Multi Variable Controller Unit
SuperG-MCU
Product Specification Overview (Model: SPG-MCU01)

OverView

This unit implements the international standard (ODVA) industrial high-speed Ethernet communication standard, EtherNet/IP (EIP), using internal CPU software within an RTOS (RTLinux) environment. It serves as a multi-variable control Unit that performs various mathematical operations, control operations (fuzzy, PID, fuzzyPID), non-linear processing, logic operations, interface processing, timer calculation processing, and signal filter processing. Additionally, as an option, a USB memory port is provided, allowing real-time CSV data saving.

Features

- Simply linking this unit with an EIP host unit enables advanced, complex control calculations that standard PLCs cannot typically perform.
- Equipped with rich mathematical operation functions, enabling multi-variable and complex non-linear data calculation processing.
- Features a wide variety of control calculation functions, including PID calculation, fuzzy PID calculation, fuzzy inference calculation, numerical calculation, conditional calculation, logical calculation, table calculation, and more, making difficult non-linear and multi-variable interaction system control achievable.
- Equipped with a high-performance CPU (RevPi), enabling ultra-high-speed data calculation processing.
- Adopting the FBD (Function Block Diagram) programming method and rich calculation functions makes building complex programs easy.
- Fast and stable information exchange via EtherNet/IP with easy wiring.
- As an option, RS-232C/RS-485 serial communication is also available for smooth communication connection with lower layers (such as sensors).
- As an option, a USB memory slot is provided on the main unit, enabling real-time CSV data saving.

Hardware Specifications (Note)

Item	Specification
RevPi	RevPi Core SE 8GB(article No:100365)
CPU	Broadcom BCM2711(1.5 GHz)
RAM	1GB LPDDR4
Flash Memory	8GB
Ethernet	1CH(IconView, EIP Comm., TCP/IP Comm.)
USB-A	For data storage (optional)
LED	3 pcs(PWR,A1,A2)
Power Supply	DC 24V (Max 200mA)

Operating Environment	Temperature：-10℃～55℃
	Humidity：5～90%RH(non-condensing)
Dimensions	96(H)*22(W)*110.5(D)mm
Weight	(Approx.115g)

(Note: SuperG directly adopts KUNBUS's RevPi. For detailed hardware specifications, please refer to the related RevPi documentation.)

Part Names and Functions

Indicator Section (LEDs)：

PWR(Green): power lamp

PWR(Red): FAIL(lit)、user alarm (blinking)

A1(Green): Program running (blinking)

A1(Red): Tool IconView connected (blinking)

A2(Green): TCP/IP connected (blinking)

A2(Red): EtherNet/IP connected (blinking)

Position	Component	Application
1	3 × status LED	RevPiLED
2	RJ45 Ethernet	RJ45 Ethernet Interface, Establishing a Network Connection
3	Micro-USB	Reinstalling Operating System Image
4	2× USB A	USB Interfaces
5	X4 connector	Connecting the Power Supply
6	2 × locking clamp	Mounting the Device on a DIN Rail
7	Ventilation Slots	Mounting the Device on a DIN Rail
8	2 × PiBridge	Connecting Expansion Modules
9	Micro HDMI	Setting up Desktop Mode

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Software Specifications

Item	Specification
Engineering Tool	IconView
Programming Mode	FBD(Function Block Diagram)
Processable I/O Data Size	Word Input Data: 64 Digital Input Data: 64 Word Output Data: 64 Digital Output Data: 64
Basic Operations	Over 60 types add, sub, multi, div, abs, first-order lag filter, limiter, upper limit alarm, lower limit alarm, comparison, logical AND, logical OR, XOR operation, logical NOT, function generator, rate of change, incomplete differentiation, moving average, time timer, selection, accumulation, linear change, rate-of-change limiter, time delay, trigger signal processing, minimum/maximum value calculation, etc.
Advanced Operations	Exponential function, broken-line function, high-precision (32-bit) calculation, least squares, table calculation, fuzzy inference I, fuzzy inference II, if-then inference, operation flow control function, various mixed mathematical calculations, etc.
Control Calculations	PID/FPID(16 loops)、 Fuzzy/FPID(8 loops)
Max Blocks	500(Standard product)
Calculation Cycle	1msec～1min

Convenient Features

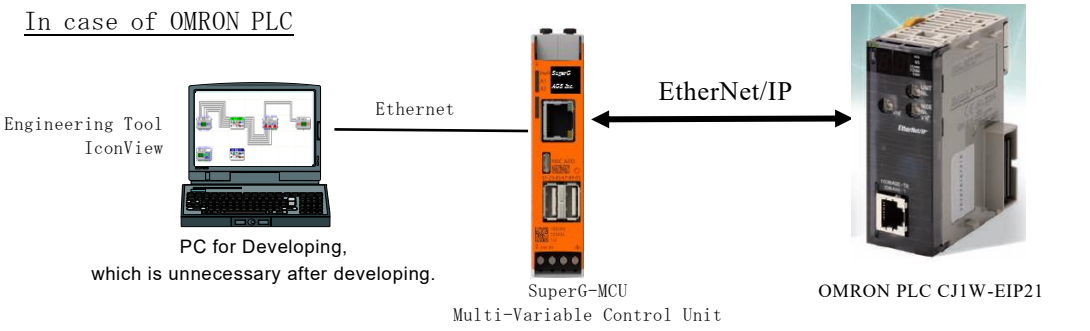
- Easily create trends for arbitrary data simply by dragging and dropping graphs.
- Online monitoring is available, and data can be saved in CSV format.
- Programs can be simulated and tested using simulated inputs.
- Calculation parameters can be changed online.

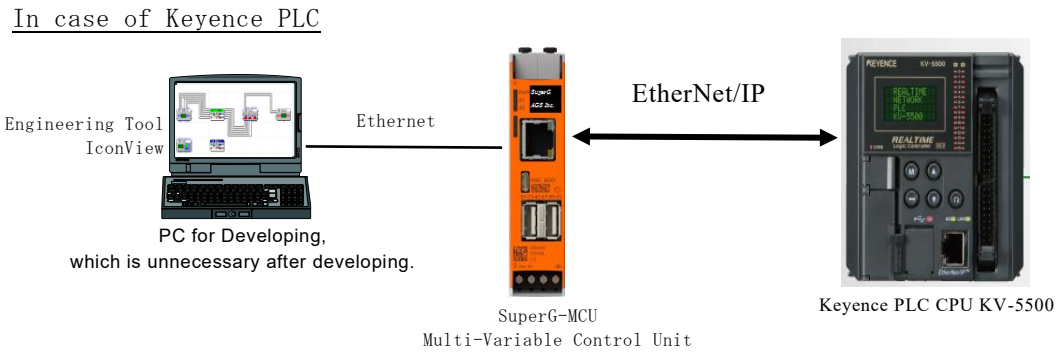
Operating Environment

This unit operates with an external DC 24V power supply when connected to a communication partner. For internal program development of this unit, use the dedicated development support tool IconView (V8 or higher, sold separately).

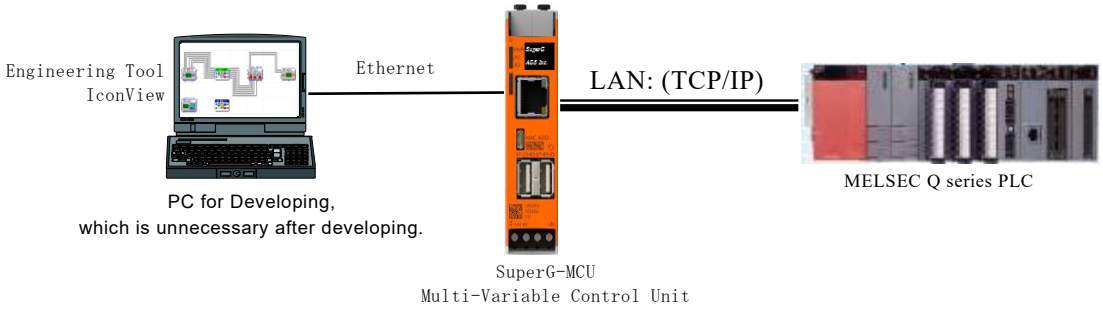
Connection Example 1(EtherNet/IP)

Link the SuperG-MCU with an EIP host station (I/O Scanner) and other I/O stations to complete system connectivity

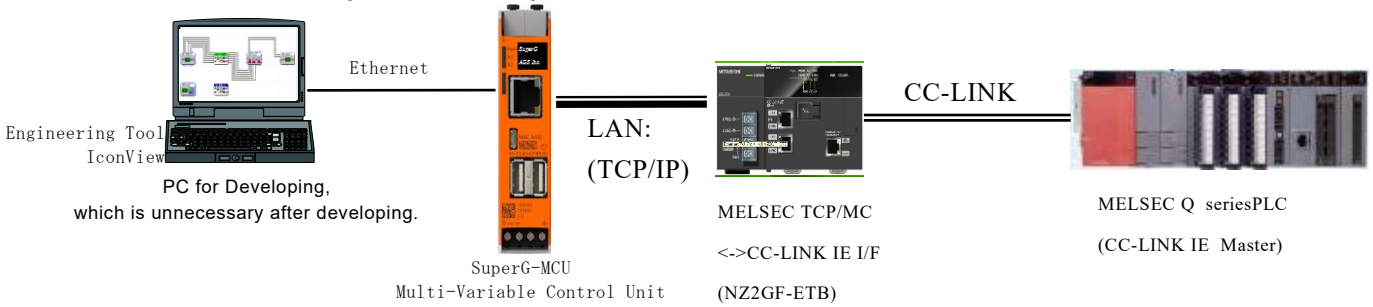




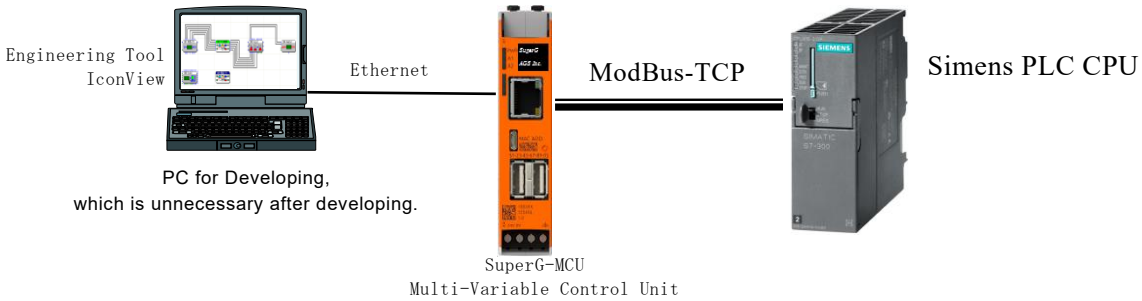
Connection Example 2(Melse PLC)



Connection Example **3(CC-LINK IE)**

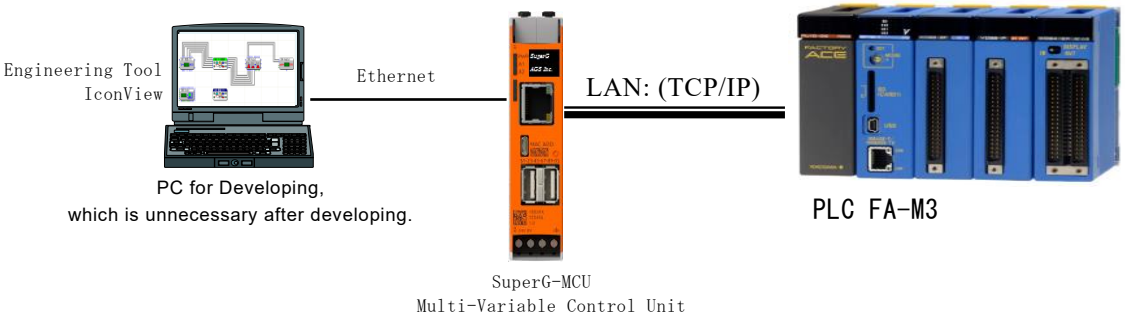


Connection Example**4(Simens PLC)**



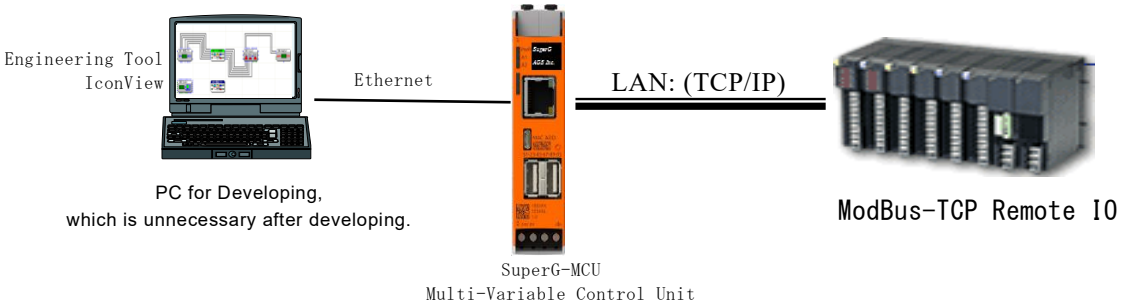
Connection Example5**(PLC FA-M3)**

(optional)

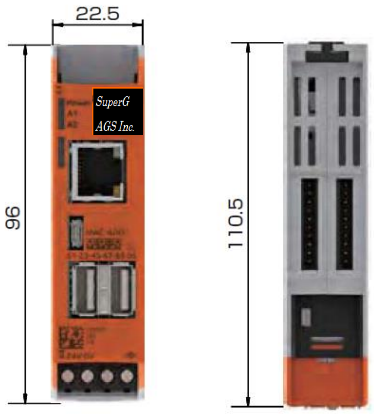


Connection Example**6(ModBus-TCP)**

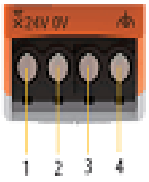
(optional)



Appendix1: Dimensions**(mm)**



Appendix2: Power Supply Connection (X4)



Pin	Function
24V	24 V supply, typ. 24 V DC (10.8 … 28.8 V DC)
0V	0 V supply
⏚	Optional: functional earth (FE)
NC[1]	Not connected