARM.		displayed	rotal alotor ton namionios voltago is alopiayou.
distortion			Measured value in next is	•Push the •/PHASE key, and switch below.
of	1000	(+)	Key operation is invalid	R-S
harmonics			Key operation is invalid	1P3W, 3P3W setting
voltage	<u>K – S</u> V %		Display by changed phase	R-S→S-T
	Phase		Transition to the Setup mode	3P4W setting
		RESET/SET	Transition to the Reset/Preset mode	$\mathbf{r} \stackrel{R-S\toS-T\toT-R}{\neg}$
		▲+▼	Transition to the Alarm mode	
				Please read replace R-S⇒R-N, S-T⇒S-N, T-R⇒
(45)				I-IN.
(15)			Measured value in previous is displayed	i ne nth effective value of harmonics current is displayed.
list to13th	DEMAND MAX. HARM. PRESENT TOTAL AIN.		The order in next is displayed	•Push the <i>P</i> /PHASE key, and switch below.
effective			The order in previous is displayed	1P2W setting B phase
value	Phase 9999		Display by changed phase Change measured circuit	1P3W, 3P3W setting
of	R 1 st A	(SETUP)	Transition to the Setup mode	R phase→T phase -
harmonics		RESET/SET	Transition to the Reset/Preset mode	3P4W setting
current	DEMAND MAX. HARM. PRESENT TOTAL MIN.	▲+▼	Transition to the Alarm mode	$ ightarrow$ R phase $\rightarrow$ S phase $\rightarrow$ T phase $\neg$
				Push the + key and switch below
	9999			→1st→3rd→5th→7th→9th→11th→13 th —
	R 3rd A			
	□↑∕↓⊕			rusn tne
	Degree ——			
	DEMAND MAX. HARM. PRESENT TOTAL MIN.			
	99999			
	R 13 <b>th A</b>			

Screen	Screen	Key operation		Note
name	Screen	Key	Operation	Note
name (16) 1st to 13th content rate of harmonics current	Phas Phas	Key ▼ + (IRCUIT) (SETUP) (RESET/SET) ▲+(▼)	Operation           Measured value in previous is displayed           Measured value in next is displayed           The order in next is displayed           Display by changed phase           Change measured circuit           Transition to the Setup mode           Transition to the Reset/Preset mode           Transition to the Alarm mode	Nth content rate of harmonics current is displayed. •Push the •Push the •Push the •Push the •Push the •Push the •Push the •Push the •Push the •Refrestive up to •Sth → 7th → 9th → 11th → 13th Push the •Refrestive up to •Sth → 7th → 9th → 11th → 13th Push the •Sth → 7th → 9th → 11th → 13th Push the •Sth → 11th → 9th → 7th → 5th •Sth → 11th → 9th → 11th → 9th → 7th → 5th •Sth → 11th → 9th → 11th → 9th → 7th → 5th •Sth → 11th → 9th → 11th → 11t
(17) 1st to 13th effective vale of harmonics voltage	Phase $99999$ R - S 1 st V 0 99999 R - S 1 st V 0 9999 R - S 1 st V 0 9999 R - S 3 r d V 0 1 + 1 0 9999 R - S 3 r d V 0 1 + 1 0 9999 R - S 3 r d V 0 1 + 1 0 1 + 1		Measured value in previous is displayed Measured value in next is displayed The order in next is displayed The order in previous is displayed Display by changed phase Change measured circuit Transition to the Setup mode Transition to the Reset/Preset mode Transition to the Alarm mode	Nth effective value of harmonics voltage is displayed. •Push the •Push the •Push the •Push the •R-S 1P3W, 3P3W setting •R-S→S-T 3P4W setting •R-S→S-T→T-R Please read replace R-S⇒R-N, S-T⇒S-N, T-R⇒ T-N. •Push the +1st→3rd→5th→7th→9th→11th→13th Push the •key, and switch below. •1st→13th→11th→9th→7th→5th→3rd
(18) 1st to 13th content rate of harmonics voltage	Phase $Pesset Total Max Max Max Max Max Max Max Max Max Max$		Measured value in previous is displayed Measured value in next is displayed The order in next is displayed Display by changed phase Change measured circuit Transition to the Setup mode Transition to the Reset/Preset mode Transition to the Alarm mode	Nth content rate if harmonics voltage. •Push the <i>P</i> /PHASE key, and switch below. <i>1P2W setting</i> R-S <i>1P3W, 3P3W setting</i> ► R-S→S-T <i>3P4W setting</i> ► R-S→S-T→T-R Please read replace R-S⇒R-N, S-T⇒S-N, T-R⇒ T-N. •Push the + key, and switch below. ► 3rd→5th→7th→9th→11th→13th Push the key, and switch below. ► 3rd→13th→11th→9th→7th→5th



Screen	Carran	Key operation		Nata
name	Screen	Key	Operation	Note
(25) Present leak current harmonics	DEMAND MAX HARM PRESENT TOTAL MAX HARM 1 0 2 8 1 e m A	▲ + - CIRCUIT SETUP RESET/SET ▲+▼	Measured value in previous is displayed Measured value in next is displayed. Key operation is invalid Key operation is invalid Change measured circuit. Transition to the Setup mode Transition to the Reset/Preset mode Transition to the Alarm mode	Present leak current contend harmonics.
(26) Demand leak current content harmonics	When max measured Max Max Max Max Max Max Max Max Max Max	▲ ▼ + CIRCUIT SETUP RESET/SET ▲ + ▼	Measured value in previous is displayed Measured value in next is displayed Maximum leak current value content harmonics is displayed Minimum leak current value content harmonics is displayed Key operation is invalid Change measured circuit Transition to the Setup mode Transition to the Reset/Preset mode Transition to the Alarm mode	<ul> <li>Demand leak current contend harmonics.</li> <li>Push the</li></ul>

#### 7.4.4 Display significant digits

In this section, significant digits by measured method can be displayed. Resolution of measured data references to energy measure unit's manual.

The indication format of electric energy, reactive energy and periodic energy is as follows depending on the full load power:

	α×(VT primary voltage)×(CTprimary current)	α: 1 2	Single-phase, 2-wire Single-phase, 3-wire
Full load power[kW]==	1000	1.73	Three-phase, 3-wire
		Ű	

\*1: Using direct connection, replace VT primary voltage with direct voltage in calculation above. \*2: In three-phase 4-wire system, replace VT primary voltage or direct voltage with phase voltage in calculation above

Less than 12kW	12kW≦ Full Load ≤120kW	120kW≦ Full Load ≤1200kW	1200kW≦ Full Load ≦12000kW	120000W≦ Full Load ≦120000kW	More than 120000kW
		*****	**** *	**** *	*****
****.** (kWh)	*****.* (kWh)	x10(kWh)	x10² (kWh)	x10 <sup>3</sup> (kWh)	x10 <sup>4</sup> (kWh)
No multiplying factor 1 2 3 4 5 6 K W h Measured value is 1234.56kWh	No multiplying factor 1 2 3 4 5 6 K W h Measured value is 12345.6kWh	Multiplying factor"10" 1 2 3 4 5 6 • x 10 k w n Measured value is 12345.6kWh	Multiplying factor"10 <sup>2</sup> " 1 2 3 4 5 6 $\times$ 10 <sup>2</sup> k W h Measured value is 12345.6x100 =1234560kWh	Multiplying factor" $10^{3"}$ 1 2 3 4 5.6 $\times 10^3$ k W h Measured value is12345.6x1000 =12345600kWh	Multiplying factor" 1 2 3 4 5 6 • x 10 <sup>4</sup> K W h Measured value is 12345.6x10000 =123456000kWh
	Less than 12kW ***** (kWh) No multiplying factor 1 2 3 4 5 6 K W h Measured value is 1234.56kWh	Less than 12kW $12kW \leq Full$ Load $\leq 120kW$ *****.** (kWh)*****.** (kWh)No multiplying factorNo multiplying factor12345••••1234••• <td>Less than 12kW12kW <math>\leq</math> Full Load <math>\leq</math>120kW120kW <math>\leq</math> Full Load <math>\leq</math>1200kW12kWLoad <math>\leq</math>120kWLoad <math>\leq</math>1200kW***** (kWh)***** (kWh)No multiplying factor1 2 3 4 5 6 <math>\leq</math> KW hMultiplying factor1 2 3 4 5 6 <math>\leq</math> KW hMeasured value is 1234.56kWhMeasured value is 1234.56kWh</td> <td>Less than 12kW12kW <math>\leq</math> Full Load <math>\leq</math>120kW120kW <math>\leq</math> Full Load <math>\leq</math>1200kW1200kW <math>\leq</math> Full Load <math>\leq</math>1200kW12kWLoad <math>\leq</math>120kW1200kW <math>\leq</math> Full Load <math>\leq</math>1200kW1200kW <math>\leq</math> Full Load <math>\leq</math>1200kW**</td> <td>Less than 12kW12kW <math>\leq</math> Full Load <math>\leq</math> 120kW120kW <math>\leq</math> Full Load <math>\leq</math> 1200kW1200kW <math>\leq</math> Full Load <math>\leq</math> 1200kW12000W <math>\leq</math> Full Load <math>\leq</math> 12000kW***** * ***** * ***** * ***** * ****** * ****** * ************************************</br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></td>	Less than 12kW12kW $\leq$ Full Load $\leq$ 120kW120kW $\leq$ Full Load $\leq$ 1200kW12kWLoad $\leq$ 120kWLoad $\leq$ 1200kW***** (kWh)***** (kWh)No multiplying factor1 2 3 4 5 6 $\leq$ KW hMultiplying factor1 2 3 4 5 6 $\leq$ KW hMeasured value is 1234.56kWhMeasured value is 1234.56kWh	Less than 12kW12kW $\leq$ Full Load $\leq$ 120kW120kW $\leq$ Full Load $\leq$ 1200kW1200kW $\leq$ Full Load $\leq$ 1200kW12kWLoad $\leq$ 120kW1200kW $\leq$ Full Load $\leq$ 1200kW1200kW $\leq$ Full Load $\leq$ 1200kW**	Less than 12kW12kW $\leq$ Full Load $\leq$ 120kW120kW $\leq$ Full Load $\leq$ 1200kW1200kW $\leq$ Full Load $\leq$ 1200kW12000W $\leq$ Full Load $\leq$ 12000kW***** * ***** * 

Present electric power (kW), Demand electric power (kW), Reactive electric power(kvar). Full load is present follow.

Full load	Less than 12kW	12kW≦ Full Load ≦120kW	120kW≦ Full Load ≦1200kW	1200kW≦ Full Load ≦12000kW	120000W≦ Full Load ≦120000kW	More than 120000kW
Display significant digits	**.*** (kW)	***.** (kW)	****.* (kW)	***** (kW)	*****x10 (kW)	*****x10 <sup>2</sup> (kW)
Screen example	No multiplying factor 1 2 3 4 5 k W Measured value is 12.345kW	No multiplying factor 1 2 3 4 5 k w Measured value is 123.45kW	No multiplying factor 1 2 3 4 5 k w Measured value is 1234.5kW	No multiplying factor 1 2 3 4 5 k w Measured value is 12345kW	Multiplying factor" 10" 1 2 3 4 5 x 10 k W Measured value is 12345x10 =1234500kW	Multiplying factor" $10^{2"}$ 1 2 3 4 5 x $10^2$ k W Measured value is 12345x100 =12345000kW

■Present current, Demand current, Effective value of harmonics current Showed in below table by the primary current setting.

Primary current	5A to 30A	40A to 300A	400A to 3000A	4000A to 30000A
Display significant digits	**.** (A)	***.* (A)	**** (A)	****0 (A)
	No multiplying	No multiplying	No multiplying	No multiplying
	factor	factor	factor	factor
Screen	▲ 1 2.3 4	▲ 1 2 3 4	▲ 1234	12340
example	R ▲	R ▲	R ▲	R A

■Present voltage, effective value of harmonics voltage Showed in below table by the setting of primary voltage

Primary voltage	110V to 220V	440V to 2200V	3300V to 110000V
Display significant digits	***.* (V)	**** (V)	****0 (V)
Screen example	No multiplying factor 2 1 9 4 R - s	No multiplying factor 2 1 9 4 R - S	No multiplying factor 1 1 2 3 0 R - S

### ■Frequency

Display significant digits	**.* (Hz)
Screen	No multiplying factor
example	▲ 6 0.2

#### ■Power factor

Display	* ***	
significant		
digits		
	No multiplying	
Screen	factor	
example	<sup>AG</sup> 0.975	
	c o s ¢	

Voltage sag Displayed fixed decimal point one digit regardless of the setting of primary voltage

Primary voltage	-
Display significant digits	***.* (V)
	No multiplying factor
Screen example	▲ 109.2 R-S Sag V

## ■Harmonics current and voltage distortion ∕ content rate

Display significant digits	***.* (%)
Screen	No multiplying factor
example	
example	100.0
	R A %

■Electric energy, Reactive energy

Calculated by the f	rame connected N	IDU breaker.	
MDU Breaker	Less than	More than	
A frame	250A frame	400A frame	
Display significant digits	*****.* (kWh)	*****.*x10(kWh)	
Screen example	No multiplying factor 1 2 3 4 5 6 K W h Measured value is 12345.6kWh	Multiplying factor"10" 1 2 3 4 5 6 • x 10 k W h Measured value is 12345.6x10 =123456kWh	

Decimal point position is fixed in below items.

Present electric power, Demand electric power, Reactive power

Display significant digits	****.* (kW)
	No multiplying factor
Screen	
example	1234.5

Present voltage value

Display significant digits	***.* (V)
	No multiplying factor
Screen example	▲ 219.4 <sub>R-S</sub> ▼

■Power factor

Display significant digits	* ***
Screen	No multiplying factor
example	<sup>LAG</sup> 0.975 ∝ ∘ ∗ ¢

significant digits	****.* (A)
0	No multiplying factor
example	▲ 1 2 3.4 <sup>R</sup> ▲

■Present current, Demand current, Effective value of harmonics current

■Frequency

Display

Display significant digits	**.* (Hz)
Screen example	No multiplying factor 6 0.2

■Distortion / content rate of harmonics current

Display significant digits	***.* (%)
Screen example	No multiplying factor 1 0 0.0 R A %

■Present leak current, Demand leak current, Present leak current contend harmonics, Demand leak current contend harmonics

Display significant digits	****.* (A)
	No multiplying factor
Screen example	▲ 10 <u>2.8</u> 1∘ mA
7.5.1 Transition of display

Transition to display in alarm mode.



Note 1: EMU2-BM1-B can't use alarm mode.

Note 2: EMU2-PM1-P model can monitoring upper/lower limit of voltage and current alarm. Display of upper /lower alarm of electric energy and power factor Is not displayed.

Note 3: Display of monitoring elements is not displayed in "alarm monitoring unexecuted" setting.

Note 4: Push the [CIRCUIT] key, and switch measure circuit and display when using more than 2 energy measure units in any display



Note 1: Display of monitoring elements is not displayed in "alarm monitoring unexecuted" setting.

Note 2: Screen of upper/lower limit alarm is not displayed when operation mode is harmonics detail mode.

Note 3: Push the CIRCUIT key, and switch measure circuit and display when using more than 2 energy measure units in any display.



Note 1: Voltage sag alarm is only worked in the EMU2-VS1-P models.

- Note 2: Alarm monitoring is not worked if voltage decrease rate is 0%. Items setup that voltage decrease rate is 0% In voltage sag alarm screen (upper figures (2)-(5)) is not displayed.
- Note 3: In voltage sag alarm screen A to D, phase can be switched and displayed like  $ightarrow 
  m R-S \Rightarrow S-T \Rightarrow T-R \neg$  in 1P3W, 3P3W.

Screen	Saraan	Key operation	ิท	Nete
Name	Screen	Key	Operation	Note
(1)	Alarm contact		Alarm display in the previous is	All upper/lower limit alarm conditions are
List of			displayed	confirmed in this screen.
alarm	conditions		Key operation is invalid	Condition of output of alarm is displayed at
conditions	Conditions		Key operation is invalid	upper left in EMU2-PM1-P models.
	🚽 Alarm Status 🛛 –	/PHASE	Key operation is invalid	
	ON A V W P F		Change measured circuit	Signs mean below.
		(SETUP)	Transition to the alarm setting mode	"—"Not alarm monitoring(impossible)
	Low. $\bigcirc \bigcirc \bigcirc \bigcirc$		Output of alarm contact point is turned	"o"…Alarm non-occurrence
		RESET/SET	to "OFF" when alarm is occurred	"•"Alarming or during latch
	Alarm occurred		(connected to EMU2-PM1-P)	
	condition	▲+▼	Iransition to the operate mode (displayed electric energy)	
(2)			Measured value in previous is	Latest date and value when upper limit
( <del>/</del> )	, Date of alarm		displayed	current alarm occurred of displayed
opper minit	occured	▼	Measured value in next is displayed	
01		+	Key operation is invalid	*Value is displayed in below when alarm
current	04/01 12:00	<u> </u>	Key operation is invalid	does not work once
alarm		(PHASE)	Key operation is invalid	<date></date>
	13493		Change measured circuit	
		(SETUP)	Output of alarm contact point is transit	<value></value>
			to "OEE" when elerm is ecourted	0A
	Value when	RESET/SET	(connected to FMU2-PM1-P)	Date is displayed/ because
	alarm worked		Transition to the operate mode	EMU2-PM1-P does not have clock
		▲+▼	(displayed electric energy)	function.
(3)			Measured value in previous is	Latest date and value when lower limit
Lower limit	Date of alarm		displayed	current alarm occurred of displayed.
of	occured		Measured value in next is displayed.	
current		<u>+</u>	Key operation is invalid	*Value is displayed in below when alarm
olorm	04/0112:00		Key operation is invalid	does not work once.
alaitti			Change measured circuit	<date></date>
		SETUP	Transition to the alarm setting mode	/:
	Low A		Output of alarm contact point is turned	<value></value>
		RESET/SET	to "OFF" when alarm is occurred	0A
	Value when		(connected to EMU2-PM1-P)	Date is displayed/:, because
	alarm worked	▲+▼	Transition to the operate mode	EMU2-PM1-P does not have clock
			(displayed electric energy)	function.
(4)	Date of alarm		Measured value in previous is displayed	Latest date and value when upper limit
Upper limit		▼	Measured value in next is displayed	voltage alarm occurred of displayed.
of		( <del>+</del> )	Key operation is invalid	*Value is displayed in below when clarm
voltage		Ξ	Key operation is invalid	doop not work onco
alarm	04/0112:00	(₽/PHASE)	Key operation is invalid	
	120100		Change measured circuit	
			Transition to the alarm setting mode	
	Upp.		Output of alarm contact point is turned	
		(RESET/SET)	(connected to EMI I2-PM1-P)	Date is displayed/ because
	Value when _		Transition to the operate mode	FMU2-PM1-P does not have clock
	alarm worked	▲+▼	(displayed electric energy)	function.
(5)	Date of alarm		Measured value in previous is	Latest date and value when lower limit
Lower limit	occured		Uispidyeu Measured value in novt is displayed	voltage alarm occurred of displayed.
of		 ∓	Key operation is invalid	
voltage		<u> </u>	Key operation is invalid	*Value is displayed in below when alarm
alarm	04/01 12:00	✓	Key operation is invalid	does not work once.
alam	0100		Change measured circuit	<date></date>
	9100	SETUP	Transition to the alarm setting mode	/
	Low. 🖊 🗸		Output of alarm contact point is turned	<value></value>
		RESET/SET	to "OFF" when alarm is occurred	
	Value when		(connected to EMU2-PM1-P)	Date is displayed/ , because
	alarm worked		Iransition to the operate mode	EMU2-PM1-P does not have clock
		[▲]+[▼]	(aispiayea electric energy)	function.

Screen	Screen	Key operatio	n	Note
name	blicen	Key	Operation	
(6) Upper	When max		Measured value in previous is displayed	Latest date and value when upper limit Electric power alarm occurred of displayed.
limit	measured		Measured value in next is	
alarm	Value when	+	Key operation is invalid	<ul> <li>Measured value is multiplied by the displayed</li> </ul>
of electric			Key operation is invalid	value and multiplying factor if multiplying factor
power	04/01 12:00	(✔/PHASE)	Key operation is invalid	is displayed.
	33856		Change measured circuit	*Value is displayed in below when alarm
	$U_{\rm DD}$ $\times 10^2$ k W	SETUP	mode	does not work once.
		RESET/SET	Key operation is invalid	<date></date>
	Multiplying		Transition to the operate mode	/ <u>:</u>
	factor		(displayed electric energy)	<value></value>
(7)			Measured value in previous is	Latest date and value when lower limit
Lower			displayed Measured value in port is	Electric power alarm occurred of
limit	Date of alarm		displayed	displayed.
alarm		+	Key operation is invalid	Macoured value is multiplied by the displayed
of	04/0112:00		Key operation is invalid	value and multiplying factor if multiplying factor
electric	4452		Key operation is invalid	is displayed.
power			Transition to the alarm setting	·Value is displayed in below when alarm
	Low. X IU- K W	SETUP	mode	does not work once.
	Multiplying factor	RESET/SET	Key operation is invalid	<date></date>
		▲+▼	I ransition to the operate mode	/ <u>-</u>
	alarm is worked		(displayed electric energy)	
(8)			Measured value in previous is	Latest date and value when upper limit
Upper			displayed Measured value in next is	power factor alarm occurred of displayed.
limit	Date of alarm		displayed	Time when measured may and min is diaplayed
alarm		+	Key operation is invalid	MM/DD hh:mm.
of			Key operation is invalid	·Value is displayed in below when alarm
power			Change measured circuit	does not work once.
factor	<sup>LAU</sup> 0.8 9 1		Transition to the alarm setting	<date></date>
		(SETUP)	mode	/ <u>-</u>
	Value when	RESET/SET	Key operation is invalid	<value></value>
	alarm is worked	▲+▼	(displayed electric energy)	1.000
	Display delay			
	and progress			
(0)			Measured value in previous is	Latest data and value when lower limit
(9)			displayed	power factor alarm occurred of displayed
limit			Measured value in next is	
alarm	Data of alarm occurred		displayed	
of			Key operation is invalid	•Time when measured max and min is displayed
power	04/01 12:00	✓/PHASE	Key operation is invalid	MM/DD hh:mm.
factor	$\overline{0792}$	CIRCUIT	Change measured circuit	measured value
		SETUP	i ransition to the alarm setting	*Value is displayed in below when alarm
	Low. c o s ¢	RESET/SET	Key operation is invalid	does not work once.
	Display delay and		Transition to the operate mode	<date></date>
	progress	(▲)+(▼)	(displayed electric energy)	/:
				<value></value>
				1.000

Screen	Screen	Key operation		Noto	
name		Key	Operation	NOLE	
(10) Breaker alarm status	— <sup>‡</sup> Alarm Status – Breaker PAL OVER ECA EPAL		Alarm display in the previous is displayed Alarm display in the next is displayed Key operation is invalid Key operation is invalid Change measured circuit Transition to the alarm setting mode Key operation is invalid Transition to the operate mode (displayed electric energy)	All breakers alarm conditions are confirmed in this screen. •Alarm name is displayed when alarm occurred. •Nothing is displayed when not occurring.	
(11) Accident information of breaker	Fault current Trip - 4 5 0.8 EAL m A unit Cause of accident		Measured value in previous is displayed Measured value in next is displayed Key operation is invalid Key operation is invalid Change measured circuit Transition to the alarm setting mode Key operation is invalid Transition to the operate mode (displayed electric energy)	Latest breaker accident is displayed. Meaning of cause of accident is below. "LTD"Overload "S/I"Short circuit "AL"Overload or short circuit "EAL"Leakage Below is displayed when accident is not occurred. Cause of accident: not displayed Accident current: 0A	



## 7.6 Reset/Preset mode

#### 7.6.1 Reset the measured data.

1 Transition to the Reset/Preset mode				
Screen	Operation	Note		
[Reset/Set] Reset 2 Set	<ol> <li>Push the RESET/SET key in the Operation Mode.</li> <li>Rest / Preset menu will be displayed.</li> <li>In Reset / Preset menu screen, push the  or  key, and move the cursor to the "1 Data Reset".</li> <li>Push the  //PHASE key.</li> <li>Data Reset will be displayed.</li> </ol>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode. (screen of electric energy)		

2 Select the items you want to reset				
Screen	Operation	Note		
[Data Reset] □Max·Min □AL (Limit) □AL (Vsag) □Wh, varh □Logging □Braker AL □Trip	<ol> <li>Push the <u>CIRCUIT</u> key, and select the target circuit to reset. (LED of selected circuit is lighted.)</li> <li>Push the ▲ or ▼ key, and move the cursor to the target item to reset. (3 items are only displayed.)</li> <li>Push the ⊕ or ► key, and move the cursor to the checkbox. (if you push the ⊕ or ► key again, Non-checked item turned to checked)</li> <li>Repeat (2) and (3) operation and check in all check box want to reset.</li> <li>Repeat (1)-(4) operation when reset other circuits.</li> </ol>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode (screen of electric energy) *Logging is conduct only EMU2-D65-Mmodel.		

3 Conduct reset				
Screen	Operation	Note		
Do you really execute? OK Cancel	<ul> <li>(1) Push the  \u03c8/PHASE key after select all items you want to reset.</li> <li>(2) Confirmation reset screen will be displayed.</li> <li>(3) Push the  key, and move the cursor to the "OK" push  \u03c8/PHASE key.(Return to Data reset screen after push "Cancel" key.)</li> <li>(4) Reset is conducted after push the confirmation key.</li> </ul>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode (screen of electric energy)		
	<ul> <li>(5) Confirmation screen will be displayed. Push the <i>PHASE</i> key.</li> <li>(6) Return to the operation mode. (Screen of electric energy).</li> </ul>			

1 Transition to the Rese	t/Preset mode.	
Screen	Operation	Note
[Reset/Set] 1 Reset ☑ Set	<ul> <li>(1) Push the <u>RESET/SET</u> key in operation mode.</li> <li>(2) Reset /Preset menu will be displayed.</li> <li>(1) In Reset/Preset setting menu screen, push the ▲ or ▼ key, and move the cursor to the "2 DataPreset".</li> <li>(2) Push the <i>I</i>/PHASE key.</li> <li>(3) Data preset menu will be displayed.</li> </ul>	*If you want to cancel reset / preset, push the RESET/SET key, return to operation mode. (screen of electric energy)

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Screen	Operation	Note
[Set] 1 Wh 2 varh	<ul> <li>(1) In Data preset menu, push the <u>CIRCUIT</u> key, select the target circuit to reset. (LED of selected circuit is lighted.)</li> <li>(2) In data preset screen, push the  a or  key, and select the "1 Integral Wh value".</li> <li>(3) Push the <u>√PHASE</u> key.</li> <li>(4) Setup screen of integral Wh value will be displayed. (Present integral electric energy is displayed)</li> </ul>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode. (screen of electric energy)
[Wh] <b>1</b> 3541.8 × 10 <sup>3</sup> kWh	<ol> <li>Push the  or  key, and move the cursor to change the value of digit.</li> <li>Push the  or  key, and change the value.</li> <li>In similar way, setup all digits.</li> <li>After change the value, push the  or  key.</li> <li>Confirmation of preset will be displayed.</li> </ol>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode. (screen of electric energy)
Do you really execute?	<ol> <li>Push the key, and move the cursor to the "OK" and push the <i>PPASE</i> key.(Return to operation mode (electric energy screen), after select "Cancel".)</li> <li>Push the <i>PPASE</i> key, preset is conducted.</li> <li>Confirmation screen will be displayed. Push the <i>PPASE</i> key.</li> <li>Return to the operation mode.</li> </ol>	

3 Preset the reactive en	ergy value.	
Screen	Operation	Note
[Set] 1 Wh ⊉ varh	<ol> <li>Push the <u>CIRCUIT</u> key, and select the target circuit to reset. (LED of selected circuit is lighted.)</li> <li>In data preset screen, push the ▲ or ▼ key, and select the "2 integral varh value".</li> <li>Push the <u>P/PHASE</u> key.</li> <li>Setup screen integral varh will be displayed.(Present value of integral reactive electric power is displayed.</li> </ol>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode (screen of electric energy)
[varh] <b>5</b> 2371.9 × 10 <sup>3</sup> kvarh	<ol> <li>Push the ▲ or ▼ key, and move the cursor to the digit want to change.</li> <li>Push the ⊕ or</li></ol>	*If you want to cancel reset / preset, push the <u>RESET/SET</u> key, return to operation mode (screen of electric energy)
Do you really execute?	<ol> <li>Push the  key, and move the cursor to the "OK" and push the  <u>/PHASE</u> key. (Return to <u>operation</u> mode (electric energy screen), after select "Cancel".)</li> <li>Push the <u>/PHASE</u>, and preset is conducted.</li> <li>Confirmation screen will be displayed. Push the <u>/PHASE</u> key.</li> <li>Return to the operation mode.</li> </ol>	

# 8. Common items

In this section common item is showed regardless the connected models.

## 8.1 How to switch the language

1 Setting language			
Screen	Operation	Note	
1-1.	(1)Push the <u>CIRCUIT</u> key, and turn on in the key pushing, (2) 1-1 will be displayed.		
English	<ol> <li>Push the ▲ or ▼ key, and move the cursor to the language.</li> <li>Push the <i> PHASE</i> key.</li> <li>Version screen is displayed after a while, and transition to the operating mode.</li> </ol>		

## 9.1 In case you think the unit is in failure

If an abnormal sound, bad-smelling smoke, fever break out from this unit, switch it off promptly and don't use it. If you think the unit is in failure, check the following before sending for repair.

Symptom	Check point	Connect	ed models
		EMU4-**	EMU2-**
			MDU2-**
Nothing is displayed.	<ul> <li>Connector to energy measure unit is connected right?</li> <li>Power supply of energy measure unit is turned on?</li> <li>Power supply of display unit is turned on when display unit is prepared to the provide the provided to the p</li></ul>	0	0
	•Connection is right?		
"" is displayed as a measu	red •Master / Slave setting is wright?		
value.	Connected cable is disconnection?     Connection is right?     Power supply of energy measure unit is turned off?	0	0
The screen is	•Connector of energy measure unit right connected.		
displayed when turn on.	Connection is right?     Connected cable is disconnection?	0	0
Lingupported	•Not corresponding to display unit machine is connected.		
terminal	Confirm the version of display unit and machine that corresponding.	0	0
Below error is displayed when transit	to •Energy measure unit is in Busy. Push the <i>•/PHASE</i> key, and escape the error		
mode.	display. Same operation is conduct after push the		
* Error *		0	0
Error No:01		Ŭ	Ŭ
OK			
Error number "00261" is displayed in	Communication instrument is short circuit or not connected right.		
operation mode.	tightening screw and terminal screw is loose.	0	0
Error number "00262" is displayed in	Communication is crowded. Return from abnormal automatically after	0	0
operation mode.	a while. Please contact to sales outlet when many times.	0	0
operation mode.	MITSUBISHI electric service or sales outlet. (Tell the error number when contact)	0	0
Error number "00264" or "00265" is	<b net="" transmission=""></b>		
displayed in operation mode.	<ul> <li>Confirm below 3 points.</li> <li>Power supply of B/NET transmission is turned OFF?</li> <li>B/NET transmission line is disconnection?</li> <li>Transmission line is connected right? (Confirm signal mark D, N, S and B/NET transmission connector and screw is loose.)</li> <li><cc-i communication="" ink=""></cc-i></li> </ul>	0	0
	<ul> <li>Confirm below 2 points</li> <li>CC-Link communication line is disconnection</li> <li>Transmission line is connected right? (Confirm signal mark DA, DB, DG, SLD and CC-Link Communication connector and tightening screw and terminal screw are loose.)</li> </ul>		
Error number "00266" or "00912" is displayed in operation mode.	Communication between Energy measuring unit and Option unit is failed. Please reset Energy measuring unit.	0	_
Error number "00281" is displayed in operation mode.	Address duplicate with other devices. Confirm all address of energy measure unit and connected device.	0	0
Error number "00901" is displayed in operation mode.	Light protect switch of SD memory card in logging unit is ON. Turn the light protect switch to OFF.	0	_
Error number "00902" is displayed in operation mode.	Logging element that energy measure unit can't measure is set. Setup logging conditions again.	0	_
Error number "00903" or "00904" is displayed in operation mode.	Turn on the auxiliary power again.	0	
Error number "00905" is displayed in operation mode.	Setup the present time again.	0	_
Error number "00907" is displayed in operation mode.	There is a possibility that setup data file for logging is wrong or out of range of the data. Confirm the contents of setup data file again.	0	_
Turn off f the back light.	If back light is setup automatic turning-off, light is automatically turned off in 5 minutes.	0	0

#### 9.2 After-sales service

If you have any questions or the product is broken down, contact our sales representative near you. (For details, refer to the end of this manual.)

- Gratis warranty is effective until the earlier of 1 year after the date of your purchase or 18 months after manufacturing.
- The gratis warranty shall apply if the product fails even though it is being used properly in the conditions, with the methods and under the environments in accordance with the terms and precautions described in the catalogs, the instruction manual, caution label on the product, etc.
  - Repair shall be charged for the following cases even during the gratis warranty period.
    - Failures occurring due to your improper storage or handling, carelessness or fault.
    - Failures due to faulty workmanship
    - Failures due to faults in use and undue modification
    - Failures due to accidental force such as a fire, abnormal voltage, etc. and force majeure such as an earthquake, wind, flood, etc.
    - Failures due to matters unpredictable based on the level of science technology at the time of product.
- 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

### 10. Requirement for the compliance with EMC Directives

EMC Directives prescribe both "Emission (electromagnetic interference): Do not radiate strong electromagnetic waves outside" and "Immunity (electromagnetic susceptibility): Do not be influenced by electromagnetic waves from outside".

This section compiles the precautions for the compliance of the system incorporating the energy measuring unit (target model: EMU4-D65) with the EMC Directives. The manufacturer of the system finally needs to evaluate the way of the compliance with EMC Directives and whether the system complies with them or not.

#### (1)Harmonized standard for EMC Directives: EN61326-1:2013

(a)Compatibility condition for harmonized standard

The energy measuring unit is the open type device (i.e. the device incorporated in other device), and needs to be installed in the conductive control panel. The unit is tested with installed in the control panel for the emission and the immunity out of the test items for the standard.

(2)Recommended condition for installation in the control panel

(a)Control panel

- Control panel needs to have conducting property.
- When bolting the top panel, bottom panel etc. of the control panel, mask the grounding part of the panel so as not to be painted.
- In inner panel, keep the conductivity in as large area as possible by masking the bolting part to the main panel to keep the electric contact to main panel.
- Ground the main panel by the thick wire so as to keep high impedance even for high-frequency wave.

(b)Installation of power line and ground line

• Set up the ground point to the control panel near the energy measuring unit, and ground the frame GND terminal of the unit to the ground terminal of the control panel (PE) by as thick and short wires as possible. (wire length is 300mm or shorter)

#### (3)Cable

(a)Auxiliary power, Input voltage, CC-Link cable, MODBUS cable, Small display unit cable

When it is necessary to comply with the EMC Directive (EN-61326-1), attach ferrite cores to each cable. Ferrite cores used in our testing is below.

- Auxiliary power
  - KITAGAWA INDUSTRIES CO., LTD., RFC series KITAGAWA INDUSTRIES CO., LTD., TRM series
- Input voltage KITAGAWA INDUSTRIES CO., LTD., RFC series
- CC-Link cable, MODBUS cable
- KITAGAWA INDUSTRIES CO., LTD., RFC series
- Small display unit cable

KITAGAWA INDUSTRIES CO., LTD., RFC series

(b)External input signal line, External output signal line

Wiring of each connection wire should satisfy the following conditions.

- For wiring inside buildings, the wiring length should not exceed 30 m.
- Do not route wiring from the inside of the building to the outside of the building.

## 11.1 Specifications

Item			Specification	
Product name			Display unit	
Model name			EMU4-D65	
Display part			Dot matrix Liquid Crystal Display (with backlight)	
Rating			9V DC	
Math			0.1kg	
Display update cycle			500ms	
Compensation (1)Position of display			(1) Record in nonvolatile memory. (Memory cycle is every 10 minutes (EcoMonitorPro,	
for power	(Opera	ation mode)	MDU2), every screen transition (EcoMonitorPlus))	
failure	(2)Setup	for display	(2) Record in nonvolatile memory. (It is memorized when the setting is changed.)	
	(LCD	contrast,	*Data in left table and setup value is not deleted in power outage.	
	back	c light)	*If power outage is occurred while saving setting, display setup value may return to	
			initial when power is recovered.	
			(LCD contrast is "4", Back light is "continuous lighting")	
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*	
			*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.	
Maximum extension distance			10m (However, the sum of the length of the extension cable that was connected to a	
		1	single unit)	
Usage environm	nent	Operating	-5°C to +55°C (Daily average temperature is +35°C or lower)	
		temperature		
		Operating	30% to 85%Rh (No condensation)	
		humidity		
		Storage	-10°C to +60°C	
		temperature		
How to installation			IEC rail installation (You can install 2 directions)	
			Plate mounting	

# 12. Option devices

### 12.1 Option devices

Following devices can be available for this product.

Product name	Model		Note
Supply cable	EMU4-CB-DPS		It is required to connect DC power supply on the market and small display unit.
Cable of small display between the units (Connecting for between display units)	EMU2-CB1-DP	0.3m	It is required to connect the energy measure unit to more than 2 small display units.
Extension cable	EMU2-CB-T1M	1m	10m (However, the sum of the length of the extension cable
	EMU2-CB-T5M	5m	that was connected to a single unit)
	EMU2-CB-T10M	10m	

### 12.2 External dimensions of option devices







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# 13. External dimensions



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# Small type Display Unit for Energy Measuring Unit

Please refer to our website for service network. Our website address: https://www.mitsubishielectric.com/fa/



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