

IoT-Ready, Energy-Saving Controller  
Contributes to the optimization of energy use by  
enabling monitoring / control of power demand and  
visualization of production information



Easy Ethernet  
data logging

• Business  
owner  
• Factory  
manager

Visualization  
using  
Web server



Process  
manager

Acquisition  
of analog data  
using extension  
function

Demand  
monitoring /  
control function at  
short intervals of  
five seconds



Equipment  
manager

# Contributes to the optimization of energy use by control of power demand and visualization of

The key to successful utilization of IoT is to collect and utilize data. Panasonic has been promoting the use of Eco-POWER METER, data loggers and software for visualization of energy so that effective energy-saving activities can be conducted.

## ELC500 Control Unit

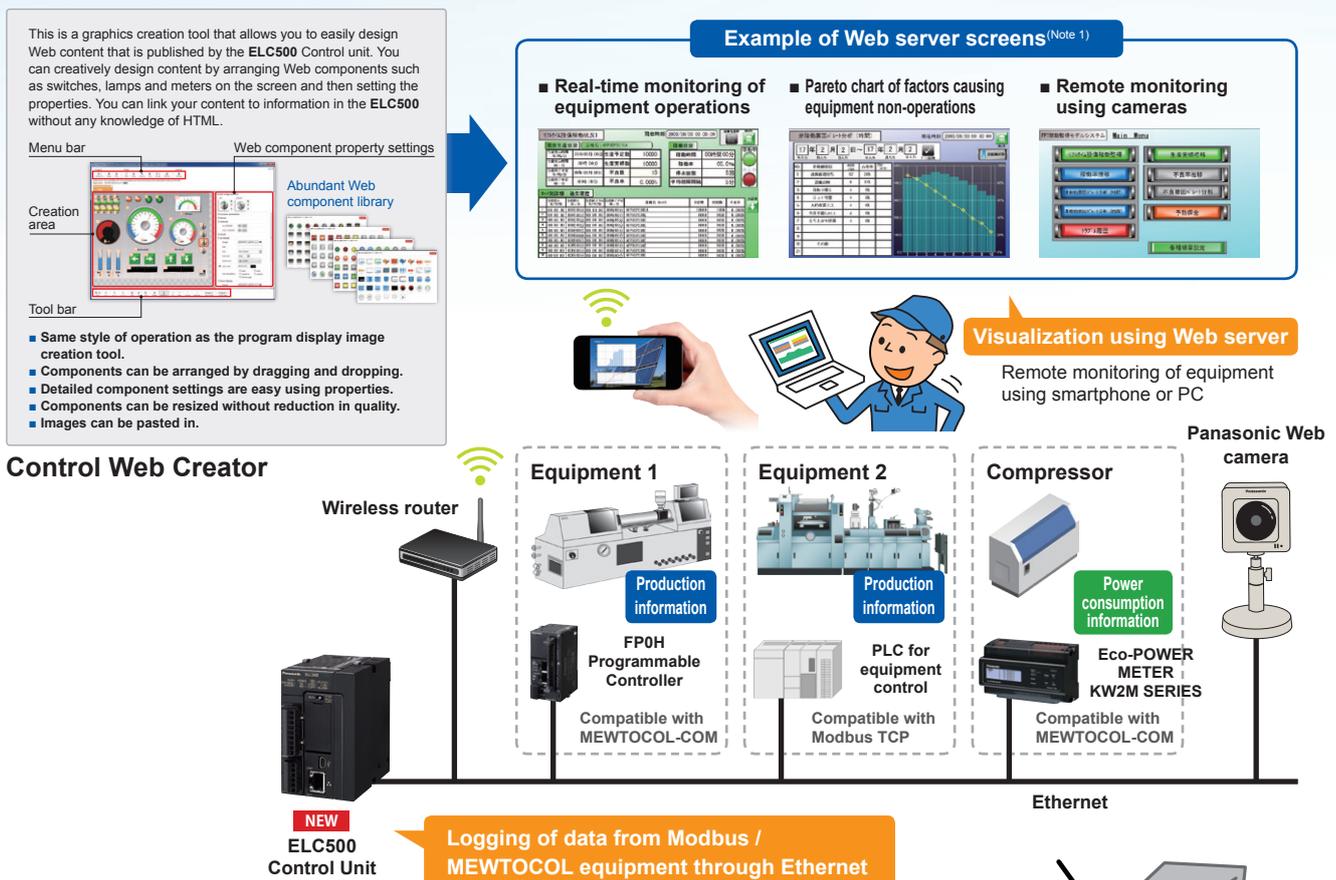
The ELC500 Control Unit enables program-less Ethernet data logging, demand monitoring and control at short intervals of five seconds, and remote equipment monitoring using a Web server. This product allows the incorporation of IoT in your factories and equipment to help optimize energy use and improve productivity.

## Usability

ELC500 Control Unit

### Data logging through Ethernet

### Remote monitoring using Web server



## Program-less<sup>(Note 2)</sup> Ethernet data logging and remote monitoring / control<sup>(Note 3)</sup> using Web server

\* Ethernet is a registered trademark of Fuji Xerox Co., Ltd. and Xerox Corporation in the U.S.

Notes: 1) Depending on the type of information to be displayed on the Web server screen, a program may need to be produced using **Control FPWIN Pro7**.

2) Settings must be made using **Configurator EL500**.

3) Web content must be produced using **Control Web Creator**.

# enabling monitoring / production information



Data Logger Light



ELC1 Control Unit



ELC500 Control Unit

## Flexibility

ELC500 Control Unit

Demand monitoring at intervals of several seconds allows prompt response to sudden load fluctuations

**Before** Demand forecast at 1-minute intervals



ELC1 Control Unit  
Conventional product

Maybe I should cut off larger loads than probably necessary since I don't know how the demand will change in the next one minute...

It will take one minute to know the effect of the load control I perform...

Demand forecast at 1-minute intervals does not allow prompt response for demand monitored at 15-minute intervals...

**After** Demand forecast at 5-second intervals



**NEW**  
ELC500 Control Unit

Demand forecast at 5-second intervals allows optimal control of loads!

Knowing the effect of load control at 5-second intervals reduces time loss in waiting for the data!

Demand forecast at 5-second intervals allows prompt response even for demand monitored at 15-minute intervals.

## Monitoring intervals and control patterns to meet the demand monitoring needs of users

Constant-cycle demand 15 min 30 min 60 min



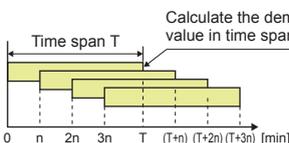
Demand time span is compatible with constant-cycle demand periods of 15 / 30 / 60 minutes.

IEC demand Compliance with IEC 61557-12 standard

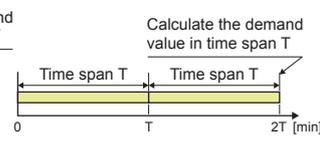
Demand monitoring complies with the IEC 61557-12 international standard commonly used for energy-saving measures.

### IEC demand (Sliding block interval and Fixed block interval)

Users set the time span for demand calculation to an arbitrary value between 1 to 60 minutes (in increments of one minute). The average power demand within the set span is calculated at the end of the span. [The demand values of active, reactive, apparent, active (export), and reactive (export) power are calculated.]



**Sliding block interval method**  
The next time span starts "n" minutes later. (Value "n" is arbitrarily set by users.)



**Fixed block interval method**  
The next time span starts after completion of the current span.

### Three types of control patterns

#### Alarm-linked control

Controls loads in three steps according to conduction such as demand values to achieve peak-cut.

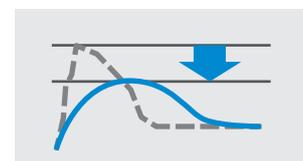
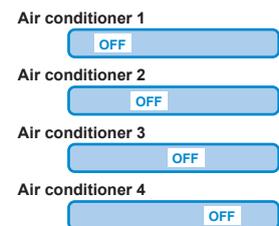


#### Startup control

Delays the startup timing to reduce inrush power and achieve peak-cut.

#### Cyclic control

Controls a group of loads in a rotation manner to reduce overall power consumption.



# Ethernet data logging makes it easy to incorporate

## Usability

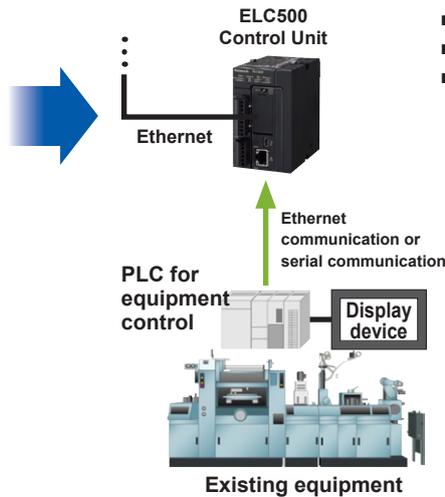
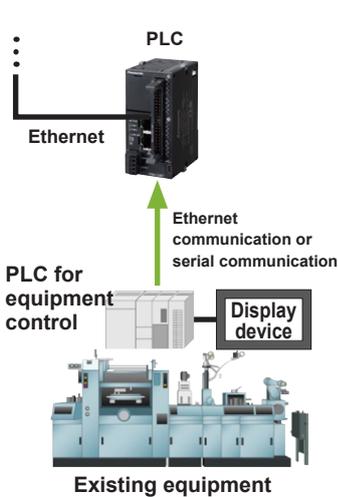
ELC500 Control Unit

### Collection and storage of operation data of existing equipment using add-on device

\* Settings must be made using **Configurator EL500** (compatible units: Modbus TCP / RTU and MEWTOCOL units). \* SD memory card (sold separately) is required for data storage.

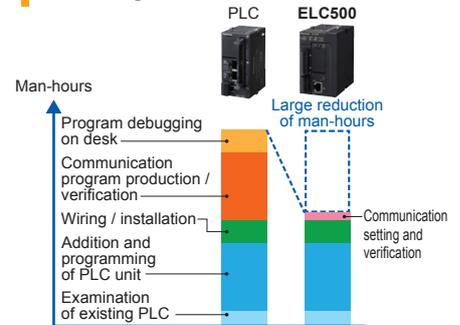
**Before** PLC's communication program is used for serial communication and storage of equipment operation status data.

**After** There is no need for a program for serial communication and storage of equipment operation status data.



- Reduces engineering man-hours
- Improves maintainability
- Allows easy change of layout

Visualization of equipment operation information  
Comparison of man-hours reduced by retrofitting<sup>(Note)</sup>



Note: When Panasonic products are used.

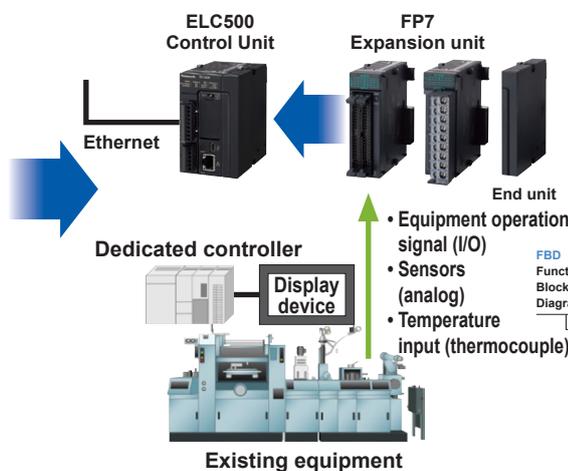
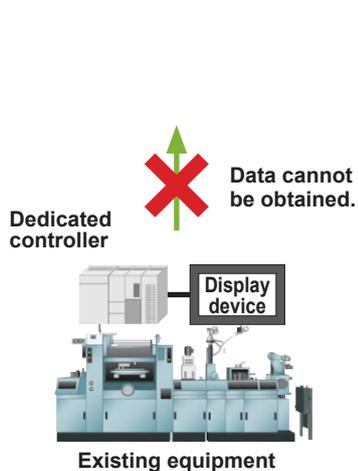
\* Character string data cannot be managed.

\* Maximum data size is four words.

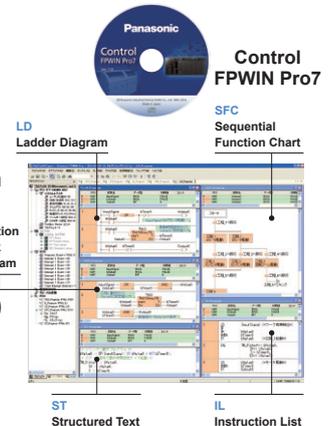
### Extension function<sup>(Note)</sup> for logging of I/O signals, analog data and temperature data

**Before** There is no means to obtain equipment operation status information through communication function.

**After** FP7 Expansion Unit enables acquisition of equipment I/O signals, analog signals and temperature information.



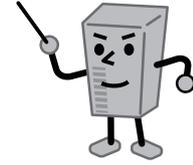
Note: To use the extension function, it is necessary to create a program using Control FPDWIN Pro7.



### Connectable units

- Input / Output Unit
- Analog Input / Output Unit
- Temperature Input Unit
- High-speed Counter Unit
- Pulse Output Unit
- Multi Input / Output Unit
- Programmable Input / Output Unit
- PHLS (Remote I/O) Unit

# IoT in production operations

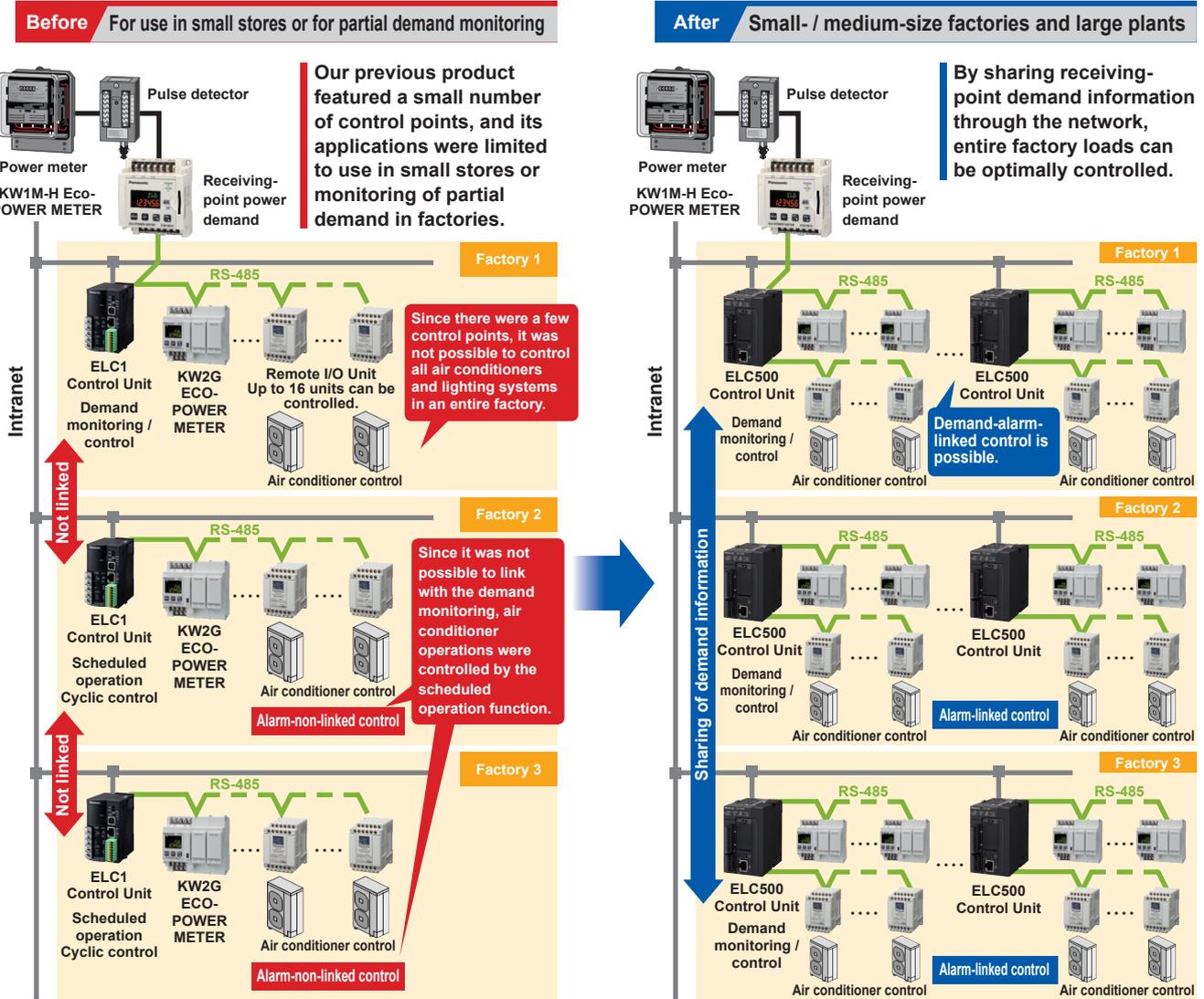


## Flexibility

ELC500 Control Unit

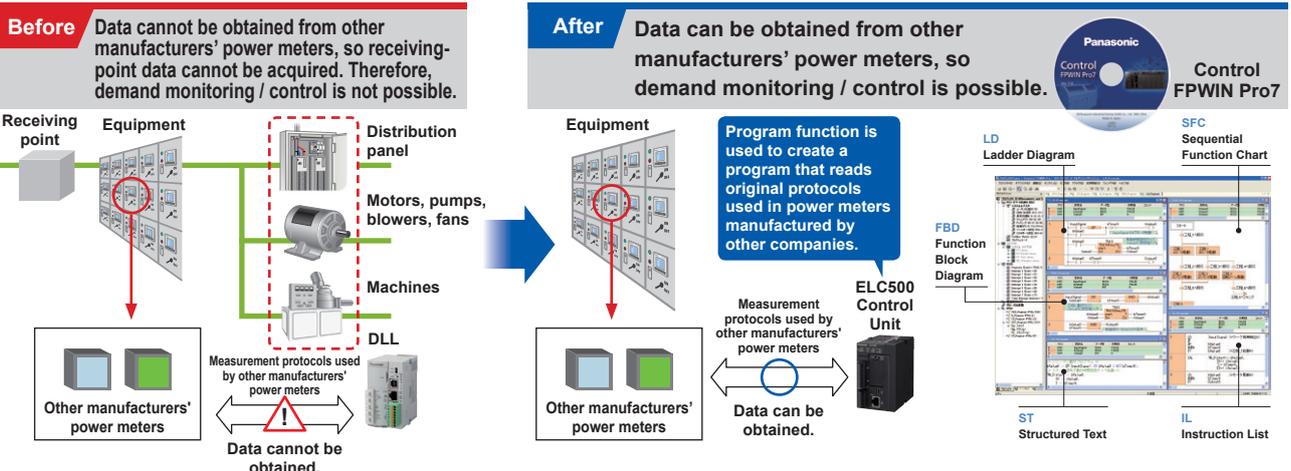
### Realizes demand monitoring in large plants

\* There are certain restrictions such as the maximum number of connectable units.



### Use of the program function<sup>(Note)</sup> enables collection of data from other manufacturers' units that use different protocols

Note: To use the program function, it is necessary to create a program using Control FPDWIN Pro7.



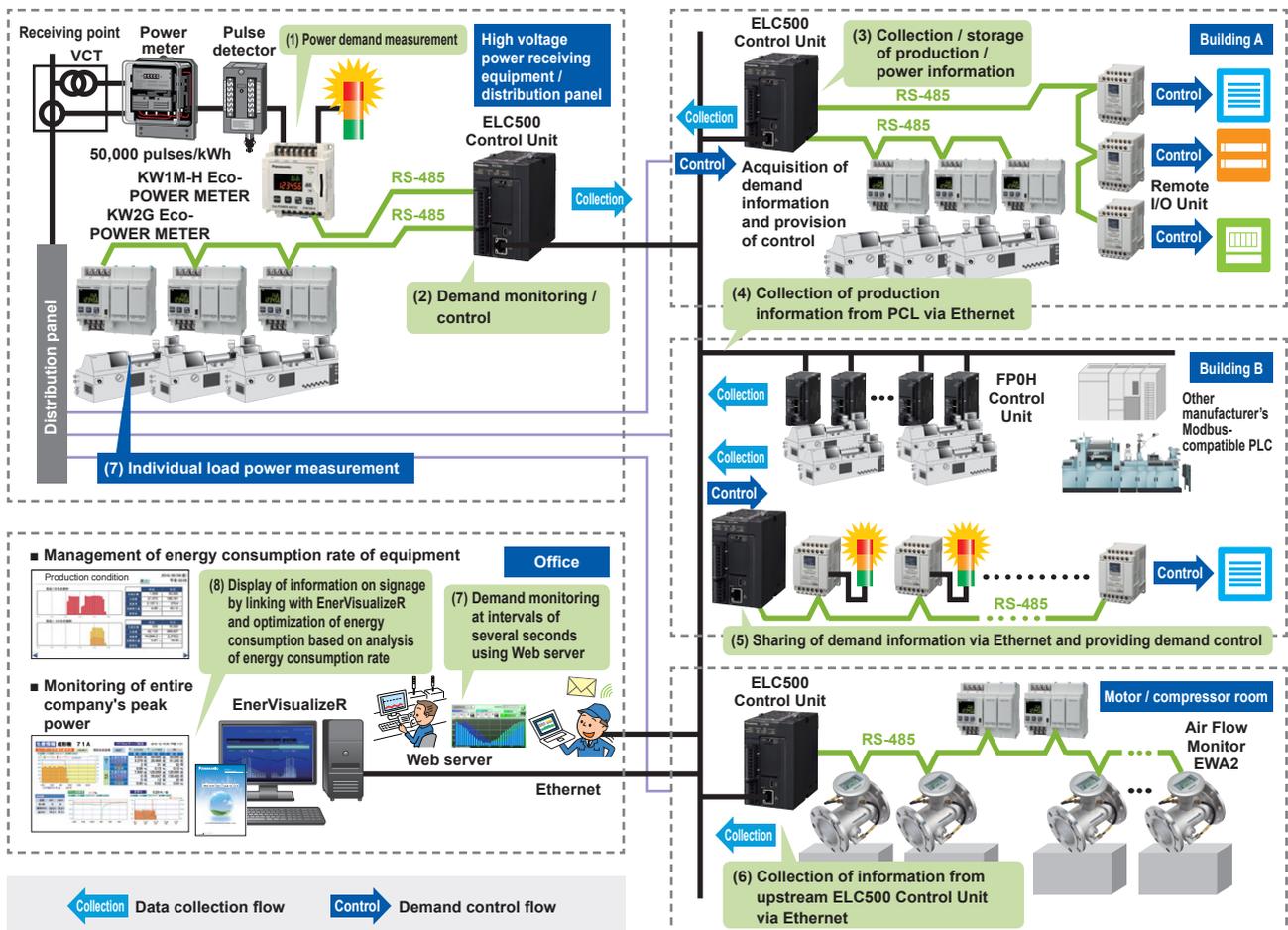
# System Configuration Example

ELC500 Control Unit

## Example of system configuration – For power peak-cut and operation monitoring

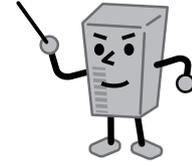
- (1) Measurement of power demand
- (2) Demand monitoring at intervals of several seconds
- (3) Collection and storage of production / power information
- (4) Acquisition of production information from PLC and energy information collected by ELC500 Control Unit through Ethernet
- (5) Sharing of demand information via Ethernet and providing demand control
- (6) Collection of information from ELC500 Control Unit via Ethernet
- (7) Demand monitoring<sup>(Note)</sup> at intervals of several seconds using Web server
- (8) Compilation, analysis and sharing of information by linking with EnerVisualizeR

Note: Screen must be created using **Control Web Creator**.



### Related products



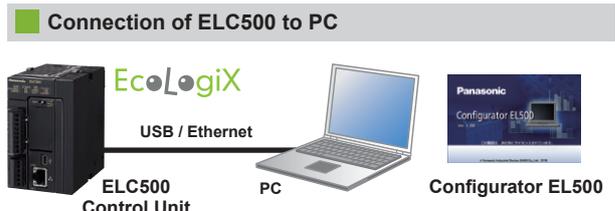
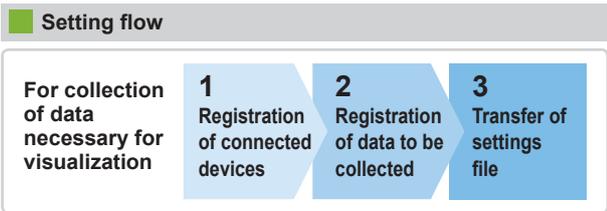


# Configurator EL500 ELC500 Control Unit

Software for entering settings for data collection / storage, demand monitoring / control, email, etc. in ELC500 Control Unit

- \* Configurator EL500 can be downloaded free from the Panasonic website (member registration is required).
- \* SD / SDHC memory card must be purchased separately. Use of Panasonic's industrial SD memory card (SLC) is recommended.

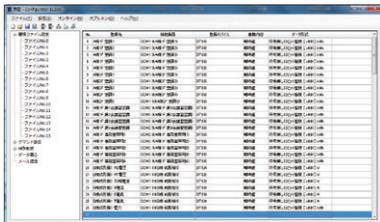
## Easy setting



## Examples of typical screens

### Registration of data storage devices

Used to register devices that collect data. Maximum of 512 points can be registered.



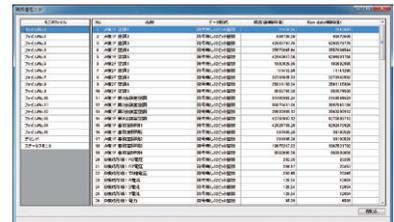
### Demand monitoring / control setting

Used to set demand type and file and enter alarm output control setting.



### Current value monitor

Monitors the storage device and main unit status. This screen is useful for checking equipment operations in startup.



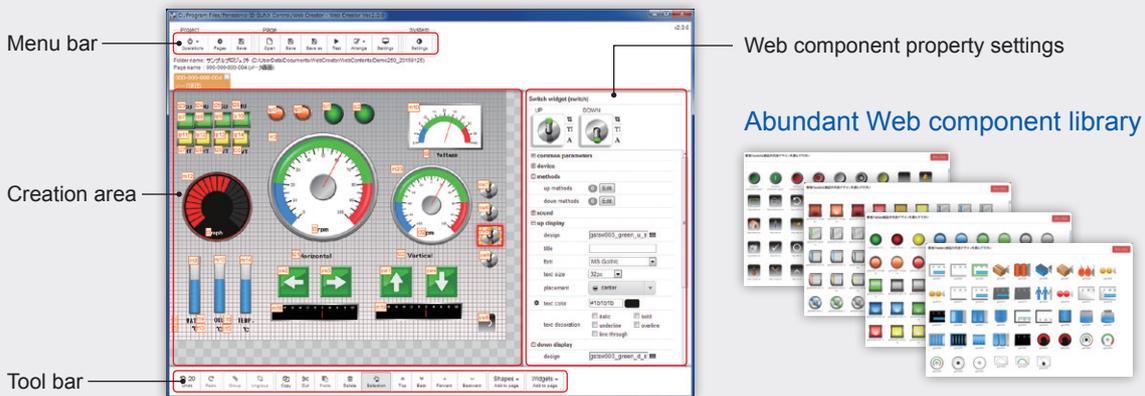
## Items necessary for demand control setting

- Demand type setting
- Target demand setting
- Demand monitoring device setting
- Remote I/O unit control setting

# Control Web Creator ELC500 Control Unit

## [ Control Web Creator ]

This is a graphics creation tool that allows you to easily design Web content that is published by the ELC500 Control unit. You can creatively design content by arranging Web components such as switches, lamps and meters on the screen and then setting the properties. You can link your content to information in the ELC500 without any knowledge of HTML.



- Same style of operation as the program display image creation tool.
- Components can be arranged by dragging and dropping.
- Detailed component settings are easy using properties.
- Components can be resized without reduction in quality.
- Images can be pasted in.

## Order guide

Product name	Descriptions	Model No.
<b>ELC500</b> Control Unit	Collection of measured data Peak power monitoring / control (Alarm-linked control, cyclic control, startup control), PLC function	<b>UELC500</b>
<b>Configurator EL500</b> (Note)	Main unit setting software	—
<b>Control FPWIN Pro7</b>	Programming tool	<b>AFPSPR7A</b>
<b>Configurator WD</b> (Note)	IP address search tool	—
<b>Control Web Creator</b> (Note)	Custom website creation software (Key unit must be purchased.)	<b>AFPSWC</b>
Key unit	License key for <b>Control Web Creator</b> , 1 license, USB port connection	<b>AFPSWCKEY</b>

Note: Can be downloaded free from the Panasonic website (member registration is required).

## Main unit specifications

Item	Specification
Rated operating voltage	24 V DC
Current consumption	300 mA or less (Note)
Ambient temperature	0 to +55 °C <b>+32 to +131 °F</b>
Ambient humidity	10 to 95 % RH (at +25 °C <b>+77 °F</b> , no dew condensation allowed)
Serial communication	Ethernet: 1 port, RS-232C: 1 port, RS-485 / 422: 2 ports
Compatible regulations	Low Voltage Directive, EMC Directive, RoHS Directive

Note: Regarding system consumption current, see the User's Manual for **ELC500** Control Unit.

## External memory specifications

Item	Specification
Supported media	SD memory card
Compatible format	Compatible with SD / SDHC standards (FAT16 and FAT32 only)
Capacity	2 to 32 GB
Speed class	Class 2 to Class 10

Notes: 1) If a (momentary) power outage occurs during writing, data can become corrupted. Use of UPS (Uninterruptible Power Supply) is recommended.  
2) Use of Panasonic's industrial SD memory card (SLC memory card) is recommended.  
For the handling of SD memory card, see the User's Manual for **ELC500** Control Unit.

## Main specifications

Item	Specification
Communication (Downstream communication)	<ul style="list-style-type: none"> <li>Ethernet: 1 port [supported protocols: MEWTOCOL-COM, Modbus TCP; number of nodes: 197 units; number of simultaneous connections: 20]</li> <li>RS-232C: 1 port [supported protocols: MEWTOCOL-COM, Modbus RTU, general-purpose communication]</li> <li>RS-485 / 422: 2 ports [supported protocols: MEWTOCOL-COM, Modbus RTU, PLC link, general-purpose communication]</li> </ul>
Data collection (logging) function	<ul style="list-style-type: none"> <li>Stored data: Instantaneous values, differential values</li> <li>Data storage location, storage format: SD / SDHC memory card, CSV file format</li> <li>Maximum number of registerable points: 512 points/16 files (Up to 16 files can be registered. Up to 128 points can be registered in 1 file.)</li> <li>Number of storable files: 100 files</li> </ul>
Demand monitoring function	<ul style="list-style-type: none"> <li>Demand type: Constant-cycle (15 / 30 / 60 min) demand; demand cycle: 5 sec (high speed)/min, IEC demand (Note 1) (demand / interval time span: 1 to 60 min)</li> <li>Total number of demand monitoring target units: 50 units</li> <li>Number of registerable I/O control devices / control patterns: 16 points / alarm-linked control, startup control, cyclic control (ON/OFF control for all) (Note 2)</li> </ul>
Network function	<ul style="list-style-type: none"> <li>Communication protocols: TCP/IP, UDP/IP</li> <li>Application protocols: SMTP (SMTP AUTH supported), FTP (client / server), SNMP, DHCP, DNS, HTTP (server)</li> </ul>
Email transmission function	<ul style="list-style-type: none"> <li>Number of registerable points: 16 points</li> <li>Subject title: 64 half-width characters (32 full-width characters), Message: 256 half-width characters (128 full-width characters)</li> </ul>
Others	<ul style="list-style-type: none"> <li>Web server function: Custom Web region, 8 MB (<b>Control Web Creator</b> is required), number of simultaneous sessions: 16</li> <li>Extension function: Addition of <b>FP7</b> (PLC) units enables acquisition of information such as I/O signals, analog data and temperature data. Maximum of 8 units (Note 3)</li> <li>Program function: 32-k steps Programming is possible when <b>Control FPWIN Pro7</b> is used.</li> </ul>

Notes: 1) Demand in compliance with IEC 61557-12, "Performance measuring and monitoring devices (PMD)"

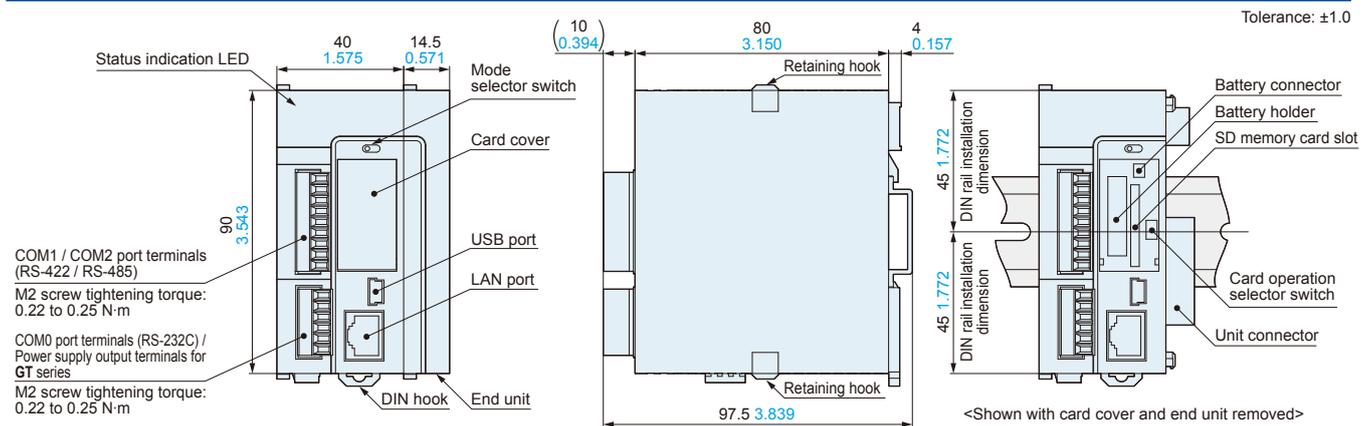
2) Use **ECOnect** series remote I/O units (**UENU2D4R12**).

3) The number of connectable units is limited. For details, refer to the **ELC500** Control Unit Specifications or manual.

Note: Ethernet is a registered trademark of Fuji Xerox Co., Ltd. and Xerox Corporation in the U.S.

Modbus protocol is a communication protocol developed by Modicon Inc. for use with programmable logic controllers (PLCs).

## Dimensions (Unit: mm in)



• This product includes software developed by the IEEE Industry Connections Security Group (ICSG)

Please contact .....

## Panasonic Corporation

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