Energy-saving Data Collecting Server
EcoWebServer III

Simple - Convenient - Compact
Realizing Energy Visualization and Demand Management
We bring together the best minds to create the best technologies. At Mitsubishi Electric, we understand that technology is the driving force of change in our lives. By bringing greater comfort to daily life, maximizing the efficiency of businesses and keeping things running across society, we integrate technology and innovation to bring changes for the better.

Mitsubishi Electric is involved in many areas including the following:

**Energy and Electric Systems**
A wide range of power and electrical products from generators to large-scale displays.

**Electronic Devices**
A wide portfolio of cutting-edge semiconductor devices for systems and products.

**Home Appliance**
Dependable consumer products like air conditioners and home entertainment systems.

**Information and Communication Systems**
Commercial and consumer-centric equipment, products and systems.

**Industrial Automation Systems**
Maximizing productivity and efficiency with cutting-edge automation technology.
Global Player

GLOBAL IMPACT OF MITSUBISHI ELECTRIC

We bring together the best minds to create the best technologies. At Mitsubishi Electric, we understand that technology is the driving force of change in our lives. By bringing greater comfort to daily life, maximizing the efficiency of businesses and keeping things running across society, we integrate technology and innovation to bring changes for the better.

Mitsubishi Electric is involved in many areas including the following

- **Energy and Electric Systems**
  A wide range of power and electrical products from generators to large-scale displays.

- **Electronic Devices**
  A wide portfolio of cutting-edge semiconductor devices for systems and products.

- **Home Appliance**
  Dependable consumer products like air conditioners and home entertainment systems.

- **Information and Communication Systems**
  Commercial and consumer-centric equipment, products and systems.

- **Industrial Automation Systems**
  Maximizing productivity and efficiency with cutting-edge automation technology.

Through Mitsubishi Electric’s vision, “Changes for the Better” are possible for a brighter future.

---

**OVERVIEW**

System Configuration Example P.4

Energy-saving Points P.6

Lineup P.8

Features P.9

Example screen P.14

Application Examples P.16

Main Unit Specifications P.18

Connection diagram P.19

Function Comparison/System Environment P.20

External Diagram/Bundled Products List P.22

Support terminal P.23

Related Products P.24

Safety Precautions P.28
Energy Management System

Energy-saving Data Collection Server EcoWebServer III

Support factory, building and school energy-saving activities. Build visualized environments and manage energy effectively. Support to energy conditions at all times and quickly resolve energy loss problems. Finally reduce energy loss, increase productivity and cut production costs.

Energy-saving method

**Plan**
Comparatively high specific consumption (waste of energy, negative influence on productivity)
Ex. 1 kWh of electricity per day can be saved with improvement.
- Facilities start-up too fast
- After investigation and deciding appropriate start-up time, implement countermeasure

**Do**
Compare data before and after implementing countermeasure
(1 kWh reduced per day)

**Check**
Implement similar countermeasures for other facilities

Support energy-saving activities using “Visible Management”

- 1. Monitor/Manage energy by department
- 2. Specific consumption-based management of energy-saving activities
- 3. Monthly/Annual target-based management
- 4. Monitor equipment operating status
- 5. Manage/Record energy data

- Mitsubishi Electric AE-200J
- Web-compatible integrated air-conditioning controller
- *F Series requires serial converter
- MELSEC programmable controller
  - Q Series, QnA Series, A Series, L Series, F Series*
- Energy measuring module / Insulation monitoring module
- Check demand information and alarm records onsite
- Analog input
- Temperature input
- Contact output
- Enables remote control of load at locations far from EcoWebServer
- # Ethernet (MELSEC communication protocol)

- Data collection inside inner register
- Measurement data written to inner register
- Zoom (1 or 5 min), daily, monthly, annual, facility (daily), specific consumption, demand (daily, monthly, annual), demand alarm, control, operation history, system log file
- Abnormal upper/lower limits, operating status, target value over specific consumption, over planned energy value, error information

- SMTP server (Mail server)
- SNTP server (Time server)
- FTP server (File server)

- Acquire time information
- Adjust EcoWebServer clock

- MODBUS® TCP ⇔ MODBUS® RTU
- Protocol converter

- Comparatively high specific consumption (waste of energy, negative influence on productivity)
  Ex. 1 kWh of electricity per day can be saved with improvement.

- Ex) /H17005 kWh of electricity per day can be saved with improvement.

- Compare data before and after implementing countermeasure
  (1 kWh reduced per day)

- Implement similar countermeasures for other facilities

- Entire factory

- Plant manager
- Employee A
- Employee B

- EnergyMeasuringUnit (EcoMonitorLight)
- EnergyMeasuringUnit (EcoMonitorPlus)
- Electronic multi-measuring instrument (ME96SS Ver.A)
Electronic multi-measuring instrument (ME96SS Ver.A)

Data collection inside inner register

Measurement data written to inner register

Transfers files in CSV format

Zoom (1 or 5 min), daily, monthly, annual, facility (daily), specific consumption, demand (daily, monthly, annual), demand alarm, control, operation history, system log file

Acquire time information

Adjust EcoWebServer II clock

E-mail notification

Abnormal upper/lower limits, operating status, target value over specific consumption, over planned energy value, error information

FTP server (File server)

SMTP server (Mail server)

SNTP server (Time server)

Receiving point

Demand measurement

Collects production data

Network monitoring lamp

Collects energy data

MELSEC-Q Series

Energy measuring module / Insulation monitoring module

Mitsubishi Electric

AE-200J

Web-compatible integrated air-conditioning controller

*F Series requires serial converter

MELSEC programmable controller

Q Series, QnA Series, A Series, L Series, F Series*

CCLink

MDU breaker

Electronic multi-measuring instrument (ME96SS Ver.A)

Analog input

Temperature input

Contact output

Enables remote control of load at locations far from EcoWebServer II

EcoWebServer II (with demand control function)

Acquire time information

Adjust EcoWebServer II clock

SMTP server

(Mail server)

SNTP server

(Time server)

Data collection inside inner register

Measurement data written to inner register

Electronic multi-measuring instrument (ME96SS Ver.A)

Collects energy data

CC-Link

MELSEC-Q Series

Energy measuring module / Insulation monitoring module

Ethernet (MELSEC communication protocol)

Up to 32 units

RS-485 (MODBUS® RTU)

MODBUS® TCP ⇔ MODBUS® RTU

Protocol converter

Electronic multi-measuring instrument (ME96SS Ver.A)

Energy Measuring Unit (EcoMonitorLight)

Energy Measuring Unit (EcoMonitorPlus)

For monitoring equipment status

Alarm activated

For managing objectives

Did we achieve our target this month?

For improvement activities

We can reduce waste even further here.
Energy-saving Points

Importance of visualizing energy

Essentials Issues for Saving Energy

Target Value Management

Managing objectives is a very important issue when practicing energy savings. “Target value management” is the process of transforming actual conditions into ideal conditions, and thereby requires understanding the actual situation and how much “unseen” waste there is. For this reason, target value management involves performing detailed management of operations, moving from months to days and lines to equipment, and evolving from “seeing” waste to “understanding” it.

Additionally, when using target value management, it is necessary to construct and put into practice an organization that values “people who set objectives (manage),” “people who find things” and “people capable of thinking of improvements and implementing them.”

Specific consumption management

In lines where there is a large difference in production volume, it is difficult to save energy and improve productivity using energy management alone. By understanding specific consumption —energy consumed per product— waste in energy and production processes can be clarified, and it becomes easier to implement countermeasures.

Rather than simply not using energy, it’s important to use energy efficiently when, where and how much needed.

Specific consumption management

EM (Energy loss Minimum) activities

Actual
- No-load power is consumed when there is no production.
- Lights are on in areas where there are no people.
- There are no inverters, so an unnecessary amount of energy is being used.

This is specific consumption management

Improvements

Energy required for production:
- **Necessary time** (year, month, day, hour, minute, second...)
- **Necessary place** (all, building, department, production line, equipment)
- **Necessary amount** (technical standards, use/operation standards)

Discover waste

Improve productivity (→ Save energy)

The ideal condition is efficient use of the necessary amount of energy, at the necessary place and necessary time.
Importance of Demand Monitoring

Energy Saving by visualizing demand

What is “Demand”....?

Demand is average electric power at a specified period. This period for demand differs for each country and the way of management method. Electric fee is basically determined based on the highest demand in one year (→ contract demand). The higher the contract demand is, the more expensive the electric basic charge is. There are two types of basic demand management method as below.

(2) Fixed block demand management method
The demand period consists of only an interval.

Fixed block demand management
Ex) Interval: 30min

(2) Rolling block demand management method
The demand period consists of interval and sub interval. Interval is the period for calculation of average electric. Sub interval is the period for update the calculation.

Rolling block demand management method
Ex) Interval: 15min, Sub interval 5min

EcoWebServer with demand monitoring function comply with the Fixed block demand management method. Interval can be selected from 15min or 30min.

Subtotal Volume
• Demand (power demand) is computed and calculated by taking pulses from the multi-measuring meter (transaction meter) for power demand.

Estimation
• The value at the end of the 30-minute time limit is estimated from the measured demand (power demand).

Warning
• Based on the results of the estimation, an alarm is output and a notification sent when the objective demand has been exceeded.
  • The alarm notification can be a buzzer, display lamp, etc., which is sent through the contact output.

Load interruption
• Load interruption may be necessary depending on power use.
  • A control output signal can be used to automatically interrupt the load.

Reduce demand
Reduce basic free

Realize visualization of energy and demand management with one EcoWebServer.
Energy-saving Data Collection Server EcoWebServer III

**Product name**
- Energy-saving Data Collection Server
- Energy-saving Data Collection Server (with demand control function)

**Model no.**
- MES3-255C-EN
- MES3-255C-DM-EN

**Communication**
- CC-Link, MODBUS® (TCP, RTU*)

*MODBUS® TCP ↔ RTU converter is required for MODBUS® RTU communication.

**Network Specifications (CC-Link)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transmission speed</strong></td>
<td>156kbps / 625kbps / 2.5Mbps / 5Mbps / 10Mbps</td>
</tr>
<tr>
<td><strong>Transmission speed (maximum transmission distance)</strong></td>
<td>Maximum total cable length</td>
</tr>
<tr>
<td>156kbps</td>
<td>1200m</td>
</tr>
<tr>
<td>625kbps</td>
<td>900m</td>
</tr>
<tr>
<td>2.5Mbps</td>
<td>400m</td>
</tr>
<tr>
<td>5Mbps</td>
<td>160m</td>
</tr>
<tr>
<td>10Mbps</td>
<td>100m</td>
</tr>
<tr>
<td><strong>Maximum number of connected units</strong></td>
<td>Maximum number of units connected</td>
</tr>
<tr>
<td>64 units</td>
<td>1. Total number of stations</td>
</tr>
<tr>
<td>However, conditions on the right must be met</td>
<td></td>
</tr>
<tr>
<td>2. Number of units connected</td>
<td></td>
</tr>
<tr>
<td>16x (A + D) + 54x(B + C) + 2304</td>
<td>A. Number of remote I/O stations</td>
</tr>
<tr>
<td></td>
<td>B. Number of remote device stations</td>
</tr>
<tr>
<td></td>
<td>C. Number of local stations, intelligent device stations</td>
</tr>
<tr>
<td></td>
<td>D. Number of reserve stations</td>
</tr>
</tbody>
</table>

**MODBUS® TCP**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interface</strong></td>
<td>1port (10BASE-T/100BASE-TX)</td>
</tr>
<tr>
<td><strong>Transmission method</strong></td>
<td>Base band</td>
</tr>
<tr>
<td><strong>Number of cascade connection stages</strong></td>
<td>Max. 4 stages (10BASE-T)</td>
</tr>
<tr>
<td></td>
<td>Max. 2 stages (10BASE-TX)</td>
</tr>
<tr>
<td><strong>Maximum node-to-node distance</strong></td>
<td>200m</td>
</tr>
<tr>
<td><strong>Maximum segment length</strong></td>
<td>100m</td>
</tr>
<tr>
<td><strong>Connector applicable for external wiring</strong></td>
<td>RJ45</td>
</tr>
<tr>
<td><strong>Cable</strong></td>
<td>10BASE-T</td>
</tr>
<tr>
<td></td>
<td>Cable compliant with the IEEE802.3 10BASE-T Standard (unshielded twisted pair cable (UTP cable), Category 3 or more)</td>
</tr>
<tr>
<td>100BASE-TX</td>
<td>Cable compliant with the IEEE802.3 100BASE-TX Standard (shielded twisted pair cable (STP cable), Category 5 or more)</td>
</tr>
<tr>
<td><strong>Protocol</strong></td>
<td>MODBUS® TCP (Port Number 502)</td>
</tr>
</tbody>
</table>

*1 This is the maximum number of cascade connection stages when a repeater hub is used. For the maximum number of cascade connection stages, contact to the manufacturer for the switching hub used.

*2 Length between a hub and a node.

**MODBUS® RTU**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical interface</strong></td>
<td>RS-485 2wires half duplex</td>
</tr>
<tr>
<td><strong>Protocol</strong></td>
<td>RTU mode</td>
</tr>
<tr>
<td><strong>Transmission wiring type</strong></td>
<td>Multi-point bus (either directly on the trunk cable, forming a daisy-chain)</td>
</tr>
<tr>
<td><strong>Slave address</strong></td>
<td>1~247 (F7)</td>
</tr>
<tr>
<td><strong>Response time</strong></td>
<td>1s or less</td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td>1200m</td>
</tr>
<tr>
<td><strong>Max. number</strong></td>
<td>31</td>
</tr>
<tr>
<td><strong>Terminate</strong></td>
<td>120Ω 1/2W</td>
</tr>
<tr>
<td><strong>Recommended cable</strong></td>
<td>Shielded twisted pair, AWG24 to T4 gauge</td>
</tr>
</tbody>
</table>

Note: Baud rate, stop bit and parity are necessary to set in the setting mode of each terminal.
1. Measured data can be displayed on a Web browser with graphs without any programing.

- Using the HTTP Server function, the collected data is transmitted via Ethernet across the Internet/Intranet so that all employees can confirm and understand the amount of energy used in real-time.

2. Easy setting by using dedicated setting software.

- The minimum required registering configuration on the measuring is “① Measuring terminal registration” → “② Measuring point registration” → “③ Writing the project” only.
3. Add new comparison screens according to the scenario. Strong support provided for analyzing activities.

1 Date comparison graph

- The display procedure is select “① Measuring point group/name → ② Graph display date” and select “③ Display” only.
- A comparison of the specified date and items can be displayed.

2 Measuring point comparison graph

- The display procedure is to select “① Measuring point group/name → ② Graph display format → ③ Graph No. → ④ Graph display intervals etc.” and select “⑤ Display” only.
- It’s possible to select graphs and display various graphs in the format of your choice. It’s also possible to display the same graph, making it easy to understand graph correlations.
4. It can be connected at MODBUS* RTU/TCP communication
Compatible model: MES3-255C-DM-EN only

- Using the LAN interface (CH2) of EcoWebServer III, realize MODBUS* TCP communication.
  (As with the case of MC protocol communication)
- Using the LAN CH2 of EcoWebServer III, via MODBUS* TCP ↔ MODBUS* RTU converter, realize MODBUS* RTU communication.

*MODBUS* TCP ↔ RTU converter is required for MODBUS* RTU communication.
MODBUS* TCP ↔ RTU converter (SI-485 MB) is produced by LINEEYE CO.,LTD.

5. Connection with Mitsubishi Electric GOT display device.

- Information collected on the EcoWebServer III can be displayed on the GOT.
- By displaying the alarm state/measuring value for energy information/demand, real-time monitoring at the site and urgent countermeasures are possible.

6. Alarm output/email notification through a variety of monitoring functions.

- Objective values (upper/lower) and error information can be transmitted through email notifications/ alarm output, and changes in status can be recognized immediately. The result of the careful target value management and monitoring the status monitoring ensure that problems occurring at the site are not overlooked.

*Items monitored*
- Energy plan value
- Specific consumption objective value
- Upper/lower irregularity
- Change in operating state
- Error information
- Demand alarm
7. Simultaneously visualize demand trends and energy consumption per building/load
Compatible model: MES3-255C-DM-EN only

- As the breakdown of power demand (load balance) can be easily understood from the power demand trends and stacked bar graphs for each regional substation and operating equipment can be reviewed, and operations can be planned and proposed based on the analysis results, which enable peak shift/peak cut.

Load installed in a location separated from the EcoWebServer can also be controlled by CC-Link transmission. (CC-Link: total cable length up to 1.2km)

Graph example

Demand monitor screen

- Current demand display area
- Demand load curve
- Target Value
- Fixed Value
- Current day demand trend graph

Alarm status display area
Demand information display area
Control status display area
8. Energy-saving air conditioning operation realized by interconnecting with integrated air-conditioning controller.

Compatible model: MES3-255C-DM-EN only

- Demand control possible by interconnecting with Mitsubishi Electric Web-compatible integrated controller—AE-200J, G-150AD, etc.
  Additionally, automatic control of load possible through contact point output via main unit of EcoWebServer III and CC-Link.

9. Easily understand productivity by confirming the specific consumption graph

- By integrating the production volumes from the measuring terminal and PLC, the specific consumption graph can be easily displayed and points related to the drop in specific consumption can be easily understood.
- Additionally, by comparing two specific consumption graphs at the same line, it is possible to confirm the benefits at the time the countermeasure was implemented.
1. Date comparison graph screen

Electric consumption/current display

Voltage/power factor display

2. Measuring point comparison graph screen

Analysis by application

Analysis by department

Correlation analysis (graph overlapping)

3. Specific consumption graph screen

Daily

Monthly

Yearly
4. Demand monitor screen

![Demand Monitor Screen]

5. Demand trend graph screen

- **Daily**
- **Monthly**
- **Yearly**

6. Current value/contact point output monitor screen

- **Current value**
- **Contact point output**
Factories

Support Energy-saving Activities using “Visible Management”.

1. Monitor/Manage energy by department
2. Specific consumption-based management of energy-saving activities
3. Monthly/Annual target-based management
4. Monitoring of equipment operating status
5. Manage/Record energy data

LAN (Ethernet)

At production site…

Factory No. 1

CC-Link

Measurement data

Production
- Department
- Power/Power consumption
- Power factor
- Consumption of water/steam/air/gas/other
- Specific consumption data
- Production quantity, other

Office

Administration Department
- Air conditioning
- Lighting
- Office automation equipment
- Electrical outlets
- Water/Gas usage

For improvement activities

Factory No. 2

CC-Link

Electronic multi-measuring instrument (MERSS Ver.A)

Operating status (contact signal)

Production equipment

Production quantity (pulse signal)

We can reduce waste from other here.

Employees

No! Consumption has increased compared to last year.

Good news!
Store B has improved energy-savings.

Plant manager

Did we achieve the target this month?

In the office…

Wow, there’s no need to go to the building.

I see…

Good news!
20th floor has improved energy-savings.

For target management

To monitor equipment status

Oh, an e-mail notifying of a problem in production line A.

Alarm activated

Did we achieve the target this month?

Employees

Someone forgot to turn off the lights in the gym.

Main building

Administration Department

16
**Buildings**

Significantly reduce installation cost by using the existing LAN.

1. Manage/Monitor energy by floor/application
2. Manage data remotely
3. Easy for tenants and other personnel to read meters
4. Monitor operating status of building facilities (e.g., elevators, escalators, air conditioners)
5. Record/Manage energy data

**Stores**

1. Remote management of energy data for small, spread-out stores
2. Compare data of each store
3. Record/Monitor equipment operating status (e.g., manage freezer/refrigerator temperatures)
4. Easy for tenants and personnel to read meters

* When using a public line, a dial-up router is required.
* For use via the Internet, a separate contract with an Internet service provider is required.

**Schools**

1. Understand power consumption by facility (e.g., gymnasium) and equipment (e.g., transformer)
2. Monitor operating status of equipment distributed across a wide area
3. Save time and staff needed for meter-reading work
4. Record/Manage energy data

* When using a public line, a dial-up router is required.
* For use via the Internet, a separate contract with an Internet service provider is required.
Main Unit Specifications

**MES3-255C-EN** front

7-segment LED display
Displays an error code when an error is detected. In addition, in IP address display mode, the preset IP address is displayed at start-up.

USB interface
Not used.

LAN interface CH1
Use connected to a computer network.

LAN interface CH2
Use when connected to a programmable controller network. MITSUBISHI GOT, MODBUS** communication.

Power-supply terminal block
Connect power supply. (Note 1)

CC-Link terminal block
Connect CC-Link communication cable.

**MES3-255C-DM-EN** front

7-segment LED display
Displays an error code when an error is detected. In addition, in IP address display mode, the preset IP address is displayed at start-up.

USB interface
Not used.

LAN interface CH1
Use connected to a computer network.

LAN interface CH2
Use when connected to a programmable controller network. MITSUBISHI GOT, MODBUS** communication.

Power-supply terminal block
When you open the panel, you will see the power-supply terminal block. (Note 1)

LED display
Display each status.

CC-Link station number setting switch
Set CC-Link station number.

CC-Link transmission speed setting switch
Set CC-Link transmission speed.

Contact output terminal block
Closed when conditions monitoring function conditions are met. Connect external equipment such as buzzers and lamps.

LED display
Display each status.

**Front surface (cover of Server section opened)/bottom surface (CC-Link transmission device)**

Front surface (cover of Server section opened)

CompactFlash™ memory card EJECT button
Push the button and remove the CompactFlash™ memory card.

MODE/STOP/RUN switch
Normally, used in RUN state.

RESET/SELECT switch
Used when resetting the main unit.

CompactFlash™ memory card
Stores programs for collecting and displaying data. Data collected is also saved to it. (Note 3)

Bottom surface

RS-232 interface
Not used.

Battery storage compartment
Store the battery. Remove the cover and connect the connector. (Note 4)

(Note 1) Connect to AC100V-240V×100V/15%×50/60Hz(US/EN). Do not connect to a power supply other than that specified as this may cause an accident.

(Note 2) A separate power supply is required for the demand monitor section when using. When using the main device, AC100V-240V×100V/15%×50/60Hz power is required for the demand monitor connector terminals V1, V2. It is possible to connect power from the power-supply module.

(Note 3) CompactFlash™ memory cards are used in a constantly attached data. If they are removed while the power is on or the memory card is being accessed, this product will malfunction.

(Note 4) Be sure to exchange the battery within three minutes after turning off the power. If more than three minutes passes after the battery is removed, the final one hour of data may be lost or the clock may initialize. (Data or configuration settings from more than one hour before will not be initialized). If the clock initializes, please set again after backing up the data. Refer to the operating manual (Hardware edition) for the battery replacement procedure.
Connection diagram

Model: MES3-255C-EN, MES3-255C-DM-EN

Power-supply section

Server communications section (LAN interface)

■When displaying graphs

Connecting point output section

■When setting (CH1)

■When connecting the PLC (CH2)

Operation of Ethernet/serial converter can be confirmed using the following product.
Line Eye 5i-65

CC-Link communication section

Demand monitor section

(1) Where the transaction meter of the multi-measuring power demand meter is 10,000 pulse/kWh
## Functions

### Demand function

<table>
<thead>
<tr>
<th>Product Name</th>
<th>MES3-255C-EN</th>
<th>MES3-255C-DM-EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC-Link terminal device</td>
<td>Number of remote I/O stations: 64, Number of remote device stations: 42, Number of local stations: 26</td>
<td></td>
</tr>
<tr>
<td>MODBUS® terminal device</td>
<td>Number of MODBUS® TCP terminals: 255, Number of MODBUS® RTU terminals: 311 for each gateway, Number of total MODBUS® terminals: 255</td>
<td></td>
</tr>
<tr>
<td>MITSUBISHI PLC, GQT</td>
<td>MC protocol connection (LAN CH2 used) * device read/write, CC-Link unit (local) connection * device read</td>
<td></td>
</tr>
</tbody>
</table>

### Number of measuring points

<table>
<thead>
<tr>
<th>Measuring points</th>
<th>Number of operation measuring points</th>
<th>Virtual measuring points</th>
<th>Specific consumption measuring points</th>
<th>Connection point output</th>
<th>Demand monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom (every 1min) data</td>
<td>255 points</td>
<td>128 points</td>
<td>64 points</td>
<td>32 points (includes 255 measuring points)</td>
<td></td>
</tr>
<tr>
<td>Daily data (on the hour or every 30min)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly data (specific time: 10min once a day)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yearly data (specified time: 10min once a month)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual measuring point data (daily)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual measuring point data (monthly)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual measuring point data (yearly)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific consumption measuring point data (daily)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific consumption measuring point data (monthly)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific consumption measuring point data (yearly)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment data (daily)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment data (monthly)</td>
<td>186-day amount</td>
<td>60-month amount</td>
<td>5-year amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating history data</td>
<td>64GB×4 files</td>
<td>256GB×8 files</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Data saving function * CSV format

<table>
<thead>
<tr>
<th>Demand data (daily)</th>
<th>Demand data (monthly/daily maximum)</th>
<th>Demand data (yearly/monthly maximum)</th>
<th>Demand alarm/Control log</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

### Display function

#### Real-time

| Demand monitor | — | — | — |

#### Displaying point output status

| Connection point output monitor | Displays connecting point output status |

#### Graph display

<table>
<thead>
<tr>
<th>Demand trend graph</th>
<th>Displays demand trend graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring point comparison graph</td>
<td>Displays comparison of multiple measuring point data for specified display interval/time displayed</td>
</tr>
<tr>
<td>Daily comparison graph</td>
<td>Displays comparison of specified measuring points for desired date</td>
</tr>
<tr>
<td>Specific consumption graph</td>
<td>Displays graph after dividing energy volume by number produced</td>
</tr>
</tbody>
</table>

### Data file

| Download measuring point data, virtual measuring point data, specific consumption data, equipment data, operating history data, system log, demand data, alarms/control log, Only for products with demand monitoring functions |

### Equipment values list

| Displays measuring points, connection point output and content of email notifications set for EcoServer® |

### Monitoring functions

#### Email notification function

| Transmits main unit error notifications, periodic notifications, upper/lower limit notifications, operating status notifications, specific consumption objective value notifications, energy plan value notifications and demand notifications * to the specified SMNP Server (Only for products with demand monitoring functions) |

#### Connection point output

| Outputs connection points for EcoServer® connection point output module or combined CC-Link input/output module |
Hardware specification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>MES3-255C-EN</th>
<th>MES3-255C-DM-EN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary power input</td>
<td>100 to 240 V AC (+10%, -15%) 50/60 Hz (35%)</td>
<td>100 to 240 V AC (+10%, -15%) 50/60 Hz (35%)</td>
</tr>
<tr>
<td>Consumption VA</td>
<td>19 VA (at 110 V AC)</td>
<td>34 VA (at 110 V AC)</td>
</tr>
<tr>
<td></td>
<td>25 VA (at 220 V AC)</td>
<td>46 VA (at 220 V AC)</td>
</tr>
<tr>
<td>Input current</td>
<td>20 A, 8 ms or less</td>
<td>20 A, 8 ms or less</td>
</tr>
<tr>
<td>Allowable momentary power interruption time</td>
<td>20 ms or less (100 V AC or higher)</td>
<td>20 ms or less (100 V AC or higher)</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>Between all input/GO terminals and all output terminals</td>
<td>Between all input/GO terminals and all output terminals</td>
</tr>
<tr>
<td></td>
<td>2,830Vrms AC/3 cycles (altitude: 2,000 m)</td>
<td>2,830Vrms AC/3 cycles (altitude: 2,000 m)</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>10 MΩ or more by 500 V DC insulation tester at the same locations as for withstand voltage</td>
<td>10 MΩ or more by 500 V DC insulation tester at the same locations as for withstand voltage</td>
</tr>
<tr>
<td>Operating ambient temperature/humidity</td>
<td>0 to 55 °C, 5 to 95% RH . Daily average temperature exceeds 35°C</td>
<td>0 to 55 °C, 5 to 95% RH . Daily average temperature exceeds 35°C</td>
</tr>
<tr>
<td>Storage ambient temperature/humidity</td>
<td>-25 to +75 °C, 5 to 95% RH</td>
<td>-25 to +75 °C, 5 to 95% RH</td>
</tr>
<tr>
<td>Installation area</td>
<td>Inside a control panel</td>
<td>Inside a control panel</td>
</tr>
<tr>
<td>Weight</td>
<td>0.9 kg (Without demand)</td>
<td>1.25kg (With demand)</td>
</tr>
<tr>
<td><strong>Ethernet</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Built-in (unreplaceable by user)</td>
<td>Built-in (unreplaceable by user)</td>
</tr>
<tr>
<td></td>
<td>interface: 2 ports (10BASE-T/100BASE-TX)</td>
<td>interface: 2 ports (10BASE-T/100BASE-TX)</td>
</tr>
<tr>
<td></td>
<td>Transmission method: Baseband</td>
<td>Transmission method: Baseband</td>
</tr>
<tr>
<td></td>
<td>Cascade connection limit: 4 levels max. (10BASE-T), 2 levels max. (100BASE-TX)</td>
<td>Cascade connection limit: 4 levels max. (10BASE-T), 2 levels max. (100BASE-TX)</td>
</tr>
<tr>
<td></td>
<td>Max. segment length: 100 m</td>
<td>Max. segment length: 100 m</td>
</tr>
<tr>
<td></td>
<td>Compatible connector: RJ45</td>
<td>Compatible connector: RJ45</td>
</tr>
<tr>
<td></td>
<td>Functions supported: Auto-negotiation (10BASE-T/100BASE-TX automatically detected)</td>
<td>Functions supported: Auto-negotiation (10BASE-T/100BASE-TX automatically detected)</td>
</tr>
<tr>
<td></td>
<td>Auto MDIX function (straight/crossover cable automatically detected)</td>
<td>Auto MDIX function (straight/crossover cable automatically detected)</td>
</tr>
<tr>
<td>Clock accuracy</td>
<td>0 to 55 °C</td>
<td>0 to 55 °C</td>
</tr>
<tr>
<td></td>
<td>Per day: -10.89 to +8.64 sec</td>
<td>Per day: -10.89 to +8.64 sec</td>
</tr>
<tr>
<td></td>
<td>25 °C</td>
<td>25 °C</td>
</tr>
<tr>
<td></td>
<td>Per day: -4.3 to +5.25 sec</td>
<td>Per day: -4.3 to +5.25 sec</td>
</tr>
<tr>
<td></td>
<td>Additional difference of ±0.5 seconds can be produced during power outages.</td>
<td>Additional difference of ±0.5 seconds can be produced during power outages.</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Backup data</td>
<td>Backup data</td>
</tr>
<tr>
<td></td>
<td>Clock</td>
<td>Clock</td>
</tr>
<tr>
<td></td>
<td>Measured data for the last 1 hour</td>
<td>Measured data for the last 1 hour</td>
</tr>
<tr>
<td></td>
<td>Backed up by nonvolatile memory (CompactFlash memory card).</td>
<td>Backed up by nonvolatile memory (CompactFlash memory card).</td>
</tr>
<tr>
<td></td>
<td>Setting values</td>
<td>Setting values</td>
</tr>
<tr>
<td></td>
<td>Measured data except for the last 1 hour</td>
<td>Measured data except for the last 1 hour</td>
</tr>
<tr>
<td></td>
<td>Type: Lithium manganese dioxide primary battery</td>
<td>Type: Lithium manganese dioxide primary battery</td>
</tr>
<tr>
<td></td>
<td>Initial voltage: 3.0 V</td>
<td>Initial voltage: 3.0 V</td>
</tr>
<tr>
<td></td>
<td>Nominal current: 1800 mAh</td>
<td>Nominal current: 1800 mAh</td>
</tr>
<tr>
<td></td>
<td>Life when in storage: 5 years at room temperature (actual service value)</td>
<td>Life when in storage: 5 years at room temperature (actual service value)</td>
</tr>
<tr>
<td><strong>Contact output section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of output points</td>
<td>16 points</td>
<td>16 points</td>
</tr>
<tr>
<td>Contact output</td>
<td>A switch type</td>
<td>A switch type</td>
</tr>
<tr>
<td>Insulation method</td>
<td>Relay insulation</td>
<td>Relay insulation</td>
</tr>
<tr>
<td>Rated switching voltage/current</td>
<td>240 V AC 2 A (DC12V)</td>
<td>240 V AC 2 A (DC12V)</td>
</tr>
<tr>
<td></td>
<td>240 V AC 2 A (DC12V)</td>
<td>240 V AC 2 A (DC12V)</td>
</tr>
<tr>
<td>Min. switching load</td>
<td>5 V DC, 1 mA</td>
<td>5 V DC, 1 mA</td>
</tr>
<tr>
<td>Max. switching load</td>
<td>264 V AC 2 A, 125 V DC 2 A</td>
<td>264 V AC 2 A, 125 V DC 2 A</td>
</tr>
<tr>
<td>Life</td>
<td>Mechanical: 20,000,000 times or more, electrical: 100,000 times or more at rated switching voltage/current</td>
<td>Mechanical: 20,000,000 times or more, electrical: 100,000 times or more at rated switching voltage/current</td>
</tr>
<tr>
<td><strong>Demand surveillance section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse input/Time limit synchronous signal input</td>
<td>Dedicated detection CT</td>
<td>Dedicated detection CT</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Number of pulses: 50000 pulses/kWh</td>
<td>Number of pulses: 50000 pulses/kWh</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Signal type: Normal voltage normally-open contact/Normally-closed collector</td>
<td>Signal type: Normal voltage normally-open contact/Normally-closed collector</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Number of pulses: 50000, 12500, 10000, 2000</td>
<td>Number of pulses: 50000, 12500, 10000, 2000</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Pulse conditions: Pulse width, Pulse interval</td>
<td>Pulse conditions: Pulse width, Pulse interval</td>
</tr>
<tr>
<td>Power frequency input</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>100-110 V AC, -15% +10%, 50/60 Hz</td>
<td>100-110 V AC, -15% +10%, 50/60 Hz</td>
</tr>
<tr>
<td>Contact output (1 point)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>No-voltage normally-closed contact, 250 V AC 3 A, 30 V DC 3 A</td>
<td>No-voltage normally-closed contact, 250 V AC 3 A, 30 V DC 3 A</td>
</tr>
<tr>
<td><strong>Standard specification</strong></td>
<td>CE/UL</td>
<td>CE/UL</td>
</tr>
<tr>
<td><em>KC, Chinese RoHS is for profit.</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommended system environment

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS (basic software)</td>
<td>Microsoft Windows Vista® Business (32bit)/SP2, Microsoft Windows 7 Professional (32bit, 64bit)/SP1 Microsoft Windows 8.1 Pro (32bit, 64bit), Microsoft Windows 10 Pro (32bit, 64bit)</td>
</tr>
<tr>
<td>CPU</td>
<td>Pentium® 1GHz processor or faster, or compatible microprocessor (QoS/V-compatible device)</td>
</tr>
<tr>
<td>Memory</td>
<td>1GB or more</td>
</tr>
<tr>
<td>Hard-disk</td>
<td>If data accumulated by EcoEcoServer III is saved to a computer, that storage capacity is required.</td>
</tr>
<tr>
<td>CD drive</td>
<td>1 group or more (required for installing setup software)</td>
</tr>
<tr>
<td>Display resolution</td>
<td>1280x1024 pixels or more</td>
</tr>
<tr>
<td>Display colors</td>
<td>65,536 colors or more</td>
</tr>
<tr>
<td>Input device</td>
<td>Mouse and keyboard</td>
</tr>
<tr>
<td>External interface</td>
<td>10BASE-T / 100BASE-TX</td>
</tr>
<tr>
<td>Web browser</td>
<td>Internet Explorer® 7, 8 (32bit), 9(32bit, 10(32bit), 11(32bit)</td>
</tr>
<tr>
<td>Java plugin</td>
<td>Oracle Java™ 8 JRE8 (32bit), Oracle Java™ 7 JRE7 (32bit), Oracle Java™ 6 JRE6 (32bit)</td>
</tr>
</tbody>
</table>

*KC, Chinese RoHS is for profit.*
External dimensions

**MES3-255C-EN**

<table>
<thead>
<tr>
<th>Side surface</th>
<th>Front surface</th>
<th>Bottom surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>1223 mm</td>
<td>1115 mm</td>
<td>1115 mm</td>
</tr>
</tbody>
</table>

**MES3-255C-DM-EN**

<table>
<thead>
<tr>
<th>Side surface</th>
<th>Front view</th>
<th>Bottom surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>975 mm</td>
<td>189 mm</td>
<td>1115 mm</td>
</tr>
</tbody>
</table>

Peripheral installation conditions

**MES3-255C-EN**

- **Peripheral installation conditions**
  - Shows frame roof or wiring duct, part position

**MES3-255C-DM-EN**

- **Peripheral installation conditions**
  - Shows frame roof or wiring duct, part position

**Bundled Products List**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>CC-Link communication product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy-saving Data Collection Server (main unit)</td>
<td>MES3-255C-EN: 1</td>
</tr>
<tr>
<td>CompactFlash™ memory card (software)</td>
<td>MES3-255C-DM-EN: 4 (M4×14)</td>
</tr>
<tr>
<td>Setup software (CD-R)/operating manual collection</td>
<td></td>
</tr>
<tr>
<td>Battery (installed in lower surface of main unit battery section)</td>
<td>MES3-255C-EN: 1</td>
</tr>
<tr>
<td>Frame attachment screw</td>
<td>4 (M4×12)</td>
</tr>
<tr>
<td>CC-Link terminal resistance (black: 110Ω/2W) (white: 130Ω/1W)</td>
<td>Black: 2 White: 2</td>
</tr>
<tr>
<td>IEC rail attachment adapter</td>
<td>Small: 2 Large: 2</td>
</tr>
<tr>
<td>IEC rail attachment screw (MS x 10)</td>
<td>2</td>
</tr>
<tr>
<td>IEC rail attachment corner washer</td>
<td>2</td>
</tr>
<tr>
<td>IEC rail attachment stop metal clamp</td>
<td>2</td>
</tr>
<tr>
<td>Operating manual hardware edition</td>
<td>1</td>
</tr>
<tr>
<td>LAN port cap</td>
<td>2</td>
</tr>
</tbody>
</table>

*1 To purchase a replacement battery (model name: Q6BAT), inquire at the dealership where you purchased the main product.
Support terminal

MES3-255C-EN, MES3-255C-DM-EN (CC-Link)

| EnergyMeasuringUnit (1P2W, 1P3W, 3P3W) | EUM4-BC1-MB | Remote device station | 1 station occupied |
| EnergyMeasuringUnit (1P2W, 1P3W, 3P3W, 3P4W) | EUM4-HD1-MB | Remote device station | 1 station occupied |
| EnergyMeasuringUnit | EUM4-FD1-MB | Remote device station | 1 station occupied |
| Energy measuring standard model | EUM4-BM1-MB | Remote device station | 1 station occupied |
| Energy measuring high performance model | EUM4-HM1-MB | Remote device station | 1 station occupied |
| Insulation Monitoring model | EUM4-LG1-MB | Remote device station | 1 station occupied |
| Energy measuring extension model for same voltage system | EUM4-A2 | Remote device station | 3 |
| Energy measuring extension model for different voltage system | EUM4-VA2 | Remote device station | 3 |
| Energy measuring extension model for analog input | EUM4-AX4 | Remote device station | 3 |
| Energy measuring extension model for pulse/digital input | EUM4-AP4 | Remote device station | 3 |
| EnergyMeasuringUnit (Power reception and distribution monitoring (standard product 5 circuits)) | EMU2-RD3-C | Remote device station | 1 station occupied |
| EnergyMeasuringUnit (Power reception and distribution monitoring (standard product 7 circuits)) | EMU2-RD5-C | Remote device station | 1 station occupied |
| EnergyMeasuringUnit (Power reception and distribution monitoring (3P4W, 2 circuits)) | EMU2-RD2-C-4W | Remote device station | 1 station occupied |
| EnergyMeasuringUnit (Power reception and distribution monitoring (3P4W, 4 circuits)) | EMU2-RD4-C-4W | Remote device station | 1 station occupied |

MES3-255C-EN, MES3-255C-DM-EN (MODBUS)

| EnergyMeasuringUnit (1P2W, 1P3W, 3P3W) | EUM4-BC1-MB | Remote device station | 1 station occupied |
| EnergyMeasuringUnit (1P2W, 1P3W, 3P3W, 3P4W) | EUM4-HD1-MB | Remote device station | 1 station occupied |
| EnergyMeasuringUnit | EUM4-FD1-MB | Remote device station | 1 station occupied |
| Energy measuring standard model | EUM4-BM1-MB | Remote device station | 1 station occupied |
| Energy measuring high performance model | EUM4-HM1-MB | Remote device station | 1 station occupied |
| Insulation Monitoring model | EUM4-LG1-MB | Remote device station | 1 station occupied |
| Energy measuring extension model for same voltage system | EUM4-A2 | Remote device station | 3 |
| Energy measuring extension model for different voltage system | EUM4-VA2 | Remote device station | 3 |
| Energy measuring extension model for analog input | EUM4-AX4 | Remote device station | 3 |
| Energy measuring extension model for pulse/digital input | EUM4-AP4 | Remote device station | 3 |

*1 EUM4-BM1-MB, EUM4-HM1-MB, EUM4-LG1-MB are main units of EcoMonitorPlus.
*2 EUM4-A2, EUM4-VA2, EUM4-AX4, EUM4-AP4 are extension units of EcoMonitorPlus.
*3 Combination of main unit and extension unit occupied 1 station.

Icon/type name

Electronic multi-measuring instrument ME96S5HA-MB
Electronic multi-measuring instrument ME96S5RA-MB
Electronic multi-measuring instrument ME96S5HA-MB
Electronic multi-measuring instrument ME96S5RA-MB
Electronic multi-measuring instrument ME96S5HA-MB
Electronic multi-measuring instrument ME96S5RA-MB
Electronic multi-measuring instrument ME96S5HA-MB
Electronic multi-measuring instrument ME96S5RA-MB
Electronic multi-measuring instrument ME96S5HA-MB
Electronic multi-measuring instrument ME96S5RA-MB
EnergyMeasuringUnit (1P2W, 1P3W, 3P3W) | EUM4-BC1-MB | Remote device station | 1 station occupied |
| EnergyMeasuringUnit (1P2W, 1P3W, 3P3W, 3P4W) | EUM4-HD1-MB | Remote device station | 1 station occupied |
| EnergyMeasuringUnit | EUM4-FD1-MB | Remote device station | 1 station occupied |
| Energy measuring standard model | EUM4-BM1-MB | Remote device station | 1 station occupied |
| Energy measuring high performance model | EUM4-HM1-MB | Remote device station | 1 station occupied |
| Insulation Monitoring model | EUM4-LG1-MB | Remote device station | 1 station occupied |
| Energy measuring extension model for same voltage system | EUM4-A2 | Remote device station | 3 |
| Energy measuring extension model for different voltage system | EUM4-VA2 | Remote device station | 3 |
| Energy measuring extension model for analog input | EUM4-AX4 | Remote device station | 3 |
| Energy measuring extension model for pulse/digital input | EUM4-AP4 | Remote device station | 3 |

*1 EUM4-BM1-MB, EUM4-HM1-MB, EUM4-LG1-MB are main units of EcoMonitorPlus.
*2 EUM4-A2, EUM4-VA2, EUM4-AX4, EUM4-AP4 are extension units of EcoMonitorPlus.
Related Products

EcoMeasure III Daily Monthly Report Software

This software supports the specific consumption analysis graph and ledger preparation of daily reports, monthly reports and annual reports from CSV files collected and output by the Mitsubishi Electric EcoWebServer III Energy-saving Data Collection Server.

* The supporting product version, EcoWebServer III with demand monitoring function, for EcoMeasure III, will be released soon.

● Features

1. Easily create daily, monthly and annual reports.
   • LEDGER prepared ledger is saved as an Excel file in user-designated place.
2. Easily perform specific consumption management as the index of energy-saving activities.
   • Possible to manually input production volume and perform specific consumption management of energy information from EcoWebServer III.
3. Easily collect data.
   • CSV files stored in EcoWebServer III can be downloaded with simple operations.

● Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model name</td>
<td>MES3-SW1-DR-FR</td>
</tr>
<tr>
<td>Language</td>
<td>English, Chinese *1</td>
</tr>
<tr>
<td>Connection devices</td>
<td>Number of units 8 units maximum (combination of following target devices)</td>
</tr>
<tr>
<td>Target devices</td>
<td>EcoWebServer III</td>
</tr>
<tr>
<td>Number of virtual measurement points</td>
<td>Maximum 95 points (Total of 95 points including virtual measurement points for calculating measurement management points and virtual measurement points for input.)</td>
</tr>
<tr>
<td>* Includes four arithmetic operations of up to 64 measurement management points (including constants) can be registered in the virtual measurement points for calculation.</td>
<td></td>
</tr>
<tr>
<td>Number of virtual measurement point groups</td>
<td>Maximum five groups *2 Add/Subtraction calculations for up to 32 virtual measurement points can be registered in the virtual measurement point groups.</td>
</tr>
<tr>
<td>Ledger creation function</td>
<td>Ledger creation Daily report creation, monthly report creation, annual report creation</td>
</tr>
<tr>
<td>Calculation items</td>
<td>Maximum number of items The daily, monthly and annual reports can have up to 2,250 output items.</td>
</tr>
<tr>
<td>Calculation items</td>
<td>Calculation items Analog (including specific consumption) Maximum, minimum, average Total: maximum, minimum, average</td>
</tr>
<tr>
<td>Demand</td>
<td>Maximum</td>
</tr>
<tr>
<td>Number of specific consumption</td>
<td>Maximum 100 points</td>
</tr>
<tr>
<td>Required software</td>
<td>Microsoft Excel 2007/2010/2013/2016/2019 (SP2) / 2021 (English)</td>
</tr>
<tr>
<td>CPU</td>
<td>If using Windows XP: Pentium processor of 400MHz or higher or a compatible microprocessor DOS/V-compatible Microsoft Windows Vista*3 or Windows 7: As recommended for the operating system</td>
</tr>
<tr>
<td>Memory *4</td>
<td>As recommended for the operating system</td>
</tr>
<tr>
<td>Hard disk</td>
<td>Software: Approx. 100MB or more Data: 8GB or more *5</td>
</tr>
<tr>
<td>Hard/DIMM drive</td>
<td>1 drive (for installing software)</td>
</tr>
<tr>
<td>LAN</td>
<td>10/100/1000BASE-T X1</td>
</tr>
<tr>
<td>USB connector (Type A)</td>
<td>1 connector (for connecting hardware key)</td>
</tr>
<tr>
<td>Display resolution</td>
<td>800x600 pixels or more</td>
</tr>
<tr>
<td>Display color</td>
<td>256 colors or more</td>
</tr>
</tbody>
</table>

*1 It needs to start in the Chinese version of Microsoft operating system (OS).
*2 Note that the required memory and available hard disk space may vary depending on the system environment.
*3 Shows the capacity required when used with maximum eight subsystems connected.

---

**Daily Report**

**Monthly Report**

**Annual Report**
1. Safety Precautions to be Followed at all Times

Operating Environment/Conditions

Using this product in any of the following environments may cause a malfunction or shorten service life. Do not use in environments where:

- Ambient temperature outside the range of 0 - 55°C
- Daily average temperature exceeds 35°C
- Relative humidity outside the range of 5 - 95% where condensation occurs
- Altitude is higher than 2,000m above sea level
- Presence of excessive dust, corrosive gas, self-saturated air or oily smoke
- Unit is subject to excessive vibration or physical shock
- Unit is exposed to rain or drops of water
- Unit is exposed to direct sunlight
- Places of metal or inductive substances nearby
- Presence of strong electromagnetic field or excessive external electrical noise interference

Installation/Mounting

Be sure to read the user’s manual before installing/mounting the product.

**CAUTION**

- For safety, unit installation and all wiring connections should be performed by a qualified electrician.
- Be careful of sharp, metal edges; they may cause injury.
- When tightening screws or connecting wiring, be sure that small particles or cut pieces of electrical wiring do not get inside the unit.
- Check the wiring diagram carefully before making connections. Incorrect connections may cause a malfunction, fire or electrical shock.
- Do not perform wiring work using live circuits. Doing so may cause a malfunction, fire or electrical shock.
- Use electrical wires of appropriate size. Not doing so may cause a fire due to the possible generation of heat.
- Use a solderless terminal that matches the size of the electrical wire. Not doing so may result in disconnected wires or improper electrical contact, thereby causing a malfunction, failure, burnout or fire.

<table>
<thead>
<tr>
<th>Location</th>
<th>Wire size</th>
<th>Compatible solderless terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power-supply terminal block</td>
<td>0.75 - 2 mm²</td>
<td>RAV1.25-3, RAV2.35</td>
</tr>
<tr>
<td>CC-Link communication terminal block (CC-Link Ver.1.0-compliant cable dedicated cable)</td>
<td>0.5 - 1.3 mm²</td>
<td>R1.25-3 (cannot use solderless terminal with sleeve)</td>
</tr>
<tr>
<td>Contact output terminal block</td>
<td>0.3 - 0.75 mm²</td>
<td>TGV TC-1.25-11T equivalent (NokHu Co., Ltd.)</td>
</tr>
</tbody>
</table>

- Be sure to check that all screws have been tightened. Not doing so may cause a malfunction, failure, burnout or fire.
- Tighten screws to the specified torque. Excessive tightening may cause damage to the terminal and/or screws. Failure to tighten properly may cause a malfunction, fire or electrical shock.
- When using lines from demand monitor terminal block, twist the heads of the fine lines together so they do not spread before attachment.

**CAUTION**

- Be sure to check that the terminal cover has been attached. Not doing so may result in electrical shock.
- To prevent induction noise, control wires and communication cables should be installed as far as possible from power lines (wiring should be separated by a distance of at least 100mm).
- Avoid installation inside a panel where high-voltage equipment is used. Use a surge protector for equipment that tends to generate electrical noise.
- Do not connect power supply terminals with “Class D” use conditions, use Class D grounding (dedicated grounding) for “FG”.
- Do not connect the FG terminal to a box (ground) when conducting the withstand voltage test or insulation resistance test.

**CAUTION**

- Connect both ends of the CC-Link communication cable shield line to the SLG terminal of each unit. Each unit’s SLG and FG are connected inside of the modules. Please make sure to insulate the shield with vinyl tape or similar.

Preparations Before Use

- Be sure that the installation location complies with the operating environment and conditions.
- This product requires setting before use. If setting is not done properly, a malfunction may occur.
- Confirm the power-supply rating of the product.
- Confirm the dust-resistant seal after completing installation and wiring construction.
- Not doing so may cause a malfunction due to the possible generation of heat.
- This product is equipped with a lithium battery. As the battery is not connected at the time of shipping, please connect it before use.

Regarding Use

- Use only within rating range specified in the product’s instruction manual. Not doing so may cause a malfunction, failure, fire or burnout.
- An IP address and other addresses are required to connect this product to a network (Ethernet). Before use, be sure to set up the necessary software to perform network-related settings such as setting the IP address.
- The factory default settings are:
  
  **IP address**: 192.168.10.1, **subnet mask**: 255.255.255.0, **gateway**: none

  No setting changes are required for direct connection to a computer.
- This product is equipped with a built-in clock. Before use, be sure to set the correct time and date.
  
  Before use, be sure to check that there are no live circuits or bare wires in the vicinity of the product.
- If a live circuit or bare wire is found during use, stop operation immediately and take appropriate measures, such as providing protective insulation.
  
  Please consult with a Mitsubishi Electric sales representative when considering using this product with machinery or systems designed for specialized use such as nuclear power, electric power, aerospace/outer space, medical, or passenger transportation vehicles. (To contact a sales representative, please refer to the end of this document.)
- If the power supply is turned on immediately after turning it off (within 5sec), incoming current may exceed the stipulated value (less than 2ms). Please wait more than 5sec before turning the power supply on after turning it off.
**Maintenance/Inspection**
- Do not disassemble or modify the product. Doing so may cause a failure, electrical shock or fire.
- A seal sheet has been placed on the side of the product. If the seal sheet has been removed from the product, the product is out-of-service, such as down for maintenance or malfunction analysis.

**CAUTION**
- Do not disassemble or modify any part of the product. Doing so may cause failure, malfunction, injury or fire.
- Do not touch terminals when current is flowing. Doing so may cause electrical shock, malfunction or failure of product operation.
- When cleaning the product or tightening attachment screws, please make sure to turn off the exterior power supply, cutting off power to the input power supply.
- Not doing so may cause malfunction or failure of product operation.
- Use a soft, dry cloth to wipe dust and dirt from the surface of the product.
- Do not let chemicals touch the surface for long periods of time. Clean product surface using pre-treated wipes. Do not use benzene, thinner or forms of chemical cleansers.
- Conduct inspections as follows to ensure correct use of the product and a long service life.
  - [Daily inspection or check at least once or twice every six months]
  - Check for: Product damage, LED display abnormalities, Abnormal noises, odors and heat.
- Confirm if mounting screws or terminal block wire connections have come loose (be sure to turn off the power before performing inspections).
- The lithium battery in the server block needs to be replaced when the battery charge is depleted (red BAT LED lamp on server block will turn on) or every three years.

**CAUTION**
- Be sure to turn off the power before checking for loose connectors, mounting screws and terminal block wire connections.
- If a power outage occurs when the battery charge is weak, the clock or data may be initialized. Please reset when required, and then change the battery.

**Storage**
- When storing this product, turn off the power supply, disconnect the wiring and place it in a plastic bag.
- When turning the power supply off for long periods of time, disconnect the connector for the battery.
  - (The cumulative power outage compensation time of the battery is up to 13,700hr (1.57yr). Using the battery outside of the warranty period may result in losing measurement data.)
- Storing the product in one of the environments described below may cause a malfunction or shorten service life. Do not store the product for long periods of time in environments where:
  - Ambient temperature is outside the range of -25~+75°C.
  - Average daily temperature exceeds 35°C.
  - Relative humidity is outside the range of 5~95% or where condensation occurs.
  - Altitude exceeds 2,000m.
  - Presence of excessive dust, corrosive gas, salt-saturated air or oily smoke.
  - Unit is subjected to excessive vibration or physical shock.
  - Unit is exposed to rain or drops of water.
  - Unit is exposed to direct sunlight.
  - Presence of pieces of metal or inductive substances nearby.
  - Presence of a strong electromagnetic field or excessive external electrical noise interference.

**Disposal**
- Dispose of this product following relevant laws and/or guidelines regarding disposal and clearing (Waste Management Law).
- This product is equipped with a lithium battery. Please dispose of it according to relevant local laws and/or guidelines.

**QR Code displayed on product**
- As the QR Code displayed on this product is used for production management, it is not for the customer to use.
- There is no guarantee that the QR Code can be read by a commercial code reader, etc.

**Warranty**
- Regarding technical inquiries or questions regarding the product, please contact nearest Mitsubishi Electric dealership or distributor.
- Please consult with a Mitsubishi Electric sales representative when considering using this product with machinery or systems designed for specialized use such as nuclear power, electric power, aerospace/outer space, medical, or passenger transportation vehicles.
- This manual and equipment are shipped under strict quality control and product inspection. In the unlikely in case of any defect resulting from production processes, Mitsubishi Electric will replace the product. Please contact the dealership where the product was purchased. Please note, however, Mitsubishi Electric’s warranty doesn’t include replacement in the cases of failure and/or damage caused due to natural disasters or improper use.
- Please understand that Mitsubishi Electric will not bear the liability for any system problems caused by a customer or third party, legal issues, failure caused by improper use of or during use of the product, or damage caused by other defects.
- Mitsubishi Electric shall not bear the liability for any damage caused by reasons that are not the fault of the Company, loss of opportunity or loss of income suffered by a customer due to the occurrence of this product’s failure, damage or secondary damage resulting from special reasons, regardless of whether or not it was foreseeable, accident compensation or other compensation for any damage caused to products other than those of Mitsubishi Electric, and other services.
- The free warranty period of this product shall be the shorter period, either one (1) year after purchase and delivery to the designated location, or 18 months after shipping from the Company factory (beginning from month and year manufactured).
- However, even during the warranty period, if repair is required due to one of the following causes, a fee shall be charged:
  - 1) improper use or 2) improper operation.
  - Fee-based repairs are available after the end of the free warranty period.
- The free warranty period for repairs shall not be renewed.

**Repairs at the time of failure/abnormality**
- If any abnormality occurs in one of the products listed in this catalog, please read the section, "Trouble Shooting," in the instruction manual (operation version) to check for possible reasons of the problem. If there is no description matching the problem found, please contact nearest Mitsubishi Electric dealership.

**2. Precautions for Use**

**Precautions Regarding Software Use**
- Mitsubishi Electric does not guarantee or provide support for FTP server or SMTP server operations.
- Additionally, Mitsubishi Electric does not provide technical support for individual servers.
- Please be aware that Mitsubishi Electric does not provide network support. Please contact your network administrator.
- Please be aware that Mitsubishi Electric does not provide support regarding computer hardware, operating systems or operations.
- Please contact the manufacturer or administrator.
- After using the setup software to modify display settings (e.g., a measuring point name), be sure to close and restart the web browser.
- Not doing so may cause the changes not to take effect due to the web browser’s caching function.

**CAUTION**
- For monitoring operating status, do not use measures such as inputting alarms that consider human safety or require an emergency response (fire alarm). Doing so may lead to an accident.

**3. Trademarks**
- Microsoft®, Windows®, Windows Vista®, Windows®7, Windows®8.1, Internet Explorer® are trademarks or registered product trademarks of Microsoft Corporation in the U.S.A. and other countries.
- Java and all Java related trademarks and logos are registered trademarks of the Oracle Corporation and its subsidiaries and affiliates in the U.S.A. and other countries.
- CompactFlash™ and CompactFlash® and CF are trademarks of SanDisk Corporation.
- Ethernet is a trademark of Xerox Corporation in the U.S.A.
- QR Code is a registered trademark of Denso Wave Incorporated in Japan.
- EcoServer is a registered trademark of Mitsubishi Electric Corporation.
- Other company names and product names are registered trademarks or trademarks of their respective companies.
Mitsubishi Electric offers a wide range of automation equipment from PLCs and HMIs to CNC and EDM machines.

A NAME TO TRUST
Since its beginnings in 1870, some 45 companies use the Mitsubishi name, covering a spectrum of finance, commerce and industry.

The Mitsubishi brand name is recognized around the world as a symbol of premium quality.

Mitsubishi Electric Corporation is active in space development, transportation, semi-conductors, energy systems, communications and information processing, audio visual equipment and home electronics, building and energy management and automation systems, and has 237 factories and laboratories worldwide in over 121 countries.

This is why you can rely on Mitsubishi Electric automation solution - because we know first hand about the need for reliable, efficient, easy-to-use automation and control in our own factories.

As one of the world’s leading companies with a global turnover of over 4 trillion Yen (over $40 billion), employing over 100,000 people, Mitsubishi Electric has the resource and the commitment to deliver the ultimate in service and support as well as the best products.

* Not all products are available in all countries.
For Safety: Please read the instruction manual carefully before using the products in this catalog. Wiring and connection must be done by the person who has specialized knowledge of electric construction and wirings.

- Trademarks
  - MODBUS® is a registered trademark of Schneider Automation Inc.
  - Other company names and product names in this document are trademarks or registered trademarks of their respective owners.

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.