CO hans



FACTORY AUTOMATION

ELECTRONIC MULTI-MEASURING INSTRUMENT ME96SS





ME96 Super-S Series Super-Series Electronic Indicating Instruments functions and optional units

Highly appreciated ME96SS Series Electronic Multi-Measuring Instruments measuring functions and network capability has been released.

This new series has improved measuring accuracy; even the economy model MODBUS® TCP communication unit for Ethernet communication and logging will be helpful in realizing more effective measurement monitoring systems

1 ME96SSEA-MB (economy model)

Major features

- [1] Active energy measuring accuracy of class 0.5S
- [2] Applicable to harmonics (THD)
- [3] Applicable to current demand

2 ME96SSRA-MB (standard model)

Major features

- [1] Active energy measuring accuracy of class 0.5S
- [2] Applicable to harmonics of ±1.0% (19th)
- [3] Applicable to demands A and W,var,VA
- [4] Optional units can be added.

③ ME96SSHA-MB (high-performance model)

Major features

- [1] Active energy measuring accuracy of class 0.5S
- [2] Applicable to harmonics of ±1.0% (31st)
- [3] Applicable to demands A and W,var,VA
- [4] Optional units can be added.

with enhanced measuring

have been remodeled, and ME96 Super-S Series 55 with enhanced

has an active energy measuring accuracy corresponding to Class 0.5S. The unit for enhanced data backup can be added to the models. The new series and energy-saving measurement monitoring.

4 Optional plug-in modules

Major features

- [1] MODBUS[®] TCP communication unit **NEW**
- [2] Data logging unit NEW
- [3] CC-Link communication unit
- [4] Digital input and output unit
- [5] Analog, pulse and alarm output unit

Remarks

MODBUS® RTU communication function provided as standard

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Outline and Features

Improved Measurement Functions

Improved accuracy of active energy, reactive energy and power factor and expanded measurement ranges of harmonics and demand values have been realized.



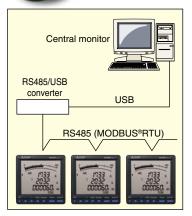
| Model name | Transmission/Option specifications | Main measurement items |
|---|---|--|
| ME96SSHA-MB (High-performance class) | MODBUS® RTU communication Plug-in module (options) • Analog/Pulse/Contact output/input • CC-Link communication • Digital input/output (for MODBUS® RTU communication) • Backup (on SD card) • MODBUS® TCP communication | A, DA, V, Hz = $\pm 0.1\%$ W, var, VA, PF = $\pm 0.2\%$ Wh = class 0.5S (IEC62053-22) varh = class 1S (IEC62053-24) Harmonics = 31^{st} -deg (max) Rolling demand = W, var, VA |
| ME96SSRA-MB (Standard class) | MODBUS® RTU communication Plug-in module (options) • Analog/Pulse/Contact output/input • CC-Link communication • Digital input/output (for MODBUS® RTU communication) • Backup (on SD card) • MODBUS® TCP communication | A, DA, V = $\pm 0.2\%$ Hz = $\pm 0.1\%$ W, var, VA, PF = $\pm 0.5\%$ Wh = class 0.5S (IEC62053-22) varh = class 1S (IEC62053-24) Harmonics = 19^{m} -deg (max) Rolling demand = W, var, VA |
| ME96SSEA-MB (Economy class) | MODBUS® RTU communication | A, DA, V = $\pm 0.5\%$ Hz = $\pm 0.2\%$ W, PF = $\pm 0.5\%$ Wh = class 0.5S (IEC62053-22) Harmonics = Only total |

Optional Plug-in Modules

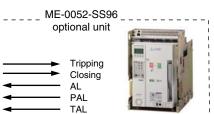
| Model name | Analog output | Pulse/Alarm output | Contact input | Contact output | Transmission function | Used with |
|----------------|---------------|--------------------|---------------|----------------|-----------------------|-------------|
| ME-4210-SS96 | 4 | 2 | 1 | — | _ | |
| ME-0040C-SS96 | — | — | 4 | _ | CC-Link | ME96SSHA-MB |
| ME-0052-SS96 | — | — | 5 | 2 | — | ME96SSRA-MB |
| ME-0000BU-SS96 | — | — | — | — | SD CARD | ME9035RA-MD |
| ME-0000MT-SS96 | — | — | — | — | MODBUS® TCP | |

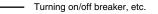
Note: Optional Plug-in Module can not be used with ME96SSEA-MB.

MODBUS® RTU System (ME96SSHA-MB/ME96SSRA-MB with ME-0052-SS96 (optional plug-in module))



- MODBUS® RTU communication system optimizes computer monitoring operations
 Attachment of ME-0052-SS96 (optional) enables remote monitoring of the contact input signal
- Attachment of ME-0032-3396 (optional) enables remote monitoring of the contact input signal and on/off control of the contact output signal
 Digital input signals can be latched for over 30ms, and there is no need for external latch circuits



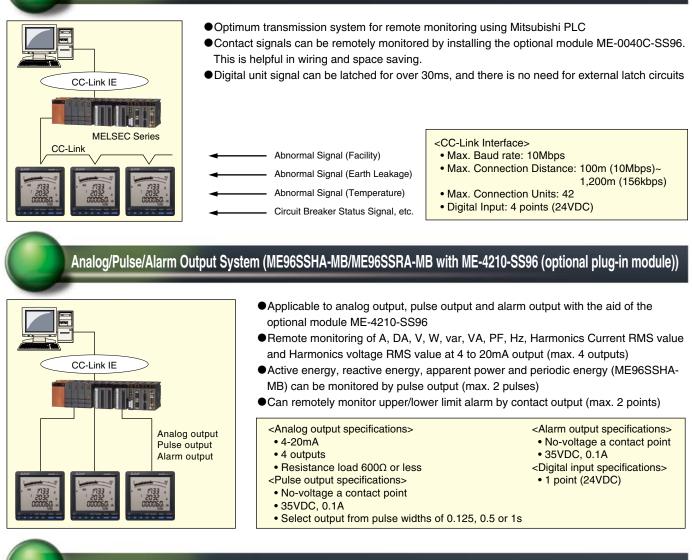


- <MODBUS® RTU Interface Specifications>
- Max. Baud rate: 38.4kbps
- Max. Connection Distance: 1,200m
- Max. Connection Units: 31
- <Optional Plug-in Module ME-0052-SS96>
- Digital Input: 5 points (24VDC)
- Digital Output: 2 points (35VDC)

ME96 Super-S Series Ve

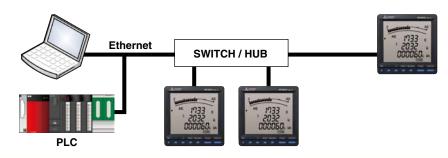


CC-Link System (ME96SSHA-MB/ME96SSRA-MB with ME-0040C-SS96 (optional plug-in module))



MODBUS® TCP Communication (ME96SSHA-MB/ME96SSRA-MB with ME-0000MT-SS96 (optional plug-in module))

 There is available an optional module usable not only for the conventional MODBUS[®] RTU (RS-485) communication and CC-Link communication, but also for MODBUS[®] TCP communication in an Ethernet environment.



Data Logging (ME96SSHA-MB/ME96SSRA-MB with ME-0000BU-SS96 (optional plug-in module))

• There is available an optional module which can retain data even when communication cannot be established.



Data in more than one logging unit can be managed with one SD memory card.

Note: Use the SD memory card (EMU4-SD2GB) made by Mitsubishi Electric.

Use of any memory card other than our product (EMU4-SD2GB) is not covered by the warranty.

ME96 Super-S Series Ver.A Features



Succeeded Display Functions

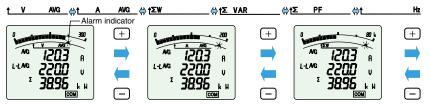
Large Bar Graph Display Special

Bar Graph Display

Each measuring items can be displayed by a bar graph. With bar graph display, one can grasps the rated value and percentage against the alarm value instantly.

(1) Bar Graph Fixed Display

Measuring items can be displayed by bar graph. The f mark indicates that display is fixed. Furthermore, the f and \bigcirc buttons can be used to change the display between items measured.



Note: Alarm indicator blinks when it is set on alarm mode.

(2) Digital Values Display by Bar Graph

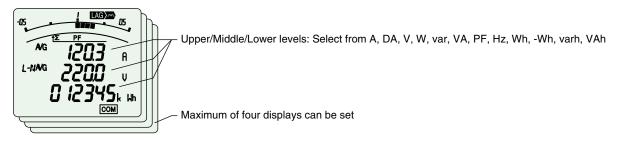
Values on the tri-level digital display can be shown by bar graphs (Except when the tri-level display is measuring the same items). Bar graph shows the digital value of



Special Display Function

Special Display by Display Pattern P00

Display can be selected as desired Display Pattern P00.



Max/Min Display Function

Maximum/Minimum Value Display

The maximum and minimum value of each measuring items can be displayed. Since the max/min display shows the current value as well as max/min values, the display can be used for monitoring. Also, range of minimum value to maximum value is shown by bar graph.



High-brightness Backlight

- High-reliability and high-brightness backlight is built in
- Backlight brightness can be adjusted from level 1 to 5 (default setting is 3)
- "Always-on mode" or "Automatic off mode" can be selected (default setting is automatic off mode)





ME96NS Series

ME96SS Series 🔙

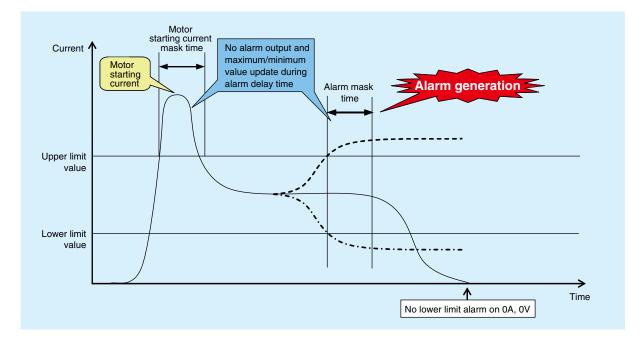
Impressive Monitoring Functions

Advanced Alarm Display

- (1) A function to blink the backlight upon occurrence of an alarm is provided. On the conventional models, the display was lit up upon occurrence of an alarm. The new product has a setting function to blink
- (2) As with the conventional models, the automatic or manual alarm cancel mode can be selected.
- (3) As with the conventional models, up to four points of upper and lower limits can be monitored.
- (4) The alarm output delay time (alarm mask time) can be set.

Time of alarm output after the maximum value and minimum value is reached can be set. With this function, alarm output caused by frequency change at start-up current of a motor and start-up of private power generating facility can be avoided.



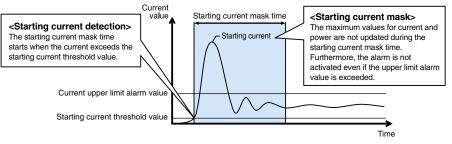


Motor Starting Current Mask Function

The use of the motor starting current mask function for monitoring the motor current can prevent updating of the maximum value and alarm output caused by the motor starting current.

Although the maximum value is not updated, the current value is displayed.

The starting current mask time can be set in the range from 1s to 5min.



Note: Set the starting current threshold to a value lower than the lower limit value in consideration of fluctuations in load current during operation.

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ME96 Super-S Series Ver.A Features

Variety of Complementary Features

Password Function

With the password function, the following items can be protected from an accidental execution.

| No. | Password-protected item | No. | Password-protected item |
|-----|---|-----|---|
| 1 | Shift to the setting mode | 5 | Adjust the time limit of rolling demand |
| 2 | Reset the max./min. values | 6 | Reset the peak value of rolling demand |
| 3 | Reset the value of active energy, reactive energy and apparent energy | 7 | Reset the value of operating time |
| 4 | Reset the value of periodic active energy | | |

Special Primary Voltage/Current and Special Secondary Voltage are settable

(1) Special primary current

1A~30kA

Under 10A: Top two digits setting
Over 10A: Top three digits setting



(2) Special primary voltage

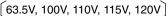
60V~750kV Under 100V: Top two digits setting

Over 100V: Top three digits setting



(3) Special secondary voltage

Three phase 4-wire system





Three phase 3-wire, Single phase 2-wire system (100V, 110V, 220V)

Periodic Monitoring Function

Power consumption can be measured in two individual intervals (e.g., peak/off-peak, day/night, etc.).

The time segments can be switched according to the setting via communication or the digital input (DI).

(The time segments cannot be switched manually (button operation).)





Power consumption (period 1)



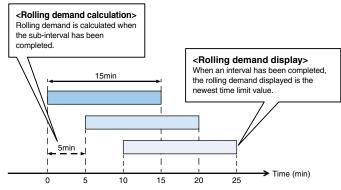
Power consumption (period 2)

Rolling demand is the estimated power consumption in a specified period (interval). For the block interval demand, select the duration (interval) of the block to be used for demand calculation.

1Rolling block

Use rolling block to set the interval and sub-intervals from 1~60min (1min intervals). Rolling demand is calculated and updated at the end of each sub-interval.

<Example: Interval, 15min; Sub-interval, 5min>

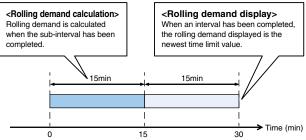


②Fixed block

Use fixed block to set the interval from 1~60min (1min intervals). Rolling demand is calculated and updated at the end of each interval.

(For fixed block, use the same time limits both of interval and sub-interval).

<Example: Interval, 15min; Sub-interval, 15min>





Test Function

- •A test function is provided to check the wiring for communication, alarm output/contact output, analog output and pulse output without input of voltage or current.
- •At the time of wiring test before shipment of the board and counter test for system validation on site, test signals can be output only by applying the auxiliary power.

Note: Depending on the optional unit and settings, the test function may not be available (may not be displayed).

(1) Communications Test

(1)Display

- The same as for the operating mode, display patterns and other data are shown as set.
- •Both maximum and minimum values can be displayed.
- ②Communication data
 - •Communication items and value are the same one on the display. The items value that are not displayed is 0 (zero).
 - •Measuring items set for alarm will be displayed at the time of an alarm.
 - Input/Output contact status can be monitored.

(2) Alarm/Contact Output Operation Test

①Displays current alarm and contact status.

2 Press the Reset button for 2sec, and regardless if there is an alarm or not, the display and contact output will operate as follows.

| Status | Display | Output terminal |
|----------|---------|-----------------|
| Alarm | ON | Open |
| No alarm | OFF | Closed |

(3) Analog Output Operation Test

| 1Display th | e output items. | |
|-------------|-----------------|--|
|-------------|-----------------|--|

| ①Display the output items. | | Output | Output specs |
|--|------------------|--------|--------------|
| 2Press the $(+)$ or $(-)$ button to change the | | Output | 4-20mA |
| analog output. | V | 0% | 4mA |
| analog oulput. | <u>0%</u> 25% | 25% | 8mA |
| Note: Default value is 0%. | 50% | 50% | 12mA |
| | 75% | 75% | 16mA |
| | 100% | 100% | 20mA |

(4) Pulse Output Operation Test

Press the Reset button one time to output one pulse.

Note: After reaching 50, count will return to 1.

$$\underbrace{0}{0} \rightarrow 1 \rightarrow 2 \rightarrow \cdots \rightarrow 49 \rightarrow 50 \text{ [pulse]}$$
Note: Default value is 0 pulses.

Standards

All products are compliant with CE Marking, UL Standards, KC mark and FCC/IC.









Specifications

ME96SSHA-MB

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| Model name | | | | ME96SSHA-MB | | |
|--|----------------|--|---------------------|---|--------------------------|--|
| Phase wire | | | | Three phase 4-wire, Three phase 3-wire (3CT, 2CT), Single phase 3-wire, Single phase 2-wire (common use) 5AAC, 1AAC (common use) Three phase 4-wire: 277/480VAC (max) Three phase 3-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) Single phase 3-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) Single phase 2-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) | | |
| | Rating Voltage | | | | | |
| | | | Frequency | 50-60Hz (common use) | | |
| | | | | Measurement items | Class | |
| | | Current (A) | | A1, A2, A3, AN, AAVG | ±0.1% | |
| | | Current demand (DA) | | DA1, DA2, DA3, DAN, DA _{AVG} | ±0.1% | |
| | | Voltage (V) | | V12, V23, V31, V _{AVG} (L-L) V1N, V2N, V3N, V _{AVG} (L-N) | ±0.1% | |
| | | Active power (W) | | W1, W2, W3, ΣW | ±0.2% | |
| | | Reactive power (var) | | var1, var2, var3, Σvar | ±0.2% | |
| | | Apparent power (VA) | | VA1, VA2, VA3, Σ VA | ±0.2% | |
| | | Power factor (PF) | | PF1, PF2, PF3, ΣPF | ±0.2% | |
| | | Frequency (Hz) | | Hz | ±0.1% | |
| | rement | Active energy (Wh) | | Imported, Exported | class 0.5S (IEC62053-22) | |
| items and accuracy | | Reactive energy (varh |) | Imported lead, lag Exported lead, lag | class 1S (IEC62053-24) | |
| | | Apparent energy (Vah |) | _ | ±2.0% | |
| | | Harmonic current (HI) | | Total, 1 st to 31 st degree (odd number degree only) | ±1.0% | |
| | | Harmonic voltage (HV) | | Total, 1 st to 31 st degree (odd number degree only) | ±1.0% | |
| | | Rolling demand (DW) | | Rolling block, fixed block | ±0.2% | |
| | | Rolling demand, reactive power (Dvar) | | Rolling block, fixed block | ±1.0% | |
| | | Rolling demand, apparent power (DVA) | | Rolling block, fixed block | ±1.0% | |
| | | Periodic Active energy (Wh) | | Periodic active energy 1, 2 | class 0.5S (IEC62053-22) | |
| | | Operating time | | Operating time 1, 2 | (Reference) | |
| | | Analog output response | se time | 2s or less (HI, HV: 10s or less) A/V: RMS calculation, W/ var/ VA/ Wh/ varh/ VAh: Digital multiplication, PF: Power ratio calculation, Hz: Zero-cross, HI/HV: FFT | | |
| | Measu | ring method | Instantaneous value | | | |
| | modou | ing motiou | Demand value | DA: Thermal type calculation DW, Dvar, DVA: Rolling demand calculation | | |
| | | Indicator | | LCD with LED backlight | | |
| | | | | 6 digits each at upper, middle, and lower line | | |
| Display | | lisplay digits Digital display | | A, DA, V, W, var, VA, PF, DW, Dvar, DVA: 4 digits Hz: 3 digits Wh, varh, VAh: 9 digits (6 or 12 possible) Harmonic distortion ratio, content ratio: 3 digits Harmonic RMS: 4 digits Operating time: 6 digits Contact input/output: I/O | | |
| | | | Bar graph | 21 segment bar graph, 22 segment indicator | | |
| | | Display updating | time interval | 0.5s or 1s (selectable) | | |
| | | Communicatio | n | MODBUS® RTU communication | | |
| | | Available optional plug- | in module | ME-4210-SS96 ME-0000BU-SS96 ME-0040C-SS96 ME-0000MT-SS96 ME-0052-SS96 | | |
| Power failure compensation | | | nsation | Non-volatile memory used (items: setting value, max/min value, active/reactive energy, apparent energy, periodic active energy, rolling demand, operating time) | | |
| Const | motion | VT | | Each phase 0.1VA (110VAC), 0.2VA (220VAC), 0.4VA (440VAC) | | |
| | mption /A) | СТ | | Each phase 0.1VA (5AAC) | | |
| Auxiliary power circuit | | 7VA (at 110VAC), 8VA (at 220VAC), 5W (at 100VDC) | | | | |
| Auxiliary power Weight Dimensions Installation method | | | r | 100-240VAC (±15%), 100-240VDC (-30% +15% | 6) | |
| | | | | 0.5kg | | |
| | | | | 96 (H) × 96 (W) × 90 (D) | | |
| | | | od | Embedded | | |
| Operating temperature Operating humidity | | | | -5~+55°C (average operating temperature: 35°C | C or less per day) | |
| | | | | 0~85% RH (non condensing) | | |
| | | Storage tempera | ture | -25~+75°C (average temperature: 35°C or less per day) | | |
| | | Storage humidi | ty | 0~85% RH (non condensing) | | |

Notes 1. Class values based on 100% of rated value. Notes 2. Harmonic measurements where distortion ratio (content rate) is 100% or more may exceed ±1.0%. Notes 3. Harmonic current cannot be measured without voltage input.





ME96SSRA-MB

| Model name | | | | ME96SSRA-MB | | |
|--|-----------------------|--|---|--|----------------------------|--|
| Phase wire | | | | Three phase 4-wire, Three phase 3-wire (3CT, 2CT), Single phase 3-wire, Single phase 2-wire (common use) | | |
| | Current Voltage | | 5AAC, 1AAC (common use) Three phase 4-wire: 277/480VAC (max) Three phase 3-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) Single phase 3-wire: 220/440VAC (max) Single phase 2-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) | | | |
| | | | | | | |
| | | | Frequency | 50-60Hz (common use) | | |
| | | | | Measurement items | Class | |
| | | Current (A) | · | A1, A2, A3, AN, AAVG | ±0.2% | |
| | | Current demand (DA) | | DA1, DA2, DA3, DAN, DA _{AVG} | ±0.2% | |
| | | Voltage (V) | | V12, V23, V31, V _{AVG} (L-L) V1N, V2N, V3N, V _{AVG} (L-N) | ±0.2% | |
| | | Active power (W) | | W1, W2, W3, ΣW | ±0.5% | |
| | | Reactive power (var) | · | var1, var2, var3, Σvar | ±0.5% | |
| | | Apparent power (VA) | | VA1, VA2, VA3, Σ VA | ±0.5% | |
| | | Power factor (PF) | | PF1, PF2, PF3, Σ PF | ±0.5% | |
| | | Frequency (Hz) | | Hz | ±0.1% | |
| Measur | | Active energy (Wh) | | Imported, Exported | class 0.5S (IEC62053-22) | |
| items and accuracy | | Reactive energy (varh |)) | Imported lead, lag Exported lead, lag | class 1S (IEC62053-24) | |
| | | Apparent energy (Vah |) | — | ±2.0% | |
| | | Harmonic current (HI) | | Total, 1 st to 19 th degree (odd number degree only) | ±1.0% | |
| | | Harmonic voltage (HV) | | Total, 1 st to 19 th degree (odd number degree only) | ±1.0% | |
| | | Rolling demand (DW) | | Rolling block, fixed block | ±0.5% | |
| | | Rolling demand, reactive power (Dvar) | | Rolling block, fixed block | ±1.0% | |
| | | Rolling demand, apparent power (DVA) | | Rolling block, fixed block | ±1.0% | |
| | | Periodic Active energy (Wh) | | Periodic active energy 1, 2 | class 0.5S (IEC62053-22) | |
| | | Operating time | | Operating time 1, 2 | (Reference) | |
| | | Analog output respons | se time | 2s or less (HI, HV: 10s or less) | | |
| | Measu | ring method | Instantaneous value | A/V: RMS calculation, W/var/VA/Wh/varh: Digital multiplication, PF: Power ratio calculation, Hz: Zero-cross, HI/HV: FFT | | |
| | | · | Demand value | DA: Thermal type calculation DW, Dvar, DVA: | Rolling demand calculation | |
| | | Indicator | | LCD with LED backlight | | |
| | | | | 6 digits each at upper, middle, and lower line | | |
| Display | | isplay digits ts | Digital display | A, DA, V, W, var, VA, PF, DW, Dvar, DVA: 4 digit Wh, varh: 9 digits (6 or 12 possible) Harmonic distortion ratio, content ratio: 3 digits Operating time: 6 digits Contact input/output: I/ | Harmonic RMS: 4 digits | |
| | | | Bar graph | 21 segment bar graph, 22 segment indicator | | |
| | | Display updating | time interval | 0.5s or 1s (selectable) | | |
| | | Communicatio | n | MODBUS® RTU communication | | |
| | , | Available optional plug- | in module | ME-4210-SS96 ME-0000BU-SS96 ME-0040C-SS96 ME-0000MT-SS96 ME-0052-SS96 | | |
| | | Power failure compe | nsation | Non-volatile memory used (items: setting value, max/min value, active/reactive energy, apparent energy, periodic active energy, rolling demand, operating time) | | |
| | | νт | | Each phase 0.1VA (110VAC), 0.2VA (220VAC), 0.4VA (440VAC) | | |
| Consur (V/ | • | СТ | | Each phase 0.1VA (5AAC) | | |
| Auxiliary power circuit | | 7VA (at 110VAC), 8VA (at 220VAC), 5W (at 100VDC) | | | | |
| Auxiliary power Weight Dimensions Installation method | | | r | 100-240VAC (±15%), 100-240VDC (-30% +15%) | | |
| | | | | 0.5kg | | |
| | | | | 96 (H) × 96 (W) × 90 (D) | | |
| | | | od | Embedded | | |
| | Operating temperature | | | -5~+55°C (average operating temperature: 35°C or less per day) | | |
| | | | | 0~85% RH (non condensing) | | |
| | | Operating humic | dity | 0~85% RH (non condensing) | | |
| | | Operating humic Storage tempera | | 0~85% RH (non condensing) -25~+75°C (average temperature: 35°C or less 0~85% RH (non condensing) | per day) | |

Notes 1. Class values based on 100% of rated value. Notes 2. Harmonic measurements where distortion ratio (content rate) is 100% or more may exceed ±1.0%. Notes 3. Harmonic current cannot be measured without voltage input.

Specifications

ME96SSEA-MB

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| Model name | | | | ME96 | SSEA-MB | | |
|--|--------------------------------------|--|----------------------|---|--|--|--|
| Phase wire | | | | Three phase 4-wire, Three phase 3-wire (3CT, 2CT), Single phase 3-wire, Single phase 2-wire (common use) | | | |
| | | | Current | 5AAC, 1AAC (common use) | | | |
| Rating Voltage | | Three phase 4-wire: 277/480VAC (max) Three phase 3-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) Single phase 3-wire: 220/440VAC (max) Single phase 2-wire: Delta connections: 220VAC (max), Star connections: 440VAC (max) | | | | | |
| | Frequency | | 50-60Hz (common use) | | | | |
| | | | Measurement items | Class | | | |
| | | Current (A) | | A1, A2, A3, AN, AAVG | ±0.5% | | |
| | | Current demand (DA) | | DA1, DA2, DA3, DAN, DA _{AVG} | ±0.5% | | |
| | | Voltage (V) | | V12, V23, V31, V _{AVG} (L-L) V1N, V2N, V3N, V _{AVG} (L-N) | ±0.5% | | |
| | | Active power (W) | | W1, W2, W3, ΣW | ±0.5% | | |
| | | Reactive power (var) | | - | — | | |
| | | Apparent power (VA) | | - | — | | |
| | | Power factor (PF) | | PF1, PF2, PF3, ΣPF | ±0.5% | | |
| | | Frequency (Hz) | | Hz | ±0.2% | | |
| Measur items | | Active energy (Wh) | | Receiving | class 0.5S (IEC62053-22) | | |
| accui | | Reactive energy (varl | ן) | _ | _ | | |
| | | Apparent energy (Val | | _ | _ | | |
| | | Harmonic current (HI) | <u>.</u> | Total | ±2.0% | | |
| | | Harmonic voltage (H) | | Total | ±2.0% | | |
| | | Rolling demand (DW) | | _ | | | |
| | | Rolling demand, reactive power (Dvar) | | _ | | | |
| - - - | Rolling demand, apparent power (DVA) | | - | | | | |
| | Periodic Active energy (Wh) | | | | | | |
| | Operating time | | Operating time 1, 2 | (Reference) | | | |
| | | Analog output respon | se time | | (| | |
| | Measu | ring method | Instantaneous value | A/V: RMS calculation, W: Digital multiplication, PF: Power ratio calculation, Hz: Zero-cross, HI/HV: FFT | | | |
| | modou | ing mourou | Demand value | DA: Thermal type calculation | | | |
| | | Indica | tor | LCD with LED backlight | | | |
| ŀ | | | | 6 digits each at upper, middle, and lower line | | | |
| isplay | | isplay digits ts | Digital display | A, DA, V, W, PF: 4 digits Hz: 3 digits Wh: 9 digits (6 or 12 possible) Relative harm Harmonic RMS value: 4 digits Operating tim | | | |
| | | | Bar graph | 21 segment bar graph, 22 segment indicator | | | |
| | | Display updating | time interval | 0.5s or 1s (selectable) | 0.5s or 1s (selectable) | | |
| | | Communicatio | n | MODBUS [®] RTU communication | | | |
| | | Available optional plug | -in module | - | | | |
| | | Power failure compe | ensation | Non-volatile memory used (items: setting value | ue, max/min value, active energy, operating time | | |
| | | VT | | Each phase 0.1VA (110VAC), 0.2VA (220VAC | C), 0.4VA (440VAC) | | |
| Consur (VA | | СТ | | Each phase 0.1VA (5AAC) | | | |
| (*/ | 9 | Auxiliary power circui | t | 7VA (at 110VAC), 8VA (at 220VAC), 5W (at 100VDC) | | | |
| Auxiliary power Weight Dimensions | | | er | 100-240VAC (±15%), 100-240VDC (-30% +1 | 5%) | | |
| | | | | 0.5kg | | | |
| | | | | 96 (H) × 96 (W) × 90 (D) | | | |
| Installation method Operating temperature Operating humidity | | | | Embedded | | | |
| | | | | -5~+55°C (average operating temperature: 3 | 5°C or less per day) | | |
| | | | | 0~85%RH (non condensing) | | | |
| | | Storage tempera | ture | -25~+75°C (average temperature: 35°C or le | ss per day) | | |
| Storage temperature | | | ity | 0~85%RH (non condensing) | | | |

Notes 1. Class values based on 100% of rated value. Notes 2. Harmonic measurements where distortion ratio (content rate) is 100% or more may exceed ±2.0%.



Standards Compliance

| m | ssions | | | |
|----------|--|---|--|--|
| | Radiated Emission | EN61326-1/CISPR 11, FCC Part15 Subpart B Class A | | |
| | Conducted Emission | EN61326-1/CISPR 11, FCC Part15 Subpart B Class A | | |
| Ī | Harmonics Measurement | EN61000-3-2 | | |
| Ī | Flicker Meter Measurement | EN61000-3-3 | | |
| Immunity | | | | |
| ſ | Electrostatic discharge Immunity | EN61326-1/EN61000-4-2 | | |
| Ī | Radio Frequency Electromagnetic field Immunity | EN61326-1/EN61000-4-3 | | |
| Ī | Electrical Fast Transient/Burst Immunity | EN61326-1/EN61000-4-4 | | |
| ſ | Surge Immunity | EN61326-1/EN61000-4-5 | | |
| Ī | Conducted Disturbances, Induced By Radio Frequency Fields Immunity | EN61326-1/EN61000-4-6 | | |
| ſ | Power Frequency Magnetic Field Immunity | EN61326-1/EN61000-4-8 | | |
| Ī | Voltage Dips and Short Interruptions | EN61326-1/EN61000-4-11 | | |

| Salety | | | | | |
|--------|--|-----------------------|------------------------------------|--|--|
| | | Europe | CE, as per EN61010-1 | | |
| | | U.S. and Canada | cRUus as per UL61010-1, IEC61010-1 | | |
| | | Installation Category | | | |
| | | Measuring Category | III | | |
| | | Pollution Degree | 2 | | |

MODBUS[®] RTU Communication Specifications

| Specification |
|--|
| RS-485 2-wire half-duplex transmission |
| RTU (binary data transfer) |
| Asynchronous |
| Multi-point bus |
| 2400, 4800, 9600, 19200, 38400bps |
| 8 |
| 1, 2 |
| ODD, EVEN, NONE |
| 1 to 255 (0: for broadcast mode) |
| 1,200m (max) |
| 31 units |
| 120Ω 1/2W |
| Shielded twisted-pair AWG24 to 14 |
| |

For more information on data, please refer to the following document. Electronic Multi-Measuring Instrument ME series MODBUS[®] Interface specifications...LMS-0492

CC-Link Communication Specifications

| Item | Specification |
|--|--|
| No. of occupied stations | 1 Station Remote device station |
| CC-Link version | CC-Link Ver 1.10 / Ver 2.00 |
| Baud rate | 10Mbps / 5Mbps / 2.5Mbps / 625kbps / 156kbps |
| Transmission method | Broadcast polling system |
| Synchronous method | Frame synchronous system |
| Encoding method | NRZI |
| Transmission path format | Bus format (EIA RS485) |
| Transmission format | HDLC |
| Error control system | CRC (X ¹⁶ + X ¹² + X ⁵ + 1) |
| Number of connectable units | 42 units (max, remote device station) |
| Remote station numbers (station numbers) | 1 to 64 |

■ For CC-Link connection cables, please use the dedicated cables.

For information regarding dedicated cables, please refer to the CC-Link Partner Product Catalog published by the CC-Link Partner Association or CC-Link Partner Product Information on the CC-Link Partner Association website (http://www.cc-link.org). Notes 1. Dedicated CC-Link cables compatible with Ver. 1.00 cannot be used in tandem with dedicated CC-Link high-performance cables compatible with Ver. 1.00.

Notes 1: Decidates Contractioner with Ver. 1.00 cannot be used in traindern with decidated CC-Link high-performance cables compatible with Ver. 1.00.
 Notes 2: In the case of systems consisting of units compatible with Ver. 1.00, 1.10 or 2.00 used in tandem with Ver. 1.00 or 1.10 cables, Ver. 1.00 specifications will apply for the maximum total cable length and length of cables between stations.
 Notes 3: For terminal resistance, be sure to use 110 Ω ±5% (1/2W product) when using dedicated CC-Link cables or 130 Ω ±5% (1/2W product) when using dedicated CC-Link high-performance cables.

 For more information on data, please refer to the following document.
 Electronic Multi-Measuring Instrument programming manual (CC-Link).....LEN0803
 Electronic Multi-Measuring Instrument programming manual (CC-Link)(For ver. 2 remote device station)...LEN130391LEN080334

Input/Output Specifications

| Item | Specification | Optional Plug-in Module type |
|--------------------|--|---|
| Analog output | 4-20mA (0~600 Ω) | ME-4210-SS96 |
| Pulse/Alarm output | No-voltage "a" contact Capacity: 35VDC, 0.1A | ME-4210-SS96 |
| Digital input | 19-30VDC 7mA or less | ME-4210-SS96, ME-0040C-SS96, ME-0052-SS96 |
| Digital output | No-voltage a contact Capacity: 35VDC, 0.2A | ME-0052-SS96 |

Specifications

MODBUS[®] TCP Communication Specifications

| Item | | Specification | | | | | | | |
|-----------------------|--------------------|--|--|--|--|--|--|--|--|
| Interface | | port (10BASE-T/100BASE-TX) | | | | | | | |
| Transmission method | | Base band | | | | | | | |
| Number of stages conr | nected in cascade | Max. 4 stages (10BASE-T), max. 2 stages (100BASE-TX) (when repeater hub is used) | | | | | | | |
| Max. distance betwee | n nodes | 200m | | | | | | | |
| Max. segment length | | 100m | | | | | | | |
| Connector applicable | to external wiring | 45 | | | | | | | |
| Cable | 10BASE-T | Cable meeting IEEE802.3 10BASE-T standard (Unshielded twisted pair cable (UTP cable), category 3 or higher) | | | | | | | |
| Cable | 100BASE-TX | Cable meeting IEEE802.3 100BASE-TX standard (Shielded twisted pair cable (STP cable), category 5 or higher) | | | | | | | |
| Protocol | | MODBUS® TCP (port No.502) | | | | | | | |
| Max. number of conne | ections | 4 | | | | | | | |
| Support functions | | Auto-negotiation function (automatic recognition of 10BASE-T/100BASE-TX) Auto-MDIX function (automatic recognition of straight cable/cross cable) | | | | | | | |

For more information on data, please refer to the following document. Electronic Multi-Measuring Instrument ME series MODBUS[®] Interface specifications...LMS-0492

Logging Specifications

| | Item | | Specification | | | | | | | | |
|-----------------------------------|-------------|---------------------------------|--|--|--|--|--|--|--|--|--|
| Logging mod | de | | Automatic updating by overwriting (not provided with a function to automatically start according to the start time setting) | | | | | | | | |
| Kinds of logg | | Detailed data | Measurement data is stored at the specified "detailed data logging interval" (1 min, 5 min, 10 min, 15 min or 30 min). Note: The data will be output as a detailed data file. Note: As the integrated values, not the difference values, but the values displayed on the multi indicating instrument will be output. | | | | | | | | |
| data | | 1-hour data | Measurement data is stored at a one-hour interval. Note: The data will be output as a one-hour data file or a one-day data file. Note: As the integrated values, not the difference values, but the values displayed on the multi indicating instrument will be output. | | | | | | | | |
| Number of lo | ogging | Detailed data | Max. 6 elements | | | | | | | | |
| elements | | 1-hour data | Max. 6 elements | | | | | | | | |
| Internal memory logging period | | Detailed data | etailed data logging interval: 1 min for 2 days etailed data logging interval: 5 min for 10 days etailed data logging interval: 10 min for 20 days etailed data logging interval: 15 min for 30 days etailed data logging interval: 30 min for 60 days | | | | | | | | |
| | | 1-hour data | 400 days (about 13 months) | | | | | | | | |
| SD memory | card (2GB |) logging period | 10 years or more | | | | | | | | |
| System log of | data | | 1200 records | | | | | | | | |
| Logging data format | a / system | log data output | CSV format (ASCII code) | | | | | | | | |
| Power failure | e compens | sation | Backup by built-in lithium battery Total power interruption backup time: 5 years (at daily average temperature of 35°C or less) (The life of the lithium battery is 10 years (at a daily average temperature of 35°C or less).) The battery cannot be replaced by the customer. Please consider updating the module. | | | | | | | | |
| | | ogging elements data logging | Stored in FRAM (non-volatile memory) Note: The data will not be deleted even if power interruption is caused by battery voltage drop (BAT. LED is on). | | | | | | | | |
| Logging | data and s | ystem log data | Stored in SRAM (volatile memory) Note: The data will be deleted if power interruption is caused by battery voltage drop (BAT. LED is on). | | | | | | | | |
| Clock ope | eration | | Note: The clock operation will stop if power interruption is caused by battery voltage drop (BAT. LED is on). After power restoration, the clock operation will start from 00:00 on Jan. 1, 2016. | | | | | | | | |
| Clock accura | | | 1 min / month | | | | | | | | |
| Output data | | edium | SD memory card (SD or SDHC) | | | | | | | | |
| Optional acc | cessory | | SD memory card (EMU4-SD2GB) ^{*1} | | | | | | | | |
| *1. Use the SI | D momony or | ard (EMIIA-SD2GB) | made by Mitsubishi Electric. | | | | | | | | |

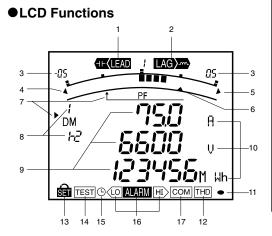
*1: Use the SD memory card (EMU4-SD2GB) made by Mitsubishi Electric. Use of any memory card other than our product (EMU4-SD2GB) is not covered by the warranty.

For more information on data, please refer to the following document. Logging specifications...LMS-0551

Operating Instructions







| No. | Segment name | Description |
|-----|-----------------------------------|--|
| 1 | Lead Status | Power factor status is lead |
| 2 | Lag status | Power factor status is lag |
| 3 | Scale of the bar graph | The scale of the bar graph |
| 4 | Excessively low input | On when the measurement value is lower than the minimum scale value |
| 5 | Excessively high input | On when the measurement value is higher than the maximum scale value |
| 6 | Upper/lower limit alarm indicator | Flashing when the upper and lower limit alarm values have been set |
| 7 | Bar graph status | The item expressed with the bar graph |
| 8 | Phase status | The phase for each of the digital displays |
| 9 | Digital | The measured value is displayed in a digital number |
| 10 | Unit | The unit for each of the digital display |
| 11 | Metering status | When it is blinking, the instrument is counting active energy |
| 12 | Harmonics | On when harmonics values are displayed |
| 13 | Setup status | 📾 is on in the test mode. |
| 13 | Setup status | is flashing in the set value check mode. |
| 14 | Test status | On in the test mode |
| 15 | Clock status | When it is blinking, the instrument is counting operating time |
| 16 | Upper/lower limit alarm status | Flashing when upper/lower limit alarm has occurred |
| 17 | Communication status | On in normal state, and flashing or off in abnormal state |

Button Functions

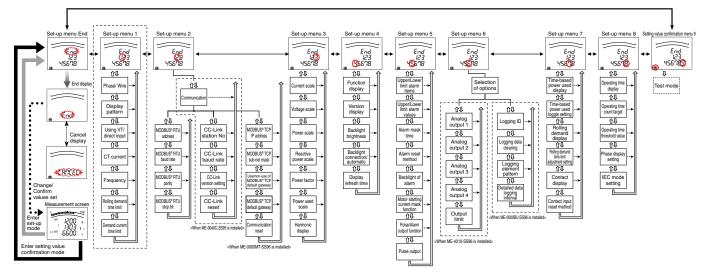
| | Basic functions | Special functions | | | | | | | | | |
|-----------|--|-------------------|--------------|---|--|--|--|--|--|--|--|
| Button | Functions | Butt | on | Functions | | | | | | | |
| SET | Set up setting items such as primary voltage and | DISPLAY | Push for 2s | Manual display change \Leftrightarrow Cyclic display change | | | | | | | |
| | current, and choose and indicate setting itmes | PHASE | Push for 2s | Manual phase change \Leftrightarrow Cyclic phase change | | | | | | | |
| + or - | Change setting and bar graph display | + + - | Push for 2s | Zoom display of Wh, varh etc | | | | | | | |
| MAX/MIN | Change display from Max/Min to instantaneous value | + + RESET | Push for 2s | Reset all the Max/Min values | | | | | | | |
| PHASE | Change phase | + or - | Push for 1s | Fast forward or fast return values when setting | | | | | | | |
| (DISPLAY) | Change display | (SET) + (RESE | T) + (PHASE) | Reset Wh, varh, Vah values to zero by | | | | | | | |
| DISPLAT | Change display | (SET) + (RESE | | holding down the buttons for 2 sec | | | | | | | |

Set-up

For correct measurement, it is necessary to set the primary voltage/current in set-up mode.

Access set-up mode from the measurement mode and set the necessary items. Factory default settings will apply to items not set.

Set-up workflow (in the case of ME96SSHA-MB)



| Symbol | Operation (function) details | Button operation | | | | | | | | | |
|-------------------|---|--------------------|-----------------------------|--|--|--|--|--|--|--|--|
| | Access set-up mode from operating mode | (SET)+(RESET) | Simultaneously press for 2s | | | | | | | | |
| ⇒ | Access setting value confirmation mode from operating mode | (SET) Press for 2s | | | | | | | | | |
| ••• | Save settings and return to operating mode | (SET) | | | | | | | | | |
| \leftrightarrow | Select set-up menu | + or - | | | | | | | | | |
| \square | Move to next screen | | SET | | | | | | | | |
| | Return to previous setting item | D | ISPLAY) | | | | | | | | |
| > | Skip remaining settings | (SET) | Press for 1s | | | | | | | | |
| > | Select cancel | + or - | | | | | | | | | |

Notes 1. Basic measurements are possible by adjusting settings in menu 1

(area enclosed by dotted line). Notes 2. Item settings vary depending on the model.

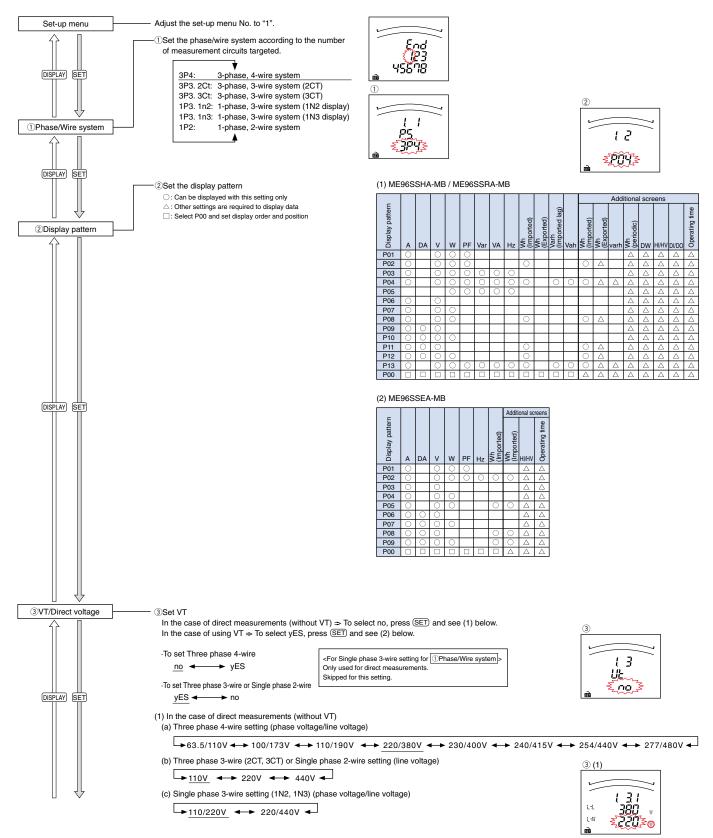
Notes 3. Setting confirmation menu 9 (test mode) is not displayed in the setting mode.

Basic Set-up Operations

To access setting mode, press and hold the (\underline{SET}) and (\underline{RESET}) buttons down at the same time for 2s. Press the (\underline{SET}) button to display the items to be set, and the (+) and (-) buttons to set the details. Settings can be saved for each set-up menu No. To do so, press the (\underline{SET}) button when the End screen is displayed.

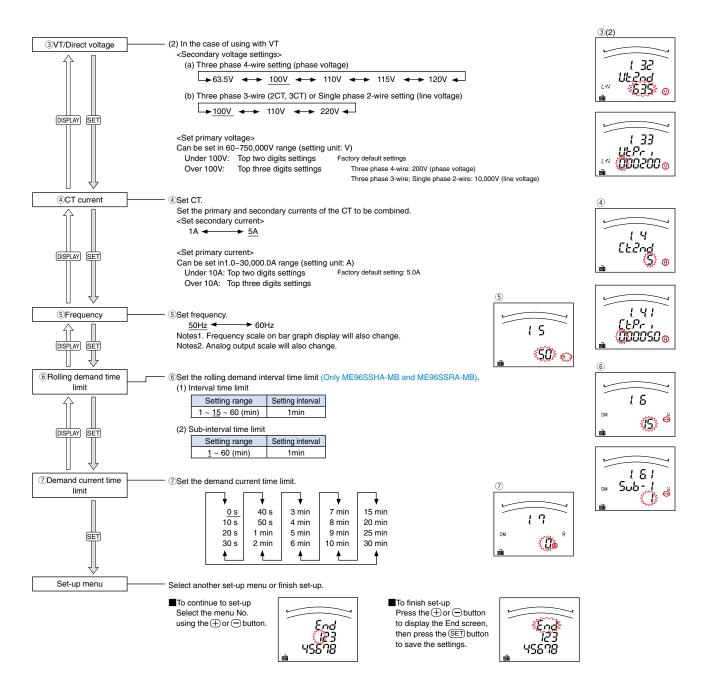
The underlined setting parameters are the initial value.

Set-up menu 1: Basic settings (set phase wire system, display pattern, Using VT/direct input, CT primary current, etc.)



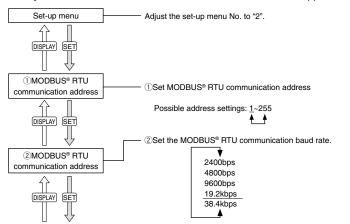






Set-up menu 2: MODBUS® RTU Communication settings

(when ME4210-SS96, ME0052-SS96 or ME0000BU-SS96 is installed and any options are not installed) *Only in the case of ME96SSHA-MB or ME96SSRA-MB, it is applicable.

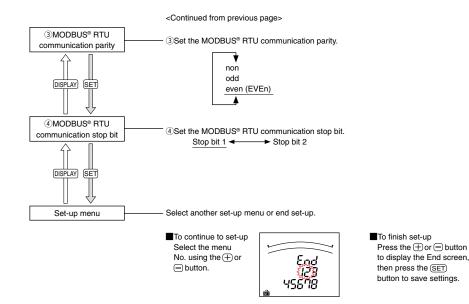








Operating Instructions





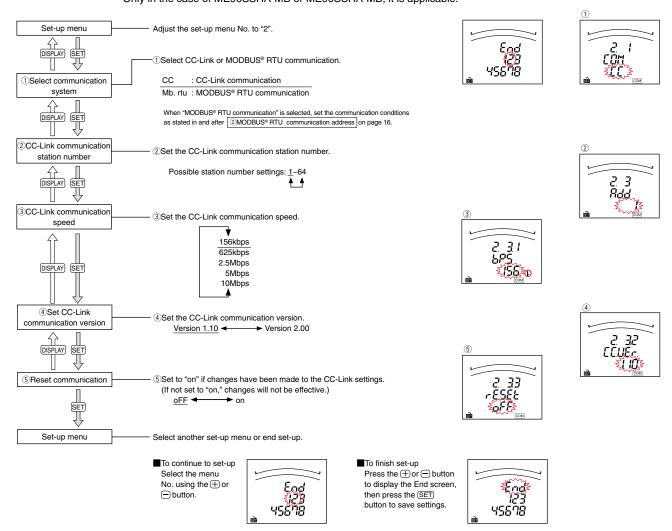


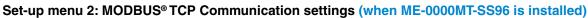
End

45678

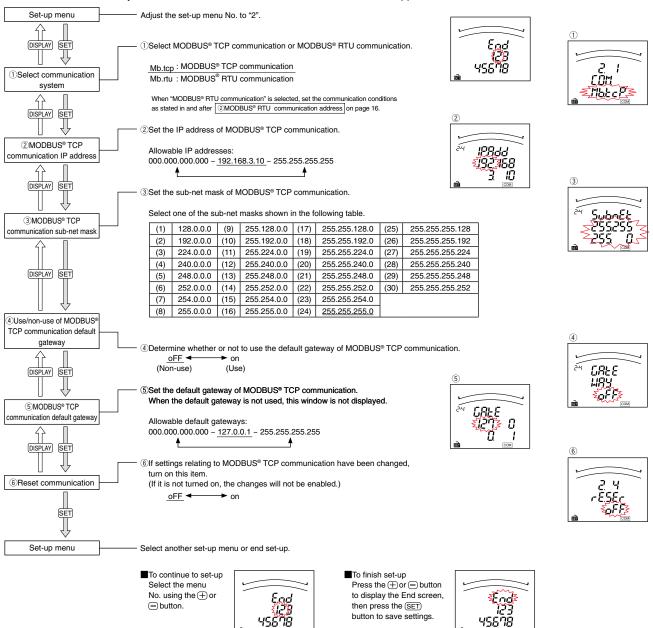
123

Set-up menu 2: CC-Link Communication settings (when ME-0040C-SS96 is installed) *Only in the case of ME96SSHA-MB or ME96SSRA-MB, it is applicable.



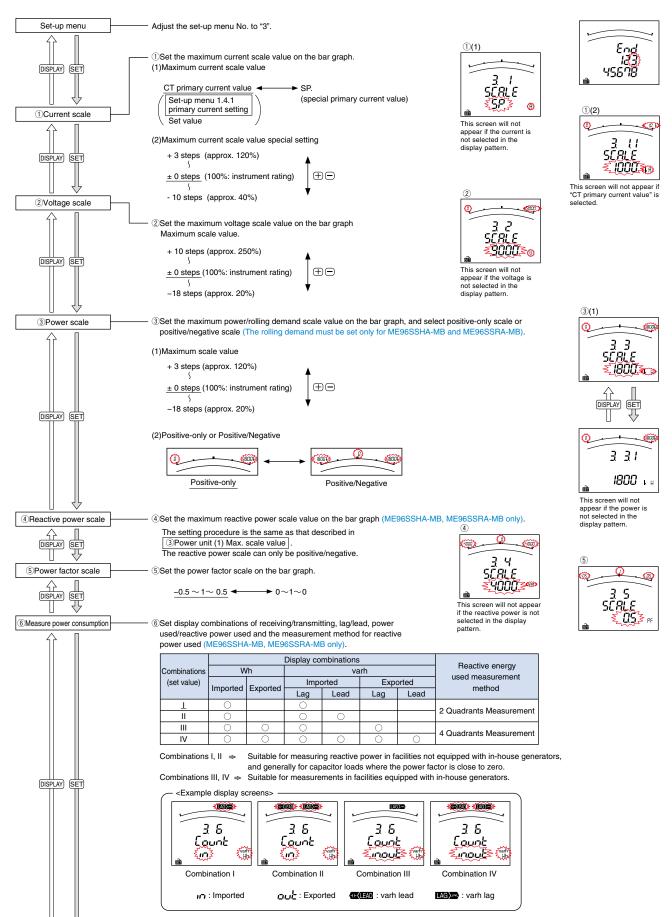


*Only in the case of ME96SSHA-MB or ME96SSRA-MB, it is applicable.



Operating Instructions

Set-up menu 3: Display settings (max. scale, active energy, harmonics, etc.)

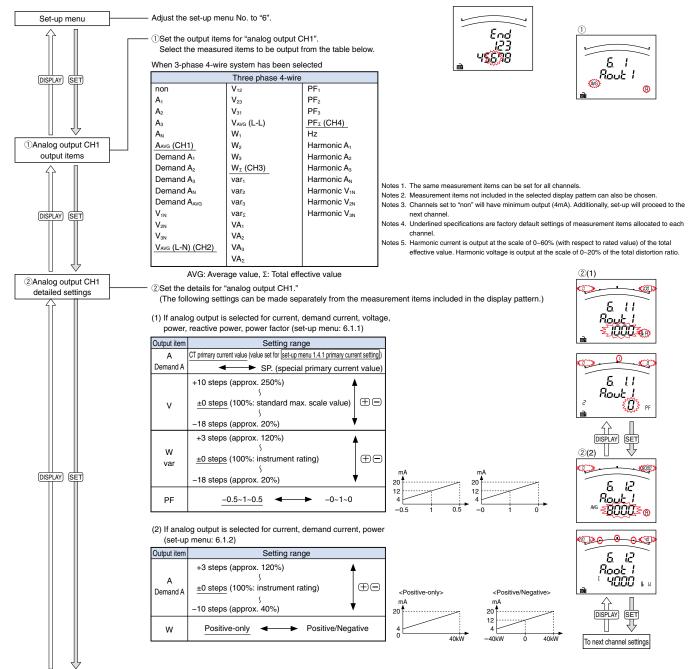


⑦Select with or without harmonic display. ⑦Harmonic display oFF on <u>ר ב</u> (without) (with) SET ₹oFF3 When the display is set to "on," the harmonic value measured will be displayed on an additional screen. Select another set-up menu or end set-up Set-up menu To continue to set-up To finish set-up Press the \oplus or \bigcirc button Select the menu No. using the \oplus or \bigcirc button. End to display the End screen, End then press the (SET) button li to save settings. 45678 456ⁱ

Set-up menu 6: Analog output setting (only when ME-4210-SS96 is installed)

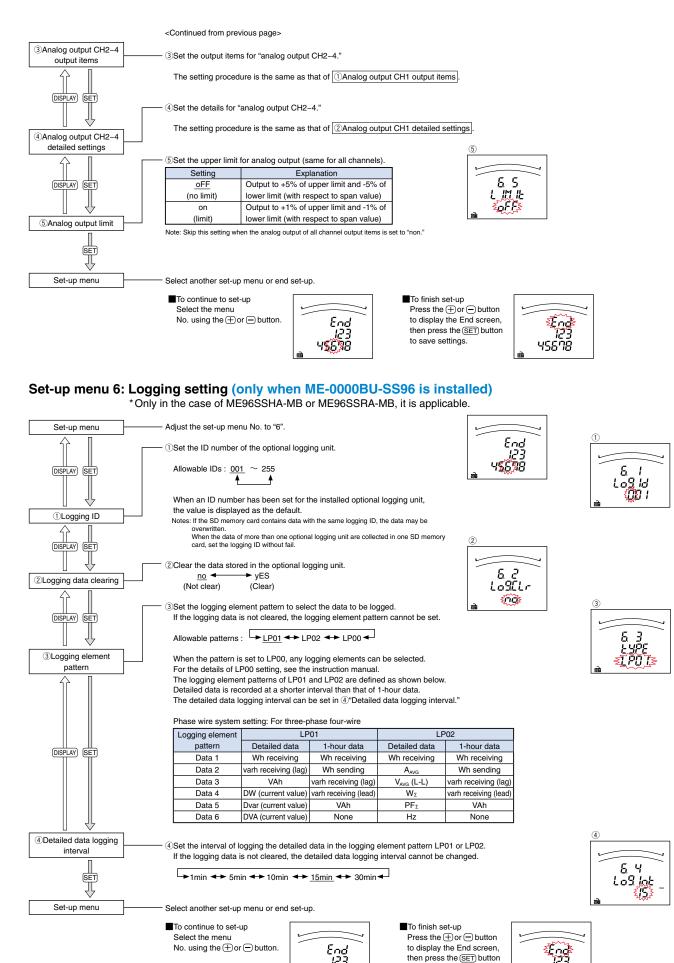
*Only in the case of ME96SSHA-MB or ME96SSRA-MB, it is applicable.

This menu will not appear if ME-4210-SS96 (optional) is not installed.



20

Operating Instructions



to save settings.

чскар

ฯ\$ธัญภ

21



Operation (for ME96SSHA-MB)

Display Change

Press (DISPLAY), the measurement display switches over. When the (DISPLAY) and (-) buttons are held down for 2 seconds or more, the display will change in reverse order.

Example of changing display (Three phase 4-wire system; display pattern: P01; no additional screens)

ARRANGED SECOND m 1200 457 1200 1200 1372 PHASE 1200 451 PHASE 8 я А k s -I:JAVG 38 ID 38 10 38 10 38 10 U U (DISPLAY)+-V DISPLAY Average current Current phase 1 Current phase 2 Current phase 3 Power (total) Average voltage (interphase) . Power phase 3 mann Power phase 1 Power phase 2 ARRANGE SOUT 05 Voltage phase 1N Voltage phase 2N Voltage phase 3N 1200 AG 1200 1200 1200 8 8 9 \triangleleft 4 $\overline{\triangleleft}$ 1303 6600 0950 6600 1303 0950 k k k H 29 -LAVG 00 86 k₽ 1000 1000 1000 1000 1000 9000 900 <Screen 1 of 4> <Screen 2 of 4> <Screen 3 of 4> <Screen 4 of 4> 1200 1372 1211 1 198 1200 Α А Α Upper: Current Upper: Current Upper: Current Upper: Current Middle: No display ΨCη. 457 457 Middle: Power Middle: Power Middle: Power k k k i i AVG 6598 6603 6600 ธริกก Lower: Voltage Lower: Power factor Lower: Voltage Lower: N-phase curren U Current phase 3 Current phase 2 Current phase Average current Power (total) Power phase 3 Power phase 2 Power phase 1 Voltage phase 12

Bar Graph Display

Items measured can be displayed on the bar graph. By displaying one item by a bar graph and other three items by digital numbers four elements can be displayed at once.

Voltage phase 31

• Bar graph explanation

The ▶ or Ĺ _mark indicates that the measurement item is displayed on the bar graph. · Select bar graph

Press the \oplus or \bigcirc button to select the measurement items to be displayed on the bar graph.

Three phase 4-wire system (+) (clockwise) (-) (anticlockwise)



Maximum/Minimum Display Values

Press the MAX/MIN button to change to the maximum and minimum values of the display screen. Press it again to return to the current value display screen.

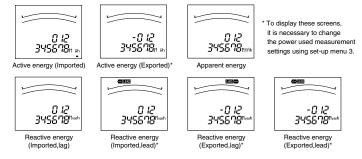
Reset Maximum/Minimum Values

Press the (RESET) button for 2s to reset the maximum/minimum values of the measurement items displayed. The maximum/minimum values will become the current values.

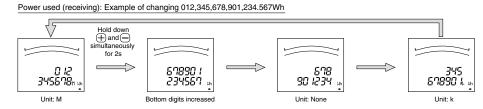
Press the (RESET) and (+) buttons simultaneously for 2s to reset all

maximum/minimum values. The maximum/minimum values will become the current values.

Displaying Active energy/Reactive energy/Apparent energy



Change the unit (M, k, none) or increase the digits in the bottom display for power used/reactive power used/apparent power used/time-based power used to check the lower/higher-order digits. Push the 🕂 and 🕞 buttons simultaneously for 2s to switch between screens



Reset Active energy/Reactive energy/Apparent energy

Press the (SET), (RESET) and (PHASE) buttons simultaneously for 2s to reset all of the following together: active energy/reactive energy/apparent energy (this operation only works on the current value display screen).

Example of switching between changing current value display and maximum/minimum value display screens

9000

8

kμ

U

in the second second

1200

1303

6600

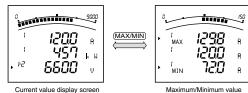
۵VG

► -L AVG

Σ

Example of bottom iten

displayed in the bar graph



display screen

Press (PHASE), the current phase and the voltage phase switches over.

6600

560

Average voltage

(between lines)

Я

kМ

υ

1200

1303

6600

Σ

Example of power factor

displayed in the bar graph

L-LAVG

Example of changing phases (Three phase 4-wire system)

THE OWNER WHEN THE OWNER 5500

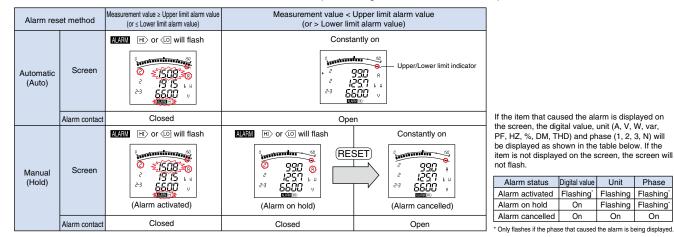
Voltage phase 23

Changing Upper/Lower Limits for Alarm Activation and Cancellation

When measurement values exceed the upper/lower limit values that have been set, an alarm activates and the screen begins to blink. The blinking \blacktriangle mark on the bar graph indicates the current upper/lower limit value settings.

During Alarm Generation

Alarm condition: When a measured value exceeds the alarm value setting, the screen begins to flash and the alarm contact closes. Alarm cancelled: When the alarm is cancelled, the screen stops flashing and the alarm contact opens.



Alarm Cancel

The alarm can be reset automatically or manually. The alarm recovery method varies according to the reset method setting.

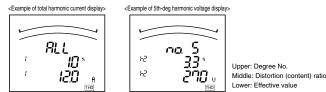
| Alarm reset method | Cancellation method |
|--------------------|---|
| Automatic (Auto) | The alarm resets automatically when the measurement value returns to within the upper/lower limit set value. |
| | The alarm setting changes to "on hold" even after the measurement value becomes returns to within the upper/lower limit value setting. Once the |
| | value returns to within the upper/lower limit value set, perform the following alarm recovery operations. |
| | (Note: Alarm recovery operations cannot be carried out from the maximum/minimum value display screen or contact input screen.) |
| | <to alarm="" and="" cancel="" item="" select=""></to> |
| Manual (Hold) | When the item that caused the alarm is displayed, press the (RESET) button to deactivate the alarm. |
| | For items with phases such as current and voltage, it is necessary to |
| | vertice (RESET) button for each phase to cancel the alarm. |
| | <to alarms="" all="" cancel="" for="" items=""></to> |
| | To cancel alarms for all items at once (batch), press the $(RESET)$ button for 2s when in operating mode. |

Alarm delay Time

If an alarm delay time has been set, alarm notification begins only when the measurement value exceeds the upper/lower limit alarm value for a period longer than the alarm delay time.

Harmonic Display

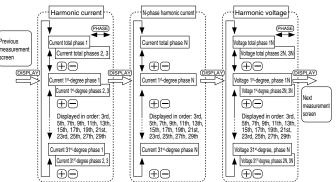
The harmonic effective value, distortion ratio and content ratio can be displayed. To do so, first set the harmonic display (set-up menu: 3.7).



| | Harmoni | c current | N-phase harr | monic current | Harmonic voltage | | | | |
|---------------------|---------|-------------------------------|--------------|-------------------------------|------------------|-------------------------------|--|--|--|
| Degree | RMS | Distortion (content) ratio | RMS | Distortion (content) ratio | RMS | Distortion (content) ratio | | | |
| Harmonic total | 0 | 0 | 0 | - | 0 | 0 | | | |
| 1st (fundamental) | 0 | _ | 0 | | 0 | — | | | |
| 3rd, 5th, 7th, 9th, | | | | | | | | | |
| 11th, 13th, 15th, | | | | | | | | | |
| 17th, 19th, 21st, | 0 | 0 | 0 | - | 0 | 0 | | | |
| 23rd, 25th, 27th, | | | | | | | | | |
| 29th and 31st | | | | | | | | | |

• Changing the Harmonic Degree Display

Press the \oplus or \bigcirc button to change the harmonic degree.





Display Pattern Contents

The items set in display patterns and additional settings will be displayed as explained in the following table.

ME96SSHA-MB Screen Display (Three phase 4-wire)

| | Isolay Screen set based on display pattern Additional screens (set in set-up menu Nos. 3, 7 and 8) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|----------|------------|----------|--------------|------------|---------|----------|-------|-------|----------------|----------------|-------|------------------|-------------------|--------------------|-------|------------------|------------------|------------------|----------------------|--------------------|-------------------------------|-------------|---------------------------------------|--------------|--------------|---------------------|---------------------|
| | play | | | | | | | | | | No.10 | No.11 | No.12 | No.13 | No.14 | No.15 | No.16 | | No.18 | | No.20 | No.21 | <u> </u> | No.23 | No.24 | No.25 | No.26 | No.27 | No.28 |
| | tern gital | No 1 | No.2 | No 2 | No.4 | No E | No.6 | No.7 | No.8 | No 0 | | | | varh | varh | varh | | Periodic | Periodic | Rolling | Rolling | Rolling | | Harmonic | | | | | |
| dis | olay) | 10.1 | 110.2 | 110.5 | 110.4 | 10.5 | 110.0 | 110.7 | 110.0 | 110.9 | Wh | Wh exported | varh | Imported | exported | exported | VAh | active energy | active energy | demand | demand | demand | Harmonic current | current | Harmonic voltage | DI status | DO status | Operating time 1 | Operating time 2 |
| | | | | | | | | | | | | exported | | (lead) | (lag) | (lead) | | Whĩ | /hľ Wh2 | (DW) | (Dvar) | (DVA) | | N-phase | , , , , , , , , , , , , , , , , , , , | | | uner | unie z |
| | Upper | A | A | A | A | | | | | | | | | | | | | - | - | - | - | - | Degree No. | Degree No. | Degree No. | DI | DO | - | - |
| | Middle | w | w | PF | - | | | | | | | | | | | | | Periodic | Periodic | Peak value | Peak value | Peak value | Distortion (content) ratio | - | Distortion (content) ratio | DI No. | DO No. | hour1 | hour2 |
| P01 | | | | | | | | | | | | | | | | | | active | active | Rolling | Rolling | Rolling | (content) tabo | | (content) ratio | | | | |
| | Lower | v | PF | v | AN | | | | | | | | | | | | | energy | energy | demand, | demand, | demanď, | RMS | RMS | RMS | | Contact | | |
| | LOWCI | * | | • | 7.13 | | | | | | | | | | | | | Wh1 | Wh2 | active energy | reactive energy | apparent energy | 1 11010 | 1 11010 | 1 11010 | status | status | time | time |
| | Upper | Α | Α | Α | A | | | | | | - | - | | | | | | C | C | Same | | × | Come | C | C | C | C | Come | Same |
| P02 | Middle | V | W | PF | - | | | | | | | Wh | | | | | | Same as | Same as | as | Same as | Same as | Same as | Same as | Same as | Same as | Same as | Same as | as |
| | Lower | Wh | Wh | Wh | AN | | | | | | Wh | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Α | A | Α | А | Α | Α | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P03 | Middle | PF | PF | PF | PF | PF | - | | | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | V | w | var | VA | Hz | AN | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Α | Α | Α | Α | Α | Α | Α | | | - | - | - | - | - | - | - | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P04 | Middle | V | W | var | VA | PF | Hz | - | | | 14/1- | Wh | | varh Imported | varh | varh | VAL | as | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | Wh | Wh | varh | VAh | Wh | Wh | AN | | | Wh | exported | varh | (lead) | exported (lag) | exported (lead) | VAh | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | PF | Hz | VA | | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P05 | Middle | W | w | W | | | | | | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | var | var | var | | | | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | A1 | V1N | Α | Α | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P06 | Middle | A2 | V2N | - | - | | | | | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | A3 | V3N | V | AN | | | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | A | A1 | V1N | A | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P07 | Middle | V | A2 | V2N | - | | | | | | | | | | | | | as above | as above | as above | as above | as above | as above | as above | as | as above | as above | as above | as above |
| | Lower | W | A3 | V3N | AN V1N | | | | | | | | | | | | | | | | | | | | | | | | |
| P08 | Upper Middle | V | A | A1 A2 | V1N V2N | A _ | | | | | | – Wh | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same as | Same as | Same as |
| FUO | Lower | Wh | Wh | A2 A3 | V2N V3N | AN | | | | | Wh | exported | | | | | | above | above | above | as as above above | | as as above abov | above | above | above | above | above | above |
| | Upper | A | A1 | DA1 | V1N | A | DA | | | | | onportod | | | | | | Come | C | 0 | C | C | Come | C | C | 0 | C | Come | Come |
| P09 | Middle | DA | A2 | DA2 | V2N | - | - | | | | | | | | | | | Same as | Same as | Same as | Same as | Same as | Same as | Same as | Same as | Same as | Same as | Same as | Same as |
| | Lower | V | A3 | DA3 | V3N | AN | DAN | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Α | A | A1 | DA1 | V1N | Α | DA | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P10 | Middle | DA | DA | A2 | DA2 | V2N | - | - | | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | V | W | A3 | DA3 | V3N | AN | DAN | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Α | Α | DA1 | V1N | Α | DA | | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | | Same |
| P11 | Middle | DA | V | DA2 | V2N | - | - | | | | Wh | Wh | | | | | | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Lower | Wh | Wh | DA3 | V3N | AN | DAN | | | | | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| DIA | Upper | A | A | A | DA | W V | A _ | DA – | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P12 | Middle Lower | DA Wh | W Wh | V Wh | V Wh | V Wh | – AN | – DAN | | | Wh | Wh exported | | | | | | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Upper | A1 | VIN V1N | W1 | vvn var1 | VVn VA1 | PF1 | V | V | A | - | exported | | | | - | - | | | | | | | | | | | | |
| P13 | Middle | A1 A2 | V1N V2N | W2 | var1 var2 | VA1 VA2 | PF2 | Hz | Hz | AN | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| 1 13 | Lower | A3 | V3N | W3 | var2 | VA2 VA3 | PF3 | Wh | varh | | VAh Wh exporte | | varh | Imported | exported | exported | VAh | as above | as above | | e above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Upper | Free | Free | Free | Free | 1710 | | | vant | w/ul | | | | (lead) | (lag) | (lead) | - | | | | | | | | | | | ├ ──┤ | |
| P00 | Middle | Free | Free | Free | Free | | | | | | | 14/1- | | | | | _ | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| 100 | Lower | Free | Free | Free | Free | _ | - | | | _ | Wh | Wh exported | varh | Imported | exported | exported | VAh | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Lower | 1166 | 1166 | 1166 | 1166 | | | | | | | capolicu | | (lead) | (lag) | (lead) | | | | | | | | | | | | | |

•ME96SSHA-MB Screen Display (Three phase 3-wire, Single phase 3-wire, Single phase 2-wire)

| | Screen set based on display pattern Additional screens (set in set-up menu Nos. 3, 7 and 8) | | | | | | | | | | | | | | | | | | | | | | | | |
|------|---|------|----------|------------|---------|---------|------|------|----------------|------|--------------------|-------------------|--------------------|-------|--------------------|--------------------|--|--|--|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|
| | | SCIE | en sel | Dased | on aisp | nay pat | lem | | | | rr | | | | | | <u> </u> | r | <u> </u> | É – | | | | | |
| Dis | play | | | | | | | No.7 | No.8 | No.9 | No.10 | No.11 | No.12 | No.13 | No.14 | No.15 | No.16 | No.17 | No.18 | No.19 | No.20 | No.21 | No.22 | No.23 | No.24 |
| pat | | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | Wh | Wh | varh | varh Imported | varh exported | varh exported | VAh | Periodic active | Periodic active | Rolling demand | Rolling demand | Rolling demand | Harmonic | Harmonic | DI | DO | Operating | Operating |
| | | | | | | | | •••• | exported | vam | (lead) | (lag) | (lead) | 1741 | energy Wh1 | energy Wh2 | (DW) | (Dvar) | (DVA) | current | voltage | Status | Status | time 1 | time 2 |
| | Upper | Α | Α | Α | | | | | | | (/ | (| () | | - | - | _ | | | Degree No. | Degree No. | DI | DO | - | - |
| | | | | | | | | | | | | | | | | | Peak | Peak | Peak | Distortion | Distortion | | | | |
| P01 | Middle | w | w | PF | | | | | | | | | | | Periodic active | Periodic active | value | value | value | (content) ratio | (content) ratio | DI No. | DO No. | hour1 | hour2 |
| | Lower | v | PF | v | | | | | | | | | | | energy Wh1 | energy Wh2 | Rolling demand, active energy | Rolling demand, reactive energy | Rolling demand, apparent energy | RMS | RMS | Contact status | Contact status | Operating time | Operating time |
| | Upper | Α | Α | Α | | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P02 | Middle | V | W | PF | | | | 140 | Wh | | | | | | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | Wh | Wh | Wh | | | | Wh | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Α | Α | Α | Α | Α | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P03 | Middle | PF | PF | PF | PF | PF | | | | | | | | | as | as | as | as | as | Same as | as | as | as | as | as |
| | Lower | V | W | var | VA | Hz | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Ā | A | A | A | A | A | - | - | - | - | - | - | - | | | | | 1 | | | | | | |
| DO | Middle | V | Ŵ | var | VA | PF | Hz | | | | varh | varh | varh | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P04 | Lower | Wh | Wh | varh | VAh | Wh | Wh | Wh | Wh exported | varh | Imported (lead) | exported (lag) | exported (lead) | VAh | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Upper | PF | Hz | VA | | | | | | | (ledu) | (lag) | (leau) | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P05 | Middle | w | w | w | | | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | var | var | var | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | A1 | V12 | A | | | | | | | | | | | | ~ | | | | | | | ~ | | |
| P06 | Middle | A2 | V23 | - | | | | | | | | | | | Same as | Same as | Same as | Same as | Same | Same as | Same as | Same as | Same as | Same as | Same as |
| 1 00 | Lower | A3 | V23 | V | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| | | AS | A1 | V V12 | | | | | | | | | | | | | | | | | | | | | |
| P07 | Upper Middle | V | A1 A2 | V12 V23 | | | | | | | | | | | Same | Same as | Same | Same as | Same | Same as | Same as | Same as | Same | Same as | Same as |
| F0/ | | Ŵ | A2 A3 | V23 V31 | | | | | | | | | | | as above | above | as above | above | as above | above | above | above | as above | above | above |
| | Lower | | AS | A1 | V12 | | | - | - | | | | | | | | | | | | | | | | |
| Dag | Upper | A | | | | | | - | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P08 | Middle | V | W | A2 | V23 | | | Wh | Wh | | | | | | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Lower | Wh | Wh | A3 | V31 | | | | exported | | | | | | above | above | above | above | above | above | above | above | above | 00000 | above |
| | Upper | A | A1 | DA1 | V12 | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P09 | Middle | DA | A2 | DA2 | V23 | | | | | | | | | | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Lower | V | A3 | DA3 | V31 | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| - | Upper | A | A | A1 | DA1 | V12 | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P10 | Middle | DA | DA | A2 | DA2 | V23 | | | | | | | | | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Lower | V | W | A3 | DA3 | V31 | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | A | Α | DA1 | V12 | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P11 | Middle | DA | V | DA2 | V23 | | | Wh | Wh | | | | | | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | Wh | Wh | DA3 | V31 | | | | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| DIC | Upper | A | A | A | DA | W | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P12 | Middle | DA | W | V | V | V | | Wh | Wh | | | | | | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above | as above |
| | Lower | Wh | Wh | Wh | Wh | Wh | | | exported | | | | | | above | 20010 | 20010 | 20076 | | 20070 | 20010 | 20010 | 20076 | | |
| | Upper | A1 | V12 | W | V | V | A | - | - | - | - | - | - | - | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P13 | Middle | A2 | V23 | var | Hz | Hz | VA | Wh | Wh | varh | varh Imported | varh exported | varh exported | VAh | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | A3 | V31 | PF | Wh | varh | VAh | | exported | | (lead) | (lag) | (lead) | | above | above | above | above | above | above | above | above | above | above | above |
| | Upper | Free | Free | Free | Free | | | - | - | - | - | - | - | - | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| P00 | Middle | Free | Free | Free | Free | | | | Wh | | varh | varh | varh | | as | as | as | as | as | as | as | as | as | as | as |
| | Lower | Free | Free | Free | Free | | | Wh | exported | varh | Imported (lead) | exported (lag) | exported (lead) | VAh | above | above | above | above | above | above | above | above | above | above | above |
| | | | | | | | | | | | / | 1.91 | , | | | | | | | | | | | | |

Display Pattern Contents

The items set in display patterns and additional settings will be displayed as explained in the following table.

•ME96SSRA-MB Screen Display (Three phase 4-wire)

| Desc No.2 No.3 No.4 No.4 No.5 No.1 No.1 No.1 No.1 No.2 No.2 <th< th=""><th></th><th></th><th></th><th></th><th>Screen</th><th>set ba</th><th>sed on a</th><th>display</th><th>pattern</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Addit</th><th>ional scr</th><th>eens (se</th><th>et in set-u</th><th>o menu N</th><th>os. 3, 7 a</th><th>nd 8)</th><th></th><th></th><th></th><th></th><th></th><th></th></th<> | | | | | Screen | set ba | sed on a | display | pattern | | | | | | | | | Addit | ional scr | eens (se | et in set-u | o menu N | os. 3, 7 a | nd 8) | | | | | | |
|--|------|--------|------|------|--------|--------|----------|---------|---------|------|------|-------|----------|-------|------------------|------------------|------------------|-------|------------------------------|------------------------------|-------------------|---------------------|---------------------|-----------|---------------------|-----------|--------|--------|-----------|-----------|
| bit No. No.2 No.3 No.4 No.5 No.6 No.6 No | | | | | | | | | i i | | | No.10 | No.11 | No.12 | No.13 | No.14 | No.15 | No.16 | No.17 | No.18 | No.19 | No.20 | No.21 | No.22 | No.23 | No.24 | No.25 | No.26 | No.27 | No.28 |
| Under N A <td>(d</td> <td>igital</td> <td>No.1</td> <td>No.2</td> <td>No.3</td> <td>No.4</td> <td>No.5</td> <td>No.6</td> <td>No.7</td> <td>No.8</td> <td>No.9</td> <td></td> <td>Wh</td> <td></td> <td>varh Imported</td> <td>varh exported</td> <td>varh exported</td> <td></td> <td>Periodic active energy</td> <td>Periodic active energy</td> <td>Rolling demand</td> <td>Rolling demand</td> <td>Rolling demand</td> <td>Harmonic</td> <td>Harmonic current</td> <td>Harmonic</td> <td>DI</td> <td>DO</td> <td>Operating</td> <td>Operating</td> | (d | igital | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | | Wh | | varh Imported | varh exported | varh exported | | Periodic active energy | Periodic active energy | Rolling demand | Rolling demand | Rolling demand | Harmonic | Harmonic current | Harmonic | DI | DO | Operating | Operating |
| Prot Media W W PF - I I I I </td <td></td> <td>Upper</td> <td>А</td> <td>Α</td> <td>Α</td> <td>А</td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td>DI</td> <td>DO</td> <td>-</td> <td>-</td> | | Upper | А | Α | Α | А | | | | | | | | | | | | | - | - | - | - | - | | | | DI | DO | - | - |
| Lowe V PF V AN P P V AN P P V AN P P V AN P | P01 | Middle | w | w | PF | - | | | | | | | | | | | | | | | | | | (content) | - | (content) | DI No. | DO No. | hour1 | hour2 |
| PR2 Model V W PF - - - - <td></td> <td>Lower</td> <td>v</td> <td>PF</td> <td>v</td> <td>AN</td> <td></td> <td>energy</td> <td>enerav</td> <td>demand, active</td> <td>demand, reactive</td> <td>demand, apparent</td> <td>RMS</td> <td>RMS</td> <td>RMS</td> <td></td> <td></td> <td></td> <td></td> | | Lower | v | PF | v | AN | | | | | | | | | | | | | energy | enerav | demand, active | demand, reactive | demand, apparent | RMS | RMS | RMS | | | | |
| Under Vm Vm Vm Vm V | | | | | | | | | | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Lower With With <t< td=""><td>P02</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Wh</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | P02 | | | | | | | | | | | Wh | | | | | | | | | | | | | | | | | | |
| POB Middle PF PF <t< td=""><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>exported</td><td></td><td></td><td></td><td></td><td></td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td></t<> | | - | | | | | | | | | | | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| Upper A <td>000</td> <td></td> | 000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upper A V <td>P03</td> <td></td> | P03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pote Middle V W var Var <td></td> <td></td> <td>· ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Δ</td> <td></td> <td></td> <td>_</td> <td></td> <td>_</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> | | | · · | | | | | | Δ | | | _ | | _ | - | - | - | - | | | | | | | | | | | | |
| Lower Wh Wh Wh Wh Wh Wh exported wath above | DOA | | | | | | | | | | | | | | varh | varh | varh | | | | | | | | | | | | | |
| POS Middle W W W W </td <td>F04</td> <td>Lower</td> <td>Wh</td> <td>Wh</td> <td>varh</td> <td>VAh</td> <td>Wh</td> <td>Wh</td> <td>AN</td> <td></td> <td></td> <td>Wh</td> <td></td> <td>varh</td> <td></td> <td></td> <td></td> <td>VAh</td> <td></td> | F04 | Lower | Wh | Wh | varh | VAh | Wh | Wh | AN | | | Wh | | varh | | | | VAh | | | | | | | | | | | | |
| Lower var var </td <td></td> <td>Upper</td> <td>PF</td> <td>Hz</td> <td>VA</td> <td></td> <td>Same</td> | | Upper | PF | Hz | VA | | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Didd A | P05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PO6 Middle A2 V2N - <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>above</td><td></td><td>above</td><td>above</td><td></td><td>above</td><td>above</td><td>above</td><td>above</td><td></td><td>above</td><td></td></th<> | | | | | | | | | | | | | | | | | | | above | | above | above | | above | above | above | above | | above | |
| Lower A3 V3N V AN m | Doo | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upper A A1 VIN A A A VIN A <th< td=""><td>P06</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | P06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POT Middle V A V A V A A A I VIN A I Cover VIN A | | | - | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lower W A3 V3N AN A | P07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P08 Middle V W A2 V2N - v wh w | | | | | | AN | | | | | | | | | | | | | | | | | | | | | | | | |
| Lower Wh MA V3N AN M M exported M exported M exported M exported A above above <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td></th<> | | | | | | | | | | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Upper A A DA1 VIN A DA Constraint Same Same< | P08 | | | | | | | | | | | Wh | | | | | | | | | | | | | | | | | | |
| P09 Middle DA A2 DA3 V2N - | | | | | | | | DA | | | | | exported | | | | | | | | | | | | | | | | | |
| Lower V. A3 DA3 V3N AN DAN DA < | POO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upper A A A A A A Da Da <td>1.00</td> <td>_</td> <td></td> | 1.00 | _ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P10 Middle DA DA A DA V - <th< td=""><td></td><td></td><td>Α</td><td></td><td></td><td></td><td></td><td>Α</td><td>DA</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td></th<> | | | Α | | | | | Α | DA | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Upper A A DA O O A DA O Same Same <t< td=""><td>P10</td><td>Middle</td><td>DA</td><td>DA</td><td>A2</td><td>DA2</td><td>V2N</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td></t<> | P10 | Middle | DA | DA | A2 | DA2 | V2N | - | - | | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as | as |
| P11 Middle DA V DA2 V2N - < | | | · · | | | | | | DAN | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above | above |
| Lower Wh Wh DA3 V3N AN DAN Wn exported worded above | | | | | | | A | | | | | - | | | | | | | | | | | | | | | | | | |
| Upper A A DA DA <thda< th=""> DA DA DA<</thda<> | P11 | | | | | | - AN | | | | | Wh | | | | _ | | | | | | | | | | | | | | |
| P12 Middle DA W V V V - | | | | | | | | | DA | | | _ | exported | | | | | | 40010 | | | | | | | | | | | |
| Lower Wn Wn Wn AN DAN Wh exported An above | D10 | | | | | | | | | | | | 14/6 | | | | | | | | | | | | | | | | | |
| Upper Air Van Air Air <th< td=""><td>F12</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Wh</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | F12 | | | | | | | | | | | Wh | | | | | | | | | | | | | | | | | | |
| P13 Middle A2 V2N W2 var2 VA2 PF2 Hz Hz AN Wh varh VAh Wh warb varh imported exported vAh above abo | | | | | | | | | | V | Δ | | <u> </u> | | | | | | | | | | | | | | | | | \vdash |
| Lower A3 V3N W3 var3 VA3 PF3 Wh varh VAh Wh wrh VAh Wh wrh lexported exported export | | | | | | | | | | | | - | | _ | | | | - | | | | | | | | | | | | |
| Upper Free Free Free Free Free Free Free Free Free Same Same <t< td=""><td>P13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Wh</td><td></td><td>varh</td><td>Imported</td><td>exported</td><td>exported</td><td>VAh</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | P13 | | | | | | | | | | | Wh | | varh | Imported | exported | exported | VAh | | | | | | | | | | | | |
| Poo Middle Free Free Free Free Free Free Free V Via Via Varh varh varh varh varh varh as | | Upper | Free | Free | Free | Free | | | | | | - | - | - | - | - | | - | | | | | | | | | | | | |
| will every Erco Erco Erco Erco Erco Erco Erco Erco | POO | | Free | Free | Free | Free | | | | | | | Wh | | varh | varh | varh | | | | | | | | | | | | | |
| | 100 | | | | | | | | | | | Wh | | varh | Imported | exported | exported | VAh | | | | | | | | | | | | |

●ME96SSRA-MB Screen Display (Three phase 3-wire, Single phase 3-wire, Single phase 2-wire)

| | | | 1 4 | | | | | | · · | | | | - | | | | | | | | | | | | | <u> </u> |
|---|-----|------------------|----------|----------|----------|----------|----------|------|------|----------|------|----------|----------|----------|-----------|------------------|------------------|-------------------|---------------------|---------------------|-------------------------|-------------------------|--------|-------------------|-------------------|----------|
| Diplicity No.1 No.2 No.4 No.5 No.6 Wn Wn <td></td> <td></td> <td></td> <td>creen se</td> <td>et based</td> <td>on aispi</td> <td>ay patte</td> <td>rn</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Additiona</td> <td>al screens</td> <td>s (set in s</td> <td>set-up me</td> <td>nu Nos. a</td> <td colspan="5"></td> <td></td> | | | | creen se | et based | on aispi | ay patte | rn | | | | | | | Additiona | al screens | s (set in s | set-up me | nu Nos. a | | | | | | | |
| Image: Protein field No.3 No.4 No.5 No.6 No.7 No.7 No.7 No.7< | | | | | | | | | No.7 | No.8 | No.9 | No.10 | No.11 | No.12 | No.13 | No.14 | No.15 | No.16 | No.17 | No.18 | No.19 | No.20 | No.21 | No.22 | No.23 | No.24 |
| No. No. <td>p</td> <td>isplay attern</td> <td>No.1</td> <td>No.2</td> <td>No.3</td> <td>No.4</td> <td>No.5</td> <td>No.6</td> <td>Wh</td> <td></td> <td>varh</td> <td>Imported</td> <td>exported</td> <td>exported</td> <td>VAh</td> <td>active energy</td> <td>active energy</td> <td>demand</td> <td>demand</td> <td>demand</td> <td></td> <td>voltage</td> <td></td> <td></td> <td></td> <td></td> | p | isplay attern | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | Wh | | varh | Imported | exported | exported | VAh | active energy | active energy | demand | demand | demand | | voltage | | | | |
| P11 Made W W P7 V | | Upp | er A | А | A | | | | | | | | | | | - | - | - | - | - | | | DI | DO | - | - |
| Lower V PF V Prof. V Prof. V Prof. | P0 | | ile W | w | PF | | | | | | | | | | | | | | | | Distortion (content) | Distortion (content) | DI No. | DO No. | hour1 | hour2 |
| Proc Midding V V PF Image PM VM VM VM < | | Low | er V | PF | v | | | | | | | | | | | energy | energy | demand, active | demand, reactive | demand, apparent | RMS | RMS | | Contact status | Operating time | |
| Image Vm Vm vsporde Vm vspord | | Upp | er A | | | | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Lower Wh Wh Wh Wh W | P02 | 2 Midd | | | | | | | Wb | | | | | | | as | as | as | as | as | as | as | as | as | as | as |
| Post Midde PF PF <t< td=""><td></td><td>Low</td><td>er Wh</td><td>Wh</td><td>Wh</td><td></td><td></td><td></td><td>WIT</td><td>exported</td><td></td><td></td><td></td><td></td><td></td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td></t<> | | Low | er Wh | Wh | Wh | | | | WIT | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Upper V W Var VA Hz To T | | Upp | er A | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Upper A <td>P03</td> <td>3 Mido</td> <td>lle PF</td> <td></td> <td>PF</td> <td></td> <td>PF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>as</td> | P03 | 3 Mido | lle PF | | PF | | PF | | | | | | | | | as | as | as | as | as | as | as | as | as | as | as |
| Pot Middle V W vark VA Wh Wh <t< td=""><td></td><td>Low</td><td>er V</td><td>W</td><td>var</td><td>VA</td><td>Hz</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td></t<> | | Low | er V | W | var | VA | Hz | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Pote Middle V viral Var | | Upp | er A | A | A | A | A | Α | - | - | - | - | - | - | - | Como | Como | Como | Como | Como | Como | Como | Como | Como | Como | Como |
| Lower Wh Wn Var Wn Wn <th< td=""><td>P04</td><td>4 Mido</td><td>lle V</td><td>w</td><td>var</td><td>VA</td><td>PF</td><td>Hz</td><td>Wb</td><td></td><td>vorb</td><td></td><td></td><td></td><td>VAb</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td><td>as</td></th<> | P04 | 4 Mido | lle V | w | var | VA | PF | Hz | Wb | | vorb | | | | VAb | as | as | as | as | as | as | as | as | as | as | as |
| PO5 Middle W< | | Low | er Wh | Wh | | VAh | Wh | Wh | VVII | exported | vani | | | (lead) | VAII | above | above | above | above | above | above | above | above | above | above | above |
| Lower var var </td <td></td> <td>Upp</td> <td>er PF</td> <td></td> <td>Same</td> | | Upp | er PF | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Upper A1 V12 A< | P05 | 5 Midd | lle W | W | W | | | | | | | | | | | | | | | | | | | | | |
| P06 Middle A2 V23 - <th< td=""><td></td><td>Low</td><td>er var</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td><td>above</td></th<> | | Low | er var | | | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Lower A3 V31 V Image: Constraint of the state of the stat | | | | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Date Out Out <td>P06</td> <td>6 Midd</td> <td>ile A2</td> <td></td> | P06 | 6 Midd | ile A2 | | | | | | | | | | | | | | | | | | | | | | | |
| P07 Middle V A2 V23 Image: Constraint of the second sec | | Low | er A3 | | | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Lower W A3 V31 W V V V A A1 V12 C A D Wh C | | | | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Upper A A A1 V12 - - - - Same < | P07 | 7 Midd | | | | | | | | | | | | | | | | | | | | | | | | |
| P08 Middle V< | | | - | | | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Lower Wh Wh A3 V31 Wh exported Image: approximate approx | | | | | | | | | - | - | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Lower Wh Wh X3 Y12 | P08 | 3 Mido | | | | | | | Wh | | | | | | | | | | | | | | | | | |
| P09 Middle DA A2 DA2 V23 Image: V23 | | Low | er Wh | | | | | | | exported | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Lower V A3 DA3 V31 v v v v A3 DA3 V31 v v v above above <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td></th<> | | | | | | | | | | | | | | | | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| Upper A A D V12 Image: Construction of the state of t | P09 | | | | | | | | | | | | | | | | | | | | | | | | | |
| P10 Middle DA DA A2 DA2 V23 Image: Constraint of the state | | | | | | | | | | | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Lower V W A3 DA3 V31 Import Import A A DA1 V12 Import A DA1 V12 Import A DA1 V12 Import A DA1 V12 Import A DA1 V12 Import A DA1 V12 Import A DA1 V12 Import A DA1 V12 Import A DA2 V23 Import A DA3 V31 Import A A DA W A A DA W A A DA W A A DA< | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Umper A A DA1 V12 - - - - - - Same Sa | P10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| P11 Middle DA V DA2 V23 Wh | | | | | | | V31 | | | | | | | | | above | auove | above | above | above | auove | above | auove | above | above | auove |
| Lower Wh Wh DA3 V31 Wh exported Imported above above< | | | | | | | | | - | - | | | | | | | | | | | | | | | | |
| Lower Wh Wh DA3 V31 Composition exported Composition above | P11 | | | | | | | | Wh | | | | | | | | | | | | | | | | | |
| P12 Middle DA W V V V V Wh wh< | | | | | | | | | l | ехропеа | | | | | | above | above | above | above | above | above | above | above | above | above | above |
| Lower Wh Wh Wh Wh Wh exported Imported exported above above <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | | | | | | | | | - | | | | | | | | | | | | | | | | | |
| Upper Vin Wh Wh <th< td=""><td>P12</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Wh</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | P12 | | | | | | | | Wh | | | | | | | | | | | | | | | | | |
| P13 Middle A2 V23 var Hz Hz VA Lower A3 V31 PF Wh varh VAh Wh warb (lead) (le | | | | | | | | | L | <u> </u> | | | | | | 20006 | 20006 | 10000 | 20076 | 30078 | 20076 | 20076 | 20006 | 20010 | 20010 | 10010 |
| Upper Free Free <t< td=""><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td></td><td>-</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td><td>Same</td></t<> | | | | | - | | | | - | - | - | | - | | - | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| POD Middle Free Free Free Free Free Free Wh while Wh warth warth warth warth warth above a | P13 | ´ — | | | | | <u> </u> | | Wh | | varh | Imported | exported | exported | VAh | | | | | | | | | | | |
| Poo Middle Free Free Free Free Free Free Why Wh avarh varh varh varh varh varh limported/exported exported exported exported exported by VAh above abo | | _ | | | | | varh | VAh | | caponed | | <u>`</u> | | · · / | | | | | | | | | | | | |
| Poo Middle Free Free Free Free Free Free Free Wh what wan van as | | | | | Free | Free | | | - | - | - | | | | - | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same | Same |
| | PO | Mido | ile Free | Free | Free | Free | | | Wh | | varb | | | | VAb | as | as | as | as | as | as | as | as | as | as | as |
| | | Low | er Free | Free | Free | Free | | | VVII | exported | vam | | | | VAII | above | above | above | above | above | above | above | above | above | above | above |

ME96SSEA-MB Screen Display (Three phase 4-wire)

| | | | Screer | n set ba | sed on o | display p | pattern | | | | Additiona et-up me | | s 3 and 8) | |
|----------|----------|------|--------|----------|----------|-----------|---------|------|------|------------------------------|--------------------------------|----------------------------------|---------------------|---------------------|
| Display | | | | | | | | | No.8 | No.9 | No.10 | No.11 | No.12 | No.13 |
| (digital | display) | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | Wh | Harmonic current | Harmonic current N-phase | Harmonic voltage | Operating time 1 | Operating time 2 |
| | Upper | Α | Α | Α | Α | | | | | Total | Total | Total | - | - |
| P01 | Middle | w | w | PF | - | | | | | Total distortion ratio | - | Distortion (content) ratio | hour1 | hour2 |
| | Lower | v | PF | V | AN | | | | | Total RMS | Total RMS | Total RMS | Operating time | Operating time |
| | Upper | Α | Α | Α | Α | Α | | | - | Same | Same | Same | Same | Same |
| P02 | Middle | V | W | PF | - | Hz | | | Wh | as | as | as | as | as |
| | Lower | Wh | Wh | Wh | AN | Wh | | | VVII | above | above | above | above | above |
| | Upper | A1 | V1N | Α | Α | | | | | Same | Same | Same | Same | Same |
| P03 | Middle | A2 | V2N | - | - | | | | | as | as | as | as | as |
| | Lower | A3 | V3N | V | AN | | | | | above | above | above | above | above |
| | Upper | A | A1 | V1N | A | | | | | Same | Same | Same | Same | Same |
| P04 | Middle | V | A2 | V2N | - | | | | | as | as | as | as | as |
| | Lower | W | A3 | V3N | AN | | | | | above | above | above | above | above |
| | Upper | Α | A | A1 | V1N | A | | | - | Same | Same | Same | Same | Same |
| P05 | Middle | V | W | A2 | V2N | - | | | Wh | as | as | as | as | as |
| | Lower | Wh | Wh | A3 | V3N | AN | | | | above | above | above | above | above |
| | Upper | Α | A1 | DA1 | V1N | A | DA | | | Same | Same | Same | Same | Same |
| P06 | Middle | DA | A2 | DA2 | V2N | - | - | | | as | as | as | as | as |
| | Lower | V | A3 | DA3 | V3N | AN | DAN | | | above | above | above | above | above |
| | Upper | A | A | A1 | DA1 | V1N | A | DA | | Same | Same | Same | Same | Same |
| P07 | Middle | DA | DA | A2 | DA2 | V2N | - | - | | as | as | as | as | as |
| | Lower | V | W | A3 | DA3 | V3N | AN | DAN | | above | above | above | above | above |
| | Upper | A | A | DA1 | V1N | A | DA | | - | Same | Same | Same | Same | Same |
| P08 | Middle | DA | V | DA2 | V2N | - | - | | Wh | as above | as above | as above | as | as |
| | Lower | Wh | Wh | DA3 | V3N | AN | DAN | | | | | | above | above |
| | Upper | A | A | A | DA | W | Α | DA | - | Same | Same | Same | Same | Same |
| P09 | Middle | DA | W | V | V | V | - | - | Wh | as | as | as | as | as |
| | Lower | Wh | Wh | Wh | Wh | Wh | AN | DAN | | above | above | above | above | above |
| DO0 | Upper | Free | Free | Free | Free | | | | - | Same | Same | Same | Same | Same |
| P00 | Middle | Free | Free | Free | Free | | | | Wh | as above | as above | as above | as above | as above |
| | Lower | Free | Free | Free | Free | | | | | auove | above | above | auove | above |

●ME96SSEA-MB Screen Display (Three phase 3-wire, Single phase 3-wire, Single phase 2-wire)

| | | Screer | n set ba | sed on (| display p | pattern | Additional screens (set in set-up menu Nos.3 and 8) | | | | | |
|---------|---------|--------|----------|----------|-----------|---------|--|------------------------------|------------------------------|---------------------|---------------------|----|
| Display | pattern | | | | | | No.6 | No.7 | No.8 | No.9 | No.10 | |
| | | No.1 | No.2 | No.3 | No.4 | No.5 | Wh Imported | Harmonic current | Harmonic voltage | Operating time 1 | Operating time 2 | |
| | Upper | Α | Α | Α | | | | Total | Total | - | - | |
| P01 | Middle | w | w | PF | | | | Total distortion ratio | Total distortion ratio | hour1 | hour2 | |
| | Lower | ٧ | PF | V | | | | Total RMS | Total RMS | Operating time | Operating time | |
| | Upper | Α | Α | Α | Α | | - | Same | Same | Same | Same | |
| P02 | Middle | V | W | PF | Hz | | Wh | as | as | as | as | |
| | Lower | Wh | Wh | Wh | Wh | | VVII | above | above | above | above | |
| | Upper | A1 | V12 | Α | | | | Same | Same | Same | Same | |
| P03 | Middle | A2 | V23 | - | | | | as | as | as | as | |
| | Lower | A3 | V31 | V | | | | above | above | above | above | |
| | Upper | Α | A1 | V12 | | | | Same | Same | Same | Same | |
| P04 | Middle | V | A2 | V23 | | | | as | as | as | as | |
| | Lower | W | A3 | V31 | | | | above | above | above | above | |
| | Upper | Α | Α | A1 | V12 | | - | Same | Same | Same | Same | |
| P05 | Middle | V | W | A2 | V23 | | Wh | as | as | as | as | |
| | Lower | Wh | Wh | A3 | V31 | | VVII | above | above | above | above | |
| | Upper | Α | A1 | DA1 | V12 | | - | Same | Same | Same | Same | |
| P06 | Middle | DA | A2 | DA2 | V23 | | Wh | as | as | as | as | |
| | Lower | V | A3 | DA3 | V31 | | VVII | above | above | above | above | |
| | Upper | Α | Α | A1 | DA1 | V12 | - | Same | Same | Same | Same | |
| P07 | Middle | DA | DA | A2 | DA2 | V23 | Wh | as | as | as | as | |
| | Lower | V | W | A3 | DA3 | V31 | VVII | above | above | above | above | |
| | Upper | Α | Α | DA1 | V12 | | - | Same | Same | Same | Same | |
| P08 | Middle | DA | V | DA2 | V23 | | Wh | as | as | as | as | |
| | Lower | Wh | Wh | DA3 | V31 | | •••• | above | above | above | above | |
| P09 | Upper | Α | Α | A | DA | W | - | Same | Same | Same | Same | |
| | Middle | DA | W | V | V | V | Wh | as | as | as | as | |
| | Lower | Wh | Wh | Wh | Wh | Wh | ***11 | above | above | above | above | |
| | Upper | Free | Free | Free | Free | | - | Same | Same | Same | Same | |
| P00 | Middle | Free | Free | Free | Free | | Wh | as | | as as | as | as |
| | Lower | Free | Free | Free | Free | | **** | above | above | above | above | |

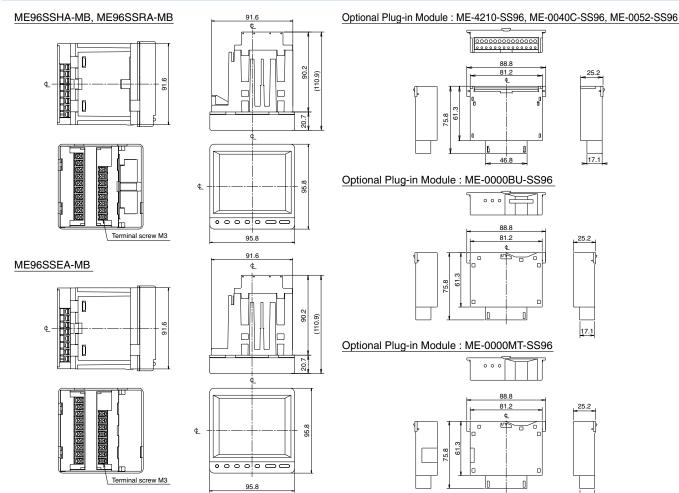
Phase/Wire Displays

The phase/wire system will be displayed as shown in the following table and is common for all models.

| Top phase disp | Phase/Wire settings | 1P2W | 1P3W(1N2) | 1P3W(1N3) | 3P3W |
|----------------|---------------------|------|-----------|-----------|------|
| | 1 | None | 1 | 1 | 1 |
| current | 2 | None | N | N | 2 |
| | 3 | None | 2 | 3 | 3 |
| | 12 | None | 1N | 1N | 12 |
| Voltage | 23 | None | 2N | ЗN | 23 |
| | 31 | None | 12 | 13 | 31 |

External Dimensions/Installation/Connections

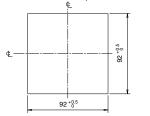
Dimensions



Mounting

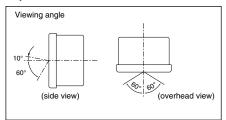
1 Dimension of panel

Panel hole dimensions are as shown in the following figure. It can be attached to a panel with thickness of 1.6 to 4.0mm.



2 View Angle

The contrast of the display changes at view angle. Mount it at the position that is easy to see.



screws too tightly.

3 Attachment

For attachment of the basic device into the panel hole, attach according to the following procedure. 2 Tighten the screws of the lug,

1)The attachment lug is installed in two holes of the top and bottom of the basic device.



4 Installing Optional Plug-in Module

When installing the optional plug-in module onto the basic device, install according to the following procedure

①Remove the optional cover.

2 Attach the optional unit to the main unit.

and fix onto the panel.



Note

Recommended torque for these products: 0.3~0.5N·m (approx. half of standard torque) Also, please tighten the upper and lower screws at the same time.

To prevent damage to the panel and screws, do not fasten

Main unit mounting screws: M3

Fit the protruding part of the optional unit into the slot in the main unit.

17.1





Wiring

1 Applicable Cable Size

The table on the right describes the applicable wire size.

| Part | Screw type | Wire specifications | Tightening torque |
|--|------------|---|-------------------|
| Product main body (auxiliary power supply, voltage input, current input and MODBUS® RTU communication terminals) | МЗ | Use of crimp-style terminals: AWG26 to 14 (2 wires can be connected.) Applicable crimp-style terminal: OD of 6 mm or less, for screw M3 | 0.6 to 0.8 N⋅m |
| Optional unit terminal (ME-0052-SS96, ME-0040C-SS96, ME-4210-SS96) | Screwless | Single wire and stranded wire: AWG24 to 14 (Rod terminal can be used together with stranded wire.) Wire stripping length: 10 to 11 mm '1: To conform to UL Standard, use in accordance with the following requirements. • Single wire and stranded wire: AWG24 to 18 •Use of a bar terminal is not allowed. '2: When using a bar terminal bick is 12 to 13 mm long. | - |

2 Wiring

Optional Plug-in Module Terminal

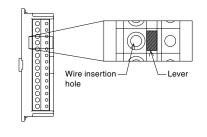
- ①Remove the wire casing at the end of the wire and solder to the rod terminal. 2 With the lever pushed in, insert the wire and
- then release the lever to connect.

3 Confirmations

After wiring, make sure the following:

- □ All wiring is connected
- There is no misitake in wiring

Optional Plug-in Module Terminal



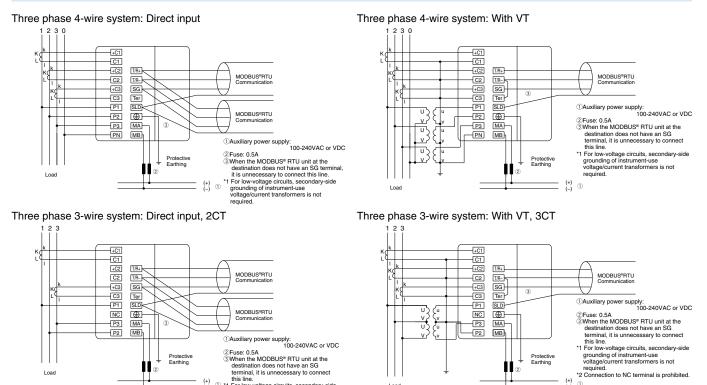
| | Protective sheet |
|------|--|
| | There is a protective sheet covering the LCD screen to prevent scratching during panel installation. Please remove the sheet before using the meter. When removing the sheet, the LCD may turn on due to the static electricity generated. This is not abnormal; the LCD will turn off after a short time. |
| Note | Installation position |
| | If installing the unit at the panel edge, choose an installation position where there is sufficient space for wiring work. |
| | Optional unit |
| | Turn the auxiliary power supply off before attaching the optional unit. If attached with the power on, the main unit will not recognize the optional unit. To remedy this, turn off/restart the auxiliary power supply or execute the "instrument restart" operation. |

Wiring Diagrams

P2 MB

Load

Protectiv Earthing



①Auxiliary power supply: 100-240VAC or VDC

2Fuse: 0.5A
 3When the MODBUS* RTU unit at the destination does not have an SG terminal, it is unnecessary to connect this line.
 1 For low-voltage circuits, secondary-side

grounding of instrument-use voltage/current transformers is not required. *2 Connection to NC terminal is prohibited.

(+) (-)

MB

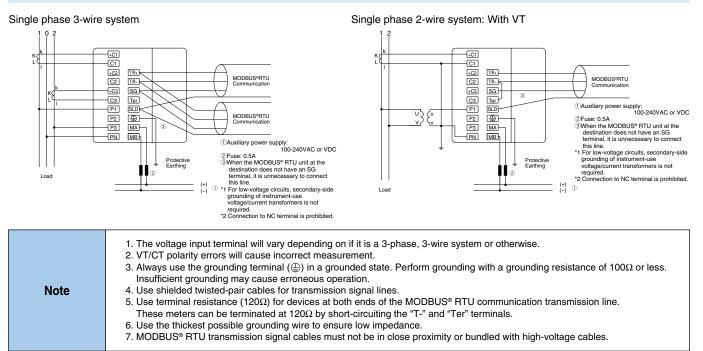
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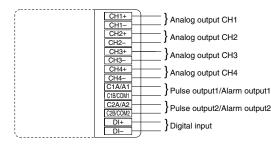
Load

External Dimensions/Installation/Connections

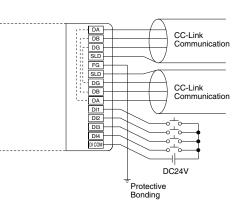
Wiring Diagrams (Continued)



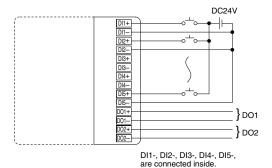
Optional Plug-in Module: ME-4210-SS96

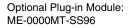


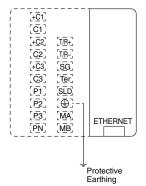
Optional Plug-in Module: ME-0040C-SS96



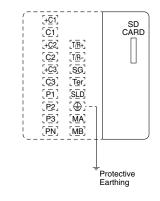
Optional Plug-in Module: ME-0052-SS96







Optional Plug-in Module: ME-0000BU-SS96





Wiring Diagrams (Continued)

| | Pulse output, alarm output, and contact input/output cables must not be in close proximity or bundled with power cables or high-voltage cables. When laid parallel, separate by the distance shown in the following table. |
|------|--|
| | Condition Distance |
| | Power lines under 600V/600A More than 30cm |
| | Other power lines More than 60cm |
| Note | Other power lines More than 60cm 2. Analog output cables must not be in close proximity or bundled with other power cables or input cables (e.g., VT, CT, auxiliary power supply). In addition, to prevent noise, surge and induction, use shielded cables or twisted-pair cables. Make sure that cables are as short as possible. 3. There is no insulation between the MODBUS® RTU communication portion and the optional module ME-4210-SS96, ME-0040C-SS96 or ME-0000MT-SS96. 4. Use only designated cables when connecting the CC-Link (see communication specifications). CC-Link dedicated cables cannot be used at the same time. The terminal resistance value varies depending on the type of dedicated cables. Normal data transmission cannot be guaranteed if used at the same time. 5. For cables connecting the CC-Link, connect shielded cables to "SLD" and ground "FG" cables. "SLD" and "FG" cables are connected inside the unit. 6. CC-Link transmission lines are small signal circuits: separate from strong electrical circuits by a distance of 10cm or more, or 30cm or more if laid in parallel over a long distance. Ground the terminal before use. 7. For CC-Link transmission, always use dedicated lines and comply with conditions for total wiring distance, distance between stations and terminal resistance values according to the communication speed. Not doing so may prevent normal communication (see the CC-Link Master Unit Operations Manual for information on dedicated lines and wiring conditions). 8. The terminal resistance supplied with the CC-Link Master Unit must always be used for the units at both ends of the CC-Link transmission line. If the meter is at the end of the CC-Link transmission line, if the meter is at the end of the CC-Link transmissio |
| | Replace the hub to be used for connection with that for 10 Mbps, and communicate at a data transmission speed of 10 Mbps. 10. Do not connect any terminal or RJ45 connector in the live state. 11. Do not insert or remove the SD memory card in the live state. |
| | Increase the number of communication retries as needed. Replace the hub to be used for connection with that for 10 Mbps, and communicate at a data transmission speed of 10 Mbps. 10. Do not connect any terminal or RJ45 connector in the live state. |

Connection Phase/Wire Rated voltage Figure Three phase 4-wire Star Max. 277VAC (L-N)/480VAC(L-L) Figure 1 Delta Max. 220VAC (L-L) Figure 2 Three phase 3-wire Max. 440VAC (L-L) Star Figure 3 Single phase 3-wire Max. 220VAC (L-N)/440VAC(L-L) Figure 4 -Delta Max. 220VAC (L-L) Figure 5 Single phase 2-wire* Max. 440VAC (L-L) Star Figure 6

Rated voltage for each phase/wire system

* The circuit derived from the three-phase 3-wire delta connection and the single-phase 2-wire transformer circuit have the maximum rating of 220 VAC. The circuits derived from the three-phase 4-wire and three-phase 3-wire star connections and single-phase 3-wire connection have the maximum rating of 440 VAC.

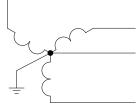
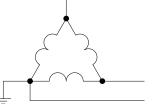


Fig. 1. Three phase 4-wire (star)



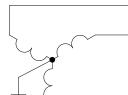


Fig. 3. Three phase 3-wire (star)

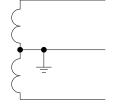


Fig. 2. Three phase 3-wire (delta)

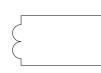


Fig. 4. Single phase 3-wire

Fig. 5. Single phase 2-wire (delta)

Fig. 6. Single phase 2-wire (star)

Related Products

EcoWebServerIII

Mitsubishi Electric Energy-saving Data Collection Server From visualization to publication of energy data

Simple Set-up

When using the set-up software supplied, power management meters connected to CC-Link and measurement data can be set by mouse and keyboard operations.

Display Measurement Data as Graphs on a Web Browser

The main unit has a built-in web server that allows anyone, anywhere to understand the amount of energy being used in real time via computer without requiring additional software, thereby supporting early detection of energy waste.

Automatic Transmission of Data Collected, Mail Notifications and Contact Output

Users are notified of changes in energy, facilities, etc. via e-mail and alarms. Energy management targets and status monitoring of entire factories and buildings help ensure that problems onsite are detected without fail.

 \bigcirc PLC data can also be sent to EcoWebServerIII by Ethernet.

◇Data of various sites can be browsed in the head office by utilizing the internal network.

ME110SS

Mitsubishi Electronic Indicating Instrument Super-S Series Highly functional and easy-to-use series supporting the realization of various instrument monitoring systems and energy-saving measurement monitoring systems

Common-use Models

Two phase wiring system (Three phase 3-wire and Three phase 4-wire systems) were required previously, but user needs can now be met with a single unit.

Enhanced Visibility

Wide-angle-view LCD with top and bottom tiers integrated for total freedom in installation. Crystal-clear display makes text even easier to read when viewed from the front.

A high-brightness backlight is provided, and its brightness can be adjusted in five stages.

Operating Time, CO₂ Conversion, Alarm Display Functions

Functions that enable load operating time measurement, conversion to CO2 emissions and backlight blinking at the time of an alarm are incorporated.

Collection, storage, visualization, publication on the web, analysis and monitoring All can be realized by one server.







Energy measuring units helpful in adding units for increased number of measuring circuits and preventive maintenance by simultaneous measurement of electric power and leakage

Phased expansion of energy-saving system

At first, energy-saving measurement can be started on a small scale from a desired place.

The system can be configured by adding units according to the increase of measuring circuits.

Leakage current monitoring

Lineup of basic units for monitoring insulation

Helpful in early detection of equipment problems through accurate leakage current trend monitoring by lor method

* Ior: Leakage current caused by insulation deterioration (leakage current of resistive component)

Simple management of measurement data with prepared forms and graphs

Data can be collected by the logging unit (SD memory card) without the host application on the PC, etc.

Forms and graphs can be easily prepared by using the spreadsheet software (logging unit utility*).

* The logging unit utility can be downloaded for free from Mitsubishi Electric FA site.

EcoMonitorLight

Energy measuring unit with integrated display for easily realizing the visualization of energy

A two-model line-up: a Three phase 3-wire system designed for users wanting simple power measurements at low cost; and a Three phase 4-wire system designed for users looking for basic power measurements plus something extra (harmonic measurements, alarm monitoring, etc.).

Simple Measurements

The built-in LCD enables easy setting, measurement and display of power used for energy management.

MODBUS® RTU (RS-485) Communication as Standard Equipment

Meters come with MODBUS[®] RTU communication as standard equipment, allowing the device to be used as a PLC system, other high-order system, display device (GOT), etc.

Logging/Communication Units for Expanded Measurement Applications

The product line-up also includes logging units/communication units (CC-Link communication unit) that can be incorporated as add-on options, enabling installations that best match to the customer's usage environment.

Logging unit: Data measured by the main unit (current, voltage, power, etc.) can be output to an SD memory card in CSV file format, realizing simple data management.

Highly Accurate Measurements and Support Functions

Customer activities are supported through functions such as 250µs high-precision (short-cycle load) measurement, operating time measurement, wiring error detection and test output.

Energy Measuring Unit









Safety Precautions

To ensure safety, read the following items carefully before use and always comply with procedures during use. Special attention should be given to items enclosed in a box and marked "Caution." Additionally, please carefully read the operations manual supplied with the product before use, and ensure that the manual read by the end user as well.

1 Usage Environment and Conditions

- Do not use these products under any of the following conditions. Doing so may cause erroneous operation and/or reduced service life.
 - Ambient temperature is outside the range of -5~55°C
 Daily average temperature over 35°C
 Relative humidity over 85% or presence of condensation
 Presence of excessive dust, corrosive gas, salt or oil/smoke
 Product is subject to excessive vibration or shock
 Product is in direct contact with rain, water drops or sunlight
 Altitude is above 2,000m
 Excessive external noise
 Pollution level is 2 or higher
 Transient overvoltage is 4,000V or higher
 Presence of metal fragments or conducting substances

2 Installation

Please note the following items regarding installation. To ensure safety, installation is to be performed by a qualified technical electrician. • Affix the main unit to the panel before use • The LCD display contrast changes depending on the angle from which it is viewed. Install it in a position that ensures a suitable angle of view. • Tighten screws using a torque of approx. 0.3~0.5N·m • To prevent damage to the LCD, take care not to subject the LCD/front of the main unit to shock/impact.

Auxiliary power supply and instrument ratings

| Auxiliary p supply | ower | 100~240VAC (±15%) 50-60Hz 100~240VDC (-30%, +15%) |
|-----------------------|-----------|--|
| Instrument ratings | Voltage | Three phase, 4-wire: Max. 277/480VAC Three phase, 3-wire: Delta connection: Max. 220VAC, Star connection: Max. 440VAC Single phase, 3-wire: Max. 220/440VAC Single phase, 2-wire: Delta connection: Max. 220VAC, Star connection: Max. 440VAC |
| | Current | 5A/1A |
| | Frequency | 50-60Hz (dual use) |

3 Connections

See pages 26~28 of this catalog for information regarding connections.

| ▲ CAUTION | To ensure safety, connections are to be performed by an electrical engineer qualified in wiring. Check connection diagrams carefully before performing connections. Incorrect connections may result in VT burnout caused by a VT secondary-side short circuit or high voltage on the CT secondary side, which may lead to device malfunction, fire or electrical shock. Do not work with live wires; there is a risk of electric shock and exposure to high voltage due to short-circuiting or CT secondary side opening, which may lead to malfunction, fire or electrical shock. Use electrical wire sizes compatible with the rated current. Use of unsuitable sizes may cause heat generation, which may lead to a fire. After performing connections, check that no connections have been missed. Missed connections may result in erroneous operation or high voltage on the CT secondary side, which may lead to a fire or electrical shock. At the time of wiring, an electric wire can be broken by pulling with strong power. (The load of pulling is less than 3-9 N) |
|------------------|--|
|------------------|--|

4 Preparations Before Use

• Before use, perform settings such as the VT primary voltage, CT primary current, power scale and demand time limit in accordance with the operations manual supplied with the product; setting errors may cause incorrect measurement/operation.

5 Usage Procedures

- Use the products within the rated range. Using the products outside the rated range may cause erroneous operation or product malfunction.
- Do not use the products for special applications such as nuclear power, aerospace or medical devices/systems.

CAUTION • Do not make any modifications to the products. Using products after modification may cause a malfunction, electrical shock or fire.



6 Repairing at Time of Malfunction/Error

• If a product listed in this catalog malfunctions, read the troubleshooting section of the operations manual (detailed version) and confirm the symptoms. If the problem is not listed, please contact a Mitsubishi Electric representative.

7 Maintenance/Inspections

- Wipe away any dust/dirt on the surface of the product with a soft cloth.
- Do not leave chemical cloths, etc. in contact with the product for long periods, and avoid the use of benzene, thinner, etc. when wiping the product surface. Doing so may cause deformation or cause the coating to peel away.
- To ensure correct use for the full service life of the product, please perform the following inspections:

①Check for damage to the product ②Check for display malfunctions (e.g., does not respond to input) ③Check for loose installation or terminal block wire connections (check regularly once every six months/year) always making sure that power has been turned off beforehand) ④Check for unusual smell, noise or rise in temperature.

8 Storage

Do not store the product for long periods of time under any of the following conditions. Doing so may lead to a malfunction or reduced service life. • Ambient temperature outside the range of -25~+75°C • Daily average temperature of more than 35°C • Relative humidity exceeding 85% or condensation present • Excessive dust, corrosive gas, salt or oil/smoke present • Product is subject to excessive vibration or shock • Product is in direct contact with rain, water drops or sunlight

9 Disposal

- These products do not use nickel-cadmium batteries. Dispose of them as industrial waste.
- The optional module ME-0000BU-SS96 contains a lithium battery. Dispose of the battery in accordance with the municipal regulations.
- In EU member states, there is a separate collection system for used batteries. Dispose of the batteries properly at the local collection/recycling center. The following symbol is printed on the package of ME-0000BU-SS96.



This symbol is applicable only in EU member states. The symbol is designated in Article 20 "Information for end-users" and Annex II of the new European Directive on batteries (2006/66/EC).

The above symbol indicates that the batteries must be disposed of after separation from general waste.



• The optional module ME-0000BU-SS96 contains a lithium battery. Therefore, if it is thrown into the fire, it may generate heat, rupture or ignite. Dispose of the lithium battery in accordance with the municipal regulations.

10 Warranty Period

The warranty period for the products in this catalog expires one year from the date of purchase or one year and six months after the date of manufacture; whichever is earliest. Even during the warranty period, the warranty shall not apply to malfunctions attributable to intentional negligence or erroneous use by the customer, and the fee for any repair required as the result of such negligence shall be the liability of the customer.

Mitsubishi Electric shall not be liable for: Damage that cannot be attributed to Mitsubishi Electric; lost opportunity or earnings resulting from failure of a Mitsubishi Electric product; damage, secondary damage or compensation for an accident resulting from special circumstances regardless of whether or not the circumstances were foreseeable; or damage to products or other services for products not manufactured by Mitsubishi Electric.

11 Product Exchange Cycle

Although it depends on usage conditions, as a guide, it is recommended that the products listed in this catalog be renewed after 10 years.

ELECTRONIC MULTI-MEASURING INSTRUMENT

Service Network

| Activity Multiple Multiple State Australy Proj. 41 State S | Country/Region | Corporation Name | Address | Telephone |
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