MITSUBISHI ELECTRIC

Changes for the Better

for a greener tomorrow

Mitsubishi Electric
Energy-saving Data Collecting Server
EcoWebServer Ⅲ

EcoWebServerⅢ

Simple - Convenient - Compact
Energy Data Management Solution

Empowering Industries

Visible, Energy Management

It Doesn't Get Any Easier…
Simplify data management with the Eco

To ensure effective energy savings, it is important that every person is aware of how energy is being used and participating in conservation measures. An essential part of promoting a high awareness is making activities clearly visible — something we call "visible management" — which is realized by sharing the energy consumption data of specific divisions over the Web via the Intranet. Mitsubishi Electric's EcoWebServer Ⅲ is a simple, convenient and compact energy-saving data collection server developed to support visible management.

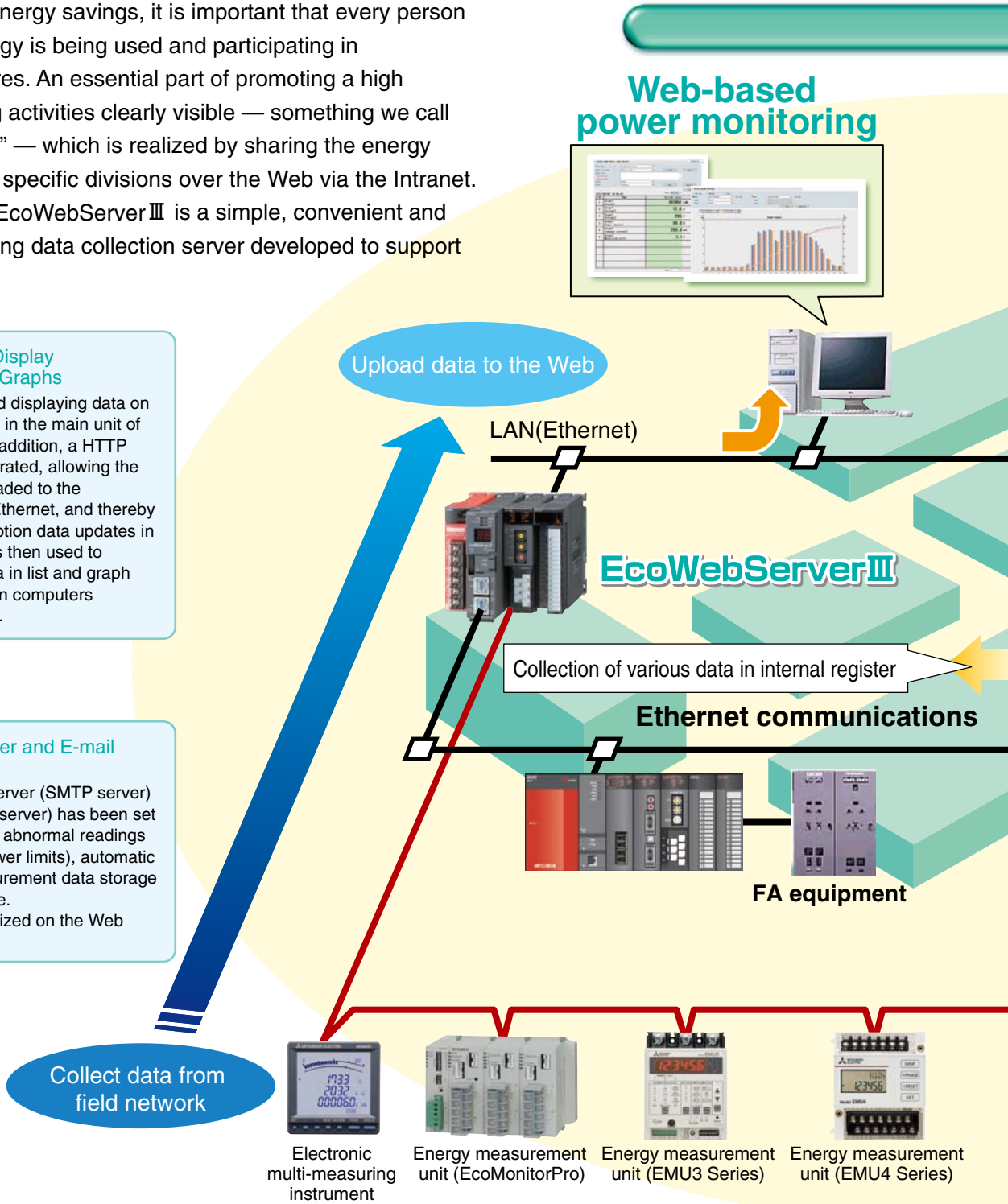
Use Web Browser to Display Measurement Data in Graphs

Functions for sending and displaying data on the Web are pre-installed in the main unit of the EcoWebServer Ⅲ. In addition, a HTTP server function is incorporated, allowing the collected data to be uploaded to the Internet/Intranet via the Ethernet, and thereby realizing energy consumption data updates in real-time. Web browser is then used to display the uploaded data in list and graph form for simple viewing on computers connected to the Intranet.

Automatic Data Transfer and E-mail Notification

After a separate e-mail server (SMTP server) or database server (FTP server) has been set up, e-mail notifications of abnormal readings (more/less than upper/lower limits), automatic data transfers and measurement data storage (CSV format) are possible.

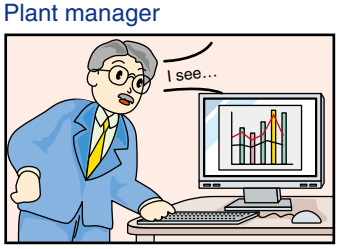
* CSV data can be organized on the Web browser.



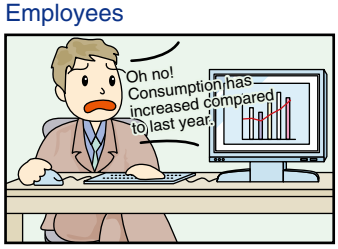
Support for Energy-saving Activities using "Visible Management"

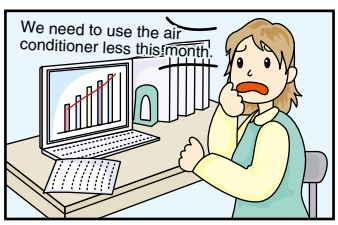
1. Monitor/Manage energy by department
2. Specific consumption-based management of energy-saving activities
3. Monthly/Annual target-based management
4. Monitoring of equipment operating status
5. Manage/Record energy data

Plant manager



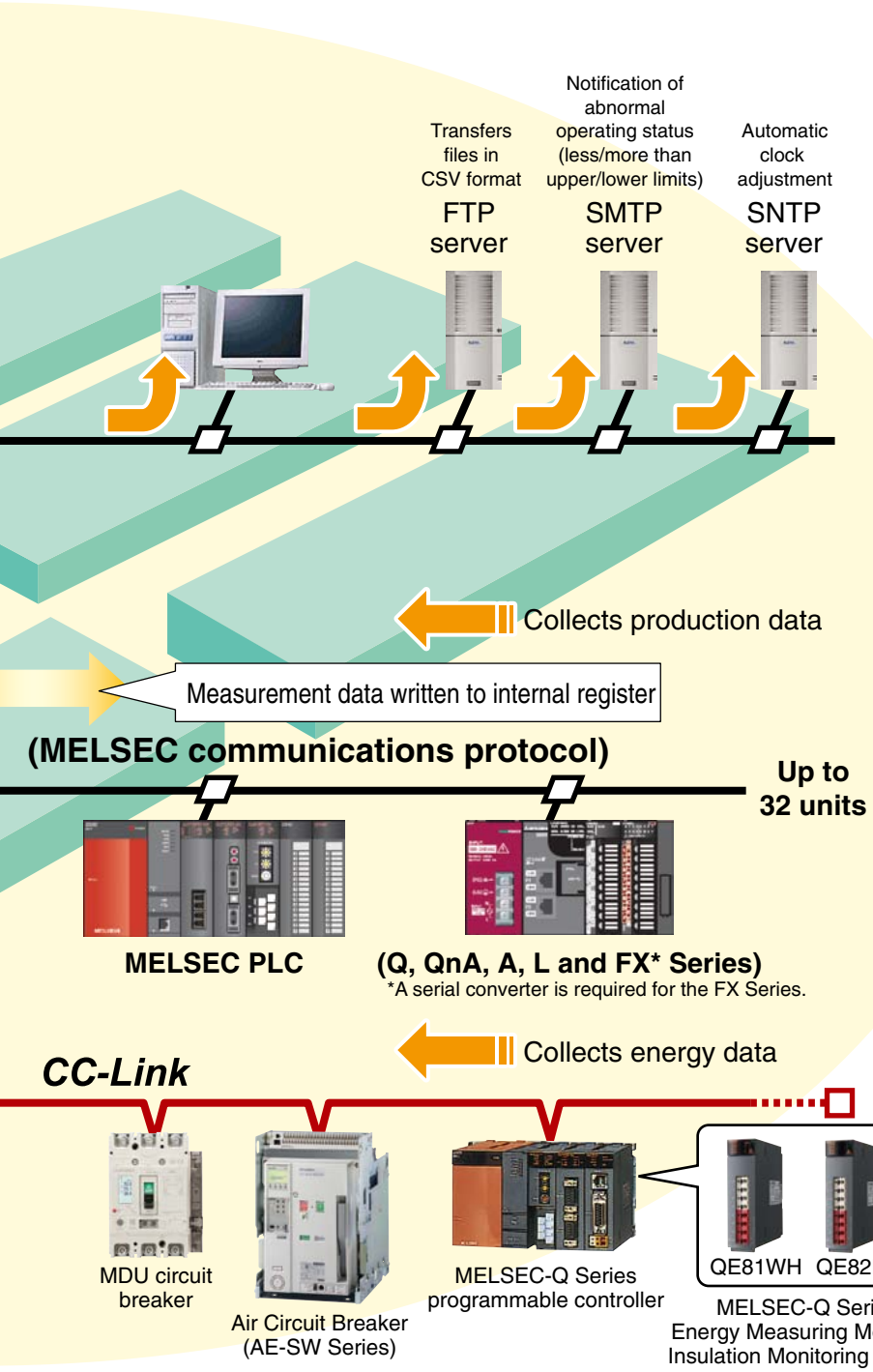
Employees





WebServer Ⅲ

Example System Configuration



Various Screen Display Functions for Simplified Energy-saving Data Analysis

- Easily view desired data on various display screens via mouse operation.
- Planned and target values can be set on a nearby computer.
- Specific consumption conveniently displayed in graph form for energy-saving data analysis.

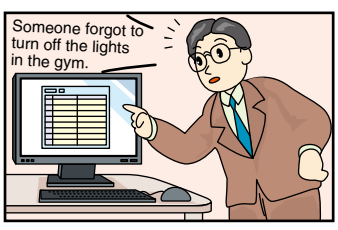
<Specific consumption graph> <Current value display>

<Software set-up screen>

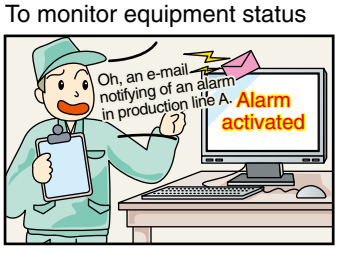
- Use the mouse or keyboard operation and accompanying set-up software to easily set data, save content and make changes.

INDEX

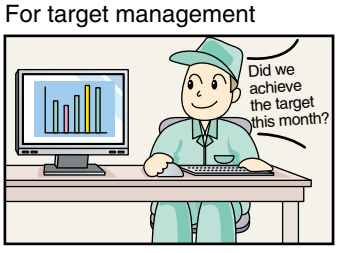
At production site



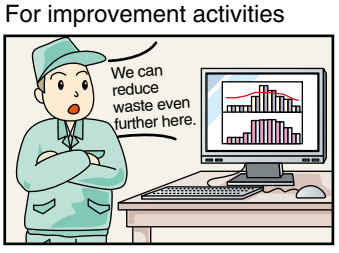
To monitor equipment status



For target management



For improvement activities

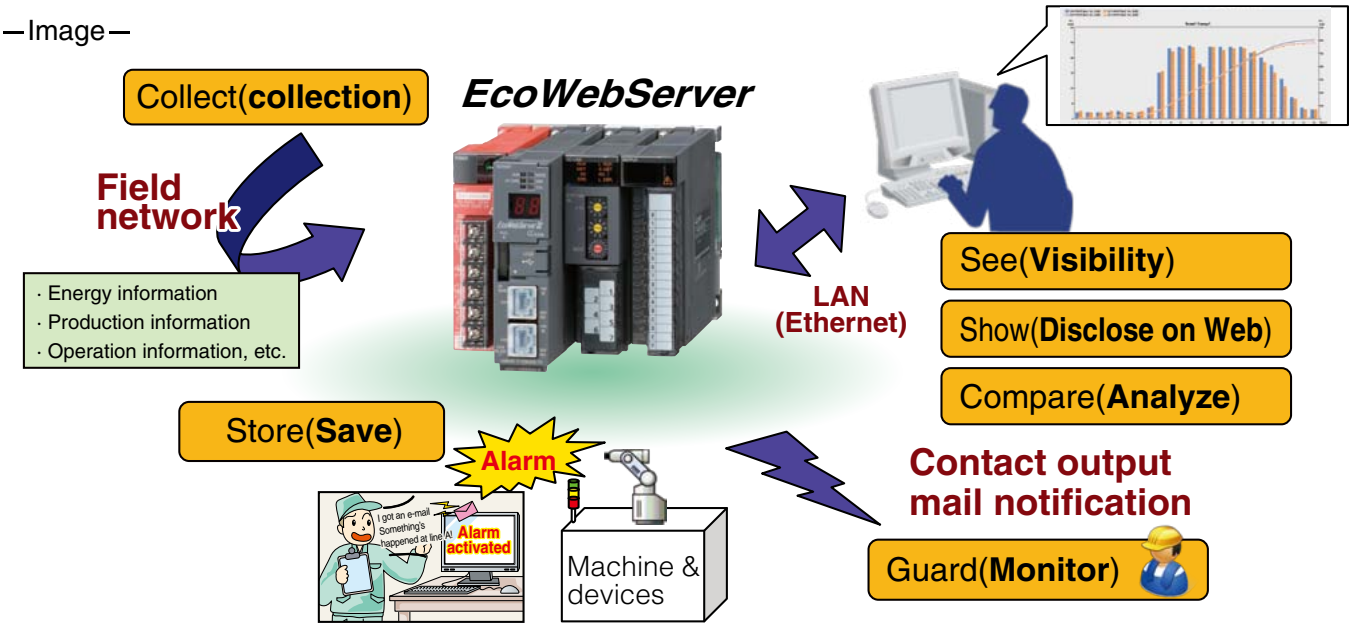


Features

What is EcoWebServer?

This all-in-one data collection server is packed with functions essential to energy-saving management.

—Image—

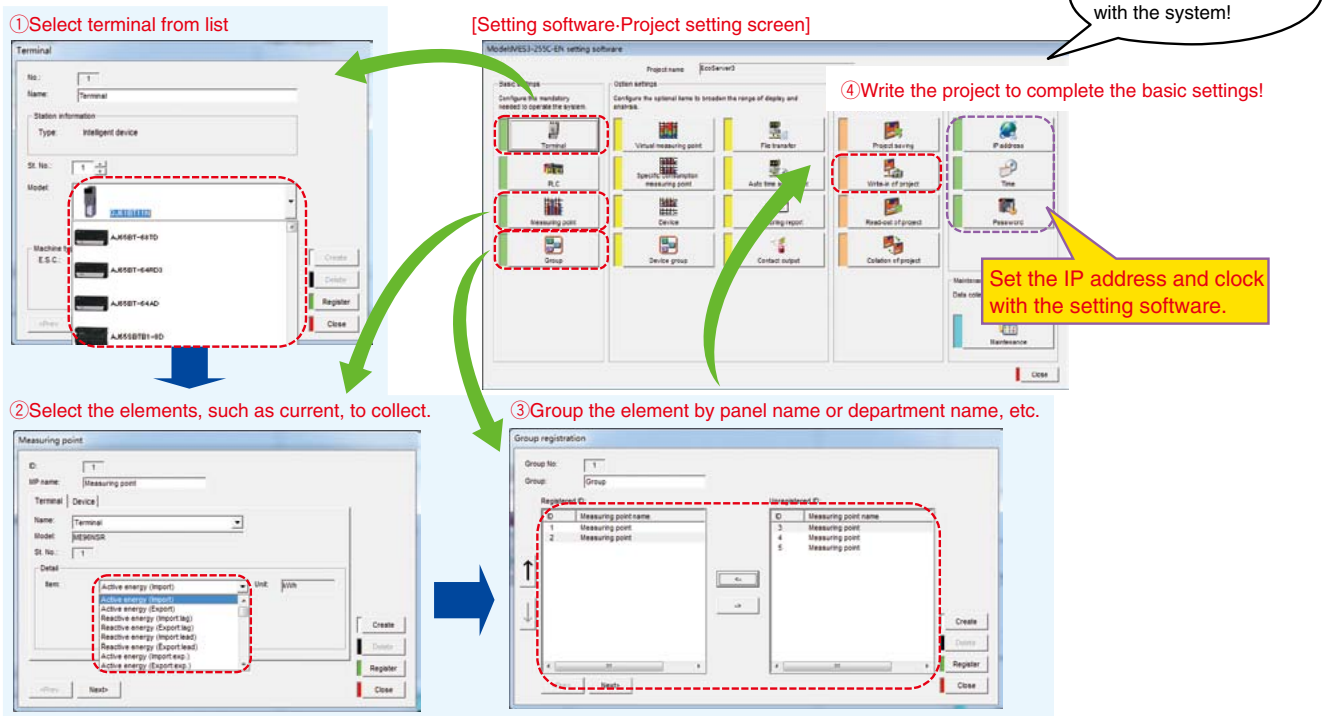


Standard setting software eliminates need to design programs	Universal designs improve visibility	Specific consumption control incorporating virtual measurements and production quantities	Process and save measurement data	Powerful monitoring functions capable of alarm outputs	Equipment energy loss visibility function	Zoom data collection cycle
Simple settings Simple expansion	Graph displays	Operation function	CSV format FTP support	Max. 16 contact output points	Equipment monitoring	Min. 1 minute

Basic Functions

1 Simple settings

- Prepare for measurements just by registering terminal, registering measurement data, registering grouping and writing in the project.
- IP address and clock setting software has been integrated. (Maintenance tool is not required.)



Features

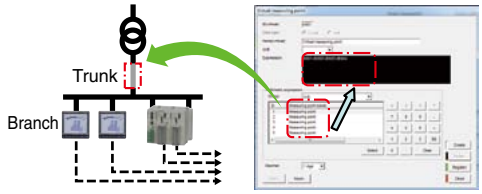
2 The set data is immediately displayed in the built-in applications.

● The measured data can be displayed as graphs on your web browser.

Menu items are fixed and displayed on left side of screen.
↓
Quickly open any screen, and perform smooth screen operations.

3 Customize the system with the operation functions

● For example, use the virtual measurement function to calculate a trunk that hasn't been measured.



● CO_2 conversions and calculation of electricity rates are possible.

- Set the measurement data formula.
- Manually input the unit or select it from the list

Example To convert the electric energy into CO_2 and display as a graph

Formula

Select registered measurement point (Wh) × Input conversion coefficient = CO_2 conversion amount (Set unit [t-CO_2])

Improved Performance

4 1-minute cycle logging supported

How can I collect data in sync with the production cycle?

With 1-minute data, I can process and freely analyze the data.

● By understanding the 1-minute usage rate instead of the conventional 5-minute rate, the energy usage state can be grasped in detail.

⇒When matched with the equipment's operation data, fine energy wastes can be discovered.

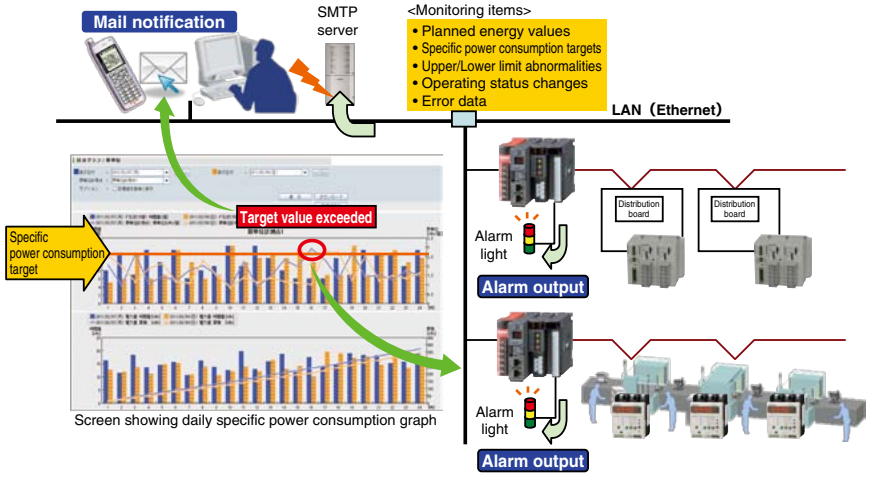
Zoom Graph screen (1-minute cycle)

Powerful Functions

5 Compatible with Alarm Contact Output Function for a Structure to Ensure Users are Notified of Status Changes

Even if I set target values, I don't notice when they are exceeded because I am not always looking at the screen

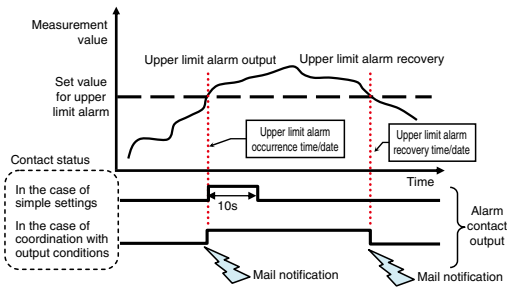
If there is an abnormality, I need to tell the manager in charge immediately



Screen showing daily specific power consumption graph

● Users are notified of status changes in energy, equipment and the EcoServerII main unit via mail notifications and alarm outputs. Thorough management of targets and status monitoring ensures that onsite problems are not overlooked.

Example of monitoring upper/lower limits



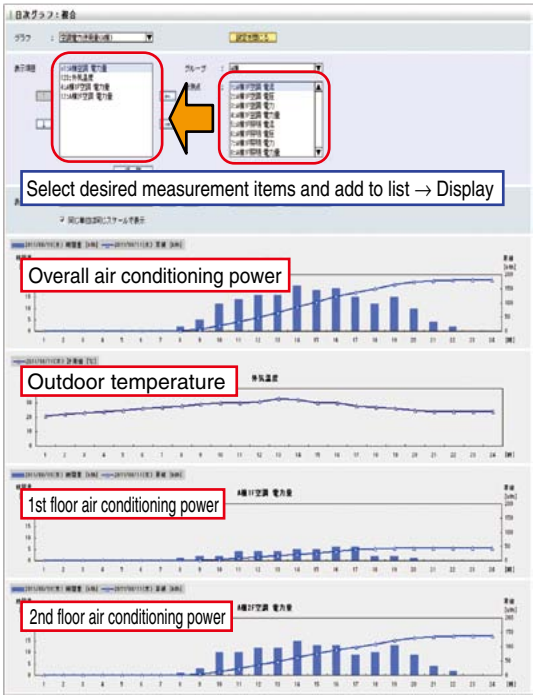
A log is also kept in the system log file.
*The contact status can also be checked via the internet.

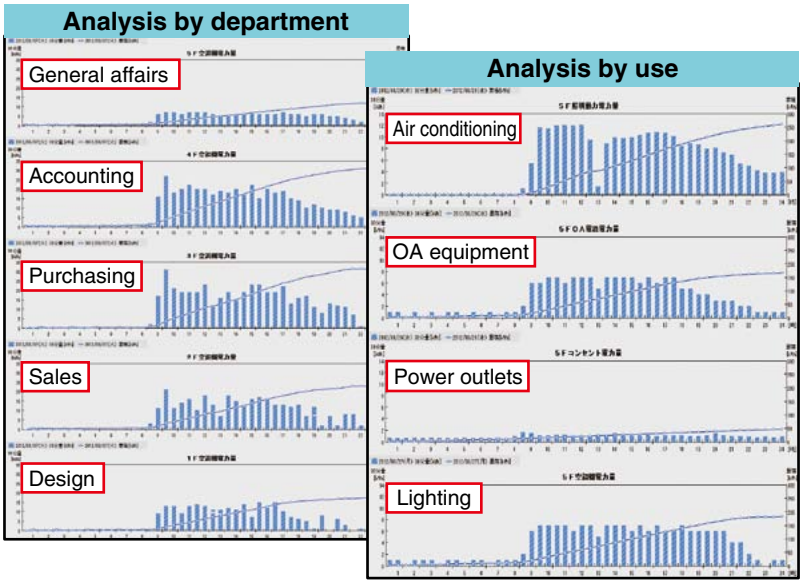
6 A Comparison screen that supports various scenes has been newly added. This new screen will powerfully support your analysis activities.

Display of Combined Graphs

● Users are free to select multiple related measurement items and display them in combination with daily graphs.

⇒ It is possible to compare air conditioning power consumption and outdoor temperature, or compare/analyze data by business site/use.





Equipment Monitor screen

●Comparing and analyzing the equipment efficiency and energy usage state is important to promote energy-saving at your production site.
On the Equipment Monitor screen, the production parameters such as operation time are read in, and the energy information and equipment efficiency are displayed in graphs.

⇒Use this function to find equipment that is a bottleneck and reduce energy losses to improve the equipment efficiency. This function helps improve productivity while saving energy.

Utilization steps (PDCA cycle)

① Each equipment's stop time and number of defects are compared from the equipment group graph

② From the Equipment Details list, select equipment of concern, such as equipment that has frequent stops, etc.

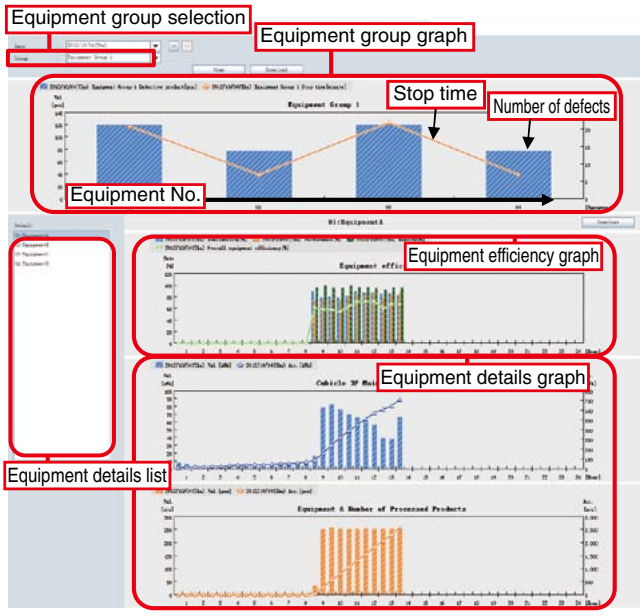
③ Analyze the equipment efficiency graph of the selected equipment and the related equipment details graph

④ Implement operation improvements and equipment improvements based on the analysis results

⑤ Confirm the effect of improvements

<Equipment efficiency display items>

- Availability factor = (load time - stop time) ÷ load time
- Performance efficiency = (reference cycle time x number of processing times) ÷ (load time - stop time)
- Efficiency rate = number of conforming parts ÷ number of processing times
- Equipment general efficiency = availability factor x performance efficiency x efficiency rate

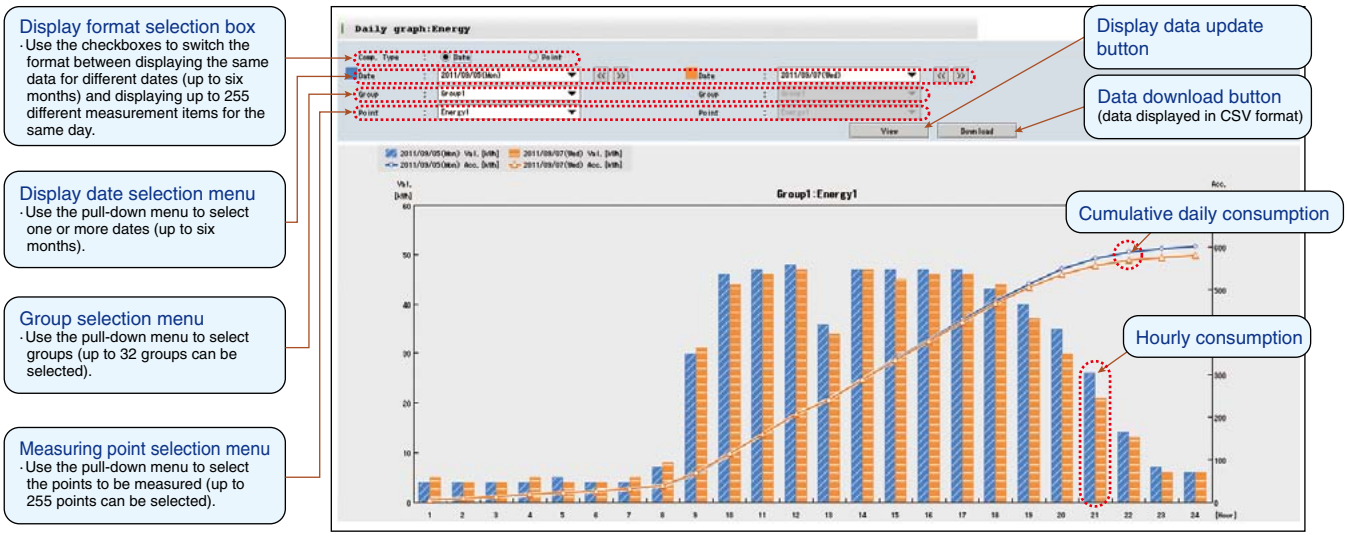


Example Display Screens

1 Daily Graph: Visual Display of Measurements

- Switch between display formats to compare the same measuring point on different days or different measuring point on the same day.
- As a result, users can see changes (abnormal values) in energy consumption and confirm the effect of energy-saving measures by comparing figures before and after measures are implemented.

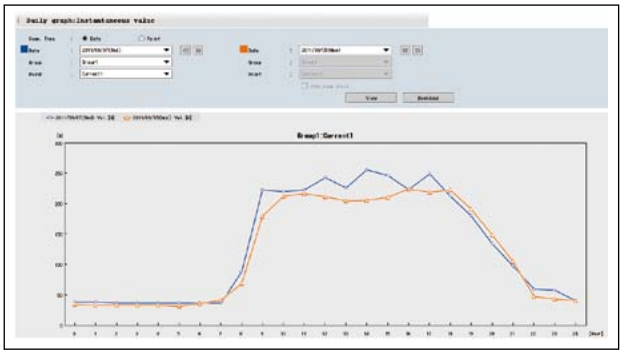
①Power consumption/No. of pulses screen



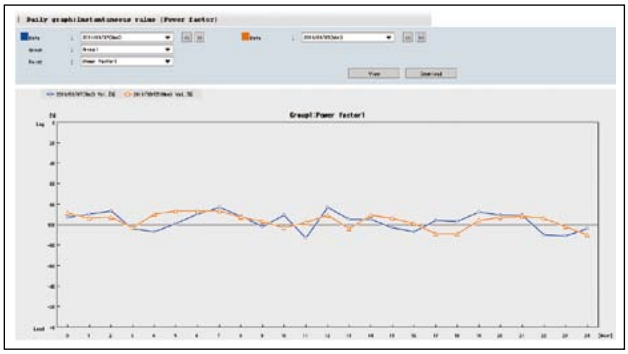
- Display data for one day per hour (or 30 minutes) (data for previous six months can be stored)
- Display data for two days (or two measuring points) simultaneously
- Combine several measuring points, display as one group, and select the level for display (up to 32 groups can be registered)
- Graph data (CSV) can be easily downloaded onto a personal computer

} Same functions included for the annual, monthly and zoom graphs

②Analog value screen



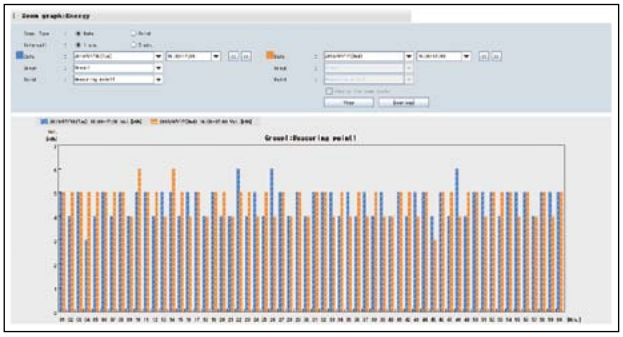
③Analog value (power factor) screen



2 Zoom Graph: Understand Power Consumption Conditions in Greater Detail

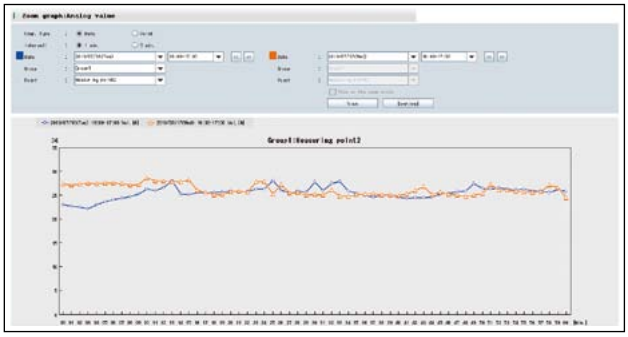
- Display consumption (measured values) data for every minute of one hour (data for up to 62 days can be stored)
- Allows more detailed energy analysis such as analysis of equipment operating status or for troubleshooting.

①Power consumption/No. of pulses screen



- Display consumption data for every minute of one hour
- Display two different time zones (or two measuring points) simultaneously

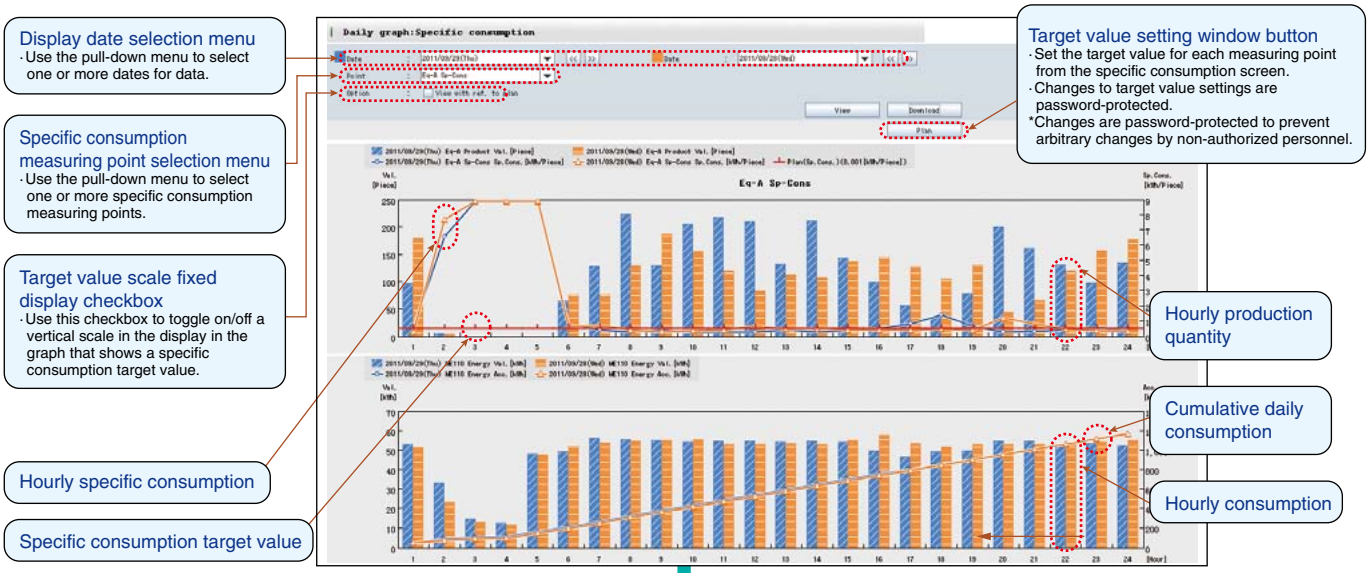
②Analog value screen

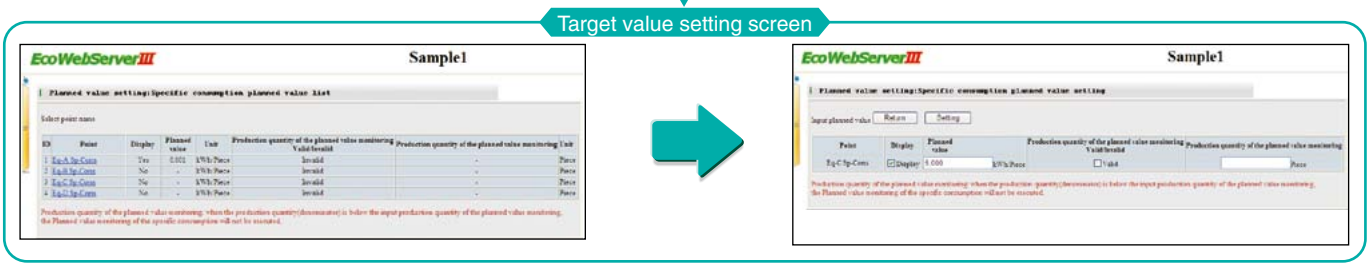


- Display the consumption data for every minute of one hour
- Display two different time zones (or two measuring points) simultaneously

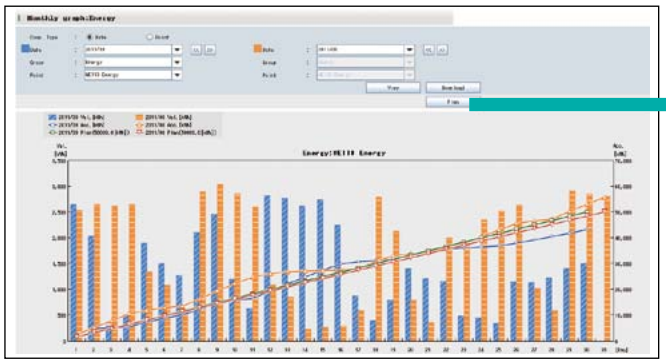
3 Daily Graph (Specific Consumption Screen): Understand Power Consumption per Product

- Assists enhancing productivity by clearly displaying specific consumption for products using a line graph with numerical values.
- Confirm the effect of energy-saving measures by comparing specific consumption graphs before and after measures are implemented.



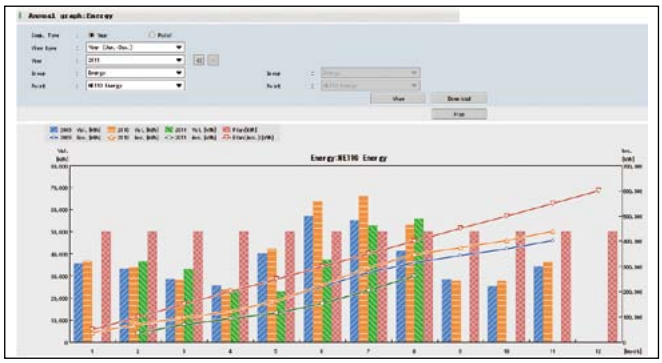


4 Monthly Graph (Power Consumption/No. of Pulses Screen)

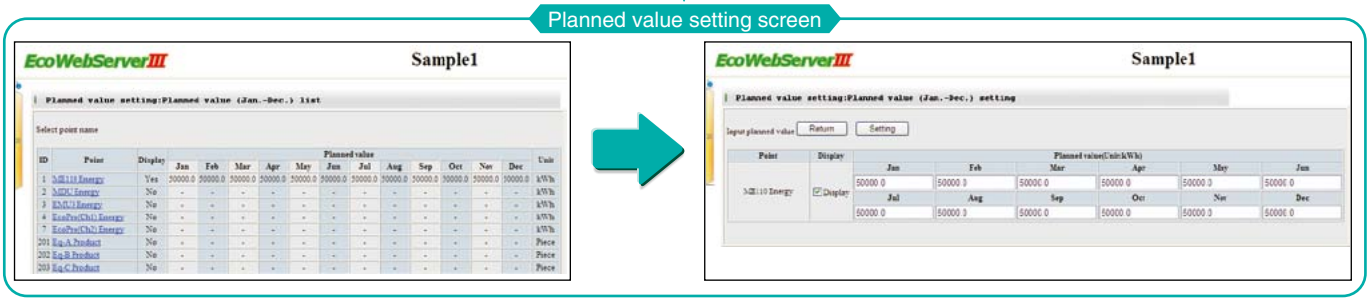


- Display daily data for one month (data for up to five years can be stored)
- Display data for two months (or two measuring points) simultaneously
- Display cumulative and planned values for the current month using a line graph

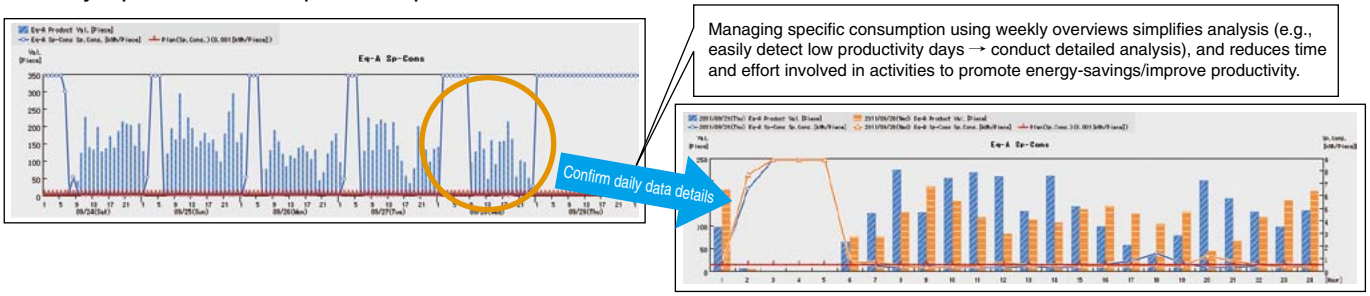
5 Annual Graph (Power Consumption/No. of Pulses Screen)



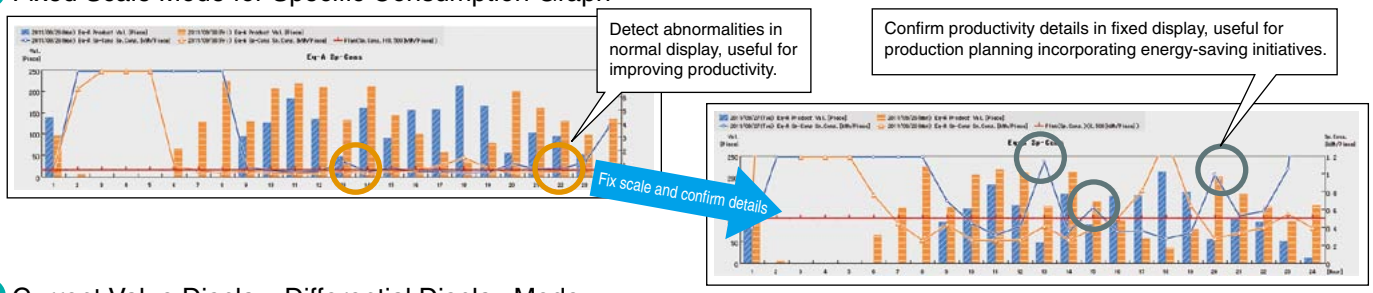
- Display monthly data for one year (data for up to five years can be stored)
- Display data for three years (or two measuring points) simultaneously
- Display cumulative and planned values for the current (or fiscal) year using a line graph
- Display months in calendar year or fiscal year format.



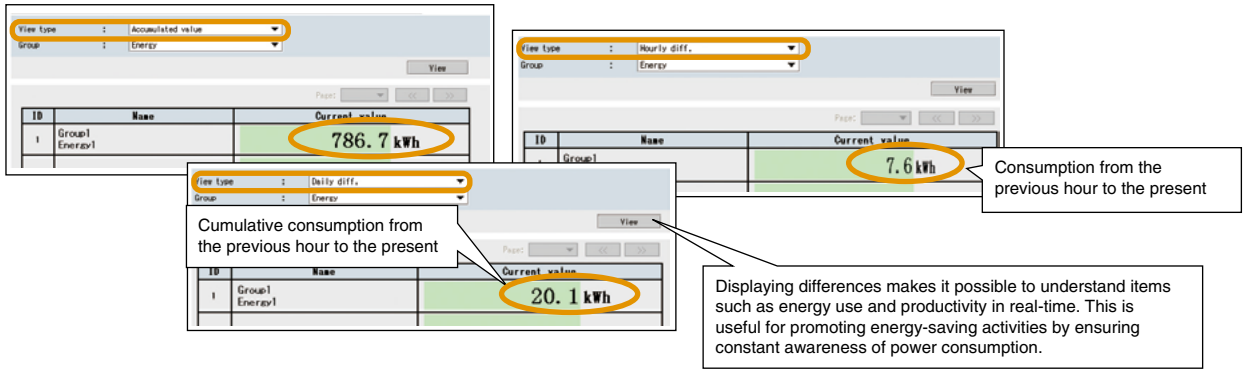
6 Weekly Specific Consumption Graph Screen



7 Fixed Scale Mode for Specific Consumption Graph



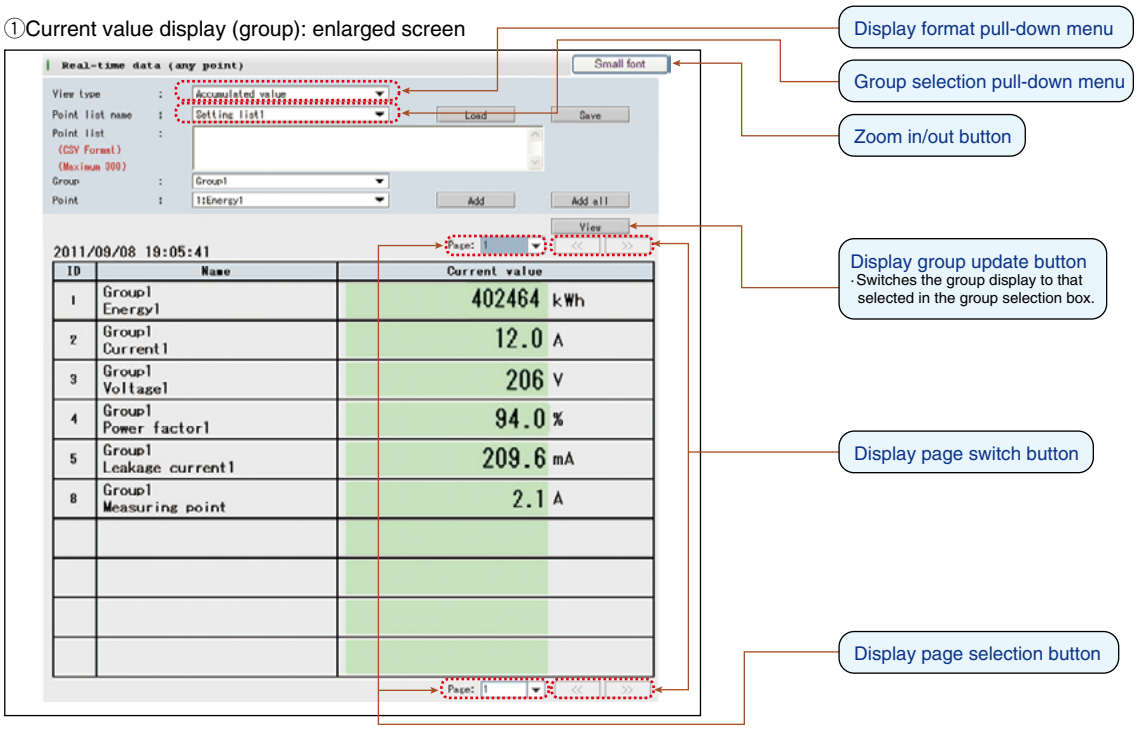
8 Current Value Display: Differential Display Mode



9 Current Value Display: Convenient Remote Data Monitoring

- Confirm current measurements using a personal computer. (Selected measurement values displayed are refreshed at regular intervals.)
- Easy to monitor equipment and production line operating status using this feature.
- Measuring points can be combined freely to display measurement data. (Related data is displayed in combination as a result of prior settings for displaying each group.)
- Display cumulative values, and differential values for the previous hour, day or month.

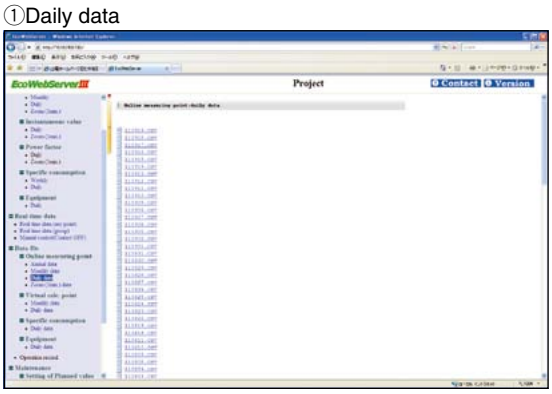
①Current value display (group): enlarged screen



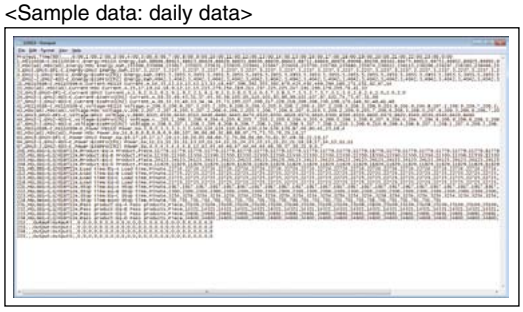
⑩ Data File: Easily Collect Measurement Data According to Application

- Upload desired measurement data to a personal computer using existing LAN network equipment.
- Measurement data is saved in CSV format, enabling it to be used in spreadsheet software such as Microsoft Excel.
- Easy to create documents relating to energy-saving activities using this feature.

①Daily data



<Sample data: daily data>



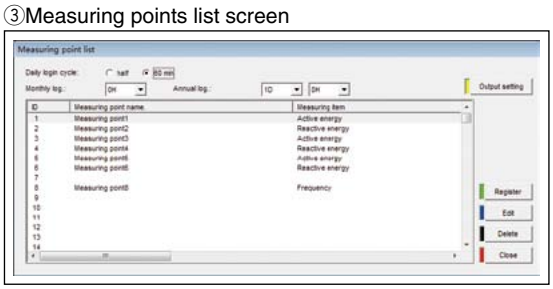
⑪ Data Settings: Easily Perform Settings using Mouse Operation

*For data settings, please use the set-up software supplied with the product.

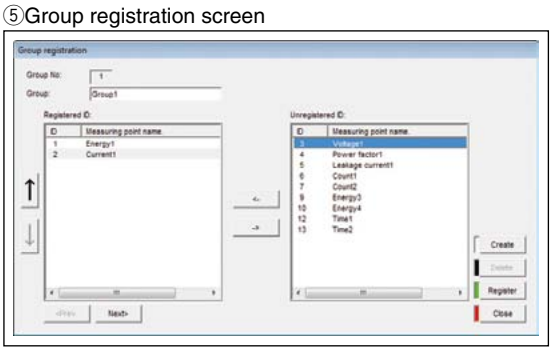
①Main menu screen

②Terminal registration screen

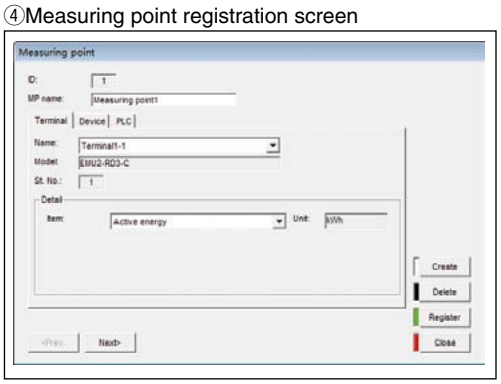
③Measuring points list screen



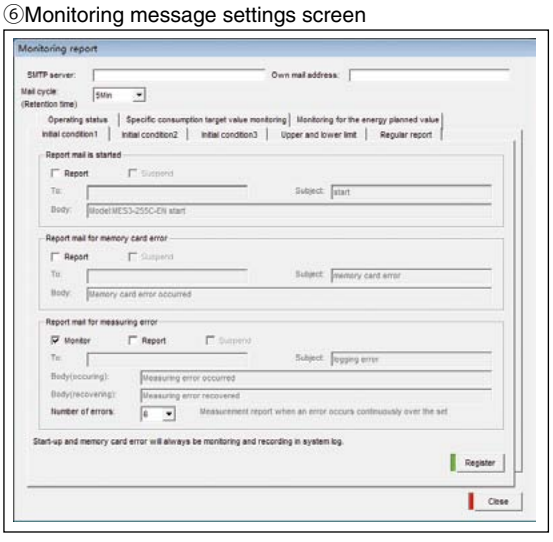
⑤Group registration screen



④Measuring point registration screen



⑥Monitoring message settings screen



Application Examples

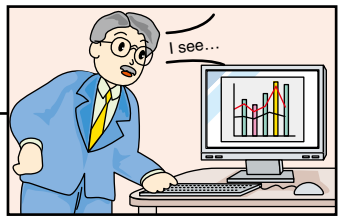
Factories

Support Energy-saving Activities using “Visible Management”.

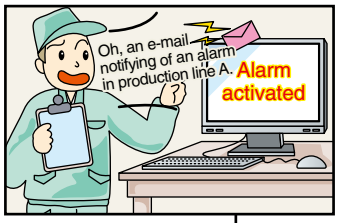
1. Monitor/Manage energy by department
2. Specific consumption-based management of energy-saving activities
3. Monthly/Annual target-based management
4. Monitoring of equipment operating status
5. Manage/Record energy data

In the office…

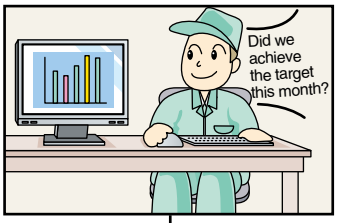
Plant manager



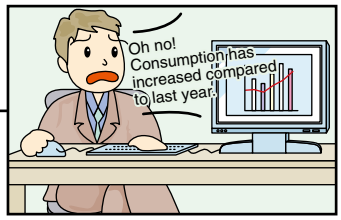
To monitor equipment status



For target management



Employees



LAN(Ethernet)

At production site…

Factory No. 1

CC-Link ← Measurement data

MDU circuit breaker

Ethernet communications (MELSEC communications protocol)

PLC

PLC

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

Factory No. 2

CC-Link

Electronic multi-measuring instrument

MDU circuit breaker

Energy measurement unit (EMU3 Series)

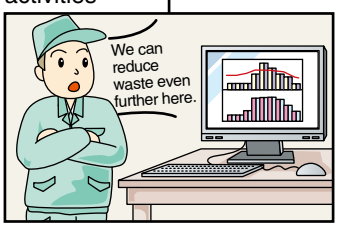
MELSEC-Q Series programmable controller

Operating status (contact signal)

Production quantity (pulse signal)

Production equipment

For improvement activities

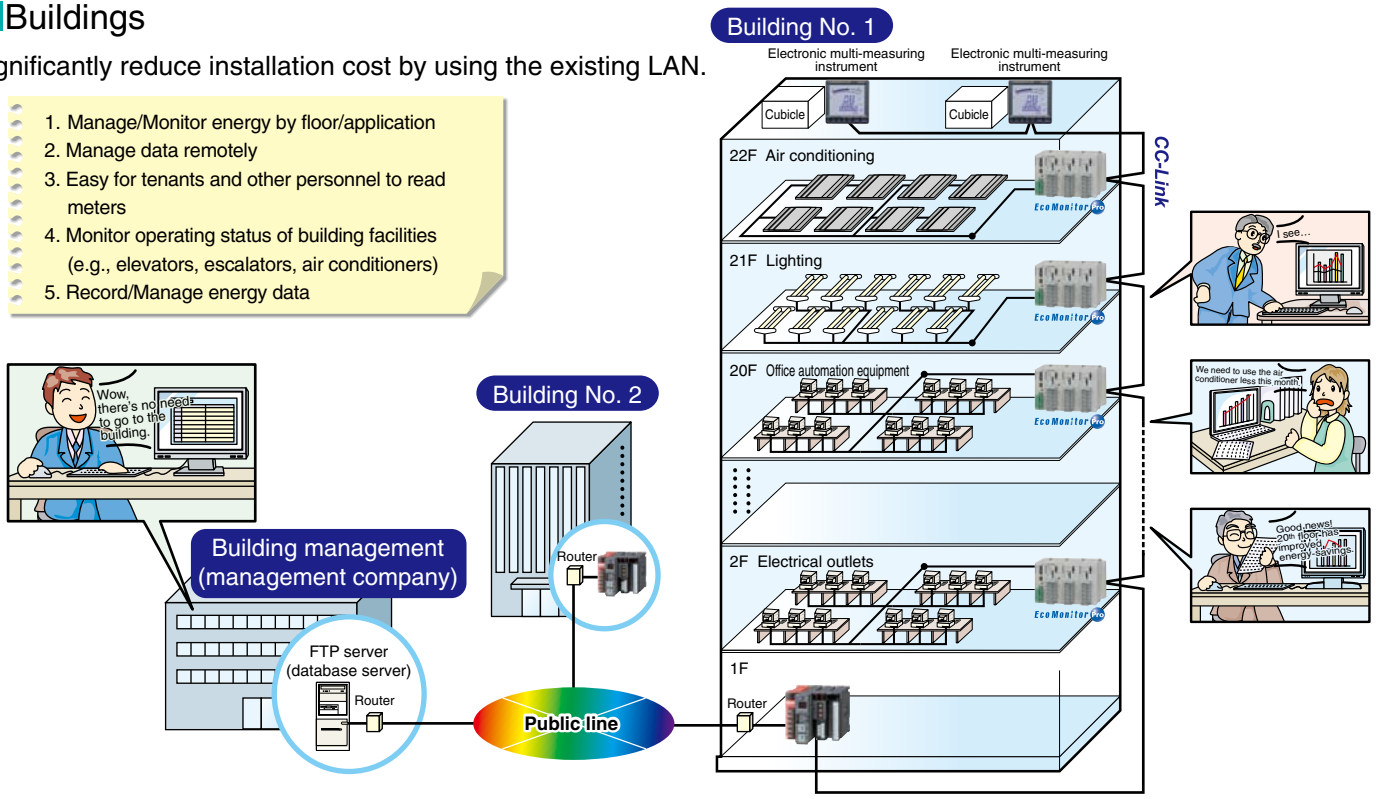


Application Examples

Buildings

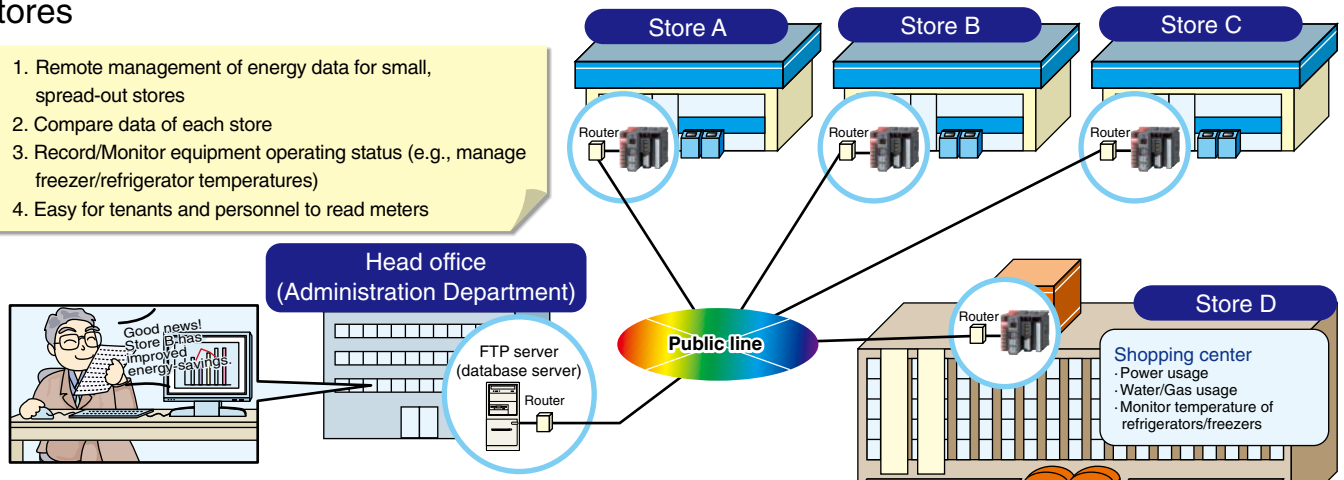
Significantly reduce installation cost by using the existing LAN.

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

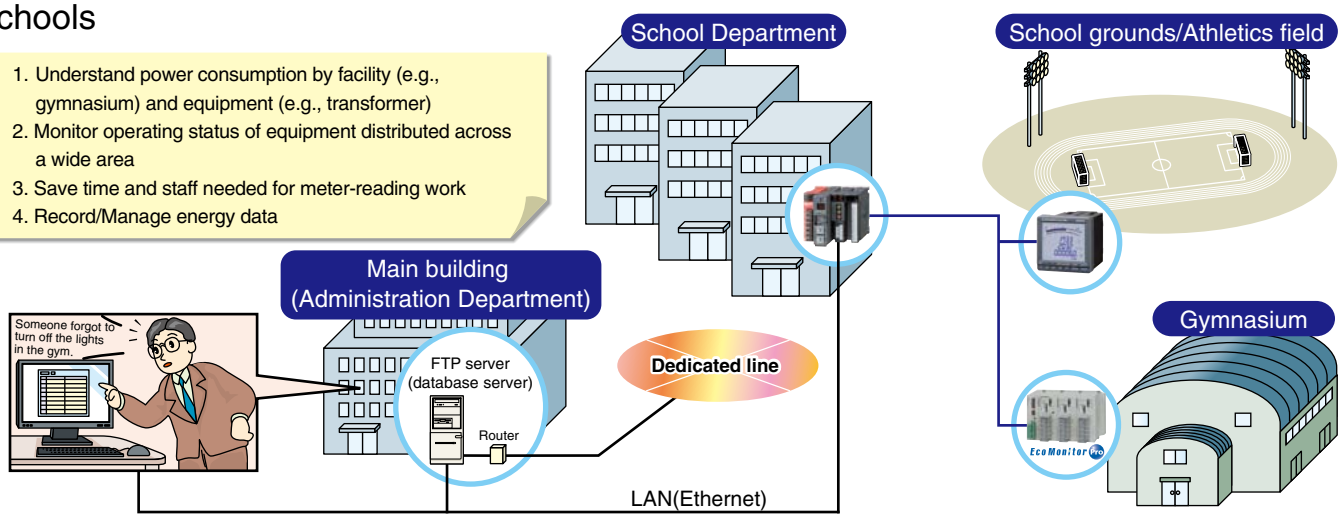
1. Remote management of energy data for small, spread-out stores
2. Compare data of each store
3. Record/Monitor equipment operating status (e.g., manage freezer/refrigerator temperatures)
4. Easy for tenants and personnel to read meters



* 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



Specifications

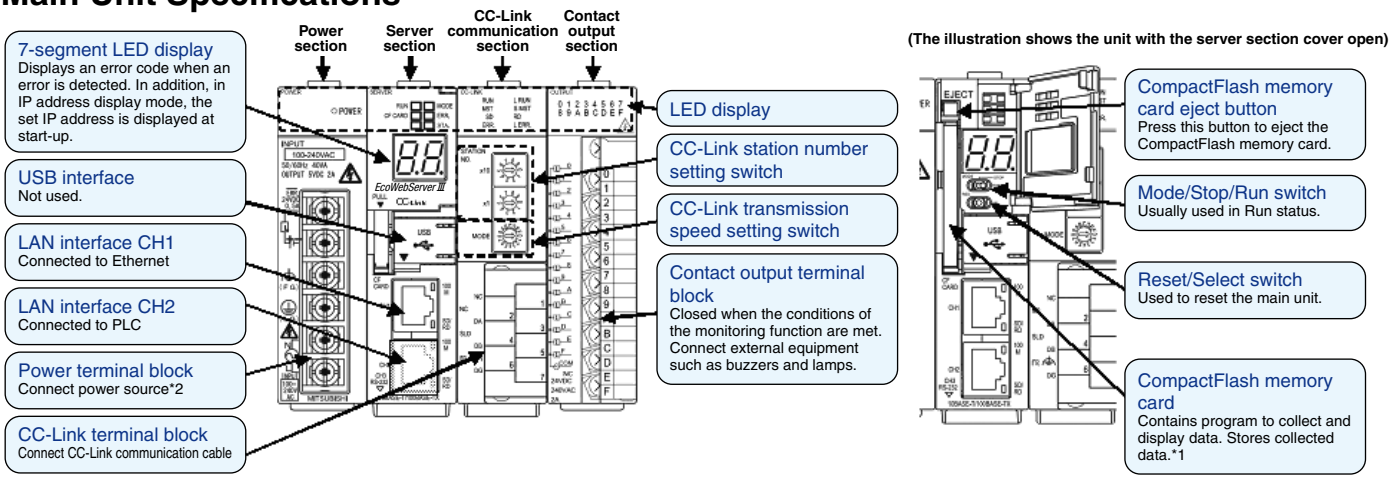
Hardware Specifications

<table>
<tr><th colspan="3">Item</th><th>Specification</th></tr>
<tr><td rowspan="14">Common</td><td colspan="2">Input power source</td><td>100 to 240VAC (+10%, -15%)</td></tr>
<tr><td colspan="2">Input frequency</td><td>50/60Hz (±5%)</td></tr>
<tr><td colspan="2">Input voltage distortion-factor</td><td>Within 5%</td></tr>
<tr><td colspan="2">Consumption VA</td><td>19VA (110VAC), 25VA (220VAC)</td></tr>
<tr><td colspan="2">Tolerated short interruption time</td><td>Within 20ms (more than 100VAC)</td></tr>
<tr><td colspan="2">Operating ambient temperature</td><td>0 to 55°C</td></tr>
<tr><td colspan="2">Storage ambient temperature</td><td>-25 to +75°C</td></tr>
<tr><td colspan="2">Operating ambient humidity</td><td>5 to 95%RH</td></tr>
<tr><td colspan="2">Storage ambient humidity</td><td>5 to 95%RH</td></tr>
<tr><td colspan="2">Operating environment</td><td>No corrosive gases</td></tr>
<tr><td colspan="2">Operating altitude</td><td>2,000m or lower</td></tr>
<tr><td colspan="2">Installation location</td><td>Inside panel</td></tr>
<tr><td colspan="2">Weight</td><td>0.9kg</td></tr>
<tr><td rowspan="5">Power source section</td><td colspan="2">Fuse</td><td>Built-in (cannot be replaced)</td></tr>
<tr><td rowspan="4">$\overline{\text{ERR}}$ terminal</td><td>Application</td><td>Turns off when the power supply is not input or reset, or when the fuse is disconnected</td></tr>
<tr><td>Rated switching voltage and current</td><td>24VDC, 0.5A</td></tr>
<tr><td>Minimum switching load</td><td>5VDC, 1mA</td></tr>
<tr><td>Service life</td><td>Mechanical: More than 20,000,000 times; Electrical: More than 100,000 times (at rated switching voltage/current)</td></tr>
<tr><td rowspan="8">Server section</td><td rowspan="3">LAN (Ethernet)</td><td>Interface</td><td>10BASE-T/100BASE-TX×2</td></tr>
<tr><td>Compatible connector</td><td>RJ45</td></tr>
<tr><td>Support functions</td><td>Auto-negotiation function (automatically identifies 10BASE-T/100BASE-TX)
Automatic MDIX function (automatically identifies straight/cross cables)</td></tr>
<tr><td rowspan="2">Clock accuracy</td><td>0 to 55°C</td><td>Daily error: -10.89 to +8.64s</td><td rowspan="2">During a blackout, an additional ±0.5s of error may be added.</td></tr>
<tr><td>25°C</td><td>Daily error: -4.32 to +5.25s</td></tr>
<tr><td>Blackout compensation</td><td>Compensation data</td><td colspan="2">Back-up using battery
· Clock
· Measurement data for the last hour
Backs up in non-volatile memory (CompactFlash memory card)
· Setting value
· Measurement data (except measurement data for the last hour)</td></tr>
<tr><td rowspan="3">Battery</td><td>Storage service life</td><td colspan="2">5 years (raw power, at normal temperature)</td></tr>
<tr><td>Service life in use</td><td colspan="2"><table><tr><th>Current application ratio</th><th>Guaranteed values</th><th>Guaranteed time after a battery error occurs</th></tr><tr><td>0%</td><td>13,700hr 1.57yr</td><td rowspan="5">600hr 25d</td></tr><tr><td>30%</td><td>19,100hr 2.18yr</td></tr><tr><td>50%</td><td>25,800hr 2.96yr</td></tr><tr><td>70%</td><td>40,000hr 4.57yr</td></tr><tr><td>100%</td><td>43,800hr 5yr</td></tr></table></td></tr>
<tr><td>Replacement battery model/name</td><td colspan="2">Q6BAT (optional)</td></tr>
<tr><td rowspan="4">CC-Link section</td><td colspan="2">Transmission rate</td><td>156kbps/625kbps/2.5kbps/5Mbps/10Mbps</td></tr>
<tr><td colspan="2">Maximum cable extension
(max. transmission distance)</td><td><table><tr><th>Transmission rate</th><th>Interoffice cable length</th><th>Max. cable extension</th></tr><tr><td>156kbps</td><td rowspan="5">20cm or more</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></table></td></tr>
<tr><td colspan="2">Maximum no. of units connected</td><td>64 provided that the following conditions are met
1.Total no. of offices
a+b×2+c×3+d×4≤64
a: 1 office occupied units, b: 2 offices occupied units, c: 3 offices occupied units, d: 4 offices occupied units
2.No. of units connected
16×(A+D)+54×B+88×C≤2304
A: Remote I/O office units …Up to 64
B: Remote device office units …Up to 42
C: Local office and intelligent device office units …Up to 26
D: Reserved office units*
*Unregistered office numbers from Office No. 1 to highest office number are included in the unit count reserved offices.</td></tr>
<tr><td colspan="2">Connection cable</td><td>CC-Link Ver1.10-compliant cable</td></tr>
<tr><td rowspan="5">Contact output section</td><td colspan="2">Output points</td><td>16</td></tr>
<tr><td colspan="2">Insulation system</td><td>Relay insulation</td></tr>
<tr><td colspan="2">Rated switching voltage/current</td><td>24VDC 2A (resistance load)
240VAC 2A (COSϕ = 1) for 1 point, 8A for 1 common</td></tr>
<tr><td colspan="2">Minimum switching load</td><td>5VDC 1mA</td></tr>
<tr><td colspan="2">Maximum switching load</td><td>264VAC 2A, 125VDC 2A</td></tr>
<tr><td colspan="2">Service life</td><td>Mechanical: More than 20,000,000 times; Electrical: More than 100,000 times (at rated switching voltage/current)</td></tr>
</table>

Software Specifications

Item			Specification	
Recommended operating environment	OS		Microsoft Windows®XP Professional SP3, Windows® 7 Professional SP1, Windows® Vista Business SP2 32bit/64bit	
	Browser		Internet Explorer® 7/8/9	
	JavaVM		Oracle JRE (JDK) Ver. 6	
No. of measuring points	Total measuring points		255 (including a max. of 32 operation monitoring points)	
	Virtual measuring points		128	
	Specific consumption measuring points		64	
	Equipment points		42	
Logging functions	Zoom/Daily/Monthly/Annual		Collect data for: every minute, 5 minutes, every hour or 30 minutes, a specified hour once a day, a specified hour on a specified day every month	
Computation functions	Daily	Virtual measuring points	Basic arithmetic operations for up to 16 operands with parentheses	Computes the data collected for every hour or 30 minutes
		Specific consumption measuring points	Divides the energy consumed by production quantity (specify measuring points or virtual measuring points)	
	Monthly	Virtual measuring points	Basic arithmetic operations for up to 16 operands with parentheses	Computes the data collected for the specified hour once a day
Storage functions	Zoom/Daily/Monthly/Annual		Data for 62d/186d/60mo/5yr	Stores data on a CompactFlash memory card
	Specific consumption measuring points		Data for 186d (daily only)	
	Virtual measuring points		Data for 186d (daily)/60mo (monthly)	
	Operation history		Records the operation monitoring input on/off switching data for each operation monitoring point (64KB × 4 × No. of operation monitoring points)	
Forwarding function	Zoom/Daily/Monthly		Forwards hourly/daily data once every hour, and monthly data at the specified time once every day	Automatically forwards data to the specified FTP server
Display functions	Zoom	Power/No. of pulses	Bar graph: Consumption for every minute	Displays the data for the hour before and after each minute Simultaneously displays data for two days or two measuring points
		Analog value	Line graph: Measurement value	
		Analog value (power factor)	Line graph: Measurement value	Simultaneously displays the data for two days for the hour before and after each minute
	Daily	Virtual measuring points for power/no. of pulses	Bar graph: Consumption for every minute Line graph: Cumulative value for the specific consumption and energy use for every hour or 30 minutes.	Displays the daily data for every hour or 30 minutes Simultaneously displays the data for two days or for two measuring points
		Analog value	Line graph: Measurement value	
		Analog value (power factor)	Line graph: Measurement value	Simultaneously displays the data for two days for every hour or 30 minutes
		Combined	Up to 10 measurement items can be selected for display Up to 32 combined graphs can be created	
		Equipment	Bar graph: Consumption for every hour or 30 minutes	Displays the data for every hour or 30 minutes for the specified day
		Specific consumption	Bar graph: Production quantity and energy consumed for every hour or 30 minutes Line graph: Cumulative value for the specific consumption and energy consumed for every hour or 30 minutes	Simultaneously displays the data for two days for every hour or 30 minutes
	Weekly	Specific consumption		Simultaneously displays the data for seven days for every hour or 30 minutes
	Monthly	Virtual measuring points for power/no. of pulses	Bar graph: Consumption for every day Line graph: Cumulative value for consumption, and daily cumulative planned value	Displays the data for every day for one month, and simultaneously displays the data for two months or two measuring points
	Annual	Power/No. of pulses	Bar graph: Consumption and planned values for every month Line graph: Cumulative consumption and planned values	Displays data for every month for one year Simultaneously displays data for five years or two measuring points
	Present values (group)		Displays the present values for measuring points registered in a group (up to 32 groups and up to 255 points per group) as a cumulative value or the difference from the previous hour, day or month Displays up to 10 measuring points per screen	
	Present values (optional)		Displays the present values for measuring points added to up to 10 display list files as a cumulative value or the difference from the previous hour, day, or month. Displays up to 10 measuring points per screen	
Monitoring functions	Email notification	Errors	Server start-up (reset), CompactFlash memory card read/write errors, measurement errors, file transfer errors, automatic time adjustment errors, and battery errors	
		Upper/Lower limits	Issues alarm for values more/less than upper/lower limits at up to 32 measuring points (analog values)	
		Planned energy values	Monitors actual daily values and compares them to up to 255 preset planned energy values (monthly)	
		Specific consumption target values	Monitors actual hourly values for up to 64 preset specific consumption target values	
		Operation	Monitors status changes at up to 32 operation monitoring points	
		Periodic notification	Sends up to eight kinds of messages once every day, week or month; each message can be set to be sent at a specified time or to a specific address	
	Contact output	Errors	Server startup (reset), CompactFlash memory card read/write errors, measurement errors, file transfer errors, automatic time adjustment errors, and battery errors	
		Upper/Lower limits	Issues alarm for values more/less upper/lower limits at up to 32 measuring points (analog values)	
		Planned energy values	Monitors actual daily values for up to 255 preset planned energy values (monthly)	
		Specific consumption target values	Monitors actual hourly values for up to 64 preset specific consumption target values	
		Operation	Linked to the status of up to 32 operation monitoring points	
Maintenance functions	Planned/Target value setting		Sets the monthly planned energy values and specific consumption target values for the calendar or fiscal year	
	Time setting		Reads and sets the current data and time	
	IP address setting		Sets the IP address, subnet mask, gateway address, and DNS address (up to three)	

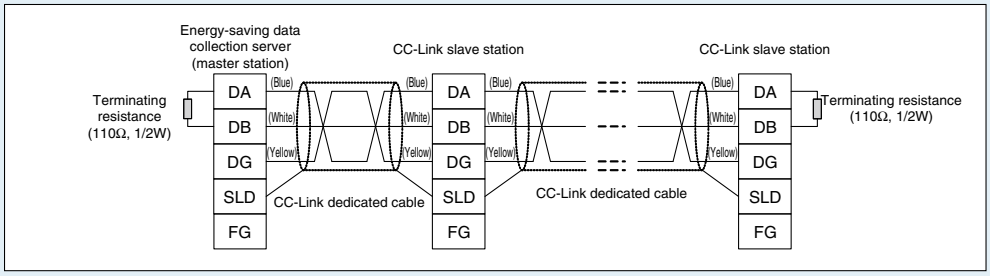
Main Unit Specifications



Notes *1 Ensure that the CompactFlash memory card is inserted when using the unit. Removing the memory card when turning on the power or accessing it may cause abnormal operation. Before removing the card from the memory card slot, ensure that the Reset/Select switch is set to Select, and that it is performed after the CF Card LED turns off and after the power is turned off.
*2 Only connect power sources of 100 to 240VAC (+10%, -15%), 50 to 60Hz. Using other power sources may cause a failure.

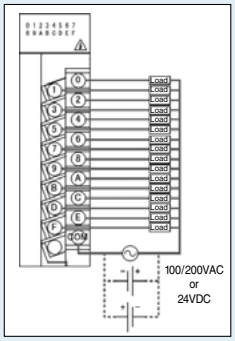
Connection Diagram

CC-Link communication section (when this product is a terminal)



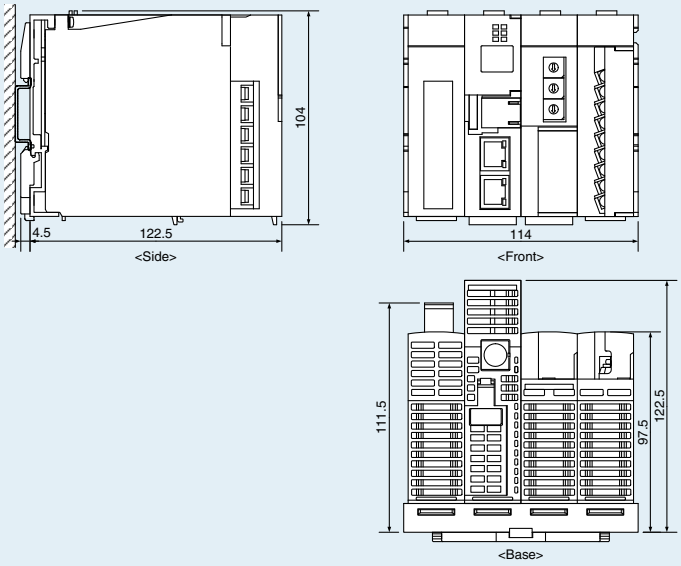
* When this unit is not a terminal in a CC-Link communication line, connect terminating resistances (110Ω) at the terminals at both ends. When it is a terminal, terminating resistance is not required.

Contact output section

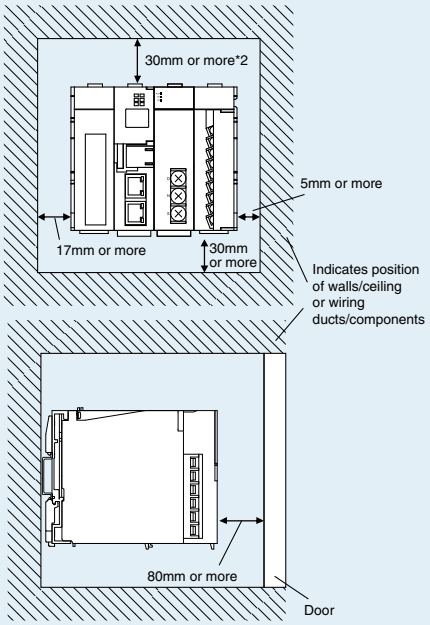


External Dimensions

Energy-saving data collection server (MES3-255C-EN) main unit



Installation space requirements *1



*1 Requirements shown are those considering heat radiation. In addition to these requirements, please ensure sufficient space at the bottom of the main unit to replace the battery.
*2 In the case that the wiring duct height is 50mm or less (40mm or less for other measurements).

Related Products

Daily/Monthly Report Software [EcoMeasure Ⅲ]

This software supports the ledger preparation of daily reports, monthly reports and annual reports from the CSV files collected and output by the Mitsubishi Energy Data Collection Server [EcoWebServer Ⅲ].

Features

(1) Daily, monthly and annual reports can be created easily.

· The prepared ledger is saved as an Excel file a user-designated place.

(2) Easily collect data.

· CSV files stored in EcoWebServer Ⅲ can be downloaded with simple operations.

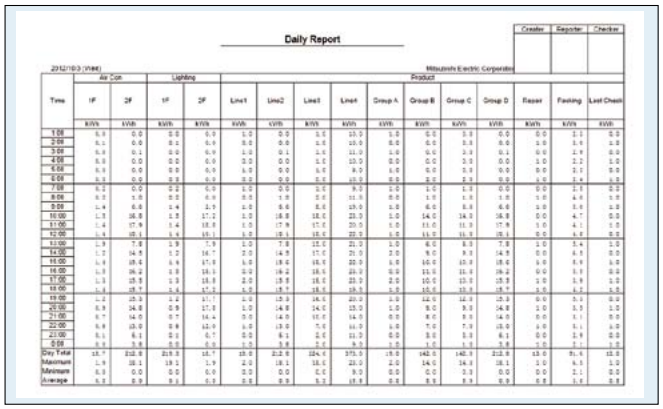
Appearance

Specifications

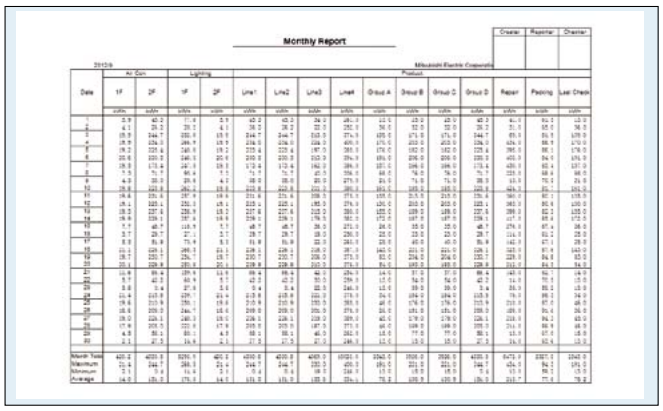
Item		Specifications
Model		MES3-SW1-DR-FR
Connected devices	Number of units	2 units maximum (combination of following target devices)
	Target devices	EcoWebServer Ⅲ (MES3-255C-EN)
Number of virtual measurement points		Maximum 95 points (Total 95 points including virtual measurement points for calculating measurement management points, and virtual measurement points for input.) * Four arithmetic-functions of up to 64 measurement management points (including constants) can be registered in the virtual measurement points for calculation.
Number of virtual measurement point groups		Maximum five groups * The addition/subtraction for up to 32 virtual measurement points can be registered in the virtual measurement point groups.
Number of raw units		Maximum 100 points
Ledger creation function	Ledger creation	Daily report creation, monthly report creation, annual report creation
	Maximum number of items	The daily report, monthly report and annual report can have up to 300 output items.
	Tabulation items	Analog (including raw unit) / Maximum, minimum, average
		Pulse / Total, maximum, minimum, average
OS(basic software)		English version of Microsoft Windows XP(32 bits)(SP3)Professional English version of Microsoft Windows Vista(32 bits)(SP2)Business English version of Microsoft Windows 7(32 bits/64 bits)Professional
Required software		English version of Microsoft Excel 2003(SP3)/2007(SP3)/2010(32 bits/64 bits)(SP1)
CPU		For Windows XP: Processor of Pentium 400 MHz or greater Or a compatible microprocessor(DOS/V compatible) For Windows Vista or Windows 7: As recommended for the operating system
Memory*1		As recommended for the operating system
Hard disk*1		Software:Approx. 100 MB or more, Data: 8 GB or more*2
CD-ROM drive		1 drive(for installing the software)
LAN		10/100/1000BASE-T x1
USB connector(Type A)		1 connector(for connecting the hardware key)
Display resolution		800x600 pixels or more
Display color		256 colors or more

*1 Note that the required memory and available hard disk space may vary depending on the system environment.
*2 Shows the capacity required when the product is used with 2 subsystems connected at the maximum.

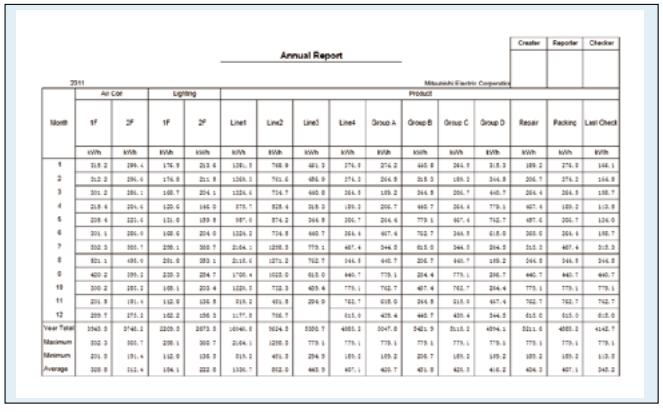
Daily Report



Monthly Report



Annual Report



Safety Precautions

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 reduce service life. Do not use in environments where:

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

Installation/Mounting

Be sure to read the user's manual before installing/mounting the unit.

⚠CAUTION

- For safety, the unit installation and all wiring connections should be performed by a qualified electrician.
- Be careful of the 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 electric shock.
- Do not perform wiring work using live circuits. Doing so may cause a malfunction, fire or electric shock.
- Use electrical wires of appropriate size. Not doing so may cause a fire due to the heat generated.
- 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.
- For compliance with UL/cUL standards (CC-Link), please use electrical wiring with a copper conductor rated temperature values of 60/75°C.

Location	Wire size	Compatible solderless terminal
Power source terminal block	0.75 to 2mm^2	RAV1.25 to 3.5 RAV2 to 3.5
CC-Link communication terminal block	Ver. 1.10-compatible CC-Link dedicated cable	R1.25 to 3
Contact output terminal block	0.3 to 0.75mm^2	R1.25 to 3 (cannot use solderless terminal with sleeve)

- Current might exceed the specified value when the power is cycled immediately after the power is breaking off (in 5 seconds). Please turn on the power more than 5 seconds after breaking off.
- 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. Lack of tightening may cause a malfunction, fire or electric shock.

Location		Tightening torque
Terminal screws for the power source terminal block	(M3.5 screw)	0.8 to 1.0N·m
Terminal screws for the CC-Link communication terminal block	(M3 screw)	0.42 to 0.58N·m
Mounting screws for the CC-Link communication terminal block	(M3.5 screw)	0.66 to 0.89N·m
Terminal screws for the contact output terminal block	(M3 screw)	0.42 to 0.58N·m
Mounting screws for the contact output terminal block	(M3.5 screw)	0.66 to 0.89N·m
Unit attachment screws	(M3 × 12 screw)	0.36 to 0.48N·m

- Be sure to check that the terminal cover has been attached. Not doing so may cause an electric shock.
- To prevent induction noise, control wires/communication cables should not be installed close to power lines (cables 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.
- Connect both ends of the shielding wire for the CC-Link communication cable to the "SLD" terminal of each unit.
  The "SLD" and "FG" terminals of each unit are connected inside the unit.
  In addition, be sure to insulate the shield with vinyl tape or other means.
- During actual use conditions, for "FG" use Class-D grounding (dedicated grounding).
- Do not connect the FG terminal to a box (ground) when conducting the withstand voltage test or insulation resistance test.

Preparations Before Use

- Be sure that the installation location complies with the operating environment/conditions.
- This product must be configured correctly before use. Not doing so may cause a malfunction.
- Confirm the power source rating of the product.
- Remove the dust-resistant seal after completing installation and wiring.
  Not doing so may cause a malfunction due to the heat generated.
- 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 Usage

- Use only within rating range specified in this document. Not doing so may cause a malfunction, failure, fire or burnout.
- An IP address and other settings are required to connect this product to a network (Ethernet). Before use, use the accompanying set-up software to perform these settings.
- 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 a one-on-one connection to a personal computer.

- Product has a built-in clock. Before use, use the accompanying set-up software to set the present date and time.
- 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 insulation protection.
- Please consult with a Mitsubishi Electric representative when considering the application of this product with machinery or systems designed for specialized use such as nuclear power, aerospace/outer space, medical, or passenger transportation vehicles (refer to the end of this document for details).

⚠CAUTION ● Do not disassemble or modify product for use. Doing so may cause a failure, electrical shock or fire.

Maintenance/Inspections

- Use a soft, dry cloth to wipe dust/dirt from the surface.
- Do not use pre-treated wipes to clean the surface, and do not use benzene, thinner or alcohol.
- Conduct inspections as follows to ensure correct use of the product and a long service life.
  In particular, check ① to ③ at least once or twice every six months as part of the daily inspection.
  Check ④ once a year.
  Check for: ①Product damage, ②LED display abnormalities, ③Abnormal noises, odors or heat generation,
  ④Loose connectors, mounting or terminal block connections (be sure to turn off the power before performing inspections).

⚠CAUTION ● Be sure to turn off the power before checking for loose connectors, mounting or terminal block connections.

Storage

- When storing this product, turn off the power, disconnect the wiring, and place it in a plastic bag.
- When turning the power off for long periods of time, remove the connector for the battery.
  (The cumulative power outage compensation time of the battery is up to 13,700 hours [1.57 years].)
- Storage of the product in one of the environments described below may cause a malfunction or reduce service life. Do not store units for long periods of time in environments where:

● Ambient temperature is outside the range of -25 to +75°C. ● Average daily temperature exceeds 35°C. ● Relative humidity is outside the range of 5 to 95%, or where condensation occurs. ● There is excessive dust, corrosive gas, salt-saturated air or oily smoke. ● The unit is subjected to excessive vibration or physical shock.	● The unit is exposed to rain or drops of water. ● The unit is exposed to direct sunlight. ● There are pieces of metal or inductive substances nearby. ● There is a strong electromagnetic field or excessive external electrical noise interference.

Disposal

- Dispose of this product following relevant laws and/or guidelines.
- This product is equipped with a lithium battery. Please dispose of it according to relevant laws and/or guidelines.

⚠CAUTION ● The lithium battery may still have electrical capacity after it is removed. Store it separately from other metals, as contact with other metals may cause the generation of heat, rupture or fire.

2. Precautions Regarding Software Use

- Mitsubishi Electric does not guarantee or provide support for FTP 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 the network administrator.
- Please be aware that Mitsubishi Electric does not provide support regarding personal computer hardware, operating systems or operations.
  Please contact the manufacturer or administrator.
- After using the set-up 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 of operating status, do not use measures such as inputting alarms that require an emergency response. Doing so may lead to an accident.

3. Trademarks

- Windows®, Windows® 7 and 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 CF are trademarks of SanDisk Corporation.
- Ethernet is a registered trademark of Fuji Xerox Co., Ltd.
- EcoWebServer is a registered trademark of Mitsubishi Electric Corporation.
- Other company names and product names are registered trademarks or trademarks of their respective companies.

MEMO

Mitsubishi Electric Energy-saving Data Collecting Server

Service Network

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USA	Mitsubishi Electric Automation Inc.	500 Corporate Woods Parkway Vernon Hills, IL 60061, USA	+1-847-478-2100
Brazil	MELCO-TEC Rep. Com. e Assessoria Tecnica Ltda.	Av. Paulista, 1439-Cj.72, Cerqueira Cesar CEP 01311-200, Sao Paulo, SP, CEP:01311-200, Brazil	+55-11-3146-2200
Chile	Rhona S.A.	Agua Santa 4211 P.O. Box 30-D Vina del Mar, Chile	+56-32-2-320-600
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Malaysia	Mittric Sdn Bhd	5 Jalan Pemberita U1/49, Temasya Industrial Park, Glenmarie 40150 Shah Alam, Selangor, Malaysia	+603-5569-3748
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Middle East Arab Countries & Cyprus	Comptoir d'Electricite Generale-International-S.A.L.	Cebaco Center - Block A Autostrade Dora P.O. Box 11-1314 Beirut - Lebanon	+961-1-240430
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For Safety : Please read the instruction manual carefully before using the products in this catalog. Wiring and connection must be done by the person have a specialized knowledge of electric construction and wiring.

eco Changes for a greener tomorrow

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.

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