



for a greener tomorrow



**MITSUBISHI  
ELECTRIC**

*Changes for the Better*

FACTORY AUTOMATION

# Energy Measuring Unit EcoMonitorPlus Control Unit



Power monitoring + Control

**EcoMonitorPlus**

# Supporting energy-saving activities

EcoMonitorPlus (control unit) realizes energy-saving control of the factory's utility equipment, production equipment, and auxiliary devices.

## Example of control unit installation

**Scheduled control of lighting linked to factory operation time.**

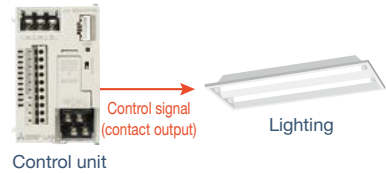
### Scheduled control

#### Challenge

Energy loss occurs due to unnecessary operation of lighting equipment.

#### Solution

Reducing energy loss by scheduling lighting with the factory operation time.



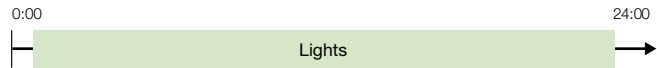
#### Calendar setting

Set an operation pattern for each day.  
Weekday (7:00 to 20:00)  
No overtime day (7:00 to 18:00)

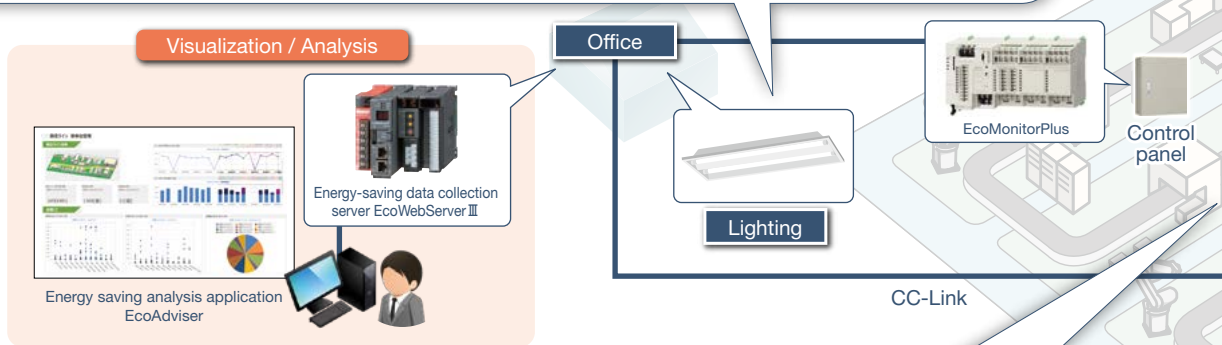
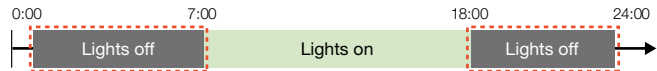
| Sun           | Mon           | Tue  | Wed                   | Thu           | Fri           | Sat           |
|---------------|---------------|--|-----------------------|---------------|---------------|---------------|
|               | 1<br>Weekday  | 2<br>Weekday                                 | 3<br>No overtime day  | 4<br>Weekday  | 5<br>Weekday  | 6<br>Holiday  |
| 7<br>Holiday  | 8<br>Weekday  | 9<br>Weekday                                 | 10<br>No overtime day | 11<br>Weekday | 12<br>Weekday | 13<br>Holiday |
| 14<br>Holiday | 15<br>Weekday | 16<br>Weekday                                | 17<br>No overtime day | 18<br>Weekday | 19<br>Weekday | 20<br>Holiday |
| 21<br>Holiday | 22<br>Weekday | Set your company's holidays in the calendar. |                       | 26<br>Weekday | 27<br>Holiday |               |
| 28<br>Holiday | 29<br>Holiday | 30<br>Holiday                                |                       |               |               |               |

#### Control pattern

(1) Before (before scheduled control)



(2) After (after scheduled control)



**Interlock control of production equipment and auxiliary devices**

### Interlock control

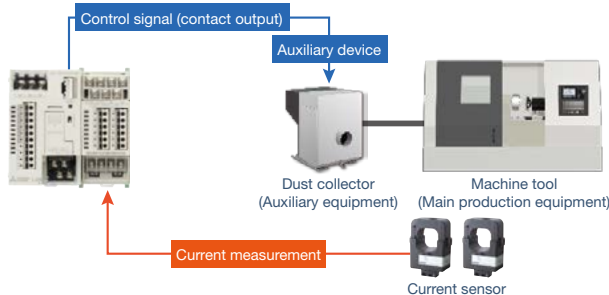
#### Challenge

Energy loss occurs due to continuous operation of auxiliary equipment of production equipment.

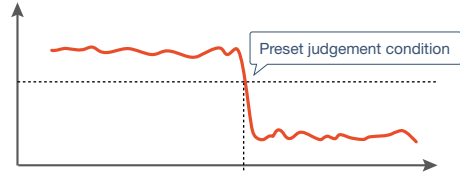
#### Solution

Reduce energy loss by controlling auxiliary equipment in conjunction with the operating status of a main production equipment.

[Control parameter setting] Judgement condition [Current < 1.0A]  
Judgement condition established -> Contact output (stop)



#### Current from production equipment



#### Operation of auxiliary device



The control delay time can be set from 0 to 3600 seconds.

## Challenges in energy-saving activities

Even when energy losses are found, it takes immense expenses and labor to structure or change the system, making it difficult to make energy-saving improvements.

## Resolve with control unit

EcoMonitorPlus Control Unit supports energy-saving activities by optimizing the operating time of equipment without complicated engineering work.

### Analog control of ventilation fan interlocked with CO<sub>2</sub> concentration level

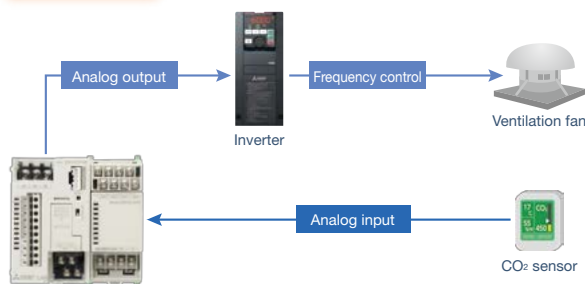
#### Interlocked control

#### Challenge

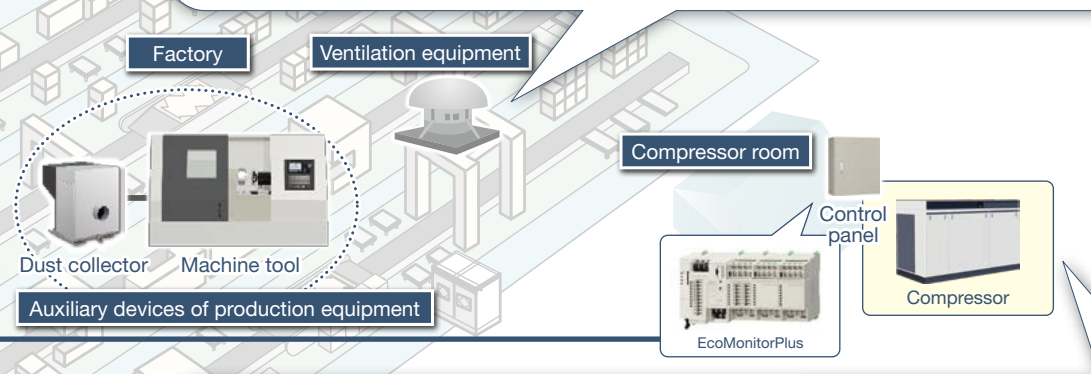
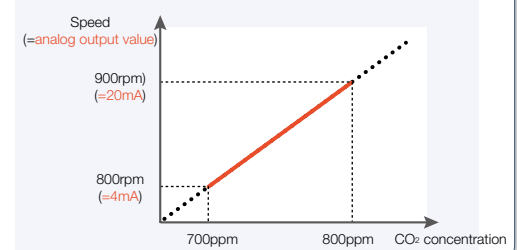
Energy loss occurs due to unnecessary continuous operation of a ventilation fan.

#### Solution

Reduce energy loss by controlling a ventilation fan in conjunction with the indoor CO<sub>2</sub> concentration level.



Example of control parameter setting



### Unit control interlocked with compressor air output pressure level

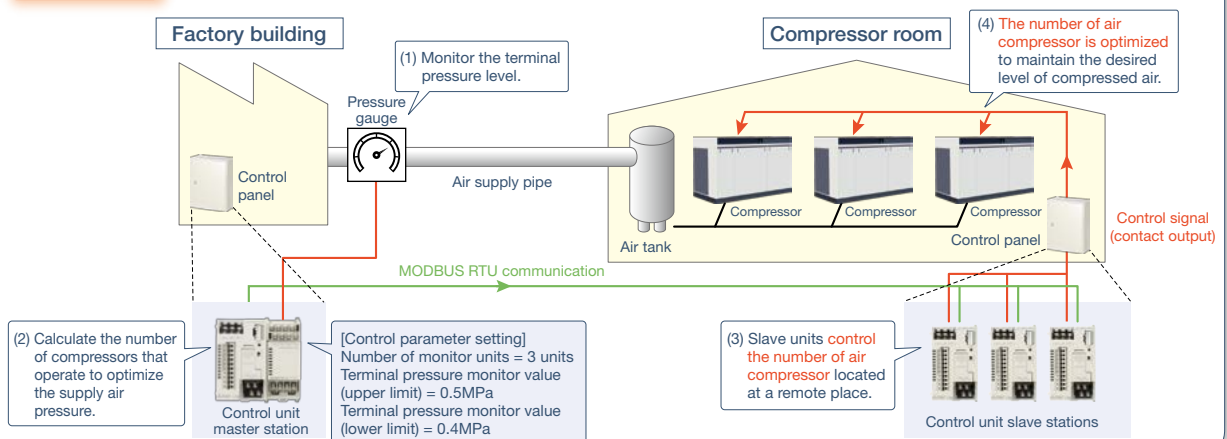
#### Compressor control

#### Challenge

Energy loss occurs due to the no-load operation of the air compressor.

#### Solution

Reducing energy loss by controlling the number of compressor to maintain the desired compressed air level.



**Feature**

## Realize energy saving with a unit equipped with “control” function

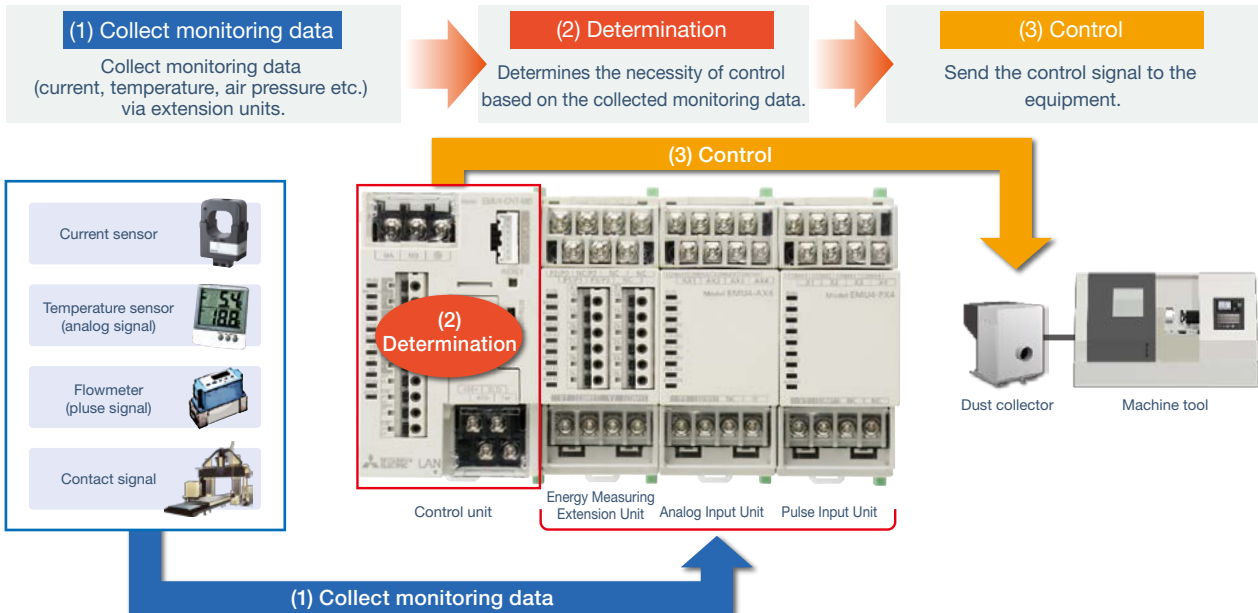


- Feature 1** | **Energy-saving automatic control function**  
Equipped with functions interlocked with measurement value to control equipment automatically.
- Feature 2** | **Simple setting**  
Start control just by setting simple control parameters with a personal computer.
- Feature 3** | **Configure Unit to match equipment application**  
Combine units according to various data, including energy, pressure, flow rate, and temperature.

**Eco Monitor Plus**

Product name : Control Unit  
Model : EMU4-CNT-MB

### Outline of control function operation



### Feature 1 Energy-saving automatic control function

| Control details *1    | Description  |
|-----------------------|--|
| Scheduled control     | The control unit sends the contact signal to the equipment based on the time schedule. The 24hour based time schedule have to be set in advance.   |
| Interlocked control   | Control by contact signal : The control unit sends the contact signal determined by comparing the collected data with target value, comparing collected data with each other or comparing the status of contacts.<br>Analog output control : With this function, the analog output value corresponding to the measured value is calculated and controlled by presetting the upper and lower limits of the measuring value. |
| Compressor control *2 | This function performs energy-saving operation by switching the compressor's operation mode (operation (load state), operation (unload) state, stop state) to achieve the optimum piping pressure. Two to four compressor units can be controlled.   |

\*1: The minimum control cycle based on the collected monitoring data is one minute. For details, refer to the instruction manual.

\*2: The compressor that shifts to each operation mode in response to the contact output state shown below is the compressor that can be connected and controlled.

| Contact     | Compressor operation mode |                          |            |
|-------------|---------------------------|--------------------------|------------|
|             | Operation (load) state    | Operation (unload) state | Stop state |
| Load Unload | ON                        | OFF                      | OFF        |
| Operation   | ON                        | ON                       | OFF        |
| Stop        | ON                        | ON                       | OFF        |

**Advantage** Easily automate the control of systems currently controlled manually.

## Feature 2 Simple setting

Easy setting simple control parameters using the dedicated engineering tool download from our website.



### Main engineering tool functions

- Write control settings
- Monitor extension unit measuring value
- Monitor control status
- Collect event log from terminal

\*1: The engineering tool can be downloaded for free from the Mitsubishi Electric website.  
<https://www.mitsubishielectric.com/fa/index.html>

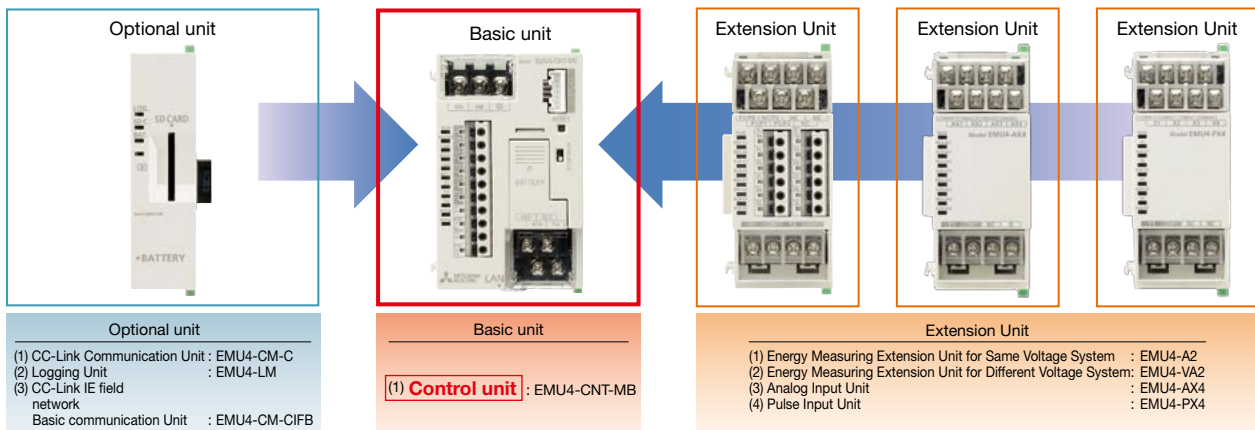
\*2: The optional compact display unit (EMU4-D65) is required to set the extension unit.

### Advantage

**Reduce engineering work and lower implementation costs.**  
**Easily perform system maintenance.**

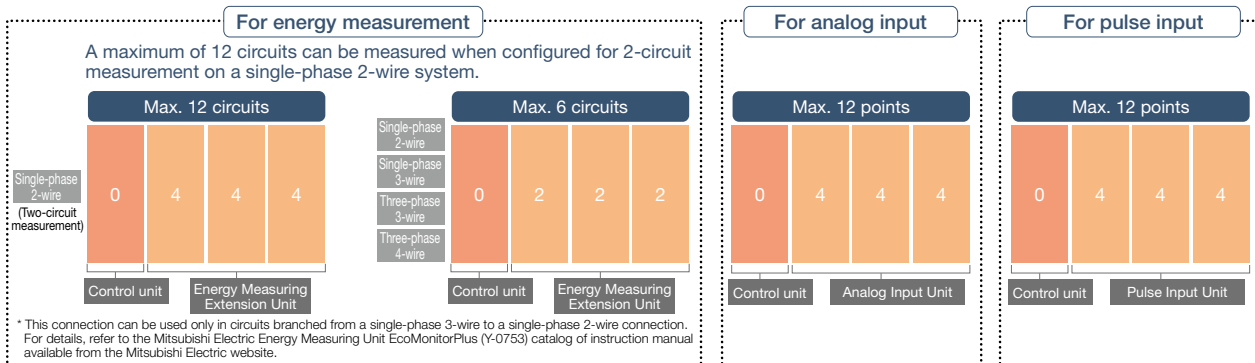
## Feature 3 Configure unit to match equipment application

Extend units with building block method



\* An extension unit for same voltage system as power measuring cannot be connected directly next (right) to the control unit.

### Number of inputs (when basic unit is control unit)



### Number of outputs (control unit)

Contact output : 3 points  
 Analog output : 1 point

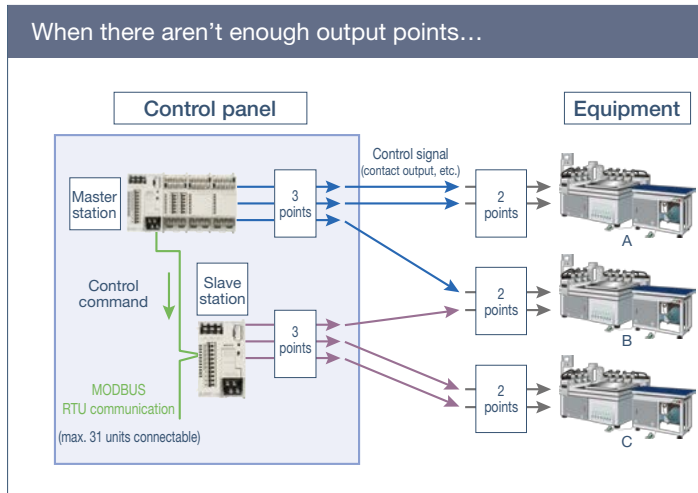
\* The number of points can be extended if there are not enough output points. For details, see page 5. The extension unit contacts cannot be output based on the control unit control judgment.

### Advantage

**A flexible unit configuration is possible to match your needs.**

# Other functions

## Using the communication function between control units



### Line up

|   | Product name   | Model   | Specifications  |
|---|--|---|---|
| Energy Measuring Unit EcoMonitorPlus (Basic Unit)     | Control Unit   | EMU4-CNT-MB                                   | Control function, RS-485 (MODBUS RTU) communication<br>3 contact output points/1 analog output point                          |
| Energy Measuring Unit EcoMonitorPlus (Extension Unit) | Energy Measuring Extension Unit for Same Voltage System      | EMU4-A2                                       | Extension for same voltage system, 2-circuit measurement  |
|   | Energy Measuring Extension Unit for Different Voltage System | EMU4-VA2                                      | Extension for different voltage system, 2-circuit measurement   |
|   | Analog Input Unit  | EMU4-AX4                                      | Analog input, 4 input points, 0-5V/0-20mA input   |
|   | Pulse Input Unit   | EMU4-PX4                                      | Pulse input, 4 input points, pulse/contact input  |
| Display Unit  | Display Unit   | EMU4-D65                                      | Setting function, multiple circuit display (1m cable for connection with measuring unit provided)                             |
| Optional Unit/ Optional Parts                         | Logging Unit   | EMU4-LM                                       | Optional unit for data logging, output to SD memory card in CSV format (One lithium battery is enclosed with first purchase.) |
|   | SD Memory Card for Logging Unit                              | EMU4-SD2GB                                    | Save of logging unit measurement data (memory capacity 2GB)   |
|   | Lithium battery for Energy Measuring Unit                    | EMU4-BT                                       | Replacement lithium battery (* One lithium battery is enclosed when the control unit is purchased.)                           |
|   | CC-Link Communication Unit                                   | EMU4-CM-C                                     | Option unit for CC-Link communication   |
|   | CC-Link IE field network Basic communication Unit            | EMU4-CM-CIFB                                  | Option unit for CC-Link IE Field network Basic communication  |
| Accessories   | Split-type Current Sensor                                    | EMU-CT5-A                                     | Rated primary current 5A  |
|   |  | EMU-CT50-A                                    | Rated primary current 50A   |
|   |  | EMU-CT100-A                                   | Rated primary current 100A  |
|   |  | EMU-CT250-A                                   | Rated primary current 250A  |
|   |  | EMU-CT400-A                                   | Rated primary current 400A (UL/CE compatible)   |
|   |  | EMU-CT600-A                                   | Rated primary current 600A (UL/CE compatible)   |
|   |  | EMU2-CT5 *1                                   | Rated primary current 5A (UL/CE compatible)   |
|   |  | EMU2-CT5-4W *2                                | Rated primary current 5A (UL/CE compatible)   |
|   |  | EMU-CT50                                      | Rated primary current 50A (UL/CE compatible)  |
|   |  | EMU-CT100                                     | Rated primary current 100A (UL/CE compatible)   |
|   | EMU-CT250  | Rated primary current 250A (UL/CE compatible) |   |

\* When selecting the split-type current sensor (model EMU-CTOO-A/OO=5/50/100/250/400/600), a commercially available general-purpose cable must be combined. The maximum length of the cable is 50m.

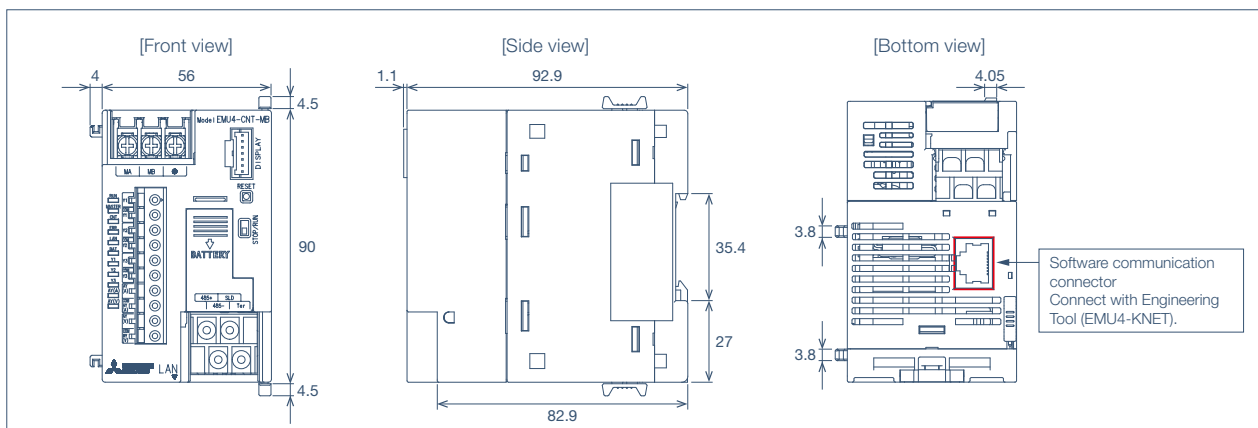
\* At least one compact display unit (EMU4-D65) is required to set the EcoMonitorPlus (excluding the control unit).

\* For details on confirming the other lineup, options, and accessories and the compatibility of each model with international standards, refer to the Mitsubishi Energy Measuring Unit EcoMonitorPlus (Y-0753) catalog available from the Mitsubishi Electric website, or contact one of the service centers listed on the back of this leaflet.

\* 1 EMU2-CB-Q5A are required when using EMU2-CT5

\* 2 EMU2-CB-Q5A-4W are required when using EMU2-CT5-4W

### External view



## Control Unit Specifications

| Item                           |                             | Specification  |   |
|--------------------------------|-----------------------------|--|---|
| Model                          |                             | EMU4-CNT-MB  |   |
| Auxiliary power rating         |                             | 100-240V AC (+10%, -15%) 50Hz /60Hz  |   |
| Consumption VA                 | Single unit                 | 9.0VA (at 110V AC: 7.0VA, at 220V AC: 9.0VA)   |   |
|                                | Max. configuration *1       | 22VA (at 110V AC: 18VA, at 220V AC: 22VA)  |   |
| External output specification  | Contact output              | Number of output contacts  | 3 points  |
|                                |                             | Output signal format   | No voltage a contact                            |
|                                |                             | Rated output voltage/current   | 35V DC, 75mA or 24V AC, 75mA (power factor = 1) |
|                                | Analog output               | Number of output contacts  | 1 points  |
|                                | Output voltage/current      | Voltage output (0 to 5V DC (external load resistance 5kΩ or more)) or current output (4 to 20mA DC(external load resistance 600Ω or less))<br>* Output range (voltage output/current output) can be changed by setting.                |   |
| Power interruption backup      | Setting value               | Saved in non-volatile memory   |   |
|                                | Event log                   | * Data is not deleted if there is a power outage.  |   |
|                                | Clock operation             | Operates with lithium battery if there is a power outage.<br>* The clock operation stops if there is a power outage while the battery voltage is low (BAT LED lit). When the power is recovered, the clock starts from 2019/1/1 00:00. |   |
| Clock operation *2             |                             | 5 min./month difference  |   |
| Operating environment          | Operating temperature range | -5°C to +55°C  |   |
|                                | Operating humidity range    | 30%~85%RH (no condensation)  |   |
|                                | Storage temperature range   | -10°C to +60°C   |   |
|                                | Altitude                    | 2,000m or less   |   |
| Compatible standards           |                             | EMC: EN61326-1: 2013 UL: UL61010-1 Safety standard: EN-61010-1: 2010   |   |
| External dimensions (unit: mm) |                             | 56(W)x90(H)x94(D) (excluding protrusions) (Max. dimensions including protrusions: 60(W)x99(H)x94(D))   |   |
| Consumables sold separately *3 |                             | Lithium battery (model: EMU4-BT) Cumulative power outage compensation time 1 year (recommended average temperature +35°C or less, replacement every 3 years is recommended)  |   |

\*1. The max. configuration is a combination of three pulse input units (model: EMU4-PX4), a CC-Link communication Unit (model: EMU4-CM-C), and display unit (model: EMU4-D65).

\*2. Periodically check the time and adjust it if it has deviated.

\*3. The battery life will be shortened if used in an environment with high ambient temperature. (Reference: 50 days when used at 55°C.)

## Specifications of MODBUS RTU Communication

| Item                        | Specification  |
|-----------------------------|--|
| Physical interface          | RS-485 2wires half duplex  |
| Communication protocol      | MODBUS RTU (binary data transfer)  |
| Transmission method         | Asynchronous   |
| Transmission wiring type    | Multi-drop bus   |
| Baud rate                   | 2400, 4800, 9600, 19200, 38400bps (default: 19200 bps)   |
| Data bit                    | 8  |
| Stop bit                    | 1,2 (default: 1)   |
| Parity bit                  | EVEN, ODD, NONE (default: EVEN)  |
| Slave address               | 1~255 (initial value: 1) (Note that 0 is the broadcast address and cannot be set. 248~255 are reserved.) |
| Response time               | 1s or shorter from completion of receiving query data to response transmission                           |
| Transmission distance       | Max. 1200m   |
| Maximum connectable devices | Max. 31 device   |
| Terminating resistor        | 120Ω 1/2W  |
| Recommended cable           | SPEV(SB)-MPC-0.2x1P or more (Fujikura Dia Cable) or equivalent   |

\*1. When the connection terminal is the control unit, the number of usable units will vary according to the system configuration and control setting.

## Engineering Tool specifications

| Item                 |                             | Specification   |
|----------------------|-----------------------------|---|
| Model                |                             | EMU4-KNET   |
| Basic specifications |                             | Supported languages<br>Japanese, English, Chinese (simplified)  |
| Setting functions    | Max. number of registration | Max. 20 systems/project   |
|                      | Control type                | Max. 32 terminal (1 master terminal + 31 slave terminal) system * Terminals connected with MODBUS RTU communication.<br>Control type set for each system • Schedule controls • Interlock control • Compressor control |
|                      | Control cycle               | Output controlled in 1-minute intervals   |
|                      | Communication setting       | MODBUS RTU communication (slave address, baud rate, etc.)<br>Network setting (IP address, subnet mask, etc.)  |
|                      | Terminal setting            | Function to write, read, compare setting value to/from terminal   |
|                      | Logging unit setting        | Sets logging ID in terminal, deletes logging data   |
|                      | Clock setting               | Sets time in terminal   |
|                      | Password setting            | Sets communication password for each terminal   |
|                      | Firmware update             | Updates terminal firmware   |
|                      | Measuring value monitor     | Display measuring value of extension unit connected to terminal   |
| Monitoring functions | Control monitor             | Displays control state of each terminal (contact output, analog output) for each system   |
|                      | Connection confirmation     | Confirms communication state for each system  |
|                      | Manual control              | Manually changes each terminal's control status (contact output, analog output)   |
| Collection function  | Event log output            | Collects event log from terminal  |

## Recommended system environment

| Item               | Configuration conditions                |
|--------------------|---|
| OS                 | Microsoft Windows 10 Pro (32bit/64bit)  |
| Languages          | Japanese, English, Chinese (simplified) |
| CPU                | Conformity with OS system requirements  |
| RAM                | Conformity with OS system requirements  |
| Hard disk          | 4GB or more free space                  |
| Display            | 1024x768 or more                        |
| External interface | LAN port (100BASE-TX compliant)         |
| NET Framework      | Microsoft .NET Framework 4.6.2          |

## Ethernet communication specifications

| Item                                      | Specification   |
|---|---|
| Interface                                 | 1 port (10BASE-T, 100BASE-TX)   |
| Connector compatible with external wiring | RJ-45   |
| Cable                                     | Cable compliant with IEEE802.3 10BASE-T or 100BASE-TX Standards           |
| Max. cable length                         | 100m  |
| Cascade connection                        | Max. 2 stages   |
| Support functions                         | Auto MDIX function (straight cable, cross cable automatically recognized) |
| IP address                                | Default: 192.168.3.11   |
| Subnet mask                               | Default: 255.255.255.0  |
| Default gateway                           | Default: None (blank)   |

\*1. Number of connectable stages when using repeater hub. When using a switching hub, check with the manufacturer for the number of connectable stages.

# Energy Measuring Unit **Eco Monitor Plus** Control Unit

## Service Network for Fukuyama Products

| Country/Region                      | Corporation Name  | Address  | Telephone              |
|-------------------------------------|---|--|------------------------|
| Australia                           | Mitsubishi Electric Australia Pty. Ltd.                     | 348 Victoria Road, Rydalmere, N.S.W. 2116, Australia   | +61-2-9684-7777        |
| Algeria                             | Mec Casa  | Rue i N 125 Hay-Es-Salem, 02000, W-Chlef, Algeria  | +213-27798069          |
| Bangladesh                          | PROGRESSIVE TRADING CORPORATION                             | HAQUE TOWER,2ND FLOOR,610/11,JUBILEE ROAD, CHITTAGONG, BANGLADESH  | +880-31-624307         |
|                                     | ELECTRO MECH AUTOMATION& ENGINEERING LTD.                   | SHATABDI CENTER, 12TH FLOOR, SUITES: 12-B, 292, INNER CIRCULAR ROAD, FAKIRA POOL, MOTIJHEEL, DHAKA-1000, BANGLADESH                                  | +88-02-7192826         |
| Belarus                             | Tehnikon  | Oktyabrskaya 19, Off. 705, BY-220030 Minsk, Belarus  | +375 (0)17 210 46 26   |
| Belgium                             | Koning & Hartman B.V.                                       | Woluwealaan 31, BE-1800 Vilvoorde, Belgium   | +32 (0)2 / 2570240     |
| Brazil                              | Mitsubishi Electric do Brasil Comércio e Serviços Ltda.     | Avenida Adelino Cardana, 293 21 andar Bethaville, Barueri SP, Brasil   | +55-11-4689-3000       |
| Cambodia                            | DHINIMEX CO.,LTD  | #245, St. Tep Phan, Phnom Penh, Cambodia   | +855-23-997-725        |
| Central America                     | Automation International LLC                                | 7050 W. Palmetto Park Road Suite #15 PMB #555, Boca Raton, FL 33433  | +1-561-237-5228        |
| Chile                               | Rhona S.A. (Main office)                                    | Vie. Agua Santa 4211 Casilla 30-D (P.O. Box) Vina del Mar, Chile   | +56-32-2-320-600       |
| China                               | Mitsubishi Electric Automation (China) Ltd.                 | Mitsubishi Electric Automation Building, No.1386 Hongqiao Road, Shanghai, China 200336   | +86-21-2322-3030       |
|                                     | Mitsubishi Electric Automation (China) Ltd. Beijing         | 5/FONE INDIGO,20 Jiuxianqiao Road Chaoyang District,Beijing, China 100016  | +86-10-6518-8830       |
|                                     | Mitsubishi Electric Automation (China) Ltd. ShenZhen        | Level 8, Galaxy World Tower B, 1 Yabao Road, Longgang District, Shenzhen, China 518129   | +86-755-2399-8272      |
|                                     | Mitsubishi Electric Automation (China) Ltd. GuangZhou       | Rm.1006, A1 Times E-Park, No.276-282, Hanxi Road East, Zhongcun Street, Panyu District, Guangzhou, China 510030                                      | +86-20-8923-6730       |
|                                     | Mitsubishi Electric Automation (China) Ltd. ChengDu         | 1501-1503,15F, Guang-hua Centre Building-C, No.98 North Guang Hua 3th Rd Chengdu, China 610000   | +86-28-8446-8030       |
|                                     | Mitsubishi Electric Automation (Hong Kong) Ltd.             | 20/F, Cityplaza One, 1111 King's Road, Taikoo shing, Hong Kong   | +852-2510-0555         |
|                                     | Mitsubishi Electric Automation (Hong Kong) Ltd.             | Carrera 42 No 75 - 367 Bodega 109, Itagüí, Medellín, Antioquia, Colombia   | +57-4-4441284          |
| Colombia                            | Proelectric Representaciones S.A.                           | 20/F, Cityplaza One, 1111 King's Road, Taikoo shing, Hong Kong   | +852-2510-0555         |
| Czech Republic                      | AUTOCONT CONTROL SYSTEMS S.R.O                              | Technologická 374/6, CZ-708 00 Ostrava - Pustkovec   | +420 595 691 150       |
| Denmark                             | BEIJER ELECTRONICS A/S                                      | LYKKEGARDSVEJ 17, DK-4000 ROSKILDE, Denmark  | +45 (0)46 / 75 76 66   |
| Egypt                               | Cairo Electrical Group                                      | 9, Rostoum St. Garden City P.O. Box 165-11516 Maglis El-Shaab,Cairo - Egypt  | +20-2-27961337         |
| France                              | Mitsubishi Electric Europe B.V. French Branch               | FR-92741 Nanterre Cedex  | +33 (0) 1 55 68 57 01  |
| Germany                             | Mitsubishi Electric Europe B.V.                             | Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany   | +49 (0) 2102 4860      |
| Greece                              | KALAMARAKIS - SAPOUNAS S.A.                                 | IONIAS & NEROMILOU STR., CHAMOMILOS ACHARNES, ATHENS, 13678 Greece   | +30-2102 406000        |
| Hungary                             | UTECO   | 5, MAVROGENOUS STR., 18542 PIRAEUS, Greece   | +30-211-1206-900       |
| Hungary                             | Meltrade Ltd.   | Fertő utca 14. HU-1107 Budapest, Hungary   | +36 (0)1-431-9726      |
| India                               | Mitsubishi Electric India Private Limited                   | 2nd Floor, Tower A&B, Cyber Greens, DLF Cyber City, DLF Phase-III, Gurgaon - 122 022 Haryana, India  | +91-124-4630300        |
|                                     | Mitsubishi Electric India Private Limited Pune Sales Office | ICC-Devi Gaurav Technology Park, Unit no. 402, Fourth Floor, Survey no. 191-192 (P), Opp. Vallabh Nagar Bus Depot, Pune - 411018, Maharashtra, India | +91-20-68192100        |
|                                     | Mitsubishi Electric India Private Limited FA Center         | 204-209, 2nd Floor, 31FIVE, Corporate Road, Prahladnagar, Ahmedabad 380015,Gujarat, India  | +91-79677-77888        |
| Indonesia                           | PT.Mitsubishi Electric Indonesia                            | Gedung Jaya 8th floor, J.L.M.H. Thamrin No.12 Jakarta Pusat 10340, Indonesia   | +62-21-3192-8461       |
| Indonesia                           | P.T. Sahabat Indonesia                                      | P.O.Box 5045 Kawasan Industri Pergudangan, Jakarta, Indonesia  | +62-(0)21-6610651-9    |
| Ireland                             | Mitsubishi Electric Europe B.V.                             | Westgate Business Park, Ballymount, IRL-Dublin 24, Ireland   | +353 (0)1-4198800      |
| Israel                              | Gino Industries Ltd.  | 26, Ophir Street IL-32235 Haifa, Israel  | +972 (0)4-867-0656     |
| Italy                               | Mitsubishi Electric Europe B.V.                             | Viale Colleoni 7, I-20041 Agrate Brianza (MI), Italy   | +39 039-60531          |
| Kazakhstan                          | Kazpromavtomatika   | Ul. Zhambyla 28, KAZ - 100017 Karaganda  | +7-7212-501000         |
| Korea                               | Mitsubishi Electric Automation Korea Co., Ltd               | 9F Gangseo Hangang xi-tower A, 401 Yangcheon-ro, Gangseo-gu, Seoul 07528 Korea   | +82-2-3660-9573        |
| Laos                                | AROUNKIT CORPORATION IMPORT- EXPORT SOLE CO.,LTD            | SAPHANMO VILLAGE, SAYSETHA DISTRICT, VIENTIANE CAPITAL, LAOS   | +856-20-415899         |
| Lebanon                             | Comptoir d'Electricite Generale-Liban                       | Cebaco Center - Block A Autostrade Dora, P.O. Box 11-2597 Beirut - Lebanon   | +961-1-240445          |
| Lithuania                           | Rifas UAB   | Tinklu 29A, LT-5300 Panevezys, Lithuania   | +370 (0)45-582-728     |
| Malaysia                            | Mittrich Sdn Bhd  | No. 5 Jalan Pemberta U1/49, Temasya Industrial Park, Glenmarie 40150 Shah Alam,Selangor, Malaysia  | +603-5569-3748         |
| Malaysia                            | Flexible Automation System Sdn Bhd                          | 60, Jalan USJ 10/1B,UEP Subang Jaya,47620 Selangor Darul Ehsan,Malaysia  | +603-5633-1280         |
| Malta                               | ALFATRADE LTD   | 99 PAOLA HILL, PAOLA PLA 1702, Malta   | +356 (0)21-697-816     |
| Marocco                             | SCHIELE MAROC   | KM 7,2 NOUVELLE ROUTE DE RABAT AIN SEBAA, 20600 Casablanca, Maroco   | +212 661 45 15 96      |
| Myanmar                             | Pisce Myanmar Electric Co.,Ltd.                             | NO137/139 Botataung Pagoda Road, Botataung Town Ship 1161, Yangon,Myanmar  | +95-(0)1-202539        |
| Nepal                               | Watt&Voit House   | KHA-2-65,Voit House Dillibazar Post Box:2108,Kathmandu,Nepal   | +977-1-4411330         |
| Netherlands                         | Imtech Marine & Offshore B.V.                               | Sluisjesdijk 155, NL-3087 AG Rotterdam, Netherlands  | +31 (0)10-487-19 11    |
| North America                       | Mitsubishi Electric Automation, Inc.                        | 500 Corporate Woods Parkway, Vernon Hills, IL 60061 USA  | +847-478-2100          |
| Norway                              | Scanelec AS   | Leinviksen 43B, NO-5179 Godvik, Norway   | +47 (0)55-506000       |
| Mexico                              | Mitsubishi Electric Automation, Inc. Mexico Branch          | Bldv. Miguel de Cervantes Saavedra 301, Torre Norte Piso 5, Col. Ampliación Granada, Miguel Hidalgo, Ciudad de México, CP 11520, México              | +52-55-3067-7511       |
| 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          |
| Pakistan                            | Prince Electric Co.   | 2-P GULBERG II, LAHORE, 54600, PAKISTAN  | +92-42-575232, 5753373 |
| Peru                                | Rhona S.A. (Branch office)                                  | Avenida Argentina 2201, Cercado de Lima  | +51-1-464-4459         |
| Philippines                         | MELCO Factory Automation Philippines Inc.                   | 128, Lopez Rizal St., Brgy. Highway Hills, Mandaluyong City, Metro Manila, Philippines   | +63-(0)2-256-8042      |
| Philippines                         | Edison Electric Integrated, Inc.                            | 24th Fl, Galleria Corporate Center, Edsa Cr. Ortigas Ave., Quezon City Metro Manila, Philippines   | +63-(0)2-634-8691      |
| Poland                              | Mitsubishi Electric Europe B.V. Polish Branch               | Krakowska 48, 32-083 Balice, Poland  | +48 12 347 65 00       |
| Republic of Moldova                 | Intehsis SRL  | bid. Traian 23/1, MD-2060 Kishinev, Moldova  | +373 (0)22-66-4242     |
| Romania                             | Sirius Trading & Services SRL                               | RO-060841 Bucuresti, Sector 6 Alea Lacul Morii Nr. 3   | +40-(0)21-430-40-06    |
| Russia                              | Mitsubishi Electric (Russia) LLC                            | 2 bld.1, Letnikovskaya street, Moscow, 115114, Russia  | +7 495 721-2070        |
| Saudi Arabia                        | Center of Electrical Goods                                  | Al-Shuwayer St. Side way of Salahuiddin Al-Ayoubi St. P.O. Box 15955 Riyadh 11454 - Saudi Arabia   | +966-1-4770149         |
| Singapore                           | Mitsubishi Electric Asia Pte. Ltd.                          | 307 Alexandra Road, Mitsubishi Electric Building, Singapore 159943   | +65-6473-2308          |
| Slovakia                            | PROCONT, Presov   | Kupelna 1/, SK - 08001 Presov, Slovakia  | +421 (0)51 - 7580 611  |
| Slovakia                            | SIMAP   | Jana Derku 1671, SK - 91101 Trenčin, Slovakia  | +421 (0)32 743 04 72   |
| Slovenia                            | Inea RBT d.o.o.   | Stegne 11, SI-1000 Ljubljana, Slovenia   | +386 (0)1-513-8116     |
| South Africa                        | CBI-electric: low voltage                                   | Private Bag 2016, ZA-1600 Isando Gauteng, South Africa   | +27-(0)11-9282000      |
| Spain                               | Mitsubishi Electric Europe B.V. Spanish Branch              | Carretera de Rubi 76-80, E-08190 Sant Cugat del Vallés (Barcelona), Spain  | +34 (0)93-565-3131     |
| Sweden                              | Mitsubishi Electric Europe B.V. (Scandinavia)               | Hedvig Möllers gata 6, 223 55 Lund, Sweden   | +46 (0)8-625-10-00     |
| Sweden                              | Euro Energy Components AB                                   | Järnvägsgatan 36, S-434 24 Kungsbacka, Sweden  | +46 (0)300-690040      |
| Switzerland                         | TriElec AG  | Muehentalstrasse 136, CH-8201 Schaffhausen, Switzerland  | +41-(0)52-6258425      |
| Taiwan                              | Settsuyo Enterprise Co., Ltd                                | 5th Fl., No.105, Wu Kung 3rd, Wu-Ku Hsiang, Taipei, Taiwan, R.O.C.   | +886-(0)2-2298-8889    |
| Taiwan                              | United Trading & Import Co., Ltd.                           | 77/12 Barrungruang Road,Klong Mahanak Pomprab Bangkok Thailand   | +66-223-4220-3         |
| Thailand                            | MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO.,LTD   | 101, True Digital Park Office, 5th Floor, Sukhumvit Road, Bangkok, Phara Khanong, Bangkok, 10260 Thailand  | +662-092-8600          |
| Tunisia                             | MOTRA Electric  | 3, Residence Imen, Avenue des Martyrs Mourouj III, 2074 - El Mourouj III Ben Arous, Tunisia  | +216-71 474 599        |
| Turkey                              | Mitsubishi Electric Turkey A.Ş.                             | Şerifali Mahallesi Kale Sokak No: 41, 34775 Umranıye, Istanbul, Turkey   | +90-216-969-2666       |
| United Kingdom                      | Mitsubishi Electric Europe B.V.                             | Travellers Lane, UK-Hatfield, Herts. AL10 8XB, United Kingdom  | +44 (0)1707-276100     |
| Uruguay                             | Fierro Vignoli S.A.   | Avda. Uruguay 1274 Montevideo Uruguay  | +598-2-902-0808        |
| Vietnam                             | Mitsubishi Electric Vietnam Co.,Ltd. Head Office            | 11th & 12th Floor, Viettel Tower B, 285 Cach Mang Thang 8 Street, Ward 12, District 10, Ho Chi Minh City, Vietnam                                    | +84-28-3910-5945       |
|                                     | Mitsubishi Electric Vietnam Co.,Ltd. Hanoi Branch           | 24th Floor, Handico Tower, Pham Hung Road, khu do thi moi Me Tri Ha, Nam Tu Liem District, Hanoi City, Vietnam                                       | +84-24-3937-8075       |

**For Safety** : Please read the instruction manual carefully before using the products in this leaflet. Wiring and connection must be done by the person who has specialized knowledge of electric construction and wirings.



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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