for a greener tomorrow

MITSUBISHI ELECTRIC
Changes for the Better

FACTORY AUTOMATION

e-F@ctory

Programmable Controllers
MELSEC iQ-F/F Series Selection Guide

GLOBAL IMPACT OF MITSUBISHI ELECTRIC

Through Mitsubishi Electric's vision, "Changes for the Better" are possible for a brighter future.

Changes for the Better

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

Mitsubishi Electric is involved in many areas including the following:

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

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

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

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

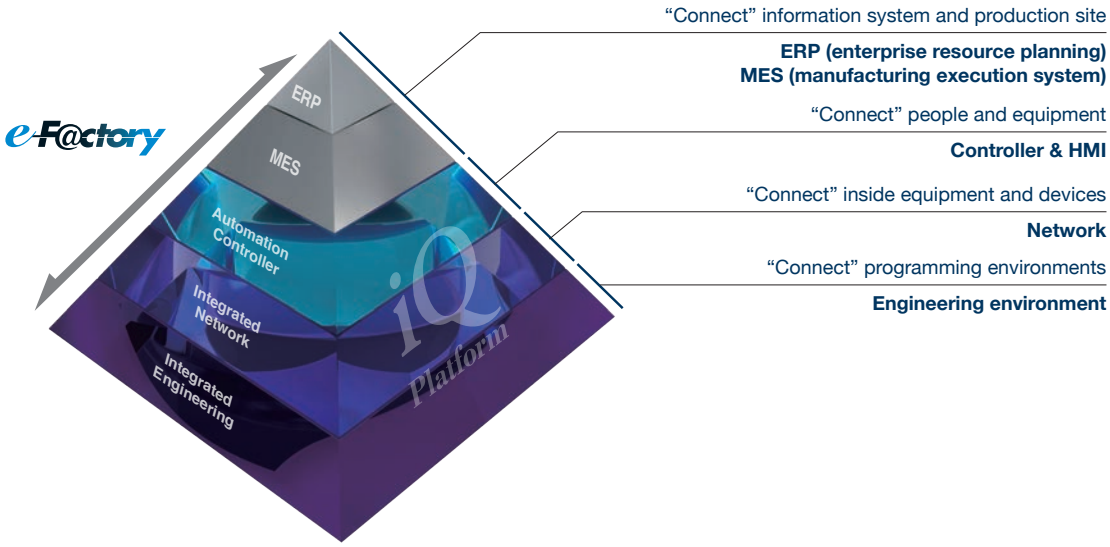
Industrial Automation Systems
Maximizing productivity and efficiency with cutting-edge automation technology.

OVERVIEW

iQ Platform

“Connect” Factory Automation with iQ Platform

“iQ Platform”, a solution that integrates and cooperates with controllers, HMI, engineering environments, and networks at the production site, Mitsubishi Electric has proposed along with “e-F@ctory” that information-links the high-level information system (manufacturing execution system (MES)) and production site, will integrate and optimize your system with advanced technology to reduce development, production and maintenance costs.



Fundamentally Solving FA’s Task from the Viewpoint of TCO

Controller & HMI

Improving productivity and product quality

1. Significant improvement in total system performance due to high-speed MELSEC series system bus performance
2. Equipped with dedicated memory for FB*1/ label required for program standardization
3. Integrated, enhanced security function

Network

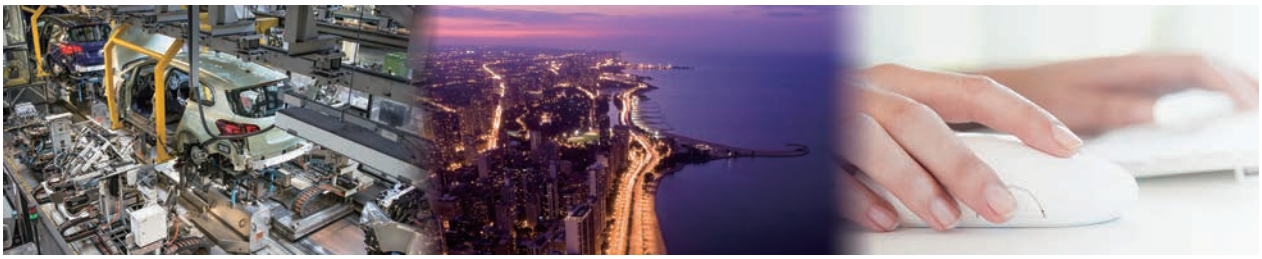
Loss reduction with high precision and production speed

1. Possible to connect to, without loss, 1 Gbps high-speed communication realized by CC-Link IE Field Network
2. Realizing seamless communication of various devices using SLMP*2

Engineering environment

Efficient development, operation, and maintenance

1. Possible to detect and generate a large-scale network configuration diagram from the actual machine
2. Realized mutual reflection of parameters between MELSOFT Navigator and each engineering software
3. Automatically following device change of system labels held commonly between each controller and HMI



*1: Function Block *2: SeamLess Message Protocol

MELSEC

The MELSEC series offer optimum automation control with a wide variety of products from compact systems to plant scale systems. Series specialized for specific functions to meet all the needs of the production site are also provided.

MELSEC iQ-F series

High functionality model

FX5UJ NEW

Enhanced built-in functions
Reduced space
High functionality Cost
High speed Extendability

Max. 256-point control
(256-point control when using with CC-Link, AnyWireASLINK)

FX5U

Enhanced built-in functions
Reduced space
High functionality Cost
High speed Extendability

FX5UC

Enhanced built-in functions
Reduced space
High functionality Cost
High speed Extendability

Max. 384*1-point control
(512-point control when using with CC-Link, AnyWireASLINK)

FX3 series

High functionality model

FX3U

Reduced space
High functionality Cost
High speed Extendability

FX3UC

Reduced space
High functionality Cost
High speed Extendability

Max. 256-point control
(384-point control when using with CC-Link, AnyWireASLINK)

Basic model

FX3S

Reduced space
High functionality Cost
High speed Extendability

Max. 30-point control

Standard model

FX3G FX3GE

Reduced space
High functionality Cost
High speed Extendability

FX3GC

Reduced space
High functionality Cost
High speed Extendability

Max. 128-point control
(256-point control when using with CC-Link, AnyWireASLINK)

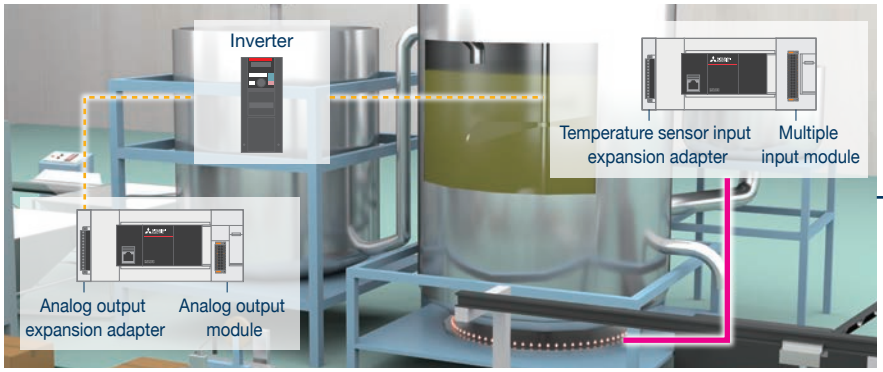
*1: Supported by FX5U/FX5UC CPU module Ver. 1.100 or later and by GX Works3 Ver. 1.047Z or later.

Find the MELSEC iQ-F series.

Analog control

Analog control suitable for the application is possible by using extension modules in addition to built-in the analog input/output function of the FX5U CPU module.

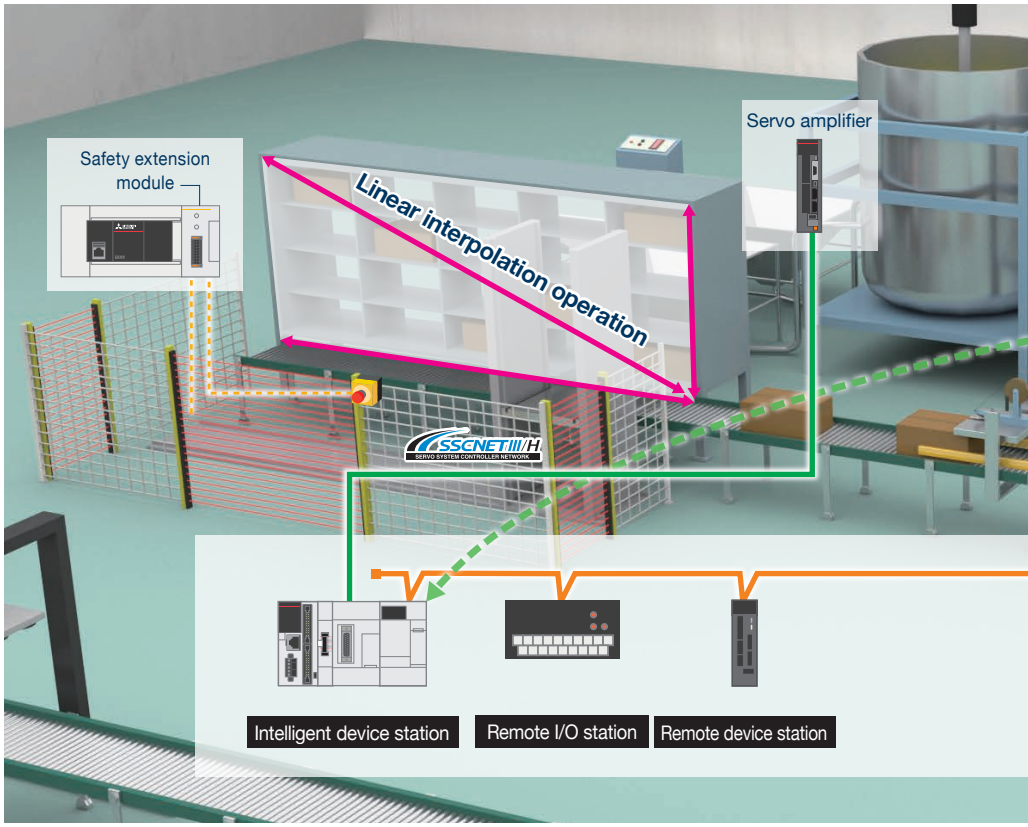
For details, go to P30.



Safety function

Safety extension modules that have obtained certification (Category 4, PL e, and SIL3) which complies with international safety standards bring safety to machinery and equipment.

For details, go to P29.



Built-in functions

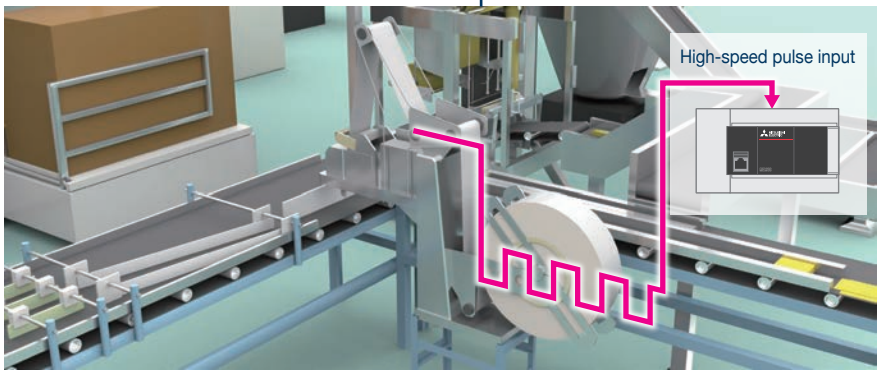
Even easier to use with the fulfilling built-in functions.
Supports the customer to “go one step ahead in manufacturing”.

For details, go to P18.

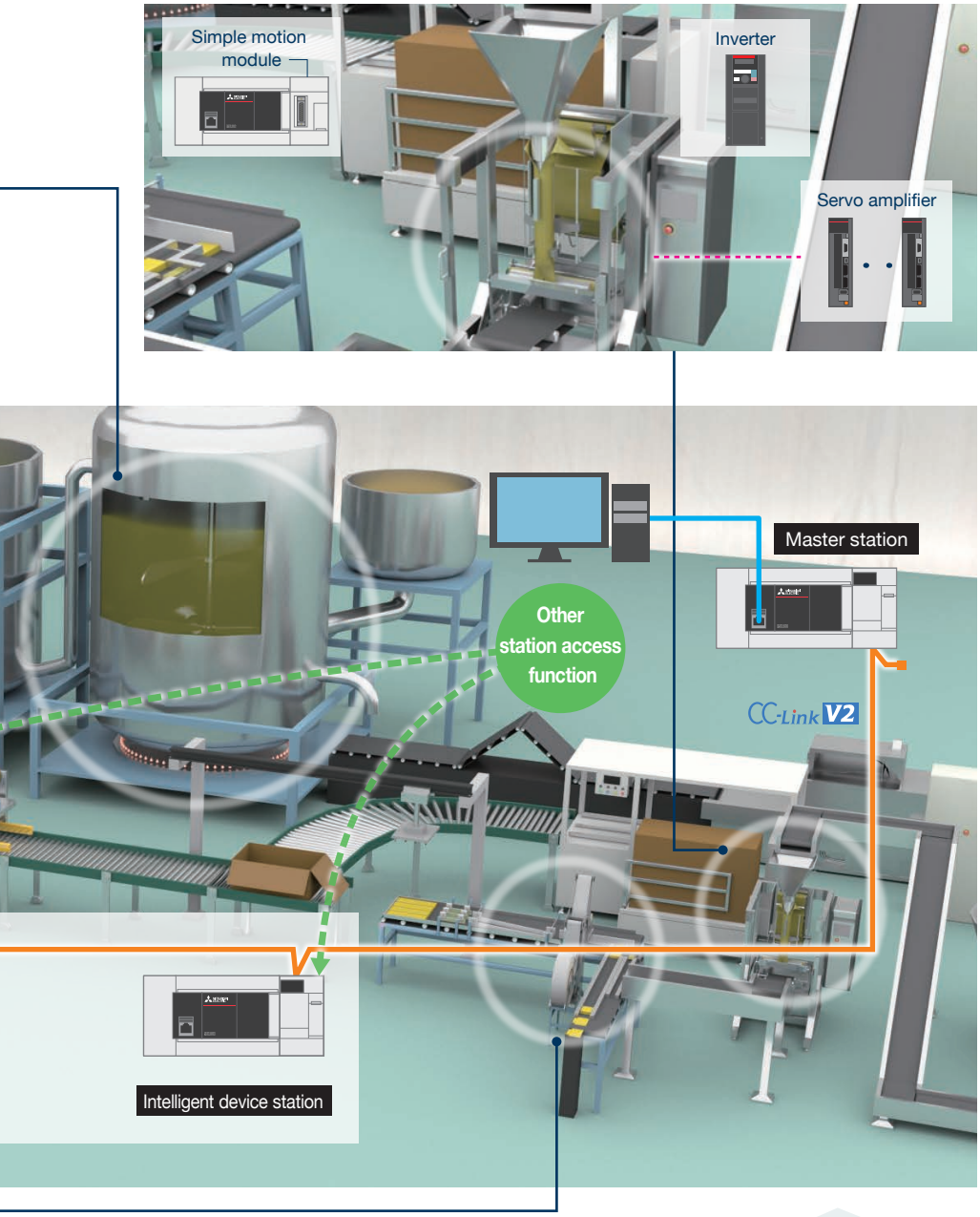
High-speed counter function

The high-performance, high-speed counter built into the CPU module enables high-speed control with a simple program.

For details, go to P36.



The MELSEC iQ-F series pursues ease-of-use with the outstanding functions housed in its compact body.
The diverse needs of customers are supported with a wide range of options.



Positioning control

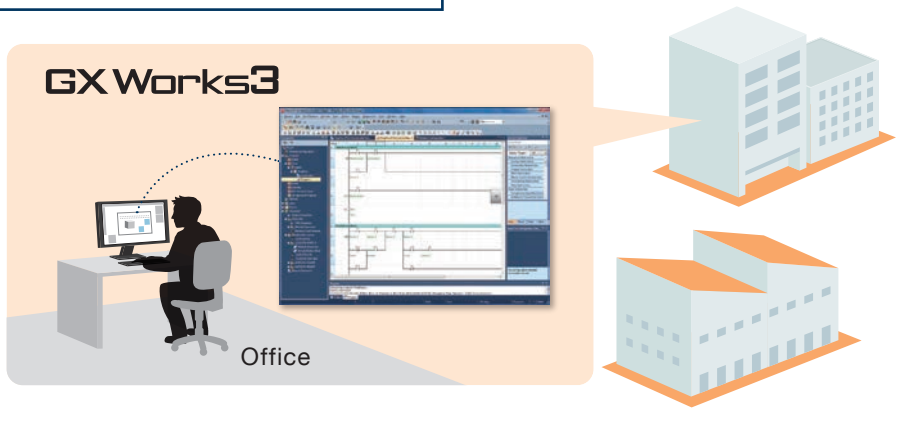
Not only built-in positioning but full positioning is also possible by extension modules.

For details, go to P34.

Network/ communication

Supports the network of AnyWireASLINK system as well as CC-Link IE Field Network and CC-Link V2.

For details, go to P38.



Programming environment

Realized graphical intuitive operability, and easy programming by just “selecting”.

For details, go to P24.

Function Introduction

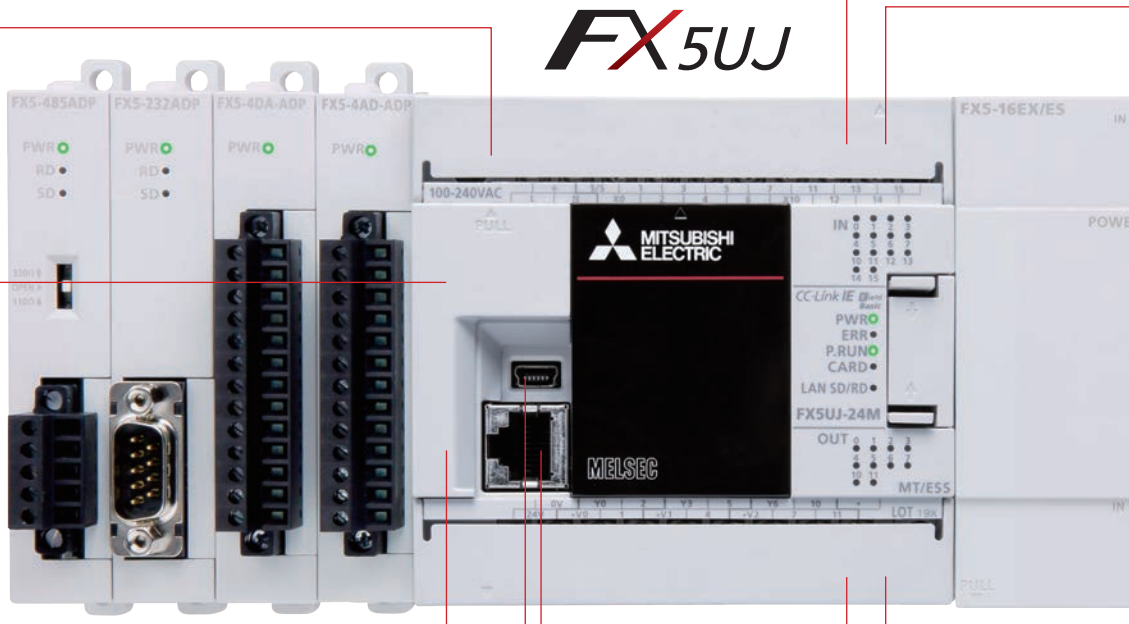
High functionality model

Next-generation PLC with excellent cost performance.
The diverse range of built-in functions that were popular with FX5U/FX5UC will help every customer to realize “manufacturing one step ahead” more easily.

CPU Performance

The speed of FX5UJ CPU modules has increased to twice that of the FX3U.
They are also able to demonstrate excellent performance when using intelligent function modules with a large amount of communication data.

Program capacity	Instruction execution speed (LD, MOV instruction)	Fixed cycle interrupt program
48 k Steps	34 ns	Min. 1 ms



RUN/STOP/RESET Switch

RUN/STOP/RESET switch is built-in.
PLC can be rebooted without turning off the main power for efficient debugging.

Built-in SD Memory Card Slot

Equipped with an SD memory card slot, which is essential for functions such as logging and backup/restore.

- Logging function
- Backup/restore function
- Memory dump function
- Firmware update function
- Boot operation

Built-in USB (Mini-B) Connector

Another interface for programming, in addition to the Ethernet port.
The built-in USB (Mini-B) Connector makes it easier to connect to GX Works3*3.

- MELSOFT connection

*1: One MELSOFT connection is not included in the number of connections. (The second and subsequent modules are included.)
*2: SeamLess Message Protocol
*3: The driver is installed automatically when the personal computer and CPU module are connected. If the driver is not installed automatically, install it manually.
For details, refer to the MELSEC iQ-F FX5 User’s Manual. (Application)

MELSEC iQ-F series

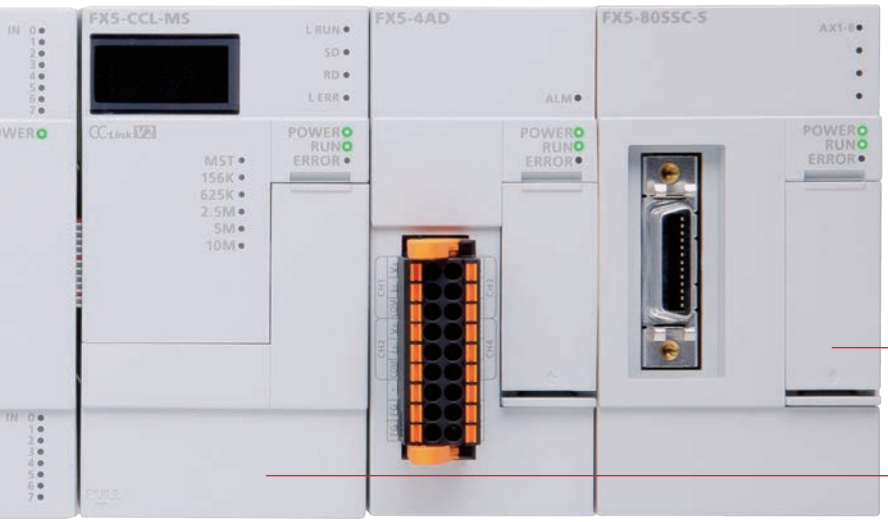
Built-in High-speed Counter Function

The high-speed counter uses the CPU module's general-purpose input terminal, and can count the high-speed pulse inputs that cannot be measured with a regular counter. After the parameters are set, the pulses are count with the HIOEN instruction or UDCNTF instruction.

- Assign channels for 1 to 8 ch
- Compatible with 1-phase 1-input, 1-phase 2-input, 2-phase 2-input high-speed counter.
- Pulse density measurement mode
- Rotation speed measurement mode

Security

MELSEC iQ-F series has advanced security functions (block password, file password, remote password, security key, IP filter function) to prevent data theft and illegal operations by unauthorized persons.



SSCNET III/H
SERVO SYSTEM CONTROLLER NETWORK

CC-Link V2

Built-in Ethernet Port

CC-Link IE Field Basic

The Ethernet port enables communication through up to 8 connections on the network.
CC-Link IE field network Basic is also supported.

Ethernet communication function	FX5UJ Number of connectable modules
MELSOFT connection*1	Up to 8 stations in total
SLMP	
Predefined protocol support	
Socket communication	
MODBUS/TCP communication	
CC-Link IE Field Network Basic	8 stations
Simple CPU communication	8 stations
FTP Server	1 station
Time setting function (SNTP client)	1 station
Web Server	4 stations
Real-time monitoring	1 module

Built-in Positioning Function

- Position up to 3 axes
- Pulse train of up to 200 kpps can be output (transistor output).
- PULSE/SIGN mode
- Position with the dedicated instructions (DRVA, DRVI, DVIT, DSZR, etc.)

Battery-less and Maintenance-free

In the MELSEC iQ-F series, programs and devices are held in a battery-less memory such as flash ROM.

Function Introduction

High functionality model

Next-generation micro PLC that can support high speed of the system bus, enhanced built-in functions, and varieties of networks. A system from stand-alone to network use can be proposed, to strongly support the customer to “go one step ahead in manufacturing”.

CPU Performance

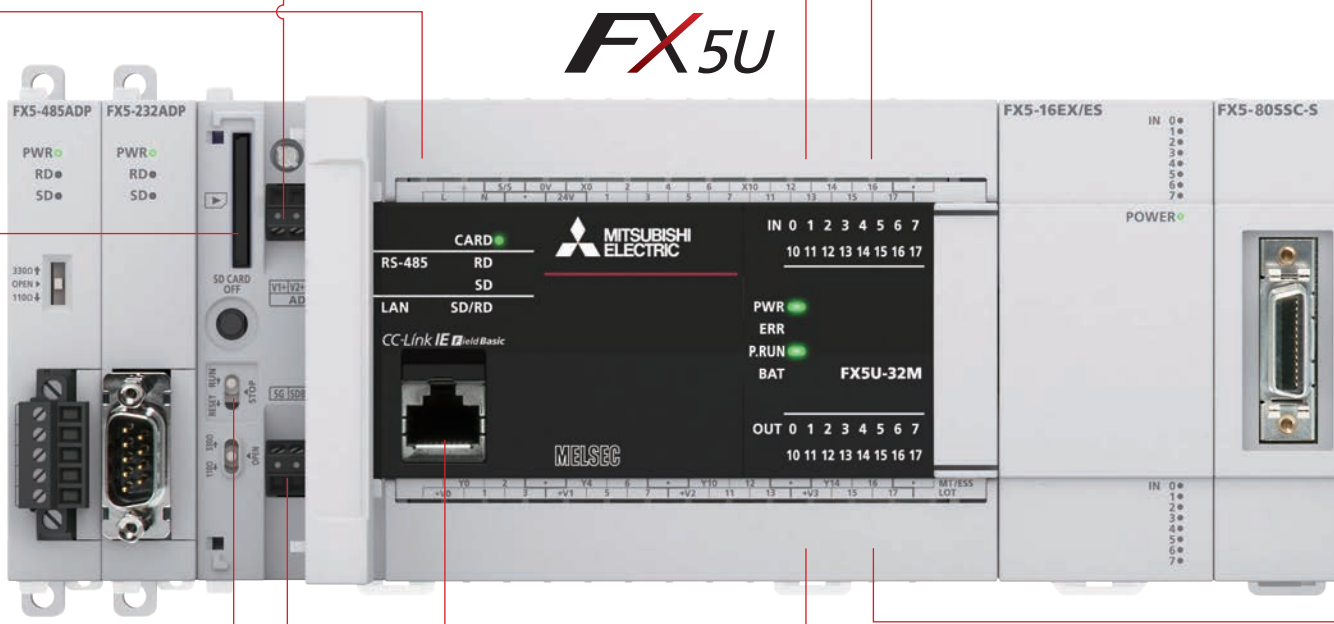
The MELSEC iQ-F series has a CPU capable of high-speed processing with an instruction operation speed (LD instruction) of 34 ns*2.
In addition, the CPU now supports execution of structured programs and multiple programs, ST language, FB etc.

Program capacity	Instruction execution speed (LD, MOV instruction)	Fixed cycle interrupt program
64 k/128 k*1 Steps	34 ns*2	Min. 1 ms

Built-in Analog Input/Output (with warning output)

The FX5U CPU module has a built-in 12-bit 2 ch analog voltage input and 1 ch analog voltage output. A program is not required, and parameters just need to be set to use this module. The value settings, scaling settings, and warming output settings can also be made easily with parameters.

- Over-scale function
- Scaling function
- Shift function
- Digital clipping function



RUN/STOP/RESET Switch

RUN/STOP/RESET switch is built-in.
PLC can be rebooted without turning off the main power for efficient debugging.

Built-in RS-485 Port

- MELSOFT connection
- MODBUS serial communication
- Predefined protocol support
- Inverter communication
- MC protocol (1C/3C/4C frame)
- Non-protocol communication
- N:N network
- Parallel link

Built-in SD Memory Card Slot

Equipped with an SD memory card slot, which is essential for functions such as logging and backup/restore.

- Logging function*3
- Backup/restore function*3
- Memory dump function*3
- Firmware update function
- Boot operation

*1: Supported by FX5U/FX5UC Ver. 1.100 or later, and serial number 17X**** (serial number 178**** (for FX5UC-32MT/DS-TS and FX5UC-32MT/DSS-TS) or later.
Some operation restrictions apply when 128 k steps is selected. For details, refer to the manual.
*2: When the program capacity is 64 k steps.
*3: Supported by serial number for CPU modules 16Y**** or later.
*4: SeamLess Message Protocol
*5: One MELSOFT connection is not included in the number of connections. (The second and subsequent modules are included.)

MELSEC iQ-F series

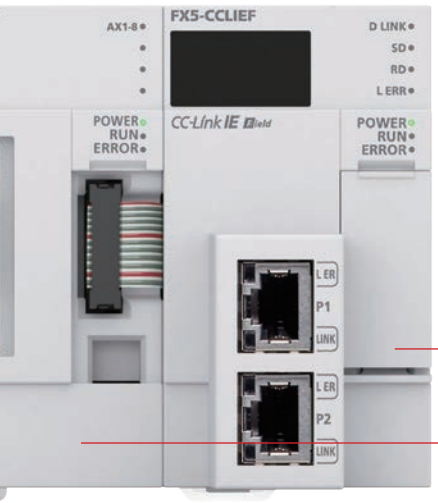
Built-in High-speed Counter Function

The high-speed counter uses the CPU module's general-purpose input terminal, and can count the high-speed pulses input that cannot be measured with a regular counter. After the parameters are set, the pulses are count with the HIOEN instruction or UDCNTF instruction.

- Assign channels for 1 to 8 ch
- Compatible with 1-phase 1-input, 1-phase 2-input, 2-phase 2-input high-speed counter.
- Pulse density measurement mode
- Rotation speed measurement mode

Security

MELSEC iQ-F has advanced security functions (block password, file password, remote password, security key, IP filter function) to prevent data theft and illegal operations by unauthorized persons.



CC-Link IE Field

SSCNET III/H
SERVO SYSTEM CONTROLLER NETWORK

FX5UC

Spring clamp terminal block

P.19

Built-in Ethernet Port CC-Link IE Field Basic

The Ethernet communication port can handle communication of up to 8 connections on the network, and can support multiple connections with personal computer and other devices. In addition, the Ethernet communication port can handle seamless SLMP*4 communication with the upper-level device.

Ethernet communication function	FX5U/FX5UC Number of connectable modules
MELSOFT connection*5	Up to 8 stations in total
SLMP	
Predefined protocol support	
Socket communication	
MODBUS/TCP communication	
CC-Link IE Field Network Basic	16 stations
Simple CPU communication	16 stations
FTP Server	1 station
Time setting function (SNTP client)	1 station
Web Server	4 stations
Real-time monitoring	1 module

Built-in Positioning Function

- Position up to 4 axes
- Pulse train of up to 200 kpps can be output (transistor output).
- Select either PULSE/SIGN or CW/CCW mode
- Position with the dedicated instructions (DRVA, DRVI, DVIT, DSZR, etc.)

Battery-less and Maintenance-free

In the MELSEC iQ-F series, programs and devices are held in a battery-less memory such as flash ROM.

Function Introduction

High functionality model

Faster and easier. Realize diverse expandability and high functionality. Various networks are supported, and data logging is realized by adding functions. Two types models, the FX3 series flagship model FX3U and connector type FX3UC, are available.

FX3U

Ethernet

Data can be communicated with various devices using Ethernet. Monitoring and maintenance can be easily realized from a remote location.

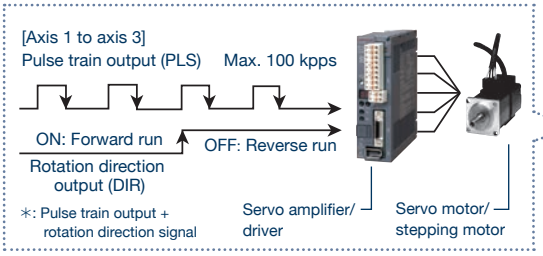
Built-in High-speed Counter Function

The built-in high-speed counter can import signals at max. 100 kHz (for 1-phase). This model can be used as a multiply-by-four counter when using with a normal multiply-by-one 2-phase input counter and special auxiliary relay (M8388, M8198, M8199).

∗: FX3U supports only the DC input type.

Built-in Positioning Function (Transistor output type)

With the independent 3-axis, the speed can be designated for each axis. In addition, the program can be simplified with batch setting positioning that can be set easily with parameters.



FX3 series

SSCNET III support realizing high-speed, high-accuracy positioning control with outstanding noise resistance. Diverse functions, such as reduce wiring with fiber optical cables and real-time monitoring of servo information, increase the ease-of-use, and support a variety of positioning control methods.

CC-Link V2

CC-Link is a high-speed field network that can simultaneously handle control and information.

Analog Control

Analog devices can be connected easily.

Communication Control

Easily link data between devices.
External devices, such as code readers and printers can be easily connected.

FX3UC

Function Introduction

Standard model

Realize advanced control from automation to networks. The standard model is equipped with the functions required for basic control, and supports a variety of applications.
The compact FX3GC model is equipped with the basic functions.

FX3G

Built-in High-speed Counter Function

A high-speed counter that can retrieve data at max. 60 kHz (for 1-phase) is built-in, so high-speed control is possible with a simple program.

Built-in Analog Volume Function

The main unit has a 2-point analog volume function built-in.
The current analog volume value increases between 0 and 255 when turned right, and is automatically written into the special data register.

Built-in Positioning Function (Transistor output type)

With the independent 3-axis*1, the speed can be designated for each axis. In addition, the program can be simplified with batch setting positioning that can be set easily with parameters.

Battery-less and Maintenance-free

The program and devices are held by the EEPROM memory, so a battery is not required.*2

14-point, 24-point type

40-point, 60-point type

*1: The 14-point and 24-point types are independent 2-axis, and 40-point and 60-point types are independent 3-axis.
*2: The device's holding capacity can be increased by using the optional battery.

FX3 series

Standard model

FX3GE adds built-in analog input/output and Ethernet connectivity on top of FX3G performance.
A great fit for many applications.

FX 3GE

Built-in High-speed Counter Function

A high-speed counter that can retrieve data at max. 60 kHz (for 1-phase) is built-in, allowing high-speed control with a simple program.

Built-in Analog Volume Function

The main unit has a 2-point analog volume function built-in.
The current analog volume value increases between 0 and 255 when turned right, and is automatically written into the special data register.

Built-in Positioning Function (Transistor output type)

With the independent 3-axis*1, the speed can be designated for each axis. In addition, the program can be simplified with batch setting positioning that can be set easily with parameters.

Battery-less and Maintenance-free

The program and devices are held by the EEPROM memory, so a battery is not required.*2

Built-in Ethernet Port

FX3GE has a built-in Ethernet communication function.

Built-in Analog Input/Output Function

FX3GE has built-in analog voltage/current input at two points and analog voltage/current output at one point.

24-point type

40-point type

*1: The 24-point type is independent 2-axis and 40-point type is independent 3-axis.
*2: The device's holding capacity can be increased by using the optional battery.

Function Introduction

FX3GC

Built-in High-speed Counter Function

A high-speed counter that can retrieve data at max. 60 kHz (for 1-phase) is built-in, so high-speed control is possible with a simple program.

Built-in Positioning Function

With the independent 2-axis, the speed can be designated for each axis. In addition, the program can be simplified with batch setting positioning that can be set easily with parameters.

Battery-less and Maintenance-free

The program and devices are held by the EEPROM memory, so a battery is not required.*1

CC-Link V2

Basic model

Looking for an easy method to automate your devices?
Simple functions are packaged at an affordable price. This basic micro programmable controller has analog and communication function expandability.

FX3S

Built-in High-speed Counter Function

A high-speed counter that can retrieve data at max. 60 kHz (for 1-phase) is built-in, so high-speed control is possible with a simple program.

Battery-less and Maintenance-free

The program and devices are held by the EEPROM memory, so a battery is not required.

Built-in Positioning Function (Transistor output type)

With the independent 2-axis, the speed can be designated for each axis. Zero point return with DOG search function is also possible.

Built-in Analog Volume Function*2

The main unit has a 2-point analog volume built-in.
The current analog volume value increases between 0 and 255 when turned right, and is automatically written into the special data register.

Built-in Analog Function

The main unit has a built-in 2-point analog voltage input. The A/D converted value is automatically written into the special data register.

Compatible main units

FX3S-30MR/ES-2AD, FX3S-30MT/ES-2AD, FX3S-30MT/ESS-2AD

*1: The device's holding capacity can be increased by using the optional battery.
*2: Excluding FX3S-30M□/□□□-2AD.

memo

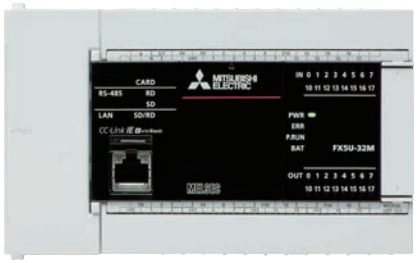
Built-in functions

The MELSEC iQ-F series has excellent built-in functions to respond to various types of control.
Ethernet port, SD memory card slot, USB (Mini-B) connector (FX5UJ only), and RS-485 port (FX5U/FX5UC only) are standard equipment.
The Ethernet port is compatible with CC-Link IE Field Network Basic, and supports connection of a variety of devices.

Screw terminal block type

NEW FX5UJ

Screw terminal block type



FX5U

Connector type

Spring clamp terminal block type

FX5UC

CPU Performance

FX5UJ	Program capacity 48 k Steps	Instruction execution speed (LD, MOV instruction) 34 ns	Fixed cycle interrupt program Min. 1 ms	FX5U FX5UC	Program capacity 64 k/128 k*1 Steps	Instruction execution speed (LD, MOV instruction) 34 ns*2	Fixed cycle interrupt program Min. 1 ms

Built-in High-speed Counter Function

FX5UJ FX5U FX5UC

◇Built-in high-speed counter input assignment

The assignment of the input devices for the high-speed counter is set with parameters.
The corresponding assignment is determined when the respective functions are set for each channel with the parameters. The counter operates with the HIOEN instruction.

FX3S FX3G FX3GE FX3GC FX3U FX3UC

◇FX3 built-in high-speed counter function

General-purpose inputs X0 to X7 are used for the built-in high-speed counter. The input format and input terminal number are predetermined by the type of counter being used, such as 1-phase type, 2-phase type, or counter with start or reset function.

Battery-less and Maintenance-free

FX5UJ FX5U FX5UC

In the MELSEC iQ-F series, programs and devices are held in a battery-less*3 memory such as flash ROM.

FX3S FX3G FX3GE FX3GC

With the FX3S and FX3G/FX3GE/FX3GC, the programs and devices are held by the EEPROM, so a battery is not required.*4

Built-in Positioning Function

FX5U FX5UC

Compatible with 20 µs high-speed starting and allows 200 kpps, 4-axis pulse output (Transistor output)

FX5UJ

Allows 200 kpps, 3-axis pulse output (Transistor output)

◇Number of controllable axes

FX3U	3-axis
FX5UJ	3-axis
FX5U/FX5UC	4-axis*5

◇Maximum frequency

FX3U	Max. 100 kpps
FX5UJ	Max. 200 kpps
FX5U/FX5UC	Max. 200 kpps

*1: Supported by FX5U/FX5UC Ver. 1.100 or later, and serial number 17X**** (serial number 178**** (for FX5UC-32MT/DS-TS and FX5UC-32MT/DSS-TS) or later.
Some operation restrictions apply when 128 k steps is selected. For details, refer to the manual.
*2: When the program capacity is 64 k steps.
*3: FX5U/FX5UC is using an optional battery can increase the capacity of the device.
*4: With FX3G/FX3GE/FX3GC, the capacity that the device can save can be increased by using the optional battery.
*5: Two axes when the pulse output mode is CW/CCW mode.

Built-in RS-485 Port (with MODBUS function)

FX5U FX5UC

Connect to serial devices up to 50 m away with built-in RS-485 port. Control for up to 16 Mitsubishi electric inverters is possible with 6 dedicated inverter communication instructions.
MODBUS is also supported and can connect up to 32 MODBUS devices such as PLCs, sensors and temperature controllers.

FX5U

Built-in Analog Input/Output (with warning output)

FX5U

The FX5U has built-in 12-bit 2-channel analog input and 1-channel analog voltage output.

FX3S FX3GE

The FX3S-30M□/ES□-2AD has two analog voltage input channels built-in.
The FX3GE has built-in 2-channel analog input and 1-channel analog output.

FX5U

Built-in Ethernet Port

FX5UJ FX5U FX5UC

The Ethernet communication port can handle communication of up to 8 connections on the network, and can support multiple connections with personal computer and other devices. In addition, the Ethernet communication port can handle seamless SLMP communication with the upper-level device.

RUN/STOP/RESET Switch

FX5UJ FX5U FX5UC

RUN/STOP/RESET switch is built-in.
PLC can be rebooted without turning off the main power for efficient debugging.

USB (Mini-B) Connector

FX3S FX3G FX3GE FX3GC FX5UJ

Another interface for programming, in addition to the Ethernet port. The standard equipped USB (Mini-B) connector makes it easier to connect to engineering tools.

FX5UJ

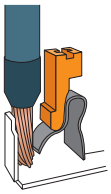
Spring clamp terminal block FX5UC

What is a spring clamp terminal block type?

Spring clamp terminals hold wires in place by the force of internal springs. Constant force holds wires in place, preventing wires from falling out due to vibration.

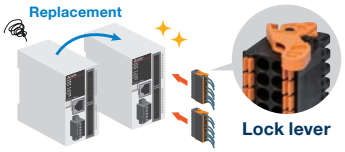
<Internal construction>

Securely fixed
by elastic force!



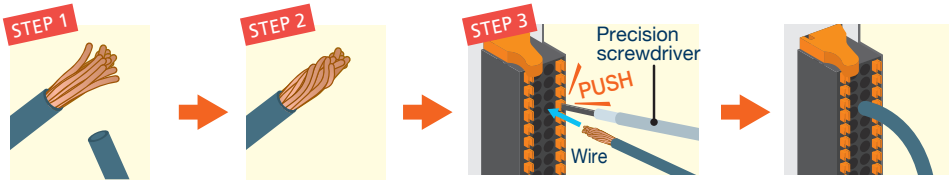
What are the advantages?

There is no need for crimp terminals or crimp tools! Wiring is possible without extra time or cost! No external terminal is needed!
Easily detachable & securely fixed by a lock lever!



With detachable terminals, the change of wiring is not needed even when replacing the modules!

With spring clamp terminals block type, wiring is complete in 3 steps!



Strip wire　Twist wire　Insert wire　**Wiring complete!**

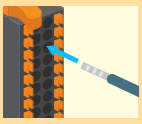
For ferrule terminals, the following is introduced. (Reference product: PHOENIX CONTACT GmbH & Co. KG*)

Model	Type	
CRIMPFOX 6	Crimp tool	
AI 0.5-10 WH	Crimp terminal (Ferrule with insulation sleeve)	Wire size 0.5 mm²
AI 0.75-10 GY		Wire size 0.75 mm²
A 1.0-10	Crimp terminal (Ferrule without insulation sleeve)	Wire size 1.0 mm²
A 1.5-10		Wire size 1.5 mm²

Additionally!

By using a ferrule terminal, wiring can be completed just by inserting with the push-in method.

Complete wiring smoothly, even in a confined panel.



*: If the product other than the reference product is used, the wire ferrule cannot be pulled out. Sufficiently confirm that the wire ferrule can be pulled out before use.

Built-in functions

Memory area for each application

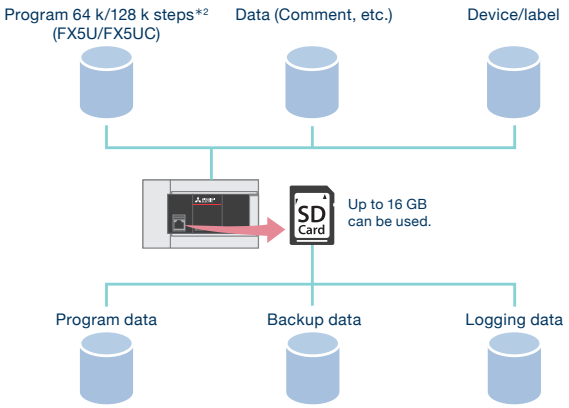
FX5UJ FX5U FX5UC

The program memory capacity of the FX5U/FX5UC CPU module has 64 k/128 k steps*2, and the FX5UJ CPU module has 48 k steps.
Since these memory areas are reserved for each application, so all can be used as the program area.
Therefore, comments and statements can be written without being aware of conflicts within the area.

[Maximum number of characters]

Comment: 1024 characters Statement: 5000 characters

MELSEC iQ-F series stores the program and devices in non-volatile memory such as Flash ROM, so no battery is required.

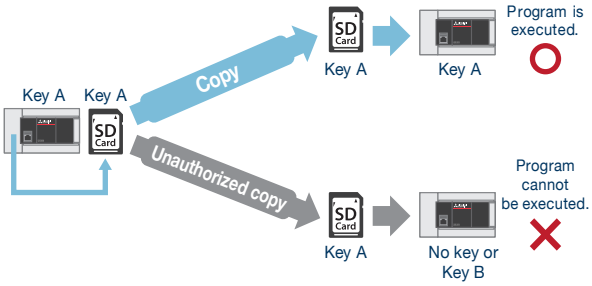


Security

FX5UJ FX5U FX5UC

Prevents data theft, tampering, misoperation, illegal execution, etc. caused by unauthorized access from a third party with the security functions (block password, file password, remote password, security key authentication).

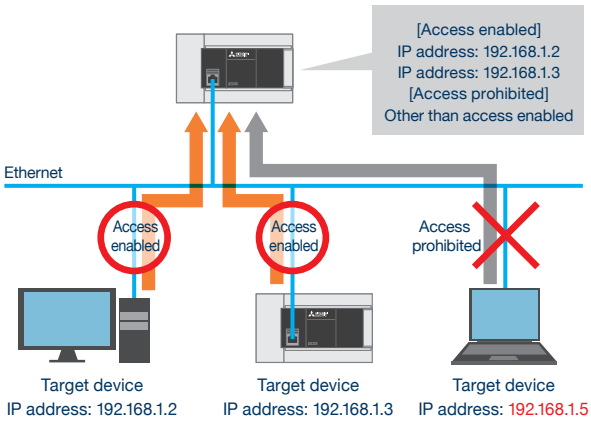
>> Example of security key authentication function



IP filter function*1

FX5UJ FX5U FX5UC

When the IP address to be permitted or blocked is set in the MELSEC iQ-F series built-in function parameters, access from specific devices are restricted. The access source IP address can be identified to prevent accessing from illegal IP addresses.



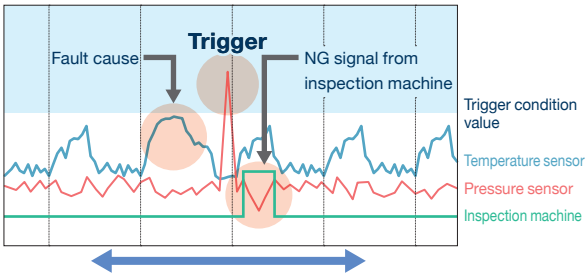
*1: Refer to page 23 for the firmware version and software version of the corresponding CPU module.
*2: Supported by FX5U/FX5UC Ver. 1.100 or later, and serial number 17X**** (serial number 178**** (for FX5UC-32MT/DS-TS and FX5UC-32MT/DSS-TS) or later. GX Works3 Ver. 1.047Z or later. Some operation restrictions apply when 128 k steps is selected. For details, refer to the manual.

Data logging function*1*2

FX5UJ FX5U FX5UC

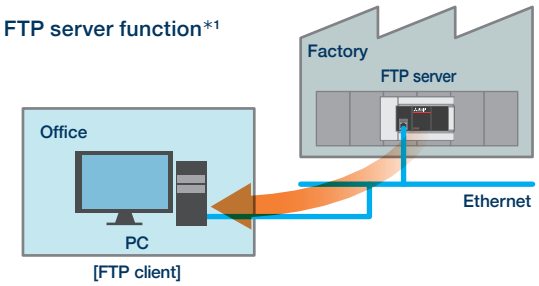
Information can be saved to the SD memory card periodically from the computer and network equipment. Using the saved data enables efficient analysis of device operating status and trouble causes. If simple settings are made with the logging setting tool, no additional program is required.

A trouble can be analyzed efficiently by [trigger logging] which logs only the situation before and after the occurrence of trouble. Important data can be selectively saved by setting conditions.



Collects data before and after occurrence of a trouble!

With the FTP server function*1, logging data can be acquired from a remote location without going to the site. Multiple logging files can be managed collectively from the office computer, reducing management and maintenance work.

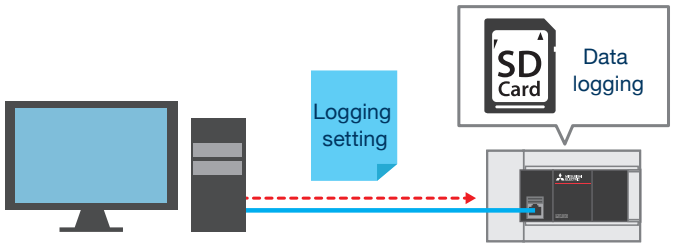


Logs can be examined and utilized from remote locations!

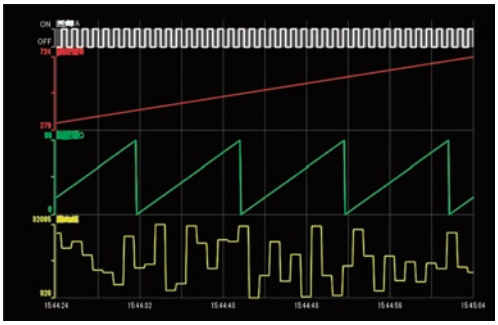
Efficiently analyzing logging data with GX LogViewer*1

FX5UJ FX5U FX5UC

GX LogViewer*1 is a tool to display and analyze large volumes of data collected by modules with the data logging function*1, with easy-to-understand operations. It enables the setting of the connection destination by the same operation as the setting tool and engineering tool, and thereby enables easy checking of the logging file.



Using GX LogViewer*1 enables visual display and efficient data analysis.



*1: Refer to page 23 for the firmware version and software version of the corresponding CPU module.

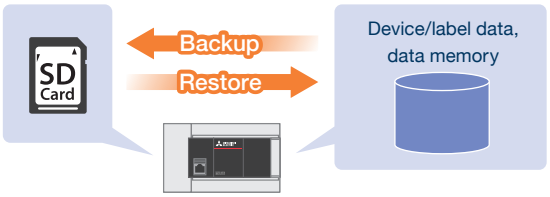
*2: The data logging function and memory dump function cannot be used simultaneously. There are some restrictions on the use of the backup/restore function. For details, refer to the manual.

Backup/restore function*1 (device/label data*2*3, data memory*2)

FX5UJ FX5U FX5UC

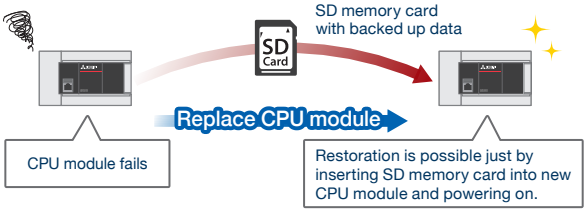
The device/label data and data memory in the CPU module can be backed up*5 to the SD memory card.
Backup data can be restored as needed.

Back up data in case of an emergency!



When the SD memory card is mounted in the CPU module, the data can be backed up at any timing. The backed up data can be restored at any timing.

Restoration is possible even without a personal computer!



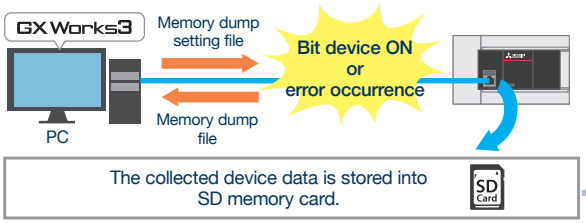
When the CPU module auto exchange function is used, the SD memory card data is automatically restored when the power is turned on or when the CPU module is reset. If the CPU module fails, it can recover promptly without a personal computer.

Memory dump function*2*4

FX5UJ FX5U FX5UC

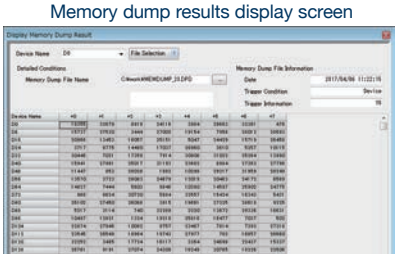
The CPU module device value can be saved in the SD memory card at any timing.
By setting the trigger to be established when an error occurs, the status at error occurrence can be confirmed. This is helpful in investigating and pinpointing the cause.

By setting memory dump...



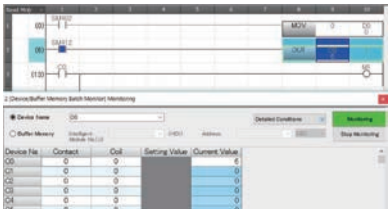
Use the information when debugging systems under development, or for troubleshooting when trouble occurs at a remote location, etc.

Memory dump results display screen



The collection results can be confirmed with GX Works3.

Offline Monitor screen



You can also check this information on the program editor.

⚠ Caution	If the data protected by the file password function exists in the CPU module, backup/restore is disabled. When setting the security key authentication function, the program cannot be executed unless the security key has been written to the CPU module.

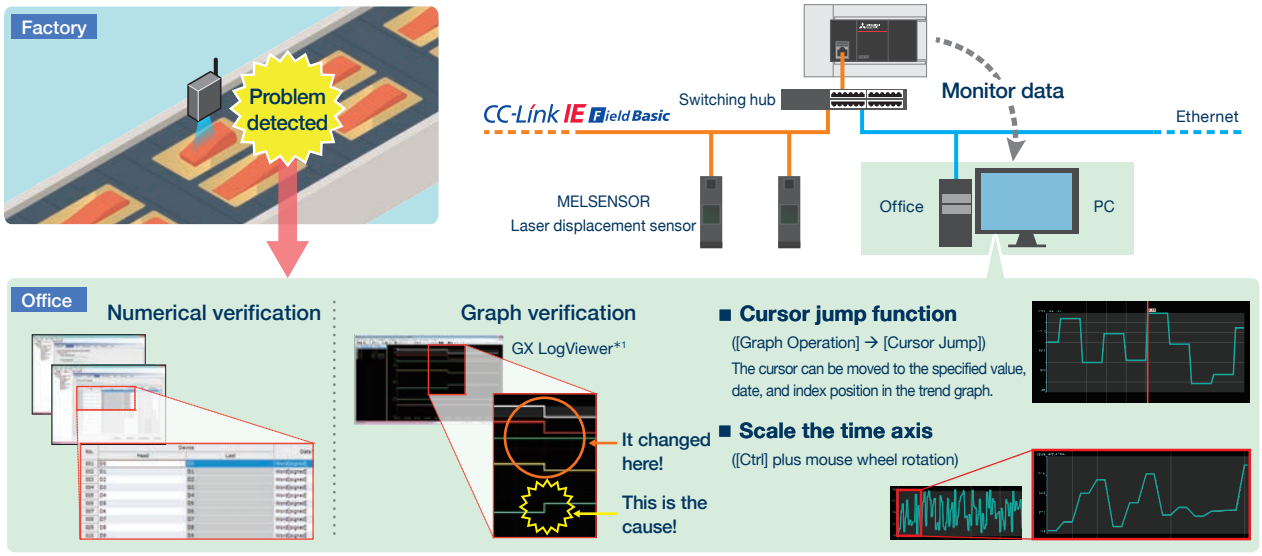
*1: While the backup/restore function is executed, some functions are temporarily unavailable. For details, refer to the manual.
*2: Refer to page 23 for the firmware version and software version of the corresponding CPU module.
*3: Excluding the buffer memory of the intelligent function module.
*4: The memory dump function and data logging function are not simultaneously available. There are some restrictions on the use of the backup/restore function. For details, refer to the manual.
*5: Supported by FX5U/FX5UC serial number 16Y**** or later.

Real-time monitoring function*1

FX5UJ FX5U FX5UC

The contents of any devices can be monitored on real-time basis using GX LogViewer*1. Because changes in device values are displayed in a trend graph, changes can be noticed at a glance! The debugging efficiency is considerably improved at startup and troubleshooting. This function facilitates the resetting procedure, and enables graph check at a later time.

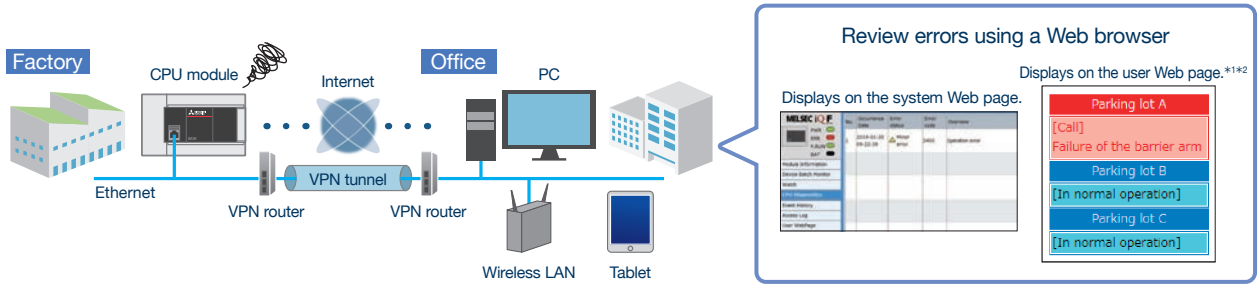
Real-time monitoring of data collected by CPU module using numerical values and graphs



Web server function*1

FX5UJ FX5U FX5UC

Accessing the Web server from a Web browser on a personal computer enables CPU module monitoring and diagnosis without any dedicated tools. User Web page*1*2 unique for each user can also be created.



◇ Function compatibility table

Function		Supported CPU module firmware version		Supported engineering tool software version	
		FX5UJ	FX5U/FX5UC	FX5UJ	FX5U/FX5UC
Data logging function		From the first	"1.040" or later serial number 16Y✱✱✱✱ or later	GX Works3: 1.060N or later (CPU module logging setting tool: 1.100E or later) (GX LogViewer: Ver. 1.100E or later)	GX Works3: 1.030G or later (CPU module logging setting tool: 1.64S or later) (GX LogViewer: Ver. 1.64S or later)
IP filter function			"1.050" or later	GX Works3: 1.060N or later	GX Works3: 1.035M or later
FTP Server function			"1.040" or later serial number 16Y✱✱✱✱ or later		GX Works3: 1.030G or later
Backup/restore function			"1.045" or later	–	–
Memory dump function		From the first	"1.050" or later serial number 16Y✱✱✱✱ or later	GX Works3: 1.060N or later	GX Works3: 1.035M or later
Real-time monitoring function			"1.060" or later	GX Works3: 1.060N or later (GX LogViewer: Ver. 1.100E or later)	GX Works3: 1.040S or later (GX LogViewer: Ver. 1.76E or later)
Web server function	System Web page		"1.060" or later	GX Works3: 1.060N or later	GX Works3: 1.040S or later
	User Web page	Not supported	"1.100" or later serial number 17X✱✱✱✱ or later*3	–	GX Works3: 1.047Z or later

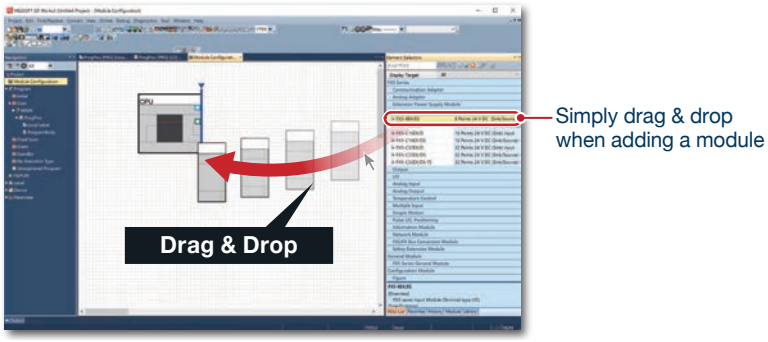
✱1: Refer to the above function compatibility table for the firmware version and software version of the corresponding CPU module.
✱2: FX5U/FX5UC only.
✱3: Supported by serial number 178✱✱✱✱ for FX5UC-32MT/DS-TS and FX5UC-32MT/DSS-TS or later.

Programming environment GX Works3

GX Works3 is software that comprehensively supports the design and maintenance of sequence programs.
Graphical intuitive operability, and easy programming by just “selecting”.
A diagnostic function that has a troubleshoot function realizes the reduction of engineering cost.

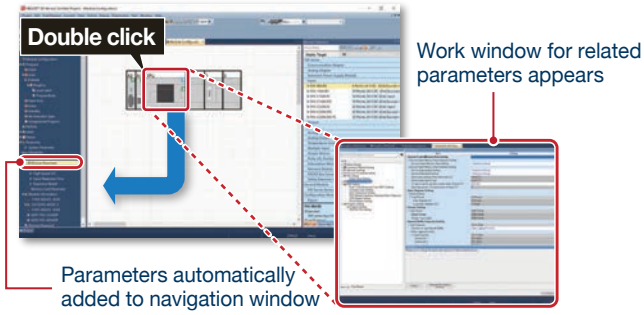
System design with a convenient elements library

With GX Works3, designing a system is as easy as preparing the module configuration diagram by dragging and dropping selected elements.



Auto-generation of module parameters

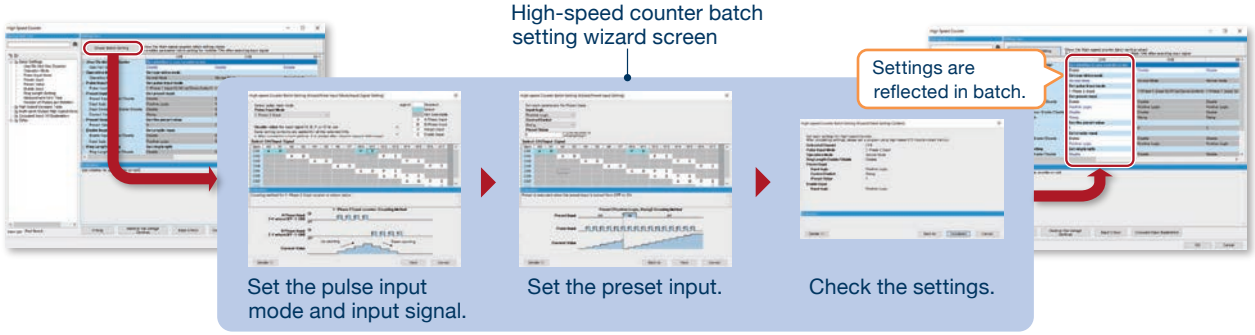
When preparing the module configuration diagram, simply double-click the module to automatically generate the module parameters.
A window with an easy-to-use parameter settings screen opens, enabling module parameters to be modified as needed.



Simple setting of module parameters

GX Works3: Ver. 1.060N or later

Various parameters can be set easily. Even high-speed counters with many parameters can be set without a manual by simply following the wizard.
You can also easily check the high-speed counter CH used and the location of wiring.



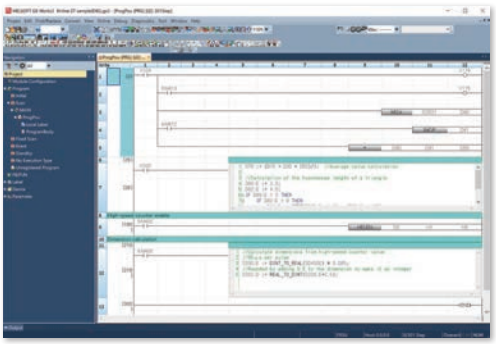
Use GX Works3 for programming with the MELSEC iQ-F series.

Software	GX Works3	GX Works2	GX Developer
Compatible models	MELSEC iQ-R series **MELSEC iQ-F series**	MELSEC-Q series MELSEC-L series MELSEC-F series	MELSEC-Q series MELSEC-L series MELSEC-F series

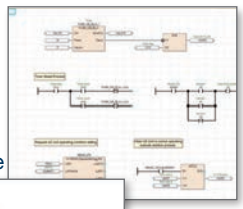
Main programming languages supported

The main IEC languages are supported by GX Works3. Various different programming languages can be used within the same project simultaneously and can be viewed easily via the menu tab. The labels and devices used in each program can be shared across multiple platforms, with user defined function blocks supported.

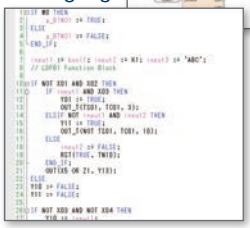
Ladder diagram (inline ST)



FBD/LD language

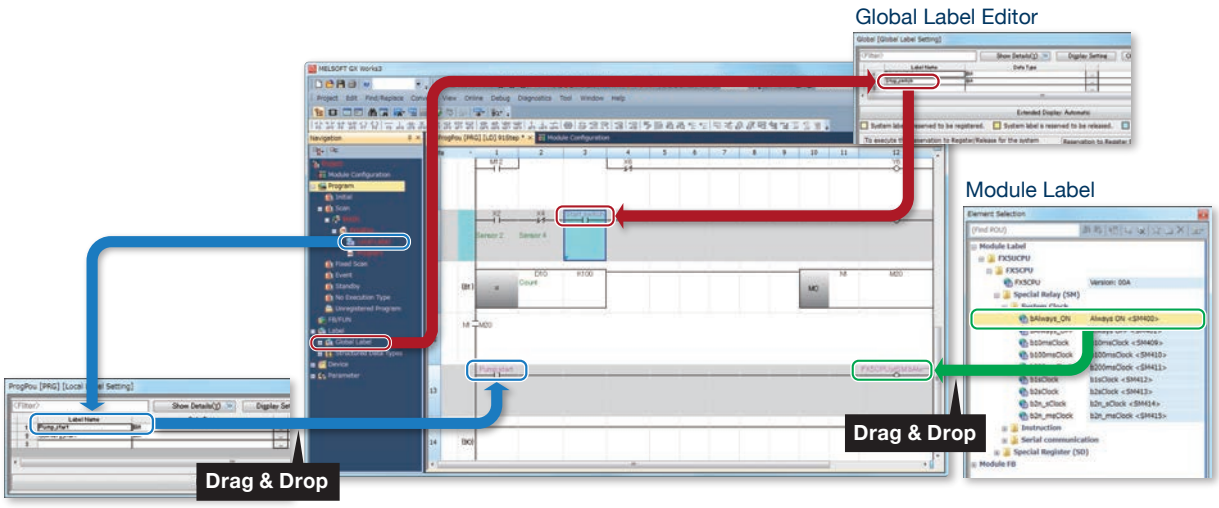


ST language



Reduce repetitive program tasks

With GX Works3, global labels, local labels, and module labels can be used as well as programming by devices.
Global labels can be shared between multiple programs or between other MELSOFT software. Local labels can be used in registered programs and FBs. Module labels have buffer memory information of various intelligent function modules. Therefore, programming can be done without being conscious of the buffer memory address.



Programming environment

Integrated Simple motion module setting tool

GX Works3 is equipped with a Simple motion module setting tool that makes it easy to change simple motion module settings such as module parameters, positioning data and servo parameters. Also, the servo adjustment is simplified using it.

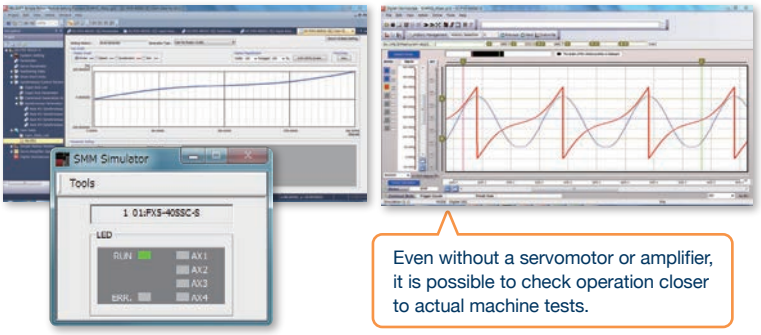
Driving simulation

With GX Simulator3, programs can be debugged with a virtual PLC on the computer. It is convenient to be able to check before operating on the real machine.

Even without a real machine, the cooperation of CPU module + simple motion can be verified!

CPU module simulation

Simple motion simulation*1



Even without a servomotor or amplifier, it is possible to check operation closer to actual machine tests.

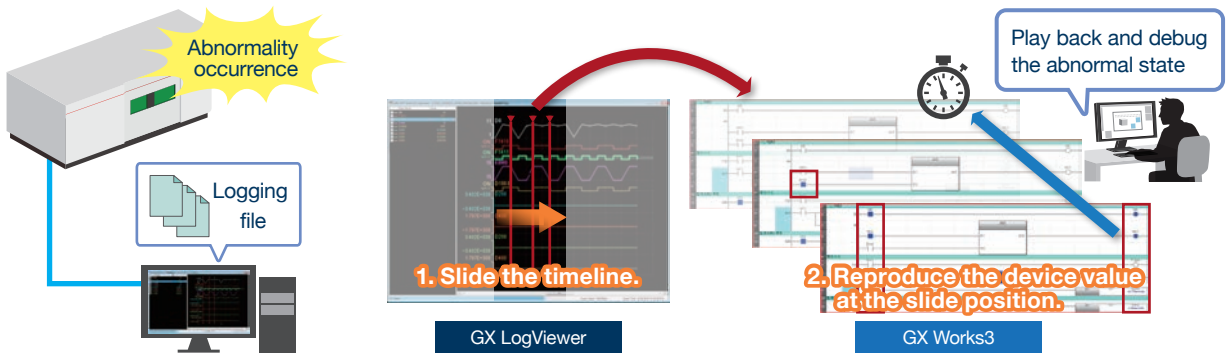
It is possible to check the operation even if there is no real machine.
Simulation can be done without going to the site, which leads to a reduction in man-hours for programming.

Offline monitor (logging) function

GX Works3: Ver. 1.040S or later

GX Works3 and GX LogViewer work together for debugging without a PLC!

The device values in the logging file shown on the GX LogViewer can be displayed in the program editor of GX Works3. By using the logging file, it is possible to reproduce and check the device status offline from a remote location in conjunction with the timeline (red cursor) on the GX LogViewer.



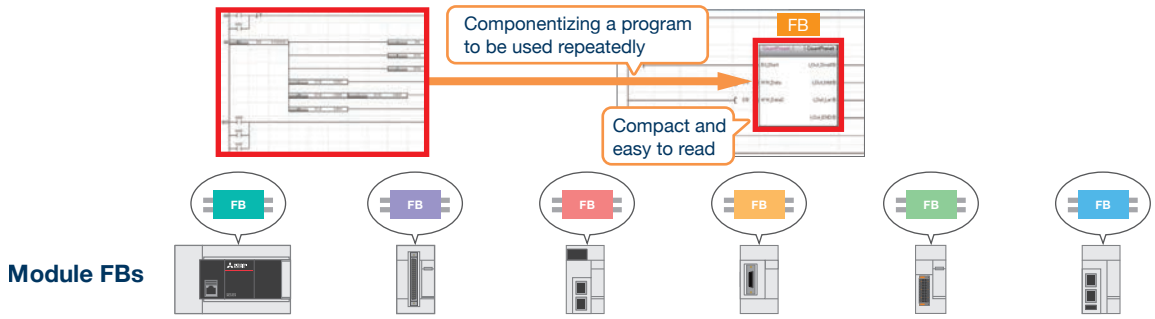
*1: Supported by GX Works3 Ver. 1.035M or later.

MELSOFT Library useful for reducing man-hours

Since module FBs*1 (FBs for our equipment) are all shipped with GX Works3, many libraries can be used for programming right after installation.

Module FBs*1 to control each module are prepared.

"Module FB*1" is a componentized program that controls each module.
Using the module FBs*1 eliminates the need for programming the processing of each module and reduces programming man-hours.



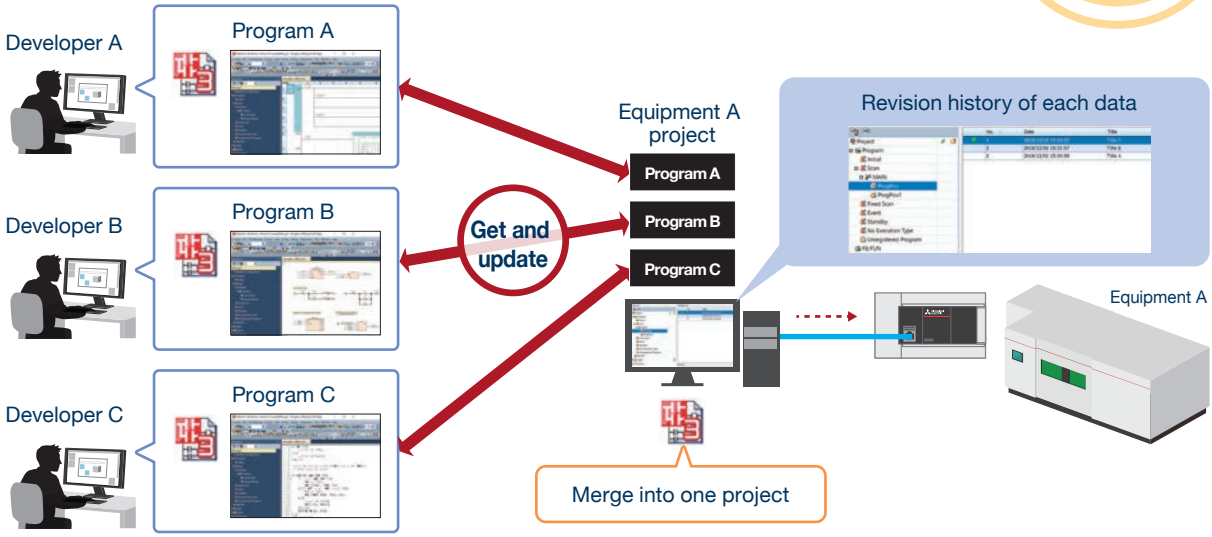
Module FBs*1 are included in GX Works3 in advance.

Project version management function

GX Works3: Ver. 1.057K or later

With GX Works3 alone, the configuration can be managed!

The project version management function manages the revision history of a project by recording changes in the project. Programs created by multiple developers can be merged into one project or restored to a past state for each data, so programming human-hours can be reduced.

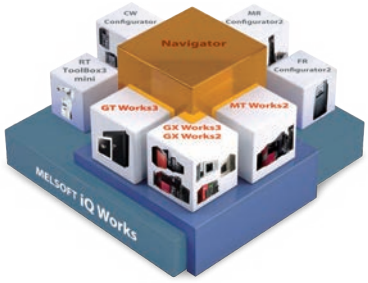


*1: For details, refer to FB reference manuals of each product.

Programming software

MELSOFT iQ Works

MELSOFT iQ Works is based on the system control software MELSOFT Navigator, and includes each engineering software. (GX Works2/GX Works3, MT Works2, GT Works3, RT ToolBox3 mini, FR Configurator2)



MELSOFT iQ Works FA Integrated Engineering Software*1

iQ Works (English version) ····· Model: SW2DND-IQWK-E (DVD-ROM)

MELSOFT GX Works3 PLC Engineering Software*1

GX Works3 (English version) ····· Model: SW1DND-GXW3-E (DVD-ROM)

◇Corresponding models

GX Works3 software ····· **FX5UJ, FX5U, FX5UC**

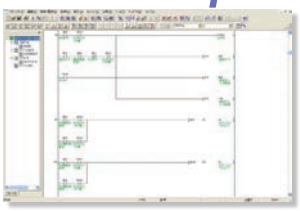
GX Works2 software ····· **FX3U, FX3UC, FX3G, FX3GE, FX3GC, FX3S**

GX Developer software ····· **FX3U, FX3UC, FX3G, FX3GE, FX3GC, FX3S*2**

GX Works2 and GX Developer are also compatible with FX2N, FX2NC, FX1N, FX1NC, FX1S, FX0N, FX0S, FX0, FXU, FX2C, and FX1.

Programs created with GX Developer can be used with GX Works3.

GX Developer

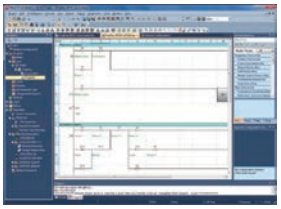


Reading

GX Works2

Reading

GX Works3



A special catalog (separate booklet) of MELSOFT iQ Works is available.
(Functions shown in the catalog vary according to PLC model.)
For details, refer to the following catalog:
"MELSOFT iQ Works catalog" L(NA)08232ENG

*1: GX Works2 and GX Developer are also enclosed.

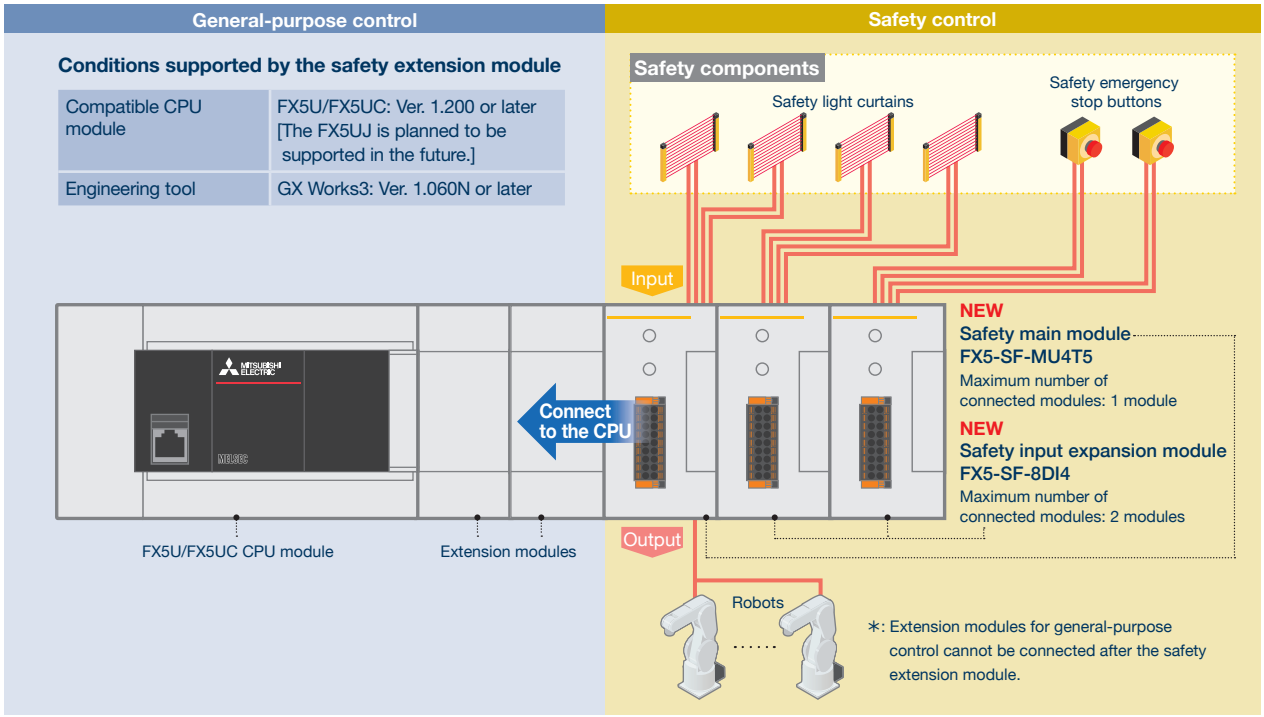
*2: When using FX3S, a circuit can be created by selecting the "FX3G" model. (The program capacity is set to 4000 steps or less.) Refer to the Technical News "Limitations and precautions when using FX3S series with GX Developer" (HIME-T-P-0118A) for details on the other restrictions.

Safety function

Device safety is highly important amid the globalization of various industries and systems.
The MELSEC iQ-F series also features a new lineup of modules which complies with safety standards.

List of models

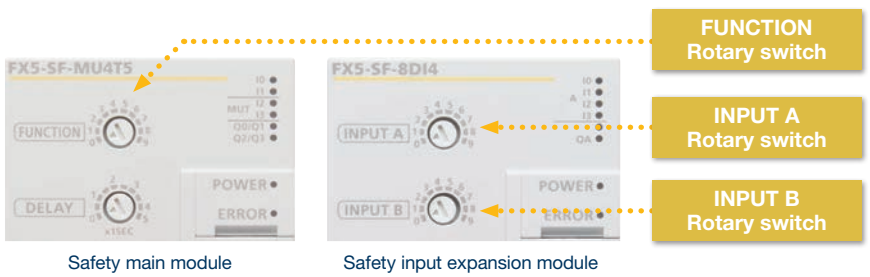
	Safety main module	Safety input expansion module
Safety extension module	FX5U FX5UC  FX5-SF-MU4T5 • Maximum number of connected modules: 1 module • Number of safety inputs: 4 points • Number of safety outputs: 4 points • Safety control programs: 9 types	Maximum number of inputs/outputs for the safety control system Number of safety inputs: 20 points Number of safety outputs: 4 points
		FX5U FX5UC  FX5-SF-8DI4 • Maximum number of connected modules: 2 modules • Number of safety inputs: 8 points • Safety control programs: 9 types



Turn the rotary switch to select the built-in program

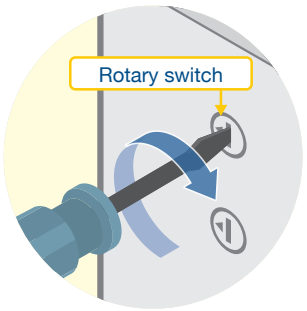
Each safety extension module has nine types of built-in programs. To build a safety control system, just use the rotary switch on the front of the module to select the built-in program to run.
This eliminates the need for sequence programs designed for safety control.

Just turn the switch with a precision screwdriver or a similar tool!
Nine types of built-in programs!



Safety main module
FX5-SF-MU4T5

Safety input expansion module
FX5-SF-8DI4



Analog control

The analog amount (voltage, current, etc.,) can be input or output using the analog input module and output module. Use the ample lineup of extension modules for analog control that matches your applications.

List of models

Voltage and current input/output

Analog input

3 ch

- Resolution at 0 to 10 V DC input: 2.5 mV

2 ch

FX5U

1 ch

FX5U CPU module

- Resolution at 0 to 10 V DC output: 2.5 mV

4 ch

FX5UJ FX5U FX5UC

FX5-4AD-ADP

- Resolution at -10 to 10 V DC input: 1250 μV (1.25 mV)
- Resolution at -20 to 20 mA DC input: 2.5 μA

FX5UJ FX5U FX5UC

FX5-4AD*1

- Resolution at -10 to 10 V DC input: 312.5 μV (0.3125 mV)
- Resolution at -20 to 20 mA DC input: 625 nA (0.625 μA)
- Spring clamp terminal block
- Logging: 10000 points/ch

FX5U FX5UC

FX3U-4AD*2

- Resolution at -10 to 10 V DC input: 0.32 mV
- Resolution at -20 to 20 mA DC input: 1.25 μA

8 ch

FX5UJ FX5U FX5UC

FX5-8AD*1

- Resolution at -10 to 10 V DC input: 312.5 μV
- Resolution at -20 to 20 mA DC input: 625 nA (0.625 μA)
- Spring clamp terminal block
- Logging: 10000 points/ch

Analog output

4 ch

FX5UJ FX5U FX5UC

FX5-4DA-ADP

- Resolution at -10 to 10 V DC output: 1250 μV (1.25 mV)
- Resolution at 0 to 20 mA DC output: 1.25 μA

FX5UJ FX5U FX5UC

FX5-4DA*1

- Resolution at -10 to 10 V DC output: 312.5 μV (0.3125 mV)
- Resolution at 0 to 20 mA DC output: 625 nA (0.625 μA)
- Spring clamp terminal block
- Waveform output data can be created.

FX5U FX5UC

FX3U-4DA*2

- Resolution at -10 to 10 V DC output: 0.32 mV
- Resolution at 0 to 20 mA DC output: 0.63 μA

*1: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.
*2: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.

List of models

Voltage and current input/output

Analog input

1 to 3 ch

FX3S

FX3S-30M□/ES□-2AD

- Resolution at 0 to 10 V DC input: 10 mV

FX3S FX3G FX3GE

FX3G-2AD-BD

- Resolution at 0 to 10 V DC input: 2.5 mV
- Resolution at 4 to 20 mA DC input: 8 μA

FX3G FX3GE FX3GC FX3U FX3UC

FX2N-2AD*

- Resolution at 0 to 10 V DC input: 2.5 mV
- Resolution at 4 to 20 mA DC input: 4 μA

*Same characteristics for both 2 ch

- Resolution at 0 to 10 V DC input: 2.5 mV
- Resolution at 4 to 20 mA DC input: 5 μA

FX3GE

2 ch

1 ch

FX3GE Main unit

- Resolution at 0 to 10 V DC output: 2.5 mV
- Resolution at 4 to 20 mA DC output: 4 μA

- Resolution at 0 to 10 V DC input: 2.5 mV
- Resolution at 4 to 20 mA DC input: 5 μA

FX3S FX3G FX3GE FX3GC FX3U FX3UC

2 ch

1 ch

FX3U-3A-ADP

- Resolution at 0 to 10 V DC output: 2.5 mV
- Resolution at 4 to 20 mA DC output: 4 μA

FX3S FX3G FX3GE

FX3G-1DA-BD

- Resolution at 0 to 10 V DC output: 2.5 mV
- Resolution at 4 to 20 mA DC output: 8 μA

FX3G FX3GE FX3GC FX3U FX3UC

FX2N-2DA*

- Resolution at 0 to 10 V DC output: 2.5 mV
- Resolution at 4 to 20 mA DC output: 4 μA

*Same characteristics for both 2 ch

4 to 5 ch

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4AD-ADP

- Resolution at 0 to 10 V DC input: 2.5 mV
- Resolution at 4 to 20 mA DC input: 8 μA

FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4AD*

- Resolution at -10 to 10 V DC input: 0.32 mV
- Resolution at -20 to 20 mA DC input: 1.25 μA

FX3GC FX3UC

FX3UC-4AD

- Resolution at -10 to 10 V DC input: 312.5 μV (0.3125 mV)
- Resolution at -20 to 20 mA DC input: 1.25 μA

- Resolution at -10 to 10 V DC input: 50 μA
- Resolution at -20 to 20 mA DC input: 1.25 μA

FX3G FX3GE FX3GC FX3U FX3UC

4 ch

1 ch

FX2N-5A*

- Resolution at -10 to 10 V DC output: 50 mV
- Resolution at 0 to 20 mA DC output: 20 μA

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4DA-ADP

- Resolution at 0 to 10 V DC output: 2.5 mV
- Resolution at 4 to 20 mA DC output: 4 μA

FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4DA*

- Resolution at -10 to 10 V DC output: 0.32 mV
- Resolution at 0 to 20 mA DC output: 0.63 μA

8 ch

FX3G FX3GE FX3GC FX3U FX3UC

FX2N-8AD*

- Resolution at -10 to 10 V DC input: 0.63 mV
- Resolution at -20 to 20 V DC input: 2.5 μA

Analog output

*: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3GC/FX3UC main unit.

Analog control

List of models

Temperature sensor input

	Temperature input 4 ch	Temperature input 8 ch	Temperature control 4 ch	Temperature control 4 ch
Thermocouple	FX5UJ FX5U FX5UC  FX5-4AD-TC-ADP • K, J, B, R, S types supported • Example of measurement temperature range and resolution K type -200 to 1200 °C (0.1°C) J type -40 to 750 °C (0.1°C)	• K, J, T, B, R, S types supported • Example of measurement temperature range and resolution K type -200 to 1200°C (0.1°C) J type -40 to 750°C (0.1°C) • Logging function FX5UJ FX5U FX5UC  FX5-8AD*1	• K, J, R, S, E, T, B, N, PL II, W5Re/W26Re, U, L types supported • Example of measurement temperature range and resolution K type -100 to 1300°C (1°C) J type -100 to 800°C (0.1°C) FX5UJ FX5U FX5UC  FX5-4LC*1	• K, J, R, S, E, T, B, N, PL II, W5Re/W26Re, U, L types supported • Example of measurement temperature range and resolution K type -100 to 1300°C (1°C) J type -100 to 800°C (0.1°C) FX5U FX5UC  FX3U-4LC*2
Resistance temperature detector	FX5UJ FX5U FX5UC  FX5-4AD-PT-ADP • Pt100, Ni100 supported • Example of measurement temperature range and resolution Pt100 -200 to 850°C (0.1°C) Ni100 -60 to 250°C (0.1°C)	• Pt100, Ni100 supported • Example of measurement temperature range and resolution Pt100 -200 to 850°C (0.1°C) Ni100 -60 to 250°C (0.1°C) • Logging function	• Pt100, JPt100, Pt1000 supported • Example of measurement temperature range and resolution Pt100 -200 to 600°C (0.1°C) Pt1000 -200 to 650°C (0.1°C) • NPN open collector transistor output 4 points • Standard PID control • Heating/cooling PID control • Error history function • Temperature trace	• Pt100, JPt100, Pt1000 supported • Example of measurement temperature range and resolution Pt100 -200 to 600°C (0.1°C) Pt1000 -200 to 50°C (0.1°C) • NPN open collector transistor output 4 points • Standard PID control • Heating/cooling PID control

*1: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.
*2: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.

List of models

Temperature sensor input

Thermocouple

Temperature input — 4 ch

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4AD-TC-ADP

- K, J types supported
- Example of measurement temperature range and resolution
  K type -100 to 1000°C (0.4°C)
  J type -100 to 600°C (0.3°C)

Temperature input — 8 ch

FX3G FX3GE FX3GC FX3U FX3UC

FX2N-8AD*

- K, J, T types supported
- Example of measurement temperature range and resolution
  K type -100 to 1200°C (0.1°C)
  J type -100 to 600°C (0.1°C)

Temperature control — 4 ch

- K, J, R, S, E, T, B, N, PL II, W5Re/W26Re, U, L types supported
- Example of measurement temperature range and resolution
  K type -100 to 1300°C (1°C)
  J type -100 to 800°C (0.1°C)

FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4LC*

- Pt100, JPt100, Pt1000 supported
- Example of measurement temperature range and resolution
  Pt100 -200 to 600°C (0.1°C)
  Pt1000 -200 to 650°C (0.1°C)

- NPN open collector transistor output 4 points
- Standard PID control
- Heating/cooling PID control

Resistance temperature detector

Temperature input — 4 ch

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4AD-PT-ADP

- Pt100 supported
- Example of measurement temperature range and resolution
  -50 to 250°C (0.1°C)

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4AD-PTW-ADP

- Pt100 supported
- Example of measurement temperature range and resolution
  -100 to 600°C (0.2 to 0.3°C)

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-4AD-PNK-ADP

- Pt1000, Ni1000 supported
- Example of measurement temperature range and resolution
  Pt1000 -50 to 250°C (0.1°C)
  Ni1000 -40 to 110°C (0.1°C)

∗: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3GC/FX3UC main unit.

Positioning control

The MELSEC iQ-F/FX3 series is equipped with a built-in positioning function. Complex multi-axis and interpolation control can be performed using the positioning module or simple motion module.

List of models

	1-axis	2-axis	3-axis	4-axis	8-axis
CPU module (Built-in positioning) **High-speed pulse input/output module**		FX5U FX5UC  FX5-16ET/ES-H*3, FX5-16ET/ESS-H*3 • Up to 200 kpps • FX5-16ET/ES-H: Transistor output (Sink type) FX5-16ET/ESS-H: Transistor output (Source type) • PULSE/SIGN mode, CW/CCW mode • Simple linear interpolation (Start 2-axis simultaneously)	FX5U  FX5U CPU module Transistor output type • Up to 200 kpps • Transistor output • PULSE/SIGN mode	FX5U FX5UC  FX5U/FX5UC CPU module Transistor output type • Up to 200 kpps • Transistor output • PULSE/SIGN mode, CW/CCW mode*1 • Simple linear interpolation (Start 2-axis simultaneously)	
Positioning module	FX5U FX5UC  FX3U-1PG*2 • Up to 200 kpps • Transistor output • PULSE/SIGN mode, CW/CCW mode	FX5U FX5U FX5UC  FX5-20PG-P*3 • Up to 200 kpps • Transistor output • PULSE/SIGN mode, CW/CCW mode Phase A/Phase B mode • Linear interpolation, circular interpolation  FX5-20PG-D*3 • Up to 5 Mpps • Differential driver output • PULSE/SIGN mode, CW/CCW mode Phase A/Phase B mode • Linear interpolation, circular interpolation			
Simple motion module				FX5U FX5U FX5UC  FX5-40SSC-S*3 • Linear interpolation, circular interpolation • Synchronous control, cam control, torque control • Parameter setting software: GX Works3 (Simple motion module setting tool)	FX5U FX5U FX5UC  FX5-80SSC-S*3 • Linear interpolation, circular interpolation • Synchronous control, cam control, torque control • Parameter setting software: GX Works3 (Simple motion module setting tool)

*1: Two axes when the pulse output mode is CW/CCW mode.
*2: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.
*3: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.

List of models

	1-axis	2-axis	3-axis
Main unit (Built-in positioning) **High-speed output special adapter**		FX3U  FX3U-2HSY-ADP • Up to 1 Mpps • Dfferential line driver output • PULSE/SIGN mode, CW/CCW mode	FX3S FX3G FX3GE FX3GC  FX3S, FX3G 14/24-point type, FX3GE 24-point type, FX3GC main unit Transistor output type • Up to 200 kpps • Transistor output • PULSE/SIGN mode	FX3G FX3GE FX3U FX3UC  FX3G 40/60-point type, FX3GE 40-point type, FX3U/FX3UC main unit Transistor output type • Up to 200 kpps • Transistor output • PULSE/SIGN mode
Positioning unit **Pulse output block**	FX3U FX3UC  FX3U-1PG • Up to 200 kpps • Transistor output • PULSE/SIGN mode, CW/CCW mode FX3U FX3UC  FX2N-10PG* • Up to 1 Mpps • Differential line driver output • PULSE/SIGN mode, CW/CCW mode FX3U FX3UC  Production discontinued in March 2020 FX2N-10GM* • Up to 200 kpps • Transistor output • PULSE/SIGN mode, CW/CCW mode • Positioning software: FX-PCS-VPS/WIN-E (Production discontinued in March 2020)	FX3U FX3UC  Production discontinued in March 2020 FX2N-20GM* • Up to 200 kpps • Transistor output • PULSE/SIGN mode, CW/CCW mode • Positioning software: FX-PCS-VPS/WIN-E (Production discontinued in March 2020)	
SSCNET III compatible positioning block		FX3U FX3UC SSCNET  FX3U-20SSC-H* • Linear interpolation, circular interpolation • Parameter setting software: FX Configurator-FP	
Angle control unit	FX3U FX3UC  Production discontinued in March 2020 FX2N-1RM-E-SET* • Number of cam output points: Max. 48 points • Control resolution: 720 divisions (0.5 degree) or 360 divisions (1 degree) per revolution • Response rotation speed: 415 r/min/0.5 degrees or 830 r/min/1 degree		

*: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3UC main unit.

High speed counter function

By using the high-speed counter, high-speed signals from the encoder or sensor can be retrieved by the programmable controller.
The CPU module has a built-in high-performance, high-speed counter, enabling high-speed control with a simple program.

List of models

		Number of channels	Input format/ input voltage	Type/max. frequency
CPU module (Built-in high-speed counter)	FX5UJ  FX5UJ CPU module	Max. 8 ch	Open collector 24 V DC	1-phase 1-input 100 kHz*1 1-phase 2-input 100 kHz*1 2-phase 2-input [multiplied by 1] 100 kHz*1 2-phase 2-input [multiplied by 2] 50 kHz*1 2-phase 2-input [multiplied by 4] 25 kHz*1
CPU module (Built-in high-speed counter)	FX5U FX5UC  FX5U/FX5UC CPU module	Max. 8 ch FX5U-32M□/FX5UC-32M□ 1-phase 1-input 200 kHz 6 ch 10 kHz 2 ch	Open collector 24 V DC	1-phase 1-input 200 kHz*1 1-phase 2-input 200 kHz*1 2-phase 2-input [multiplied by 1] 200 kHz*1 2-phase 2-input [multiplied by 2] 100 kHz*1 2-phase 2-input [multiplied by 4] 50 kHz*1
High-speed pulse input/output module	FX5U FX5UC  FX5-16ET/ES-H*2, FX5-16ET/ESS-H*2	Max. 2 ch	Open collector 24 V DC	1-phase 1-input 200 kHz 1-phase 2-input 200 kHz 2-phase 2-input [multiplied by 1] 200 kHz 2-phase 2-input [multiplied by 2] 100 kHz 2-phase 2-input [multiplied by 4] 50 kHz
High-speed counter block	FX5U FX5UC  FX3U-2HC*3	Max. 2 ch	Open collector Differential line driver 5 V to 24 V DC	1-phase 1-input 200 kHz 1-phase 2-input 200 kHz 2-phase 2-input [multiplied by 1] 200 kHz 2-phase 2-input [multiplied by 2] 100 kHz 2-phase 2-input [multiplied by 4] 50 kHz

*1: The max. frequency varies according to the high-speed counter. Refer to the MELSEC iQ-F FX5 User's Manual (Application).
*2: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.
*3: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.

List of models

		Number of channels	Input format/ input voltage	Type/max. frequency
Main unit (Built-in high-speed counter)	FX3S  FX3S Main unit	Max. 6 ch 1-phase 1-input Max. 60 kHz 2 ch Max. 10 kHz 4 ch	Open collector 24 V DC	1-phase 1-input 60 kHz*1 1-phase 2-input 60 kHz*1 2-phase 2-input [multiplied by 1] 30 kHz*1
Main unit (Built-in high-speed counter)	FX3G FX3GE FX3GC  FX3G/FX3GE/FX3GC Main unit	Max. 6 ch 1-phase 1-input Max. 60 kHz 4 ch Max. 10 kHz 2 ch	Open collector 24 V DC	1-phase 1-input 60 kHz*1 1-phase 2-input 60 kHz*1 2-phase 2-input [multiplied by 1] 30 kHz*1
Main unit (Built-in high-speed counter)	FX3U FX3UC  FX3U/FX3UC Main unit	Max. 8 ch 1-phase 1-input Max. 100 kHz 6 ch Max. 10 kHz 2 ch	Open collector 24 V DC	1-phase 1-input 100 kHz*1 1-phase 2-input 100 kHz*1 2-phase 2-input [multiplied by 1] 50 kHz*1 2-phase 2-input [multiplied by 4] 50 kHz*1
High-speed counter block	FX3U FX3UC  FX3U-2HC*2	Max. 2 ch	Open collector Differential line driver 5 V to 24 V DC	1-phase 1-input 200 kHz 1-phase 2-input 200 kHz 2-phase 2-input [multiplied by 1] 200 kHz 2-phase 2-input [multiplied by 2] 100 kHz 2-phase 2-input [multiplied by 4] 50 kHz
High-speed input special adapter	FX3U  FX3U-4HSX-ADP	Max. 4 ch (1-phase 1-input)	Differential line driver 5 V DC	1-phase 1-input 200 kHz 1-phase 2-input 200 kHz 2-phase 2-input [multiplied by 1] 100 kHz 2-phase 2-input [multiplied by 4] 100 kHz
High-speed counter blocks	FX3U FX3UC  FX2N-1HC*2 FX3UC  FX2NC-1HC Production discontinued in March 2020	Max. 1 ch	Open collector Differential line driver 5 V to 24 V DC	1-phase 1-input 50 kHz 1-phase 2-input 50 kHz 2-phase 2-input [multiplied by 1] 50 kHz 2-phase 2-input [multiplied by 2] 25 kHz 2-phase 2-input [multiplied by 4] 12.5 kHz

*1: The max. frequency varies according to the high-speed counter number. The number of channels and general frequency may be restricted by the usage conditions. Refer to each manual for details.

*2: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3UC main unit.

Network/communication

The MELSEC iQ-F series can build high-speed networks by CC-Link and other networks corresponding to the control contents such as Ethernet, MODBUS, Sensor Solution, and PROFIBUS-DP.
In addition, CC-Link IE Field Network Basic is a factory automation network that utilizes general-purpose Ethernet connections to enable efficient creation of factory-wide systems.

List of models

Open Field Network

CC-Link

Master station

FX5UJ FX5U FX5UC CC-Link V2

FX5-CCL-MS*1

FX5UJ CPU module
- Max. 14 stations
- Remote I/O station: 6 maximum/192 points or less
- Remote device stations + intelligent device stations: 8 maximum/256 points or less
- Assign link devices with parameters

FX5U/FX5UC CPU module
- Max. 28 stations
- Remote I/O station: 14 maximum/448 points or less
- Remote device stations + intelligent device stations: 14 maximum/448 points or less
- Assign link devices with parameters

FX5U FX5UC CC-Link V2

FX3U-16CCL-M*2

- Max. 16 stations
- Remote I/O station: 8 maximum/256 points or less
- Remote device stations + intelligent device stations: 8 maximum/256 points or less
- Assign link devices with program

Intelligent device station

FX5UJ FX5U FX5UC CC-Link V2

FX5-CCL-MS*1

- 1 to 4 stations occupied
- Assign link devices with parameters

FX5U FX5UC CC-Link V2

FX3U-64CCL*2

- 1 to 4 stations occupied
- Assign link devices with program

CC-Link IE Field Network

FX5UJ FX5U FX5UC CC-Link IE Field

FX5-CCLIEF*1

- Assign link devices with parameters

CC-Link IE Field Network Basic

CC-Link IE Field Basic

FX5UJ FX5U FX5UC

FX5UJ/FX5U/FX5UC CPU module
(Built-in Ethernet port)

FX5UJ CPU module
- Max. 8 stations
- Assign link devices with parameters

FX5U/FX5UC CPU module
- Max. 16 stations
- Assign link devices with parameters

FX5UJ FX5U FX5UC

FX5-ENET*1

- Max. 32 stations*3
- Assign link devices with parameters

*1: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.
*2: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.
*3: The maximum number of connectable modules of slave stations which the FX5-ENET (master station) controls.

List of models

Open Field Network

	Master station	Remote device station	Intelligent device station
CC-Link	FX3G FX3GE FX3GC FX3U FX3UC CC-Link V2  FX3U-16CCL-M* • Max. 16 stations • Remote I/O station: 8 maximum/256 points or less • Remote device stations + intelligent device stations: 8 maximum/256 points or less • Assign link devices with program	FX3G FX3GE FX3GC FX3U FX3UC CC-Link  FX2N-32CCL* • 1 to 4 stations occupied • Assign link devices with program	FX3G FX3GE FX3GC FX3U FX3UC CC-Link V2  FX3U-64CCL* • 1 to 4 stations occupied • Assign link devices with program
CC-Link/LT	FX3G FX3GE FX3GC FX3U FX3UC CC-Link/LT  FX2N-64CL-M* • Automatically assign link devices with CONFIG mode		

*: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3GC/FX3UC main unit.

Network/communication

List of models

Ethernet

Ethernet

FX5UJ FX5U FX5UC

FX5UJ/FX5U/FX5UC CPU module
(Built-in Ethernet port)

Max. 8 connections

Supported protocol

- MELSOFT connection
- SLMP (3E frame)
- Predefined protocol support (including MODBUS/TCP)
- Socket communication (non-protocol communication)
- FTP Server*3
- Time setting function (SNTP client)
- Web Server*4
- Simple CPU communication

FX5UJ FX5U FX5UC

FX5-ENET*1

FX5UJ FX5U FX5UC

FX5-ENET/IP*1

Max. 32 connections

Supported protocol

- Socket communication

EtherNet/IP

EtherNet/IP

FX5UJ FX5U FX5UC

FX5-ENET/IP*1

Max. 32 connections

Supported protocol

- EtherNet/IP communication
  (Class 1 communication, Class 3 communication, UCMM communication)

Sensor Solution

Master station

AnyWire ASLINK

AnyWireASLINK

FX5UJ FX5U FX5UC

FX5-ASL-M*1

FX5UJ CPU module
- Max. 128 modules/216 points

FX5U/FX5UC CPU module
- Max. 128 modules/448 points

FX5U FX5UC

FX3U-128ASL-M*2

- Max. 128 modules/128 points

∗1: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.
∗2: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.
∗3: Supported for FX5U/FX5UC CPU module with serial number 16Y∗∗∗∗ or later.
∗4: The FX5UJ CPU module does not support user Web pages.

List of models

Ethernet

Ethernet

FX3G FX3GE FX3GC FX3U FX3UC

Max. 8 connections

FX3U-ENET*1

Supported protocol

- Fixed buffer communication (non-procedural communication)
- Mail send/receive function (FX3U-ENET only)
- MELSOFT connection
- MC protocol (1E frame)
- Mail send function (FX3U-ENET-L only)

FX3U FX3UC

Max. 4 connections

FX3U-ENET-L*2

FX3S FX3G FX3GC FX3U FX3UC

Max. 4 connections

FX3U-ENET-ADP

Supported protocol

- MELSOFT connection
- MC protocol (1E frame)
- Data monitoring

FX3GE

FX3GE Main unit (Built-in Ethernet port)

Sensor Solution

Master station

AnyWire ASLINK

AnyWireASLINK

FX3G FX3GE FX3GC FX3U FX3UC

FX3U-128ASL-M*1

- Max. 128 modules/128 points

*1: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3GC/FX3UC main unit.
*2: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3UC main unit.

Network/communication

List of models

MODBUS

RS-485

MODBUS/RTU

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- Master/slave selectable
- Max. 32 stations for master
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

FX5UJ FX5U FX5UC

FX5-485ADP

- Master/slave selectable
- Max. 32 stations for master
- Transmission distance 1200 m or less

Use slave with different channel from master 1 ch.

RS-232C

FX5UJ FX5U FX5UC

FX5-232ADP

- Master/slave selectable
- Max. 1 station for master
- Transmission distance 15 m or less

FX5UJ FX5U

FX5-232-BD

Ethernet

MODBUS/TCP

FX5UJ FX5U FX5UC

FX5UJ/FX5U/FX5UC CPU module
(Built-in Ethernet port)

- Master/slave supported

PROFIBUS

PROFIBUS

FX5UJ FX5U FX5UC

FX5-DP-M*1

- Master supported
- Max. 64 stations
- Transmission distance 4800 m or less

FX5U FX5UC

FX3U-32DP*2

- Slave supported

*1: FX5-CNV-IFC or FX5-C1PS-5V is required to connect to the FX5UC CPU module.
*2: FX5-CNV-BUS or FX5-CNV-BUSC is required to connect to the FX5U/FX5UC CPU module.

List of models

MODBUS

	RS-485	RS-232C
MODBUS/RTU	FX3S FX3G FX3GE FX3GC FX3U FX3UC  FX3U-485ADP-MB • MODBUS ASCII supported (FX3U/FX3UC only) • Master/slave selectable • Max. 32 stations for master • Transmission distance 500 m or less	1 ch for master or slave FX3S FX3G FX3GE FX3GC FX3U FX3UC  FX3U-232ADP-MB • MODBUS ASCII supported (FX3U/FX3UC only) • Master/slave selectable • Max. 1 stations for master • Transmission distance 15 m or less

PROFIBUS

PROFIBUS		
	FX3U FX3UC  FX3U-64DP-M*1 • Master supported	FX3G FX3GE FX3GC FX3U FX3UC  FX3U-32DP*1 • Slave supported

*1: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3UC main unit.

Network/communication

List of models

Serial Communication

RS-485

Inverter communication

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- Max. 16 modules
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

16 modules/ch

FX5UJ FX5U FX5UC

FX5-485ADP

- Max. 16 modules
- Transmission distance 1200 m or less

N:N network

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- Max. 8 modules
- Can be used with FX3 series.
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

1 : n (n=1 to 7)

FX5UJ FX5U FX5UC

FX5-485ADP

- Max. 8 modules
- Can be used with FX3 series.
- Transmission distance 1200 m or less

Parallel link

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- 1:1 between same MELSEC iQ-F series
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

1 : 1

FX5UJ FX5U FX5UC

FX5-485ADP

- 1:1 between same MELSEC iQ-F series
- Transmission distance 1200 m or less

RS-485

RS-232C

MC protocol

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- 1C, 3C, 4C frames supported
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

FX5UJ FX5U FX5UC

FX5-485ADP

- 1C, 3C, 4C frames supported
- Transmission distance 1200 m or less

FX5UJ FX5U

FX5-232-BD

FX5UJ FX5U FX5UC

FX5-232ADP

- 1C, 3C, 4C frames supported
- Transmission distance 15 m or less

List of models

Serial Communication

RS-485

Inverter communication

FX3U	FX3S FX3G FX3GE	FX3S FX3G FX3GE	FX3S FX3G FX3GE FX3GC FX3U FX3UC
			
FX3U-485-BD	FX3G-485-BD	FX3G-485-BD-RJ	FX3U-485ADP-MB
• Max. 8 modules • Transmission distance 50 m or less			• Max. 8 modules • Transmission distance 500 m or less

8 modules/ch

N:N network

FX3U	FX3S FX3G FX3GE	FX3S FX3G FX3GE	FX3S FX3G FX3GE FX3GC FX3U FX3UC
			
FX3U-485-BD	FX3G-485-BD	FX3G-485-BD-RJ	FX3U-485ADP-MB
• Max. 8 modules • Can be used with FX5. • Transmission distance 50 m or less			• Max. 8 modules • Can be used with FX5. • Transmission distance 500 m or less

1 : n (n=1 to 7)

Parallel link

FX3U	FX3S FX3G FX3GE	FX3S FX3G FX3GE	FX3S FX3G FX3GE FX3GC FX3U FX3UC
			
FX3U-485-BD	FX3G-485-BD	FX3G-485-BD-RJ	FX3U-485ADP-MB
• 1:1 between same CPU series • Transmission distance 50 m or less			• 1:1 between same CPU series • Transmission distance 500 m or less

1 : 1

RS-485

Computer Link

FX3U	FX3S FX3G FX3GE	FX3S FX3G FX3GE	FX3S FX3G FX3GE FX3GC FX3U FX3UC
			
FX3U-485-BD	FX3G-485-BD	FX3G-485-BD-RJ	FX3U-485ADP-MB
• 1C frame supported (with restrictions) • Transmission distance 50 m or less			• 1C frame supported (with restrictions) • Transmission distance 500 m or less

RS-232C

Computer Link

FX3U	FX3S FX3G FX3GE	FX3S FX3G FX3GE FX3GC FX3U FX3UC
		
FX3U-232-BD	FX3G-232-BD	FX3U-232ADP-MB
• 1C frame supported (with restrictions) • Transmission distance 15 m or less		

Network/communication

List of models

Serial Communication

RS-485

Non-protocol communication

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- Send/receive with RS2 instructions
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

FX5UJ FX5U FX5UC

FX5-485ADP

- Send/receive with RS2 instructions
- Transmission distance 1200 m or less

Predefined protocol support

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

- Use GX Works3 and SP.CPRTCL instruction at the same time.
- Transmission distance 50 m or less

FX5UJ FX5U

FX5-485-BD

FX5UJ FX5U FX5UC

FX5-485ADP

- Use GX Works3 and SP.CPRTCL instruction at the same time.
- Transmission distance 1200 m or less

RS-232C

Non-protocol communication

FX5UJ FX5U

FX5-232-BD

FX5UJ FX5U FX5UC

FX5-232ADP

- Send/receive with RS2 instructions
- Transmission distance 15 m or less

Predefined protocol support

FX5UJ FX5U

FX5-232-BD

FX5UJ FX5U FX5UC

FX5-232ADP

- Use GX Works3 and SP.CPRTCL instruction at the same time.
- Transmission distance 15 m or less

RS-422/485

MELSOFT connection

FX5U FX5UC

FX5U/FX5UC CPU module
(Built-in RS-485 port)

FX5UJ FX5U

FX5-485-BD

FX5UJ FX5U FX5UC

FX5-485ADP

FX5UJ FX5U

FX5-422-BD-GOT
(For GOT connection)

- Transmission distance: depends on connected devices

RS-232C

MELSOFT connection

FX5UJ FX5U

FX5-232-BD

FX5UJ FX5U FX5UC

FX5-232ADP

- Transmission distance 15 m or less

USB

MELSOFT connection

FX5UJ

FX5UJ CPU module
(Built-in USB port)

List of models

Serial Communication

Non-protocol communication

RS-485

FX3U

FX3U-485-BD

FX3S FX3G FX3GE

FX3G-485-BD

FX3S FX3G FX3GE

FX3G-485-BD-RJ

- Send/receive with RS, RS2 instructions
- Transmission distance 50 m or less

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-485ADP-MB

- Send/receive with RS, RS2 instructions
- Transmission distance 500 m or less

RS-232C

FX3U

FX3U-232-BD

FX3S FX3G FX3GE

FX3G-232-BD

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-232ADP-MB

- Send/receive with RS, RS2 instructions
- Transmission distance 15 m or less

FX3U FX3UC

FX2N-232IF*

- Send/receive to and from buffer memory with FROM/TO instructions
- Transmission distance 15 m or less

Programming communication

RS-422/485

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3S/FX3G/FX3GE/FX3GC/FX3U/FX3UC (Built-in RS-422 port)

FX3U

FX3U-422-BD

FX3S FX3G FX3GE

FX3G-422-BD

- Transmission distance: depends on connected devices

RS-232C

FX3U

FX3U-232-BD

FX3S FX3G FX3GE

FX3G-232-BD

FX3S FX3G FX3GE FX3GC FX3U FX3UC

FX3U-232ADP-MB

- Transmission distance 15 m or less

USB

FX3U

FX3U-USB-BD

FX3S FX3G FX3GE FX3GC

FX3S/FX3G/FX3GE/FX3GC (Built-in USB port)

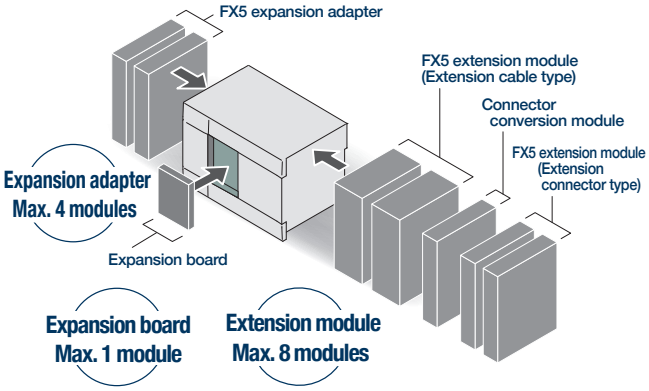
∗: FX2NC-CNV-IF or FX3UC-1PS-5V is required to connected to the FX3UC main unit.

System Configuration

FX5UJ NEW

FX5UJ with excellent cost performance that can be used in any scene

FX5UJ has an SD memory card slot, built-in USB (Mini-B) connector, and built-in Ethernet port as a standard. In addition, built-in functions such as positioning and high-speed counters are included to condense various functions and ease of use.



FX5 expansion adapter

Max. 2 *9 modules

Communication

FX5-232ADP	For RS-232C communication
FX5-485ADP	For RS-485 communication

Max. 2 modules

Analog

FX5-4AD-ADP	For analog input
FX5-4DA-ADP	For analog output
FX5-4AD-PT-ADP	For resistance temperature detector input
FX5-4AD-TC-ADP	For thermocouple input

FX5 expansion board

Max. 1 module

Communication

FX5-232-BD	For RS-232C communication
FX5-485-BD	For RS-485 communication
FX5-422-BD-GOT	For RS-422 communication (For GOT connection)

Peripheral device

HMI

GOT2000, GOT1000

AC AC power supply
D2 DC input (sink/source)
T1 Transistor output (sink)
T2 Transistor output (source)
R Relay output

Connector connection
Cable connection

★: New product

FX5UJ CPU module

★FX5UJ-24MR/ES AC D2 R
★FX5UJ-24MT/ES AC D2 T1
★FX5UJ-24MT/ESS AC D2 T2

★FX5UJ-40MR/ES AC D2 R
★FX5UJ-40MT/ES AC D2 T1
★FX5UJ-40MT/ESS AC D2 T2

★FX5UJ-60MR/ES AC D2 R
★FX5UJ-60MT/ES AC D2 T1
★FX5UJ-60MT/ESS AC D2 T2

Option

Terminal module

FX-16E-TB
FX-32E-TB
FX-16EYR-TB
FX-16EYS-TB
FX-16EYT-TB
FX-16E-TB/UL
FX-32E-TB/UL
FX-16EYR-ES-TB/UL
FX-16EYS-ES-TB/UL
FX-16EYT-ES-TB/UL
FX-16EYT-ESS-TB/UL

I/O cable

●General-purpose input/output cable
FX-16E-500CAB-S (5 m, 20-pin single wire)
●For terminal module
FX-16E-□CAB (20-pin on both ends)
□: 150 (1.5 m) /300 (3 m) /500 (5 m)
●For terminal module
FX-16E-□CAB-R (20-pin on both ends)
□: 150 (1.5 m) /300 (3 m) /500 (5 m)

Connector for external device

●Soldering type (straight out)*3
A6CON1 (40-pin)
●Crimping type (straight out)*3
A6CON2 (40-pin)
●Soldering type (straight/diagonal out)*3
A6CON4 (40-pin)

Connector for self-making I/O cable
●For flat cable
FX2C-I/O-CON (0.1 mm², 20-pin)
●Connector for single wire
FX2C-I/O-CON-S (0.3 mm², 20-pin)
FX2C-I/O-CON-SA (0.5 mm², 20-pin)

Extended extension cable

●Extended extension cable
FX5-30EC*1
FX5-65EC*1

●Connector conversion adapter
FX5-CNV-BC

Power supply cable

●Power supply cable
FX2NC-100BPCB (1 m)
●Power crossover cable
FX2NC-10BPCB1 (0.1 m)

SD memory card

NZ1MEM-2GBSD (2 GB)
NZ1MEM-4GBSD (4 GB)
NZ1MEM-8GBSD (8 GB)
NZ1MEM-16GBSD (16 GB)

Communication cable

●Serial communication
FX-232CAB-1
●USB communication
MR-J3USBCBL3M (3 m)
GT09-C30USB-5P (3 m)

Engineering tool

GX Works3

Outline specifications

Item		Outline specifications
Power supply	Rated voltage	AC power supply type: 100 to 240 V AC, 50/60 Hz
	Power consumption*1	AC power supply type: 30 W (24M), 32 W (40M), 35 W (60M)
	Rush current	AC power supply type: 24M: max. 25 A for 5 ms or less/100 V AC, max. 50 A for 5 ms or less/200 V AC 40M/60M: max. 30 A for 5 ms or less/100 V AC, max. 50 A for 5 ms or less/200 V AC
	24 V DC service power supply capacity*2	AC power supply type: 400 mA (24M/40M/60M) When an external power supply is used for the input circuit of the CPU module: 460 mA (24M), 500 mA (40M), 550 mA (60M)
Input/output	Input specifications	5.3 mA/24 V DC (X010 and later: 4.0 mA/24 V DC)
	Output specifications	Relay output type: 2 A/1 point, 6 A or less/3 points common, 8 A or less/4 points common, 30 V DC or less, 240 V AC or less (250 V AC or less in case of noncompliance with CE, UL/cUL Standards) Transistor output type: 0.5 A/1 point, 0.6 A or less/3 points common, 0.8 A or less/4 points common, 5 to 30 V DC
	Input/output extension	Extension devices for FX5 can be connected: when adding an extension connector type, the connector conversion module (FX5-CNV-IF) is required.
Built-in communication port		Ethernet (100BASE-TX/10BASE-T), USB (Mini-B) 1 ch each
Built-in memory card slot		1 slot for SD memory card

*1: The values show the state where the service power of 24 V DC is consumed to the maximum level in case that its configuration has the max. number of connections provided to CPU module. (Including the current in the input circuit)

*2: When I/O modules are connected, they consume current from the 24 V DC service power supply. For details on the 24 V DC service power supply, refer to MELSEC iQ-F FX5UJ User's Manual (Hardware).

Please choose the I/O type of CPU module or I/O module suited for your equipment. Refer to the manual for each product's input/output format.

FX5 extension module (Cable type)

I/O module

Powered I/O module

FX5-32ER/ES
FX5-32ET/ES
FX5-32ET/ESS

Input module

FX5-8EX/ES
FX5-16EX/ES

Output module

FX5-8EYR/ES
FX5-8EYT/ES
FX5-8EYT/ESS
FX5-16EYR/ES
FX5-16EYT/ES
FX5-16EYT/ESS

I/O module

FX5-16ER/ES
FX5-16ET/ES
FX5-16ET/ESS

Intelligent function module

Analog

FX5-4AD
FX5-4DA
FX5-8AD

Temperature control

FX5-4LC

Positioning

FX5-20PG-P
FX5-20PG-D

Simple motion

FX5-40SSC-S*6
FX5-80SSC-S*7

Communication/ network

FX5-ENET*5
CC-Link IE Field Basic
FX5-ENET/IP*5
FX5-CCLIEF
CC-Link IE Field
FX5-CCL-MS*8
CC-Link V2
FX5-ASL-M*5
AnyWireASLINK
FX5-DP-M*5

Extension power supply module

Extension power supply module

FX5-1PSU-5V

FX5 extension module (Extension cable type)

Connector conversion module

Connector conversion module

FX5-CNV-IF

FX5 extension module (Extension connector type)

I/O module

I/O module

FX5-C32ET/D*4
FX5-C32ET/DSS
FX5-C32ET/DS-TS*2
FX5-C32ET/DSS-TS*2

Input module

FX5-C16EX/D*4
FX5-C16EX/DS
FX5-C32EX/D*4
FX5-C32EX/DS
FX5-C32EX/DS-TS*2

Output module

FX5-C16EYT/D
FX5-C16EYT/DSS
FX5-C16EYR/D-TS*2
FX5-C32EYT/D
FX5-C32EYT/DSS
FX5-C32EYT/D-TS*2
FX5-C32EYT/DSS-TS*2

*1: Use this to connect a module (extension cable type) located distantly or on a second stage. The connector conversion adapter (FX5-CNV-BC) is required when the connection destination is I/O module (extension cable type) or intelligent function module.

*2: Spring clamp terminal block type.

*3: For FX5-20PG-P and FX5-20PG-D.

*4: FX2NC-100BPCB is required separately when adding to FX5UJ.

*5: Only one module may be connected per system.

*6: Only one module may be connected per system. Use together with the FX5-80SSC-S is not possible.

*7: Only one module may be connected per system. Use together with the FX5-40SSC-S is not possible.

*8: One module can be connected to the system for each station type.
• Master station: 1 • Intelligent device station: 1

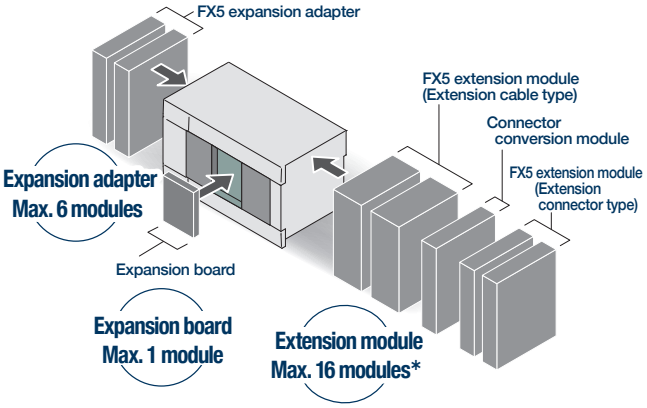
*9: When connecting the expansion board to the CPU module, only one communication adapter can be connected.

System Configuration

FX5U

Flagship model equipped with advanced built-in functions and diverse expandability

FX5U is equipped with analog functions, communication and high-speed I/O, and can easily be expanded with expansion boards and adapters. The high-speed system bus communication brings out the maximum performance of extension devices equipped with intelligent functions.



∗: Up to 12 modules can be used by directly connecting a CPU module. Up to 16 modules can be connected by connecting a powered I/O module or an extension power supply module. Extension power supply modules and connector conversion modules are not included in the number of connected modules.

FX5 expansion adapter

Max. 2 modules

Communication

FX5-232ADP	For RS-232C communication
FX5-485ADP	For RS-485 communication

Max. 4 modules

Analog

FX5-4AD-ADP	For analog input
FX5-4DA-ADP	For analog output
FX5-4AD-PT-ADP	For resistance temperature detector input
FX5-4AD-TC-ADP*5	For thermocouple input

FX5 expansion board

Max. 1 module

Communication

FX5-232-BD	For RS-232C communication
FX5-485-BD	For RS-485 communication
FX5-422-BD-GOT	For RS-422 communication (For GOT connection)

Peripheral device

HMI

GOT2000, GOT1000

FX5U CPU module

FX5U-32MR/ES	AC	D2	R
FX5U-32MT/ES	AC	D2	T1
FX5U-32MT/ESS	AC	D2	T2
FX5U-32MR/DS	DC	D2	R
FX5U-32MT/DS	DC	D2	T1
FX5U-32MT/DSS	DC	D2	T2

Input: 16 points/Output: 16 points

FX5U-64MR/ES	AC	D2	R
FX5U-64MT/ES	AC	D2	T1
FX5U-64MT/ESS	AC	D2	T2
FX5U-64MR/DS	DC	D2	R
FX5U-64MT/DS	DC	D2	T1
FX5U-64MT/DSS	DC	D2	T2

Input: 32 points/Output: 32 points

FX5U-80MR/ES	AC	D2	R
FX5U-80MT/ES	AC	D2	T1
FX5U-80MT/ESS	AC	D2	T2
FX5U-80MR/DS	DC	D2	R
FX5U-80MT/DS	DC	D2	T1
FX5U-80MT/DSS	DC	D2	T2

Input: 40 points/Output: 40 points

Option

Terminal module

FX-16E-TB	FX-16E-TB/UL
FX-32E-TB	FX-32E-TB/UL
FX-16EYR-TB	FX-16EYR-ES-TB/UL
FX-16EYS-TB	FX-16EYS-ES-TB/UL
FX-16EYT-TB	FX-16EYT-ES-TB/UL
	FX-16EYT-ESS-TB/UL

I/O cable

- General-purpose input/output cable
  FX-16E-500CAB-S (5 m, 20-pin single wire)
- For terminal module
  FX-16E-☐CAB (20-pin on both ends)
  ☐: 150 (1.5 m) /300 (3 m) /500 (5 m)
- For terminal module
  FX-16E-☐CAB-R (20-pin on both ends)
  ☐: 150 (1.5 m) /300 (3 m) /500 (5 m)

Extended extension cable

- Extended extension cable
  FX5-30EC*2
  FX5-65EC*2

- Connector conversion adapter
  FX5-CNV-BC

Engineering tool

GX Works3

Battery

FX3U-32BL

Power supply cable

- Power supply cable
  FX2NC-100BPCB (1 m)
- Power crossover cable
  FX2NC-10BPCB1 (0.1 m)

Connector for external device

- Soldering type (straight out)*7
  A6CON1 (40-pin)
- Crimping type (straight out)*7
  A6CON2 (40-pin)
- Soldering type (straight/diagonal out)*7
  A6CON4 (40-pin)

Connector for self-making I/O cable
- For flat cable
  FX2C-I/O-CON (0.1 mm², 20-pin)
- Connector for single wire
  FX2C-I/O-CON-S (0.3 mm², 20-pin)
  FX2C-I/O-CON-SA (0.5 mm², 20-pin)
  FX-I/O-CON2-S (0.3 mm², 40-pin)*8
  FX-I/O-CON2-SA (0.5 mm², 40-pin)*8

SD memory card

NZ1MEM-2GBSD (2 GB)
NZ1MEM-4GBSD (4 GB)
NZ1MEM-8GBSD (8 GB)
NZ1MEM-16GBSD (16 GB)

AC AC power supply
DC DC power supply
D2 DC input (sink/source)
T1 Transistor output (sink)
T2 Transistor output (source)
R Relay output

Connector connection Cable connection

★: New product

Outline specifications

Item		Outline specifications
Power supply	Rated voltage	AC power supply type: 100 to 240 V AC, 50/60 Hz DC power supply type: 24 V DC
	Power consumption*1	AC power supply type: 30 W (32M), 40 W (64M), 45 W (80M) DC power supply type: 30 W
	Rush current	AC power supply type: 32M: max. 25 A for 5 ms or less/100 V AC, max. 50 A for 5 ms or less/200 V AC 64M/80M: max. 30 A for 5 ms or less/100 V AC, max. 60 A for 5 ms or less/200 V AC DC power supply type: 32M: max. 50 A for 0.5 ms or less/24 V DC 64M/80M: max. 65 A for 2.0 ms or less/24 V DC
	5 V DC internal power supply capacity	AC power supply type: 900 mA (32M), 1100 mA (64M/80M) DC power supply type: 900 mA (775 mA)*2
	24 V DC service power supply capacity	AC power supply type: 400 mA [300 mA*3] (32M), 600 mA [300 mA*3] (64M/80M) When an external power supply is used for the input circuit of the CPU module: 480 mA [380 mA*3] (32M), 740 mA [440 mA*3] (64M), 770 mA [470 mA*3] (80M)
	24 V DC internal power supply capacity	DC power supply type: 480 mA (360 mA*2) (32M), 740 mA (530 mA*2) (64M), 770 mA (560 mA*2) (80M)
Input/output	Input specifications	5.3 mA/24 V DC (X020 and later: 4.0 mA/24 V DC)
	Output specifications	Relay output type: 2 A/1 point, 8 A or less/4 points common, 8 A or less/8 points common, 30 V DC or less, 240 V AC or less (250 V AC or less in case of noncompliance with CE, UL/cUL Standards) Transistor output type: 0.5 A/1 point, 0.8 A or less/4 points common, 1.6 A or less/8 points common, 5 to 30 V DC
	Input/output extension	Extension devices for FX5 can be connected: when adding an extension connector type, the connector conversion module (FX5-CNV-IF) is required.
Built-in communication port		Ethernet (100BASE-TX/10BASE-T), RS-485 1 ch each
Built-in memory card slot		1 slot for SD memory card
Built-in analog input/output		Input 2 ch, output 1 ch

∗1: The values show the state where the service power of 24 V DC is consumed to the maximum level in case that its configuration has the max. number of connections provided to CPU module. (Including the current in the input circuit)

∗2: The values in the parentheses ( ) indicate the power supply capacity to be resulted when the power supply voltage falls in the range from 16.8 to 19.2 V DC.

∗3: The values in the brackets [ ] will result when the ambient temperature is less than 0°C during operations.

Please choose the I/O type of CPU module or I/O module suited for your equipment.
Refer to the manual for each product's input/output format.

FX5 extension module (Cable type)

I/O module

Powered I/O module

FX5-32ER/ES*3
FX5-32ET/ES*3
FX5-32ET/ESS*3
FX5-32ER/DS*4
FX5-32ET/DS*4
FX5-32ET/DSS*4

Input module

FX5-8EX/ES
FX5-16EX/ES

Output module

FX5-8EYR/ES
FX5-8EYT/ES
FX5-8EYT/ESS
FX5-16EYR/ES
FX5-16EYT/ES
FX5-16EYT/ESS

I/O module

FX5-16ER/ES
FX5-16ET/ES
FX5-16ET/ESS

High-speed pulse input/output module

FX5-16ET/ES-H
FX5-16ET/ESS-H

Intelligent function module

Analog

FX5-4AD
FX5-4DA
FX5-8AD

Temperature control

FX5-4LC

Positioning

FX5-20PG-P
FX5-20PG-D

Simple motion

FX5-40SSC-S
FX5-80SSC-S

SSCNET III/H

Communication/network

FX5-ENET
CC-Link IE Field Basic
FX5-ENET/IP
FX5-CCLIEF
CC-Link IE Field
FX5-CCL-MS
CC-Link V2
FX5-ASL-M
AnyWireASLINK
FX5-DP-M

Safety extension module*10

Safety main module

★FX5-SF-MU4T5

Safety input expansion module

★FX5-SF-8DI4

Extension power supply module

Extension power supply module

FX5-1PSU-5V*1*3

FX5 extension module (Extension cable type)

Connector conversion module

Connector conversion module

FX5-CNV-IF

FX5 extension module (Extension connector type)

Extension power supply module

Extension power supply module

FX5-C1PS-5V*1*4

I/O module

I/O module

FX5-C32ET/D*9
FX5-C32ET/DSS
FX5-C32ET/DS-TS*6
FX5-C32ET/DSS-TS*6

Input module

FX5-C16EX/D*9
FX5-C16EX/DS
FX5-C32EX/D*9
FX5-C32EX/DS
FX5-C32EX/DS-TS*6

Output module

FX5-C16EYT/D
FX5-C16EYT/DSS
FX5-C16EYR/D-TS*6
FX5-C32EYT/D
FX5-C32EYT/DSS
FX5-C32EYT/D-TS*6
FX5-C32EYT/DSS-TS*6

Bus conversion module

Bus conversion module

FX5-CNV-BUSC

Bus conversion module

FX5-CNV-BUS

FX3 extension module*11

Intelligent function module

Analog

FX3U-4AD For input
FX3U-4DA For output

Temperature control

FX3U-4LC
Temperature control

Positioning

FX3U-1PG
For pulse output

High speed counter

FX3U-2HC
For high-speed input

Communication/Network

FX3U-64CCL CC-Link slave
FX3U-16CCL-M CC-Link master
FX3U-128ASL-M AnyWireASLINK master
FX3U-32DP PROFIBUS-DP slave

Extension power supply module

Extension power supply module

FX3U-1PSU-5V*1*3

∗1: When adding the extension module, it is necessary to connect it to the front stage of extension module in case of a shortage of internal power supply in CPU module.

∗2: Attach when connecting an extension cable type module to a distant location or when making two-tier connections. The connector conversion adapter (FX5-CNV-BC) is required when connected with an input/output module (extension cable type), high-speed pulse input/output module, or an intelligent function module. When using also the bus conversion module in the same system, connect the FX5 extension power supply module or the powered I/O module right after the extended extension cable.

∗3: Can be connected only to the AC power type system.

∗4: Can be connected only to the DC power type system.

∗5: There are restrictions on the number of extension devices and the connection order of FX5-4AD-TC-ADP. For details, refer to the manual.

∗6: Spring clamp terminal block type.

∗7: For FX5-20PG-P and FX5-20PG-D.

∗8: For FX3U-2HC.

∗9: FX2NC-100BPCB is required separately when adding to FX5U.

∗10: When the FX5 safety extension modules are connected, extension modules cannot be connected on the subsequent stage (the right side).

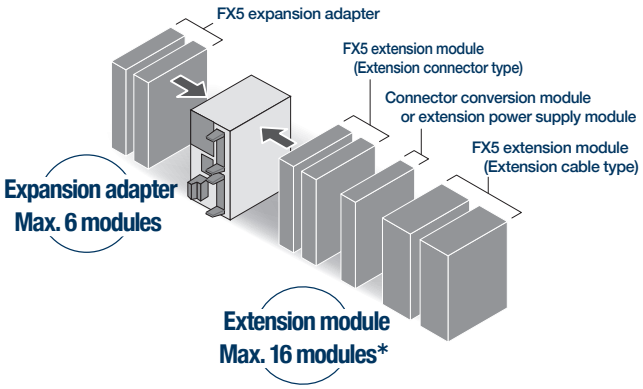
∗11: For the module requiring parameter in FX3 extension module, parameter settings by program are necessary. When connecting the FX3 extension module, the bus speed for FX3 applies for access.

System Configuration

FX5UC

Contributing to miniaturization of equipment by condensing various functions on a compact body

The extension module compatible with FX5UC is compact and easy-to-use, and helps to downsize your system. Easily connect to the FX5 and FX3 extension modules with the variety of conversion modules available.



*: Up to 12 modules can be used by directly connecting a CPU module. Up to 16 modules can be connected by connecting a powered I/O module or an extension power supply module. Extension power supply modules and connector conversion modules are not included in the number of connected modules.

FX5 expansion adapter

Max. 2 modules

Communication

FX5-232ADP	For RS-232C communication
FX5-485ADP	For RS-485 communication

Max. 4 modules

Analog

FX5-4AD-ADP	For analog input
FX5-4DA-ADP	For analog output
FX5-4AD-PT-ADP	For resistance temperature detector input
FX5-4AD-TC-ADP*4	For thermocouple input

FX5UC CPU module

FX5UC-32MT/D	DC	D1	T1
FX5UC-32MT/DSS	DC	D2	T2
FX5UC-32MT/DS-TS*5	DC	D2	T1
FX5UC-32MT/DSS-TS*5	DC	D2	T2
FX5UC-32MR/DS-TS*5	DC	D2	R

Input: 16 points/Output: 16 points

FX5UC-64MT/D	DC	D1	T1
FX5UC-64MT/DSS	DC	D2	T2

Input: 32 points/Output: 32 points

FX5UC-96MT/D	DC	D1	T1
FX5UC-96MT/DSS	DC	D2	T2

Input: 48 points/Output: 48 points

FX5 extension module (extension connector type)

I/O module

Input module

FX5-C16EX/D*9
FX5-C16EX/DS
FX5-C32EX/D*9
FX5-C32EX/DS
FX5-C32EX/DS-TS*5

Output module

FX5-C16EYT/D
FX5-C16EYT/DSS
FX5-C16EYR/D-TS*5
FX5-C32EYT/D
FX5-C32EYT/DSS
FX5-C32EYT/D-TS*5
FX5-C32EYT/DSS-TS*5

I/O module

FX5-C32ET/D*9
FX5-C32ET/DSS
FX5-C32ET/DS-TS*5
FX5-C32ET/DSS-TS*5

Peripheral device

HMI

GOT2000, GOT1000

DC DC power supply
D1 DC input (sink)
D2 DC input (sink/source)
T1 Transistor output (sink)
T2 Transistor output (source)
R Relay output

Connector connection
Cable connection

★: New product

Option

Terminal module

FX-16E-TB
FX-32E-TB
FX-16EYR-TB
FX-16EYS-TB
FX-16EYT-TB
FX-16E-TB/UL
FX-32E-TB/UL
FX-16EYR-ES-TB/UL
FX-16EYS-ES-TB/UL
FX-16EYT-ES-TB/UL
FX-16EYT-ESS-TB/UL

I/O cable

●General-purpose input/output cable
FX-16E-500CAB-S (5 m, 20-pin single wire)
●For terminal module
FX-16E-CAB (20-pin on both ends)
□: 150 (1.5 m) /300 (3 m) /500 (5 m)
●For terminal module
FX-16E-□CAB-R (20-pin on both ends)
□: 150 (1.5 m) /300 (3 m) /500 (5 m)

Power supply cable

●Power cable for CPU modules
FX2NC-100MPCB (1 m)
(Attached to CPU module and intelligent function module*7)
●Power supply cable
FX2NC-100BPCB (1 m)
(Attached to FX5UC-□MT/D)
●Power crossover cable
FX2NC-10BPCB1 (0.1 m)
(Attached to FX5-C□EX/D and FX5-C32ET/D)

Extended extension cable

●Extended extension cable
FX5-30EC*3
FX5-65EC*3

●Connector conversion adapter
FX5-CNV-BC

Connector for external device

●Soldering type (straight out)*6
A6CON1 (40-pin)
●Crimping type (straight out)*6
A6CON2 (40-pin)
●Soldering type (straight/diagonal out)*6
A6CON4 (40-pin)

Connectors for self-making I/O cables
●For flat cables
FX2C-I/O-CON (0.1 mm², 20-pin)
●Connector for single wire
FX2C-I/O-CON-S (0.3 mm², 20-pin)
FX2C-I/O-CON-SA (0.5 mm², 20-pin)
FX-I/O-CON2-S (0.3 mm², 40-pin)*8
FX-I/O-CON2-SA (0.5 mm², 40-pin)*8

Engineering tool

GX Works3

Battery

FX3U-32BL

SD memory card

NZ1MEM-2GBSD (2 GB)
NZ1MEM-4GBSD (4 GB)
NZ1MEM-8GBSD (8 GB)
NZ1MEM-16GBSD (16 GB)

Outline specifications

Item		Outline specifications
Power supply	Rated supply voltage	24 V DC
	Power consumption*1	32M: 5 W/24 V DC (30 W/24 V DC +20%, -15%) 64M: 8 W/24 V DC (33 W/24 V DC +20%, -15%) 96M: 11 W/24 V DC (36 W/24 V DC +20%, -15%)
	Rush current	32M: Max. 35 A 0.5 ms or less/24 V DC 64M/96M: Max. 40 A 0.5 ms or less/24 V DC
	5 V DC power supply capacity	720 mA
	24 V DC power supply capacity	500 mA
Input/output	Input specifications	5.3 mA/24 V DC (X020 and later: 4.0 mA/24 V DC)
	Output specifications	Relay output type: 2 A/1 point or less, 4 A or less/8 points common*2 30 V DC or less, 240 V AC or less (250 V AC or less in case of noncompliance with CE, UL/cUL Standards) Transistor output type: Y000 to Y003 0.3 A/1 point, Y004 and later 0.1 A/1 point, 0.8 A/8 points common*3 5 to 30 V DC
	Input/output extension	Extension device for FX5 can be connected (extension power supply module (FX5-C1PS-5V) or connector conversion module (FX5-CNV-IFC) is required when connecting an extension cable type)
Built-in communication port		Ethernet (100BASE-TX/10BASE-T), RS-485 1 ch each
Built-in memory card slot		1 slot for SD memory card

∗1: The values show the state where the power of 24 V DC is consumed to the maximum level in case that its configuration has the max. number of connections provided to CPU module. (Including the current in an input circuit)

∗2: 8 A or less when two common terminals are connected to the external part.

∗3: 1.6 A or less when two common terminals are connected to the external part.

Please choose the I/O type of CPU module or I/O module suited for your equipment.
Refer to the manual for each product's input/output format.

FX5 extension module (extension connector type)

Extension power supply module

Extension power supply module

FX5-C1PS-5V*1*2

or

Connector conversion module

Connector conversion module

FX5-CNV-IFC

FX5 extension module (extension cable type)

I/O module

Powered I/O module

FX5-32ER/DS
FX5-32ET/DS
FX5-32ET/DSS

Input module

FX5-8EX/ES
FX5-16EX/ES

Output module

FX5-8EYR/ES
FX5-8EYT/ES
FX5-8EYT/ESS
FX5-16EYR/ES
FX5-16EYT/ES
FX5-16EYT/ESS

I/O module

FX5-16ER/ES
FX5-16ET/ES
FX5-16ET/ESS

High-speed pulse input/output module

FX5-16ET/ES-H
FX5-16ET/ESS-H

Intelligent function module

Analog

FX5-4AD
FX5-4DA
FX5-8AD

Temperature control

FX5-4LC

Positioning

FX5-20PG-P
FX5-20PG-D

Simple motion

FX5-40SSC-S
FX5-80SSC-S

SSCNET III/H

Communication/Network

FX5-ENET
CC-Link IE Field Basic
FX5-ENET/IP
FX5-CCLIEF
CC-Link IE Field
FX5-CCL-MS
CC-Link V2
FX5-ASL-M
AnyWireASLINK
FX5-DP-M

Safety extension module*10

Safety main module

★FX5-SF-MU4T5

Safety input expansion module

★FX5-SF-8DI4

Bus conversion module

Bus conversion module

FX5-CNV-BUS

Bus conversion module

FX5-CNV-BUSC

FX3 extension module*11

Intelligent function module

Analog

FX3U-4AD For input
FX3U-4DA For output

Temperature control

FX3U-4LC
Temperature control

Positioning

FX3U-1PG
For pulse output

High speed counter

FX3U-2HC
For high-speed input

Communication/Network

FX3U-64CCL CC-Link slave
FX3U-16CCL-M CC-Link master
FX3U-128ASL-M AnyWireASLINK master
FX3U-32DP PROFIBUS-DP slave

∗1: When adding the extension module, it is necessary to connect it to the front stage of extension module in case of a shortage of internal power supply in CPU module.

∗2: Next-stage extension connector of an extension power supply module can be used only for either connector connection or cable connection.
In case of connector connection, an extension connector type module can be connected.

∗3: Attach when connecting an extension cable type module to a distant location or when making two-tier connections. The connector conversion adapter (FX5-CNV-BC) is required when connected with an input/output module (extension cable type) or an intelligent function module. When using also the bus conversion module in the same system, connect the powered I/O module right after the extended extension cable.

∗4: There are restrictions on the number of extension devices and the connection order of FX5-4AD-TC-ADP. For details, refer to the manual.

∗5: Spring clamp terminal block type.

∗6: For FX5-20PG-P and FX5-20PG-D.

∗7: There are some exception models.
For details, refer to the manual.

∗8: For FX3U-2HC.

∗9: FX2NC-100BPCB is required separately when adding to FX5UC-□M□/DS□-TS.

∗10: When the FX5 safety extension modules are connected, extension modules cannot be connected on the subsequent stage (the right side).

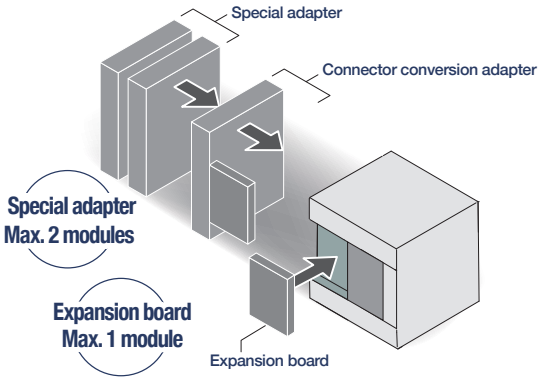
∗11: For the module requiring parameter in FX3 extension module, parameter settings by program are necessary. When connecting the FX3 extension module, the bus speed for FX3 applies for access.

System Configuration

FX3S

Control scale: 10 to 30 points (Main unit: 10/14/20/30 points)

Basic model suitable for small-scale control. The compact body is equipped with high functionality to strengthen the expandability of network and analog functions.



■Expansion board

For communication		For analog input		For extension input/output	
FX3G-232-BD	For RS-232C communication	FX3G-2AD-BD	For analog input	FX3G-4EX-BD*1	For extension input (24 V DC input 4 points)
FX3G-485-BD	For RS-485 communication	For analog output		FX3G-2EYT-BD*1	For extension output (transistor output 2 points)
FX3G-485-BD-RJ	For RS-485 communication (RJ-45 connector type)	FX3G-1DA-BD	For analog output		
FX3G-422-BD	For RS-422 peripheral device communication	For 8-point analog volume			
		FX3G-8AV-BD	For 8-point analog volume		

■Special adapter

Analog special adapter		Communication special adapter	
FX3U-4AD-ADP	For input	FX3U-ENET-ADP*2	For Ethernet communication
FX3U-4DA-ADP	For output	FX3U-232ADP-MB	For RS-232C communication
FX3U-3A-ADP	For input/output	FX3U-485ADP-MB	For RS-485 communication
FX3U-4AD-PT-ADP	For Pt100 input		
FX3U-4AD-PTW-ADP	For Pt100 input		
FX3U-4AD-TC-ADP	For thermocouple input		
FX3U-4AD-PNK-ADP	For Pt1000, Ni1000 input		

■For special adapter connection

For special adapter connection
FX3S-CNV-ADP

FX3S-CNV-ADP is required to connect the special adapter. Refer to the product manual for details on the combination methods.

■Option

Display module
FX3S-5DM*3

Memory cassette
FX3G-EEPROM-32L
With loader function

*1 : Supported with main unit Ver. 1.10 and above
*2 : Only one module can be mounted on left end of adapter; Supported with FX3U-ENET-ADP Ver. 1.20 and above
*3 : Supported with main unit Ver. 1.20 and above

Outline specifications

Item		Outline specifications
Power supply	Power specifications	AC power type: 100 to 240 V DC 50/60 Hz DC power type: 24 V DC
	Power consumption*1	AC power type: 19 W (10M, 14M), 20 W (20M), 21 W (30M) DC power type: 6 W (10M), 6.5 W (14M), 7 W (20M), 8.5 W (30M)
	Rush current	AC power type: Max. 15 A 5 ms or less/100 V AC, max. 28 A 5 ms or less/200 V AC DC power type: Max. 20 A 1 ms or less/24 V DC
	24 V DC service power supply	AC power type: 400 mA or less
Input/ output	Input specifications	24 V DC 5/7 mA (no-voltage contact or sink input is NPN, source input is PNP open collector transistor).
	Output specifications	Relay output type: 2 A/1 point, 8 A/4 points common 250 V AC (240 V for CE, UL/cUL standard compliance), 30 V DC or less Transistor output type: 0.5 A/1 point, 0.8 A/4 points common 5 to 30 V DC
Built-in communication port		RS-422, USB Mini-B 1 ch each

*1: Value for maximum configuration that can be connected to main unit (AC power types all use 24 V DC service power.) This also includes the input current (7 mA or 5 mA per point).

■FX3S Main unit

FX3S-10MR/ES	AC	D2	R
FX3S-10MT/ES	AC	D2	T1
FX3S-10MT/ESS	AC	D2	T2
FX3S-10MR/DS	DC	D2	R
FX3S-10MT/DS	DC	D2	T1
FX3S-10MT/DSS	DC	D2	T2

Input : 6 pt/output : 4 pt

FX3S-14MR/ES	AC	D2	R
FX3S-14MT/ES	AC	D2	T1
FX3S-14MT/ESS	AC	D2	T2
FX3S-14MR/DS	DC	D2	R
FX3S-14MT/DS	DC	D2	T1
FX3S-14MT/DSS	DC	D2	T2

Input : 8 pt/output : 6 pt

FX3S-20MR/ES	AC	D2	R
FX3S-20MT/ES	AC	D2	T1
FX3S-20MT/ESS	AC	D2	T2
FX3S-20MR/DS	DC	D2	R
FX3S-20MT/DS	DC	D2	T1
FX3S-20MT/DSS	DC	D2	T2

Input : 12 pt/output : 8 pt

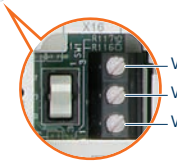
FX3S-30MR/ES	AC	D2	R
FX3S-30MT/ES	AC	D2	T1
FX3S-30MT/ESS	AC	D2	T2
FX3S-30MR/DS	DC	D2	R
FX3S-30MT/DS	DC	D2	T1
FX3S-30MT/DSS	DC	D2	T2

Input : 16 pt/output : 14 pt

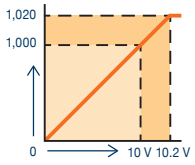
Analog input built-in type

FX3S-30MR/ES-2AD	AC	D2	R
FX3S-30MT/ES-2AD	AC	D2	T1
FX3S-30MT/ESS-2AD	AC	D2	T2

Input : 16 pt/output : 14 pt Analog input : 2 pt



Built-in analog voltage input



Digital output : 10 bit
10 mV (10 V/1000)

AC AC Power supply
D2 DC Input (sink/source)
R Relay output
DC DC Power supply
T1 Transistor output (sink)
T2 Transistor output (source)

■Peripheral device

HMI
GOT2000, GOT1000

Handy programming panel
FX-30P

USB communication
MR-J3USBCBL3M (3 m)
GT09-C30USB-5P (3 m)

Converter for personal computer connection
(Personal computer side, for RS-232C)
FX-232AWC-H for RS-232C

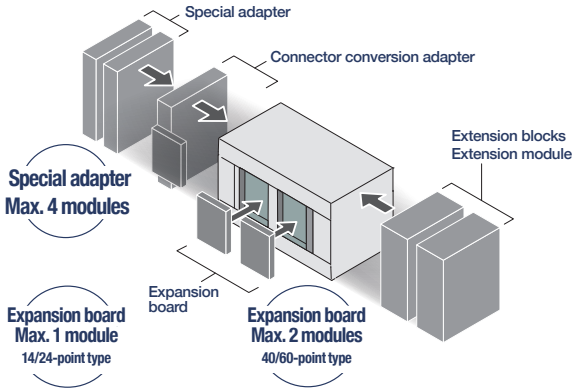
Programming software
GX Works2

System Configuration

FX3G

Controllable I/O: 14 - 128 points (Main unit I/O: 14/24/40/60 points)
[256 points for remote I/O configuration of CC-Link, AnyWireASLINK]

This 3rd generation standard model has integrates simplicity and has flexible expandability. The FX3 series' ease of use has been condensed into this cost-performing mode suitable for small-scale control.



■Expansion board

For analog input	
FX3G-2AD-BD*1	For analog input
For analog output	
FX3G-1DA-BD*1	For analog output
For 8-point analog volume	
FX3G-8AV-BD*1	For 8-point analog volume
For communication	
FX3G-232-BD	For RS-232C communication
FX3G-485-BD	For RS-485 communication
FX3G-485-BD-RJ	For RS-485 communication (RJ-45 connector type)
FX3G-422-BD	For RS-422 peripheral device communication
For extension input/output	
FX3G-4EX-BD*2	For extension input (24 V DC input 4 points)
FX3G-2EYT-BD*2	For extension output (transistor output 2 points)

■For special adapter connection

For special adapter connection
FX3G-CNV-ADP

FX3G-CNV-ADP is required to connect the special adapter.
Refer to the product manual for details on the combination methods.

■Special adapter

Analog special adapter	
FX3U-4AD-ADP	For input
FX3U-4DA-ADP	For output
FX3U-3A-ADP	For input/output*3
FX3U-4AD-PT-ADP	For Pt100 input
FX3U-4AD-PTW-ADP	For Pt100 input
FX3U-4AD-TC-ADP	For thermocouple input
FX3U-4AD-PNK-ADP	For Pt1000, Ni1000 input

Communication special adapter	
FX3U-ENET-ADP*4	For Ethernet communication
FX3U-232ADP-MB*5	For RS-232C (MODBUS) communication
FX3U-485ADP-MB*5	For RS-485 (MODBUS) communication

■FX3G Main unit

FX3G-14MR/ES	AC	D2	R
FX3G-14MT/ES	AC	D2	T1
FX3G-14MT/ESS	AC	D2	T2
FX3G-14MR/DS	DC	D2	R
FX3G-14MT/DS	DC	D2	T1
FX3G-14MT/DSS	DC	D2	T2

Input : 8 pt/output : 6 pt

FX3G-24MR/ES	AC	D2	R
FX3G-24MT/ES	AC	D2	T1
FX3G-24MT/ESS	AC	D2	T2
FX3G-24MR/DS	DC	D2	R
FX3G-24MT/DS	DC	D2	T1
FX3G-24MT/DSS	DC	D2	T2

Input : 14 pt/output : 10 pt

FX3G-40MR/ES	AC	D2	R
FX3G-40MT/ES	AC	D2	T1
FX3G-40MT/ESS	AC	D2	T2
FX3G-40MR/DS	DC	D2	R
FX3G-40MT/DS	DC	D2	T1
FX3G-40MT/DSS	DC	D2	T2

Input : 24 pt/output : 16 pt

FX3G-60MR/ES	AC	D2	R
FX3G-60MT/ES	AC	D2	T1
FX3G-60MT/ESS	AC	D2	T2
FX3G-60MR/DS	DC	D2	R
FX3G-60MT/DS	DC	D2	T1
FX3G-60MT/DSS	DC	D2	T2

Input : 36 pt/output : 24 pt

AC AC Power supply DC DC Power supply
D2 DC Input (sink/source)
R Relay output T1 Transistor output (sink) T2 Transistor output (source)

*1: Supported with main unit Ver. 1.10 and above
*2: Supported with main unit Ver. 2.20 and above
*3: Supported with main unit Ver. 1.20 and above
*4: Supported with main unit Ver. 2.00 and above. Only one unit can be mounted on left end of adapter.
*5: MODBUS communication supported with main unit Ver. 1.30 and above.
*6: Can be connected only to AC power type main unit.
*7: Can be connected only to DC power type main unit.

Outline specifications

Item		Outline specifications
Power supply	Power specifications	AC power type: 100 to 240 V DC 50/60 Hz DC power type: 24 V DC
	Power consumption	AC power type*1 : 31 W (14M), 32 W (24M), 37 W (40M), 40 W (60M) DC power type*2 : 19 W [15 W] (14M), 21 W [16 W] (24M), 25 W [19 W] (40M), 29 W [22 W] (60M)
	Rush current	AC power type: Max. 30 A 5 ms or less/100 V AC , max. 50 A 5 ms or less/200 V AC DC power type: Max. 30 A 1 ms or less/24 V DC
	24 V DC service power supply*3	AC power type: 400 mA
Input/ output	Input specifications	24 V DC, 5/7 mA (for no-voltage contact or sink input: NPN open collector transistor, for source input: PNP open collector transistor)
	Output specifications	Relay output type: 2 A/1 point, 8 A/4 points common 250 V AC (240 V for CE, UL/cUL standard compliance), 30 V DC or less Transistor output type: 0.5 A/1 point, 0.8 A/4 points, 5 to 30 V DC
	Input/output extension	Can be connected with extension device for FX2N series
Built-in communication port		RS-422, USB Mini-B 1 ch each

∗1: Value for maximum configuration that can be connected to main unit (AC power types all use 24 V DC service power.) This also includes the input current (7 mA or 5 mA per point).

∗2: Power consumption when used with 28.8 V DC. Values in parentheses indicate power consumption when using at 24 V DC.

∗3: When input/output extension blocks are connected, the 24 V DC service power changes the current consumed by the point (number) of the block connected.

Please choose the I/O type of main unit or I/O block suited for your equipment.
Refer to the manual for each product's input/output format.

■Extension device

Input extension block
- FX2N-8EX-ES/UL
- FX2N-8EX-UA1/UL
- FX2N-16EX-ES/UL

Input/output extension block
- FX2N-8ER-ES/UL

Output extension block
- FX2N-8EYR-ES/UL
- FX2N-8EYT-ESS/UL
- FX2N-8EYR-S-ES/UL
- FX2N-16EYR-ES/UL
- FX2N-16EYT-ESS/UL
- FX2N-16EYS

Input/output extension unit
- FX2N-32ER-ES/UL*6
- FX2N-32ET-ESS/UL*6
- FX2N-48ER-ES/UL*6
- FX2N-48ET-ESS/UL*6
- FX2N-48ER-UA1/UL*6
- FX2N-48ER-DS*7
- FX2N-48ET-DSS*7

Special extension block
- • Analog A/D conversion
  - FX2N-2AD
  - FX2N-8AD
  - FX3U-4AD
- • Analog D/A conversion
  - FX2N-2DA
  - FX3U-4DA
- • AD/DA combined
  - FX2N-5A
- • Temperature
  - FX3U-4LC
- • Communication/network
  - FX3U-16CCL-M
  - FX3U-64CCL
  - FX2N-32CCL
  - FX2N-64CL-M
  - FX3U-128ASL-M
  - FX3U-ENET
  - FX3U-32DP

Extension power supply unit
- FX3U-1PSU-5V*6

■Extension device

Input extension block
- FX2N-8EX
- FX2N-8EX-UA1/UL
- FX2N-16EX
- FX2N-16EX-C
- FX2N-16EXL-C

Input/output extension block
- FX2N-8ER

Output extension block
- FX2N-8EYR
- FX2N-8EYT
- FX2N-8EYT-H
- FX2N-8EYR-S-ES/UL
- FX2N-16EYR
- FX2N-16EYT
- FX2N-16EYT-C
- FX2N-16EYS

Input/output extension unit
- FX2N-32ER*6
- FX2N-32ES*6
- FX2N-32ET*6
- FX2N-48ER*6
- FX2N-48ET*6
- FX2N-48ER-UA1/UL*6
- FX2N-48ER-D*7
- FX2N-48ET-D*7

Special extension block
- • Communication/network
  - FX3U-16CCL-M
  - FX3U-64CCL
  - FX2N-32CCL
  - FX2N-64CL-M
  - FX3U-128ASL-M
  - FX3U-128BTY-M
  - FX3U-32DP

Extension power supply unit
- FX3U-1PSU-5V*6

■Option

Display module
- FX3G-5DM*1

Memory cassette
- FX3G-EEPROM-32L
- With loader function

Battery
- FX3U-32BL
- Optional battery

Extension Cable
- FX0N-30EC [30 cm]
- FX0N-65EC [65 cm]

Connector conversion adapter
- FX2N-CNV-BC

■Peripheral device

HMI
- GOT2000, GOT1000

Handy programming panel
- FX-30P

USB communication
- MR-J3USBCBL3M (3 m)
- GT09-C30USB-5P (3 m)

Converter for personal computer connection
- (Personal computer side, for RS-232C)
- FX-232AWC-H for RS-232C

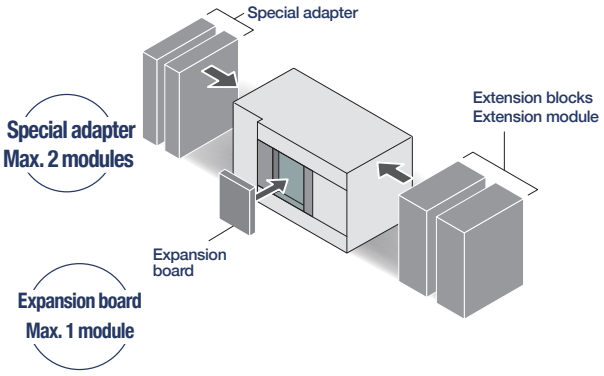
Programming software
- GX Works2
- GX Developer

System Configuration

FX3GE

Controllable I/O: 24 - 128 points (Main unit I/O: 24/40 points)
[256 points for remote I/O configuration of CC-Link, AnyWireASLINK]

FX3GE adds built-in analog input/output and Ethernet connectivity on top of FX3G performance.
A great fit for many applications.



■Expansion board

For analog input	
FX3G-2AD-BD	For analog input
For analog output	
FX3G-1DA-BD	For analog output
For 8-point analog volume	
FX3G-8AV-BD	For 8-point analog volume
For communication	
FX3G-232-BD	For RS-232C communication
FX3G-485-BD	For RS-485 communication
FX3G-485-BD-RJ	For RS-485 communication (RJ-45 connector type)
FX3G-422-BD	For RS-422 peripheral device communication
For extension input/output	
FX3G-4EX-BD	For extension input (24 V DC input 4 points)
FX3G-2EYT-BD	For extension output (transistor output 2 points)

■Special adapter

Analog special adapter	
FX3U-4AD-ADP	For input
FX3U-4DA-ADP	For output
FX3U-3A-ADP	For input/output
FX3U-4AD-PT-ADP	For Pt100 input
FX3U-4AD-PTW-ADP	For Pt100 input
FX3U-4AD-TC-ADP	For thermocouple input
FX3U-4AD-PNK-ADP	For Pt1000, Ni1000 input

Communication special adapter	
FX3U-232ADP-MB	For RS-232C (MODBUS) communication
FX3U-485ADP-MB	For RS-485 (MODBUS) communication

The special adapter can be directly mounted on the main units listed on the right.
FX3G-CNV-ADP is not required.

■FX3GE Main unit

FX3GE-24MR/ES	AC	D2	R
FX3GE-24MT/ES	AC	D2	T1
FX3GE-24MT/ESS	AC	D2	T2
FX3GE-24MR/DS	DC	D2	R
FX3GE-24MT/DS	DC	D2	T1
FX3GE-24MT/DSS	DC	D2	T2

Input : 14 pt/output : 10 pt

FX3GE-40MR/ES	AC	D2	R
FX3GE-40MT/ES	AC	D2	T1
FX3GE-40MT/ESS	AC	D2	T2
FX3GE-40MR/DS	DC	D2	R
FX3GE-40MT/DS	DC	D2	T1
FX3GE-40MT/DSS	DC	D2	T2

Input : 24 pt/output : 16 pt

AC AC Power supply DC DC Power supply
D2 DC Input (sink/source)
R Relay output T1 Transistor output (sink) T2 Transistor output (source)

Outline specifications

Item		Outline specifications
Power supply	Power specifications	AC power type: 100 to 240 V DC 50/60 Hz DC power type: 24 V DC
	Power consumption	AC power type*1 : 31 W (14M), 32 W (24M), 37 W (40M), 40 W (60M) DC power type*2 : 19 W [15 W] (14M), 21 W [16 W] (24M), 25 W [19 W] (40M), 29 W [22 W] (60M)
	Rush current	AC power type: Max. 30 A 5 ms or less/100 V AC, max. 50 A 5 ms or less/200 V AC DC power type: Max. 30 A 1 ms or less/24 V DC
	24 V DC service power supply*3	AC power type: 400 mA
Input/ output	Input specifications	24 V DC, 5/7 mA (for no-voltage contact or sink input: NPN open collector transistor, for source input: PNP open collector transistor)
	Output specifications	Relay output type: 2 A/1 point, 8 A/4 points common 250 V AC (240 V for CE, UL/cUL standard compliance), 30 V DC or less Transistor output type: 0.5 A/1 point, 0.8 A/4 points, 5 to 30 V DC
	Input/output extension	Can be connected with extension device for FX2N series
Built-in communication port		RS-422, USB Mini-B 1 ch each

∗1: Value for maximum configuration that can be connected to main unit (AC power types all use 24 V DC service power.) This also includes the input current (7 mA or 5 mA per point).

∗2: Power consumption when used with 28.8 V DC. Values in parentheses indicate power consumption when using at 24 V DC.

∗3: When input/output extension blocks are connected, the 24 V DC service power changes the current consumed by the point (number) of the block connected.

Please choose the I/O type of main unit or I/O block suited for your equipment.
Refer to the manual for each product's input/output format.

Extension device

Input extension block
FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Input/output extension block
FX2N-8ER-ES/UL

Output extension block
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-8EYR-S-ES/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/output extension unit
FX2N-32ER-ES/UL*1
FX2N-32ET-ESS/UL*1
FX2N-48ER-ES/UL*1
FX2N-48ET-ESS/UL*1
FX2N-48ER-UA1/UL*1
FX2N-48ER-DS*2
FX2N-48ET-DSS*2

Special extension block
• Analog A/D conversion
FX2N-2AD
FX2N-8AD
FX3U-4AD
• Analog D/A conversion
FX2N-2DA
FX3U-4DA
• AD/DA combined
FX2N-5A
• Temperature
FX3U-4LC
• Communication/network
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-ENET
FX3U-32DP

Extension power supply unit
FX3U-1PSU-5V*1

Option

Display module
FX3G-5DM

Memory cassette
FX3G-EEPROM-32L
With loader function

Battery
FX3U-32BL
Optional battery

Extension Cable
FX0N-30EC [30 cm]
FX0N-65EC [65 cm]

Connector conversion adapter
FX2N-CNV-BC

Peripheral device

HMI
GOT2000, GOT1000

Handy programming panel
FX-30P

USB communication
MR-J3USBCBL3M (3 m)
GT09-C30USB-5P (3 m)

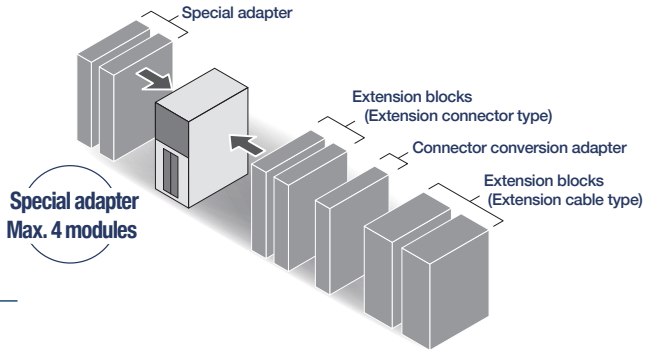
Converter for personal computer connection
(Personal computer side, for RS-232C)
FX-232AWC-H for RS-232C

Programming software
GX Works2
GX Developer

∗1 : Can be connected only to AC power type main unit.
∗2 : Can be connected only to DC power type main unit.

System Configuration

FX3GC



Control scale: 32 to 128 points (Main unit: 32 points)
[256 points for remote I/O configuration of CC-Link, AnyWireASLINK]

This 3rd generation standard model has integrates simplicity and has flexible expandability. The FX3 series ease of use has been condensed into this cost-performing mode suitable for small-scale control.

■Special adapter

Analog special adapter	
FX3U-4AD-ADP	For input
FX3U-4DA-ADP	For output
FX3U-3A-ADP	For input/output
FX3U-4AD-PT-ADP	For Pt100 input
FX3U-4AD-PTW-ADP	For Pt100 input
FX3U-4AD-TC-ADP	For thermocouple input
FX3U-4AD-PNK-ADP	For Pt1000, Ni1000 input

Communication special adapter	
FX3U-ENET-ADP*1	For Ethernet communication
FX3U-232ADP-MB	For RS-232C (MODBUS) communication
FX3U-485ADP-MB	For RS-485 (MODBUS) communication

The special adapter can be directly mounted on the main units listed on the right.
FX3G-CNV-ADP is not required.

■FX3GC Main unit

FX3GC-32MT/DSS
DC D2 T2
input : 16 pt/output : 16 pt

■Peripheral device

HMI
GOT2000, GOT1000

Handy programming panel
FX-30P

Programming software
GX Works2
GX Developer

Converter for personal computer connection
FX-232AWC-H for RS-232C

USB communication
MR-J3USBCBL3M (3 m)
GT09-C30USB-5P (3 m)

■FX3GC Main unit

FX3GC-32MT/D
DC D1 T1
input : 16 pt/output : 16 pt

DC DC Power supply
D1 DC Input (sink)
T1 Transistor output (sink)
D2 DC Input (sink/source)
T2 Transistor output (source)

■Option

Extension Cable
FX0N-30EC (30 cm)
FX0N-65EC (65 cm)

Connector conversion adapter
FX2N-CNV-BC

Simulated input switch
• For main unit (sink input) or FX2NC-□□EX input
FX2C-16SW-C
• For FX-16E-TB type terminal block
FX2C-16SW-TB

Battery and power cable
• Battery
FX3U-32BL (Optional battery)
• Main unit power cable
FX2NC-100MPCB (1 m) (Enclosed with main unit)
• Input power cable for extension input block
FX2NC-100BPCB (1 m)
• Input power jumper cable for extension input block
FX2NC-10BPCB1 (0.1 m)

*1: Supported with main unit Ver. 2.00 and above (Only one module can be mounted on left end of adapter).
*2: FX2NC-64ET side 40 points, terminal block side 20 pins × 2

Outline specifications

Item		Outline specifications
Power supply	Power specifications	24 V DC
	Power consumption*1	8 W
	Rush current	Max. 30 A 0.5 ms or less/24 V DC
Input/output	Input specifications	24 V DC, 5/7 mA (no-voltage contact, or open collector transistor*2)
	Output specifications	Transistor output type: 0.1 A/1 point (Y000 to Y001 is 0.3 A/point) 5 to 30 V DC
	Input/output extension	Extension block for FX2NC and FX2N*3 series can be connected.
Built-in communication port		RS-422, USB Mini-B 1 ch each

∗1: This power consumption does not include the power consumed by the input/output extension block or special extension unit/block.
Refer to the FX3GC User's Manual [Hardware Section] for details on the power (current) consumed by the input/output extension block.
Refer to each manual for details on the power consumed by the special extension unit/block.

∗2: The FX3GC-32MT/D is a NPN open collector transistor input. The FX3GC-32MT/DSS is an NPN or PNP open collector transistor input.

∗3: Connector conversion adapter or extension power unit required.

Please choose the I/O type of main unit or I/O block suited for your equipment.
Refer to the manual for each product's input/output format.

■Extension device

Input extension block
FX2NC-16EX-DS
FX2NC-16EX-T-DS
FX2NC-32EX-DS

Output extension block
FX2NC-16EYT-DSS
FX2NC-16EYR-T-DS
FX2NC-32EYT-DSS

Special extension block
• Analog A/D conversion
FX3UC-4AD

Extension power supply unit
FX3UC-1PS-5V

or

Connector conversion adapter
FX2NC-CNV-IF

Input extension block
FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Input/output extension block
FX2N-8ER-ES/UL

Output extension block
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-8EYR-S-ES/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL

Special extension block
• Analog A/D conversion
FX2N-2AD
FX2N-8AD
FX3U-4AD
• Analog D/A conversion
FX2N-2DA
FX3U-4DA
• AD/DA combined
FX2N-5A
• Temperature
FX3U-4LC
• Communication/network
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-ENET
FX3U-32DP

Input/output terminal block

FX-16E-TB/UL	FX-16EYT-ES-TB/UL
FX-16EYR-ES-TB/UL	FX-16EYT-ESS-TB/UL
FX-16EYS-ES-TB/UL	FX-32E-TB/UL

■Extension device

Input extension block
FX2NC-16EX
FX2NC-16EX-T
FX2NC-32EX

Input/output extension block
FX2NC-64ET

Output extension block
FX2NC-16EYT
FX2NC-16EYR-T
FX2NC-32EYT

Extension power supply unit
FX3UC-1PS-5V

or

Connector conversion adapter
FX2NC-CNV-IF

Input extension block
FX2N-8EX
FX2N-8EX-UA1/UL
FX2N-16EX
FX2N-16EX-C
FX2N-16EXL-C

Input/output extension block
FX2N-8ER

Output extension block
FX2N-8EYR
FX2N-8EYT
FX2N-8EYT-H
FX2N-8EYR-S-ES/UL
FX2N-16EYR
FX2N-16EYT
FX2N-16EYT-C
FX2N-16EYS

Special extension block
• Communication/network
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-32DP

Input/output terminal block

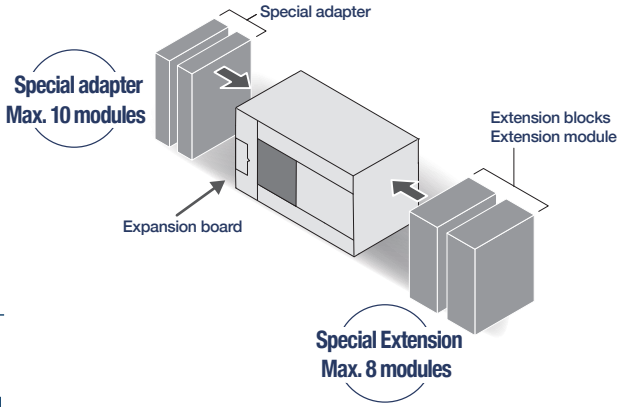
FX-16E-TB	FX-16EYT-TB
FX-16EYR-TB	FX-16EX-A1-TB
FX-16EYS-TB	FX-32E-TB

Input/output cable
• General-purpose input/output cable
FX-16E-500CAB-S (5 m 20-pin with loose wire)
• For terminal block
FX-16E-□CAB (20 pins on both sides)
FX-32E-□CAB*2
□: 150 (1.5 m)/300 (3 m)/500 (5 m)
• For terminal block
FX-16E-□CAB-R (20 pins on both sides)
□: 150 (1.5 m)/300 (3 m)/500 (5 m)
• A6TBXY36 type connector terminal block for conversion unit
FX-A32E-□CAB (1.5 m)
□: 150 (1.5 m)/300 (3 m)/500 (5 m)
Main unit, extension block side 20 pins × 2,
A6TBXY36 side 40 pins

Connector for preparing input/output cable
• Connector for flat cable
FX2C-I/O-CON (For 0.1 mm², 20 pins)
FX-I/O-CON2 (For 0.1 mm², 40 pins)
• Connector for loose wires
FX2C-I/O-CON-S (For 0.3 mm², 20 pins)
FX2C-I/O-CON-SA (For 0.5 mm², 20 pins)
FX-I/O-CON2-S (For 0.3 mm², 40 pins)
FX-I/O-CON2-SA (For 0.5 mm², 40 pins)

System Configuration

FX3U



Controllable I/O: 16 - 256 points (Main unit I/O: 16/32/48/64/80/128 points)
[384 points for remote I/O configuration of CC-Link, AnyWireASLINK]

3rd generation micro PLC. New highly functional machine equipped with speed, capacity, performance, and functions. The built-in functions, such as the industry's highest level of high-speed processing and positioning, have been greatly improved.

■Expansion board

For communication	
FX3U-232-BD	For RS-232C communication
FX3U-485-BD	For RS-485 communication
FX3U-422-BD	For RS-422 peripheral device communication
FX3U-USB-BD	For USB communication
For 8-point analog volume	
FX3U-8AV-BD*1	For 8-point analog volume
For special adapter connection	
FX3U-CNV-BD	For special adapter connection

The expansion board is required to connect the special adapter (excluding the high-speed input/output special adapter).
Refer to the product manual for details on the combination methods.

*5

■Special adapters

Analog special adapter	
FX3U-4AD-ADP	For input
FX3U-4DA-ADP	For output
FX3U-3A-ADP*2	For input/output
FX3U-4AD-PT-ADP	For Pt100 input
FX3U-4AD-PTW-ADP	For Pt100 input
FX3U-4AD-TC-ADP	For thermocouple input
FX3U-4AD-PNK-ADP	For Pt1000, Ni1000 input
Communication special adapter	
FX3U-ENET-ADP*3	For Ethernet communication
FX3U-232ADP-MB*4	For RS-232C (MODBUS) communication
FX3U-485ADP-MB*4	For RS-485 (MODBUS) communication
CF card special adapter	
FX3U-CF-ADP*2	For data collection
High-speed input/output special adapter	
FX3U-4HSX-ADP	For high-speed input
FX3U-2HSY-ADP	For high-speed output

■FX3U Main unit

FX3U-16MR/ES	AC	D2	R
FX3U-16MT/ES	AC	D2	T1
FX3U-16MT/ESS	AC	D2	T2
FX3U-16MR/DS	DC	D2	R
FX3U-16MT/DS	DC	D2	T1
FX3U-16MT/DSS	DC	D2	T2

Input : 8 pt/output : 8 pt

FX3U-32MR/ES	AC	D2	R
FX3U-32MT/ES	AC	D2	T1
FX3U-32MS/ES	AC	D2	S
FX3U-32MT/ESS	AC	D2	T2
FX3U-32MR/DS	DC	D2	R
FX3U-32MT/DS	DC	D2	T1
FX3U-32MT/DSS	DC	D2	T2

Input : 16 pt/output : 16 pt

FX3U-48MR/ES	AC	D2	R
FX3U-48MT/ES	AC	D2	T1
FX3U-48MT/ESS	AC	D2	T2
FX3U-48MR/DS	DC	D2	R
FX3U-48MT/DS	DC	D2	T1
FX3U-48MT/DSS	DC	D2	T2

Input : 24 pt/output : 24 pt

FX3U-64MR/ES	AC	D2	R
FX3U-64MT/ES	AC	D2	T1
FX3U-64MS/ES	AC	D2	S
FX3U-64MT/ESS	AC	D2	T2
FX3U-64MR/DS	DC	D2	R
FX3U-64MT/DS	DC	D2	T1
FX3U-64MT/DSS	DC	D2	T2

Input : 32 pt/output : 32 pt

FX3U-80MR/ES	AC	D2	R
FX3U-80MT/ES	AC	D2	T1
FX3U-80MT/ESS	AC	D2	T2
FX3U-80MR/DS	DC	D2	R
FX3U-80MT/DS	DC	D2	T1
FX3U-80MT/DSS	DC	D2	T2

Input : 40 pt/output : 40 pt

FX3U-128MR/ES	AC	D2	R
FX3U-128MT/ES	AC	D2	T1
FX3U-128MT/ESS	AC	D2	T2

Input : 64 pt/output : 64 pt

FX3U-32MR/UA1	AC	A	R

Input : 16 pt/output : 16 pt

FX3U-64MR/UA1	AC	A	R

Input : 32 pt/output : 32 pt

AC AC Power supply　DC DC Power supply
A AC Input　D2 DC Input (sink/source)
R Relay output　T1 Transistor output (sink)　T2 Transistor output (source)　S Triac output

∗1: Supported with main unit Ver. 2.70 and above
∗2: Supported with main unit Ver. 2.61 and above
∗3: Supported with main unit Ver. 3.10 and above. Only one unit can be mounted on left end of adapter.
∗4: MODBUS communication supported with main unit Ver. 2.40 and above.
∗5: The expansion board is required to connect the special adapter in the stage after the high-speed input/output special adapter.
∗6: Supported with main unit Ver. 2.21 and above
∗7: Supported with main unit Ver. 3.00 and above
∗8: Can be connected only to AC power type main unit.
∗9: Can be connected only to DC power type main unit.

Outline specifications

Item		Outline specifications
Power supply	Power specifications	AC power type: 100 to 240 V DC 50/60 Hz DC power type: 24 V DC
	Power consumption	AC power type: 30 W (16M), 35 W (32M), 40 W (48M), 45 W (64M), 50 W (80M), 65 W (128M) DC power type: 25 W (16M), 30 W (32M), 35 W (48M), 40 W (64M), 45 W (80M)
	Rush current	AC power type: Max. 30 A 5 ms or less/100 V AC, max. 65 A 5 ms or less/200 V AC DC power type: Max. 35 A 0.5 ms or less/24 V DC
	24 V DC service power supply*1	AC power DC input type: 400 mA or less (16M, 32M) 600 mA or less (48M, 64M, 80M, 128M)
Input/ output	Input specifications	DC input type: 24 V DC, 5 to 7 mA (for no-voltage contact or sink input: NPN open collector transistor, for source input: PNP open collector transistor) AC input type: 100 to 120 V AC AC voltage input
	Output specifications	Relay output type: 2 A/1 point, 8 A/4 points common, 8 A/8 points common 250 V AC (240 V for CE, UL/cUL standard compliance), 30 V DC or less Triac output type: 0.3 A/1 point, 0.8 A/4 points common 85 to 242 V DC Transistor output type: 0.5 A/1 point, 0.8 A/4 points common, 1.6 A/8 points common 5 to 30 V DC
	Input/output extension	Can be connected with extension device for FX2N series
Built-in communication port		RS-422

*1: When input/output extension blocks are connected, 24 V DC service power is consumed by the blocks, and the power to be consumed by the main unit is reduced.

Please choose the I/O type of main unit or I/O block suited for your equipment.
Refer to the manual for each product's input/output format.

: Production discontinued in March 2020

■Extension device

Input extension block
FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Input/output extension block
FX2N-8ER-ES/UL

Output extension block
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-8EYR-S-ES/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/output extension unit
FX2N-32ER-ES/UL*8
FX2N-32ET-ESS/UL*8
FX2N-48ER-ES/UL*8
FX2N-48ET-ESS/UL*8
FX2N-48ER-UA1/UL*8
FX2N-48ER-DS*9
FX2N-48ET-DSS*9

Special extension blocks/unit
- Analog A/D conversion
FX2N-2AD
FX2N-8AD
FX3U-4AD
- Analog D/A conversion
FX2N-2DA
FX3U-4DA

- AD/DA combined
FX2N-5A
- Temperature
FX3U-4LC

- High Speed Counter
FX2N-1HC
FX3U-2HC
- Positioning
FX3U-1PG
FX2N-10PG
FX3U-20SSC-H
FX2N-1RM-E-SET
FX2N-10GM
FX2N-20GM

- Communication/ network
FX2N-232IF
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-ENET*6
FX3U-ENET-L*6
FX3U-64DP-M*6
FX3U-32DP*6

Extension power supply unit
FX3U-1PSU-5V*8

■Extension device

Input extension block
FX2N-8EX
FX2N-8EX-UA1/UL
FX2N-16EX
FX2N-16EX-C
FX2N-16EXL-C

Input/output extension block
FX2N-8ER

Output extension block
FX2N-8EYR
FX2N-8EYT
FX2N-8EYT-H
FX2N-8EYR-S-ES/UL
FX2N-16EYR
FX2N-16EYT
FX2N-16EYT-C
FX2N-16EYS

Input/output extension unit
FX2N-32ER*8
FX2N-32ES*8
FX2N-32ET*8
FX2N-48ER*8
FX2N-48ET*8
FX2N-48ER-UA1/UL*8
FX2N-48ER-D*8
FX2N-48ET-D*8

Special extension blocks/unit
- Analog A/D conversion
FX2N-2AD
FX2N-8AD
FX3U-4AD
- Analog D/A conversion
FX2N-2DA
FX3U-4DA

- AD/DA combined
FX2N-5A
- Temperature
FX3U-4LC

- High Speed Counter
FX2N-1HC
FX3U-2HC
- Positioning
FX3U-1PG
FX2N-10PG
FX3U-20SSC-H
FX2N-1RM-SET
FX2N-10GM
FX2N-20GM

- Communication/ network
FX2N-232IF
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-128BTY-M
FX3U-ENET-L*6
FX3U-64DP-M*6
FX3U-32DP*6

Extension power supply unit
FX3U-1PSU-5V*8

■Option

Display module
FX3U-7DM

Display module holder
FX3U-7DM-HLD

Memory cassette
FX3U-FLROM-16
FX3U-FLROM-64
FX3U-FLROM-64L
FX3U-FLROM-1M*7

Spare part
Battery
FX3U-32BL (already mounted on main unit)

Extension cable
FX0N-30EC (30 cm)
FX0N-65EC (65 cm)

PLC Bus connector
FX2N-CNV-BC

■Peripheral device

HMI
GOT2000, GOT1000

Handy programming panel
FX-30P

Interface converter
FX-USB-AW For USB
FX-232AWC-H for RS-232C

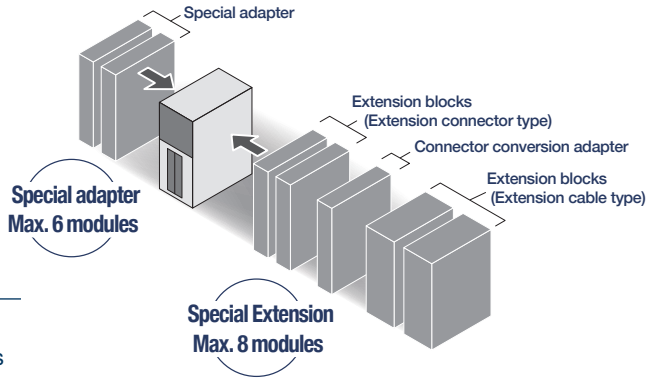
Software
GX Works2
GX Developer

System Configuration

FX3UC

Controllable I/O: 16 - 256 points (Main unit I/O: 16/32/64/96 points)
[384 points for remote I/O configuration of CC-Link, AnyWireASLINK]

Compact 3rd generation micro PLC. Connector input/output type reduces wiring. The built-in functions, such as the industry's highest level of high-speed processing and positioning, have been greatly improved.



■Special adapters


Analog special adapter		Communication special adapter	
FX3U-4AD-ADP	For input	FX3U-ENET-ADP*2	For Ethernet communication
FX3U-4DA-ADP	For output	FX3U-232ADP-MB*5	For RS-232C (MODBUS) communication
FX3U-3A-ADP*1	For input/output	FX3U-485ADP-MB*5	For RS-485 (MODBUS) communication
FX3U-4AD-PT-ADP	For Pt100 input	**CF card special adapter**	
FX3U-4AD-PTW-ADP	For Pt100 input	FX3U-CF-ADP*1	For data collection
FX3U-4AD-TC-ADP	For thermocouple input		
FX3U-4AD-PNK-ADP	For Pt1000, Ni1000 input		

The special adapter can be directly mounted on the main units listed on the right.
A Expansion board is not required.

■Peripheral device


HMI
GOT2000, GOT1000

Handy programming panel
FX-30P



Interface converter
FX-USB-AW for USB
FX-232AWC-H for RS-232C

Software
GX Works2
GX Developer

■Option



Memory cassette
FX3U-FLROM-64
FX3U-FLROM-16
FX3U-FLROM-64L
FX3U-FLROM-1M*3

Extension cable
FX0N-30EC (30 cm)
FX0N-65EC (65 cm)

PLC bus connector
FX2N-CNV-BC

■FX3UC Main unit

FX3UC-16MR/DS-T
DC D2 R
input : 8 pt/output : 8 pt

FX3UC-64MT/DSS
DC D2 T2
input : 32 pt/output : 32 pt

FX3UC-16MT/DSS
DC D2 T2
input : 8 pt/output : 8 pt

FX3UC-96MT/DSS
DC D2 T2
input : 48 pt/output : 48 pt

FX3UC-32MT/DSS
DC D2 T2
input : 16 pt/output : 16 pt

■FX3UC Main unit

FX3UC-16MR/D-T
DC D1 R
input : 8 pt/output : 8 pt

FX3UC-64MT/D
DC D1 T1
input : 32 pt/output : 32 pt

FX3UC-16MT/D
DC D1 T1
input : 8 pt/output : 8 pt

FX3UC-96MT/D
DC D1 T1
input : 48 pt/output : 48 pt

FX3UC-32MT/D
DC D1 T1
input : 16 pt/output : 16 pt

DC DC Power supply
D1 DC Input (sink) D2 DC Input (sink/source)
R Relay output T1 Transistor output (sink) T2 Transistor output (source)






Simulated input switch
- For main unit (sink input) or FX2NC-□□EX input
FX2C-16SW-C
- For FX-16E-TB type terminal block
FX2C-16SW-TB

Spare part
- Battery
FX3U-32BL (already mounted on main unit)
- Main unit power cable
FX2NC-100MPCB (1 m) (Enclosed with main unit)
- Input power cable for extension input block
FX2NC-100BPCB (1 m) (Enclosed with main unit)
- Input power jumper cable for extension input block
FX2NC-10BPCB1 (0.1 m) (Enclosed with extension block)

*1: Supported with main unit Ver. 2.61 and above
*2: Supported with main unit Ver. 3.10 and above. Only one unit can be mounted on left end of adapter.
*3: Supported with main unit Ver. 3.00 and above
*4: Supported with main unit Ver. 2.21 and above
*5: MODBUS communication supported with main unit Ver. 2.40 and above.
*6: FX2NC-64ET side 40 points, terminal block side 20 pins × 2.

Outline specifications

Item		Outline specifications
Power supply	Power specifications	24 V DC
	Power consumption*1	6 W (16 points type), 8 W (32 points type), 11 W (64 points type), 14 W (96 points type)
	Rush current	Max. 30 A 0.5 ms or less/24 V DC
Input/output	Input specifications	24 V DC, 5 to 7 mA (no-voltage contact, or open collector transistor*2)
	Output specifications	Relay output type: 2 A/1 point, 4 A/1 points common 250 V AC (240 V for CE, UL/cUL standard compliance), 30 V DC or less Transistor output type: 0.1 A/1 point (Y000 to Y003 is 0.3 A/point) 5 to 30 V DC
	Input/output extension	Extension block for FX2NC and FX2N*3 series can be connected.
Built-in communication port		RS-422

*1: This power consumption does not include the power consumed by the input/output extension block or special extension unit/block.
Refer to the FX3UC User's Manual [Hardware Section] for details on the power (current) consumed by the input/output extension block.
Refer to each manual for details on the power consumed by the special extension unit/block.

*2: The FX3UC-□□MT/D is a NPN open collector transistor input. The FX3UC-□□MT/DSS is an NPN or PNP open collector transistor input.

*3: Connector conversion adapter or extension power unit required.

Please choose the I/O type of main unit or I/O block suited for your equipment.
Refer to the manual for each product's input/output format.

: Production discontinued in March 2020

■Extension device

Input extension block
FX2NC-16EX-DS
FX2NC-16EX-T-DS
FX2NC-32EX-DS

Output extension block
FX2NC-16EYT-DSS
FX2NC-16EYR-T-DS
FX2NC-32EYT-DSS

Special extension block
• Analog A/D conversion
FX3UC-4AD
• High speed counter
FX2NC-1HC

Extension power supply unit
FX3UC-1PS-5V

or

PLC Bus connector
FX2NC-CNV-IF

Input/output terminal block
FX-16E-TB/UL
FX-16EYR-ES-TB/UL
FX-16EYS-ES-TB/UL
FX-16EYT-ES-TB/UL
FX-16EYT-ESS-TB/UL
FX-32E-TB/UL

Input extension block
FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Input/output extension block
FX2N-8ER-ES/UL

Output extension block
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-8EYR-S-ES/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL

Special extension blocks/unit
• Analog A/D conversion
FX2N-2AD
FX2N-8AD
FX3U-4AD
• Analog D/A conversion
FX2N-2DA
FX3U-4DA
• AD/DA combined
FX2N-5A
• Temperature
FX3U-4LC
• High speed counter
FX2N-1HC
FX3U-2HC
• Positioning
FX3U-1PG
FX2N-10PG
FX3U-20SSC-H
FX2N-1RM-E-SET
FX2N-10GM
FX2N-20GM
• Communication/ network
FX2N-232IF
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-ENET*4
FX3U-ENET-L*4
FX3U-64DP-M*4
FX3U-32DP*4

■Extension device

Input extension block
FX2NC-16EX
FX2NC-16EX-T
FX2NC-32EX

Output extension block
FX2NC-16EYT
FX2NC-16EYR-T
FX2NC-32EYT

Input/output extension block
FX2NC-64ET

Special extension block
• Analog A/D conversion
FX3UC-4AD
• High speed counter
FX2NC-1HC

Extension power supply unit
FX3UC-1PS-5V

or

PLC Bus connector
FX2NC-CNV-IF

Input/output terminal block
FX-16E-TB
FX-16EYR-TB
FX-16EYS-TB
FX-16EYT-TB
FX-16EX-A1-TB
FX-32E-TB

Input extension block
FX2N-8EX
FX2N-8EX-UA1/UL
FX2N-16EX
FX2N-16EX-C
FX2N-16EXL-C

Input/output extension block
FX2N-8ER

Output extension block
FX2N-8EYR
FX2N-8EYT
FX2N-8EYT-H
FX2N-8EYR-S-ES/UL
FX2N-16EYR
FX2N-16EYT
FX2N-16EYT-C
FX2N-16EYS

Special extension blocks/unit
• Analog A/D conversion
FX2N-2AD
FX2N-8AD
FX3U-4AD
• Analog D/A conversion
FX2N-2DA
FX3U-4DA
• AD/DA combined
FX2N-5A
• Temperature
FX3U-4LC
• High speed counter
FX2N-1HC
FX3U-2HC
• Positioning
FX3U-1PG
FX2N-10PG
FX3U-20SSC-H
FX2N-1RM-SET
FX2N-10GM
FX2N-20GM
• Communication/ network
FX2N-232IF
FX3U-16CCL-M
FX3U-64CCL
FX2N-32CCL
FX2N-64CL-M
FX3U-128ASL-M
FX3U-128BTY-M
FX3U-ENET*4
FX3U-ENET-L*4
FX3U-64DP-M*4
FX3U-32DP*4

Input/output cable
• General-purpose input/output cable
FX-16E-500CAB-S (5 m 20-pin with loose wire)
• For terminal block
FX-16E-□CAB (20 pins on both sides)
FX-32E-□CAB*6
□: 150 (1.5 m)/300 (3 m)/500 (5 m)
• For terminal block
FX-16E-□CAB-R (20 pins on both sides)
□: 150 (1.5 m)/300 (3 m)/500 (5 m)
• A6TBXY36 type connector terminal block for conversion unit
FX-A32E-□CAB (1.5 m)
□: 150 (1.5 m)/300 (3 m)/500 (5 m)
Basic unit, extension block side 20 pins × 2,
A6TBXY36 side 40 pins

Connector for preparing input/output cable
• Connector for flat cable
FX2C-I/O-CON (For 0.1 mm², 20 pins)
FX-I/O-CON2 (For 0.1 mm², 40 pins)
• Connector for loose wires
FX2C-I/O-CON-S (For 0.3 mm², 20 pins)
FX2C-I/O-CON-SA (For 0.5 mm², 20 pins)
FX-I/O-CON2-S (For 0.3 mm², 40 pins)
FX-I/O-CON2-SA (For 0.5 mm², 40 pins)

Performance Specification

◇ FX5U/FX5UC performance specifications

FX5U/FX5UC CPU Module			
Item		Specification	
Operation control system		Stored-program repetitive operation	
Input/output control system		Refresh system (Direct access input/output allowed by specification of direct access input/output [DX, DY])	
Programming specifications	Programming language	Ladder diagram (LD), structured text (ST), function block diagram/ladder language (FBD/LD)	
	Programming expansion function	Function block (FB), function (FUN), label programming (local/global)	
	Constant scan	0.2 to 2000 ms (can be set in 0.1 ms increments)	
	Fixed cycle interrupt	1 to 60000 ms (can be set in 1 ms increments)	
Operation specifications	Execution type	Standby type, initial execution type, scan execution type, fixed-cycle execution type, event execution type	
	Interrupt type	Internal timer interrupt, input interruption, high-speed comparison match interrupt, interrupt from module*1	
Memory capacity	Program capacity	64 k/128 k steps*2 (128 kbytes/256 kbytes, flash memory)	
	Device/label memory	120 kbytes	
	Data memory	5 Mbytes	
	Flash memory (Flash ROM) write count	Max. 20000 times	
	SD memory card	Memory card capacity (SD/SDHC memory card: Max. 16 Gbytes)	
	Writing function during running	Available (instructions/pointers in the program block, and program components can be added, changed, or deleted while the PLC is running.)	
	Password protection	Available (Security function: block password, security authentication, file password, remote password, IP filter)	
Power failure retention (Device)	Capacity for power failure retention	Built-in flash memory: High-speed device (M, L, B, F, S, T, ST, C, LC, D) Max. 12 k words*3	
		When optional battery (FX3U-32BL) is mounted: Standard device (R, W) Max. 48 k words	
File storage capacity	Device/label memory	1	
	No. of program files	32	
	No. of FB files	16 files (up to 15 files for user)	
	SD memory card	NZ1MEM-2GBSD: 511*4 NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD: 65534*4	
CC-Link IE Field Network Basic master functions		Possible with built-in Ethernet port (CPU module Ver.1.040 and above) Number of control points is 384 points or less (Refer to item on number of input/output points)	
Logging function*5		Collected data is saved as binary files on the SD memory card. Data capacity is same as capacity of SD memory card in use (Max. 16 Gbytes)	
Clock function*6	Displayed information	Year, month, date, hour, minute, second, day of week (leap year automatic detection)	
	Precision	Monthly difference: ±45 sec at 25°C (typical value)	
	Retention method	Large-capacity capacitor (when using optional battery (FX3U-32BL), retention method can be switched to battery.	
	Retention time	10 days (ambient temperature: 25°C), when using optional battery approx. 5 years (ambient temperature: 25°C)	
Kinds of instructions		501 types 1113 instructions (CPU module Ver. 1.060)	
Instruction processing time	LD X0	34 ns*7	
	MOV D0 D1	34 ns*7	
No. of input/output points	(1) No. of input/output points	256 points or less/ 384 points or less*2	—
	(2) No. of remote I/O points	384 points or less/ 512 points or less*2	The total number of remote I/O points in CC-Link, AnyWireASLINK, must be 512 points or less. (CC-Link IE Field Network Basic remote I/O stations are not calculated as remote I/O points.)
	Total No. of points of (1) and (2)	512 points or less	—

∗1: Interrupt from intelligent function module, high-speed pulse input/output module.

∗2: Supported by FX5U/FX5UC CPU module Ver. 1.100 or later and by GX Works3 Ver. 1.047Z or later.

∗3: All devices in the (high-speed) device area can be held against power failure. Devices in the (standard) device area can be held also when the battery is mounted.

∗4: The value listed above indicates the number of files stored in the root folder.

∗5: Supported for CPU modules with serial No. 16Y∗∗∗∗ and higher.

∗6: Clock data is retained using the power accumulated in a large-capacity capacitor incorporated into the PLC. When voltage of the large capacity capacitor drops, clock data is no longer accurately retained.
The retention period of a fully charged capacitor (electricity is conducted across the PLC for at least 30 minutes) is 10 days (ambient temperature: 25°C) long. How long the capacitor can hold the data depends on the operating ambient temperature. When the operating ambient temperature is high, the holding period is short.

∗7: When the program capacity is 64 k steps.

◇ FX5U/FX5UC device points

FX5U/FX5UC CPU Module								
Item			Base	Device No.	GX Works3 default settings		Specifications	
					Points	Total points		
Input/output relay	X	Input relay	8	X000 to X1777	1024 points	1024 points	The total number of X and Y assigned to input/output points is up to 256 points/384 points*1.	
	Y	Output relay	8	Y000 to Y1777	1024 points	1024 points		
Internal relay	M	Non-latch*2	10	M0 to M499	500 points	7680 points	When range is changed M0 to M32767 32768 points*6	
		Latch*3		M500 to M7679	7180 points			
Special relay	SM	For special	10	SM0 to SM9999	10000 points	10000 points	—	
Latch relay	L	Latch*4	10	L0 to L7679	7680 points	7680 points	When range is changed L0 to L32767 32768 points*6	
Link relay	B	Non-latch*2	16	B0 to BFF	256 points	256 points	When range is changed B0 to B7FFF 32768 points*6	
Link special relay	SB	Non-latch	16	SB0 to SB1FF	512 points	512 points	When range is changed SB0 to SB7FFF 32768 points*6	
Annunciator	F	Non-latch*2	10	F0 to F127	128 points	128 points	When range is changed F0 to F32767 32768 points*6	
Step relay	S	Non-latch*2	10	S0 to S499	500 points	4096 points	—	
		Latch*3		S500 to S4095	3596 points			
Timer	T	Timer*2	10	T0 to T511	512 points	512 points	When range is changed T0 to T1023 1024 points*6	As shown below, the timer unit changes according to how the timer coil is written. This also applies to the retentive timer. (□ indicates device No.) 100 ms: OUT T□ (ST□) 0.1 to 3276.7 sec. 10 ms: OUTH T□ (ST□) 0.01 to 327.67 sec. 1 ms: OUTHS T□ (ST□) 0.001 to 32.767 sec.
	ST	Retentive timer*3		ST0 to ST15	16 points	16 points	When range is changed ST0 to ST1023 1024 points*6	
Counter	C	Non-latch (16 bits)*2	10	C0 to C99	156 points	256 points	When range is changed C0 to C1023 1024 points*6	Counting from 0 to 32767
				C200 to C255				
		Latch (16 bits)*3		C100 to C199	100 points			
Long counter	LC	Non-latch (32 bits)*2	10	LC0 to LC19	20 points	64 points	When range is changed LC0 to LC1023 1024 points*6	Counting from 0 to 4294967295 (32-bit counter is only addition type.)
		Latch (32 bits)*3		LC20 to LC63	44 points			
High speed counter	LC	1-phase 1-input (32 bits)	10	LC35 to LC45	Up to 8 points can be used in range from LC35 to LC55.		The high-speed counter is started and stopped with the HIOEN instruction. However, the FX3 conversion input terminal assignment and the devices corresponding to C235 to C255 can be replaced with LC35 to LC55. (The HIOEN instruction or UDCNTF instruction is used) In this case, all high-speed counters built into the CPU can only be used with the FX3 compatible high-speed counter function. Counting from -2147483648 to +2147483647 · 1-phase 1-input (S/W, H/W), 1-phase 2-input, 2-phase 2-input (multiplied by 1): 200 kHz · 2-phase 2-input (multiplied by 2): 100 kHz · 2-phase 2-input (multiplied by 4): 50 kHz · Internal clock: 1 MHz	
		1-phase 2-input (32 bits)		LC46 to LC50				
		2-phase 2-input (32 bits)		LC51 to LC55				
Data register	D	Non-latch*2	10	D0 to D199	200 points	8000 points	—	
		Latch*3		D200 to D7999	7800 points			
Special register	SD	For special	10	SD0 to SD11999	12000 points	12000 points	—	
Index register	Z	16 bits	10	Z0 to Z19	20 points	20 points	When range is changed Z0 to Z23 24 points*7	
Long index register	LZ	32 bits		LZ0 to LZ1	2 points	2 points	When range is changed LZ0 to LZ11 12 points*7	
File register	R	Non-latch*5	10	R0 to R32767	32768 points	32768 points	Retained by battery during power failure (Parameter setting required)	
Extended file register	ER	Latch	10	ER0 to ER32767	32768 points	32768 points	Stored in SD memory card	
Module access device	U□\G□	Intelligent function module device	10	U□\G□	65536 points	65536 points	U□: Module number for intelligent function module G□: Buffer memory address	
Link register	W	Non-latch*5	16	W0 to W1FF	512 points	512 points	When range is changed W0 to W7FFF 32768 points*6 Retained by battery during power failure (Parameter setting required)	
Link special register	SW	Non-latch (fixed)	16	SW0 to SW1FF	512 points	512 points	When range is changed SW0 to SW7FFF 32768 points*6	
Pointer	P	For branching of JUMP and CALL	10	P0 to P4095	4096 points	4096 points	For CJ instructions and CALL instructions	
	I	Input interrupt		I0 to I15	16 points	178 points	For CPU module input interrupt (Up to 8 points can be used.)	
		High-speed comparison match interrupt		I16 to I23	8 points		For CPU module high-speed comparison match interrupt	
		Interrupt by internal timer		I28 to I31	4 points		For set cycle interrupt with internal timer	
		Interrupt from module		I50 to I177	128 points		For interrupt of module equipped with interrupt function	
Nesting	N	For master control	10	N0 to N14	15 points	15 points	For MC instructions	
Constant	—	Decimal number (K)	—	Signed	16 bits: -32768 to +32767		32 bits: -2147483648 to +2147483647	
				Unsigned	16 bits: 0 to 65535		32 bits: 0 to 4294967295	
	—	Hexadecimal number (H)	—	16 bits	0 to FFFF			
				32 bits	0 to FFFFFFFF			
	—	Real number (E)	—	Single precision	E-3.40282347+38 to E-1.17549435-38, 0, E1.17549435-38 to E3.40282347+38			
	—	Character string	—	Max. 255 single-byte shift-JIS code characters (256 characters including NULL)				

∗1: Supported by FX5U/FX5UC Ver. 1.100 or later and by GX Works3 Ver. 1.047Z or later.

∗2: Non-backup area with GX Works3 default value settings. The built-in flash memory backup area can be changed with the parameter settings.

∗3: Built-in flash memory backup area with GX Works3 default value settings. This can be changed to the non-backup area with the parameter settings.

∗4: Built-in flash memory backup fixed area. The area characteristics cannot be changed.

∗5: Non-backup area with GX Works3 default value settings. This can be changed to battery backup area with parameter settings.

∗6: Max. number of points can be changed with parameters within capacity range of CPU's built-in memory.
(Total capacity of high-speed devices M, L, B, F, SB, S, T, ST, C, LC and D is 12 k. Total capacity for standard devices R, W, and SW is 48 k.)

∗7: The index register (Z) and long index register (LZ) can be set to a total of 24 words.

◇ FX5UJ performance specifications

FX5UJ CPU Module		
Item		Specification
Operation control system		Stored-program repetitive operation
Input/output control system		Refresh system (Direct access input/output allowed by specification of direct access input/output [DX, DY])
Programming specifications	Programming language	Ladder diagram (LD), structured text (ST), function block diagram/ladder language (FBD/LD)
	Programming expansion function	Function block (FB), function (FUN), label programming (local/global)
	Constant scan	0.5 to 2000 ms (can be set in 0.1 ms increments)
	Fixed cycle interrupt	1 to 60000 ms (can be set in 1 ms increments)
	Timer performance specifications	100 ms, 10 ms, 1 ms
	No. of program executions	32
	No. of FB files	16 files (up to 15 files for user)
Operation specifications	Execution type	Standby type, initial execution type, scan execution type, fixed-cycle execution type, event execution type
	Interrupt type	Internal timer interrupt, input interruption, high-speed comparison match interrupt, interrupt from module*1
Memory capacity	Program capacity	48 k steps (96 kbytes, flash memory)
	Device/label memory	120 kbytes
	Data memory	5 Mbytes
	Flash memory (Flash ROM) write count	Max. 20000 times
	SD memory card	Memory card capacity (SD/SDHC memory card: Max. 16 Gbytes)
Power failure retention (Device)	Capacity for power failure retention	Max. 12 k words
File storage capacity	Displayed information	1
	No. of program files	32
	No. of FB files	16 files (up to 15 files for user)
	SD memory card	NZ1MEM-2GBSD: 511*2
		NZ1MEM-4GBSD, NZ1MEM-8GBSD, SDNZ1MEM-16GBSD: 65534*2
Clock function	Displayed information	Year, month, date, hour, minute, second, day of week (leap year automatic detection)
	Precision	Monthly difference: ±45 sec at 25°C (typical value)
Power failure retention (clock data*3)	Retention method	Large-capacity capacitor
	Retention time	15 days (ambient temperature: 25°C)
No. of input/output points	(1) No. of input/output points	256 points or less
	(2) No. of remote I/O points	256 points or less
	Total No. of points of (1) and (2)	256 points or less

*1: Interrupt from the intelligent function module.

*2: The value listed above indicates the number of files stored in the root folder.

*3: Clock data is retained using the power accumulated in a large-capacity capacitor incorporated into the PLC. When voltage of the large capacity capacitor drops, clock data is no longer accurately retained. The retention period of a fully charged capacitor (electricity is conducted across the PLC for at least 30 minutes) is 15 days (ambient temperature: 25°C). How long the capacitor can hold the data depends on the operating ambient temperature. When the operating ambient temperature is high, the holding period is short.

◇ FX5UJ device points

FX5UJ CPU Module					
Item			Base	Points*1	Specifications
No. of user device points	X	Input relay	8	1024 points	The total number of X and Y assigned to input/output points is up to 256 points.
	Y	Output relay	8	1024 points	
	M	Internal relay	10	7680 points	—
	L	Latch relay	10	7680 points	—
	B	Link relay	16	2048 points	—
	F	Annunciator	10	128 points	—
	SB	Link special relay	16	2048 points	—
	S	Step relay	10	4096 points	—
	T	Timer	10	512 points	—
	ST	Accumulation timer		16 points	—
	C	Counter	10	256 points	—
	LC	Long counter		64 points	—
	D	Data register	10	8000 points	—
	W	Link register	16	1024 points	—
	SW	Link special register	16	1024 points	—
No. of system device points	SM	Special relay	10	10000 points	—
	SD	Special register	10	12000 points	—
Module access device	—	Intelligent function module device	10	Depends on the intelligent function module.	
No. of index register points	Z	Index register	10	20 points	—
	LZ	Long index register	10	2 points	—
No. of file register points	R	File register	10	32768 points	—
	ER	Extended file register	10	32768 points	Stored in SD memory card
No. of nesting points	N	Nesting	10	15 points	—
No. of pointer points	P	Pointer	10	2048 points	—
	I	Interrupt pointer	10	178 points	—
Others	K	Decimal number	—	16 bits: -32768 to +32767, 32 bits: -2147483648 to +2147483647	
				16 bits: 0 to 65535, 32 bits: 0 to 4294967295	
	H	Hexadecimal number	—	16 bits: 0 to FFFF, 32 bits: 0 to FFFFFFFF	
	E	Real number	—	E-3.40282347+38 to E-1.17549435-38, 0, E1.17549435-38 to E3.40282347+38	
	—	Character string	—	Shift-JIS code max. 255 single-byte characters (256 including NULL)	

*1: Maximum number of points cannot be changed. (Fixed)

◇ FX3U/FX3UC series performance specifications

FX3U/FX3UC Main Units				
Item		Specification		
Operation control system		Stored program repetitive operation system (dedicated LSI) with interruption function		
Input/output control system		Batch processing system (when END instruction is executed), input/output refresh instruction and pulse catch function are provided.		
Programming specifications	Programming language	Ladder diagram (LD), structured text (ST), function block diagram (FBD), sequential function chart (SFC)		
	Programming expansion function	Label programming (global), function block (FB)		
	Constant scan	1 to 32767 ms (can be set in 1 ms increments)*1		
	Fixed cycle interrupt	10 to 99 ms (can be set in 1 ms increments)		
Operation specifications	Execution type	Only scan execution		
	Interrupt type	Timer interrupt, input interrupt, high-speed counter interrupt		
Program memory	Program capacity	64000-step (2k-, 4k-, 8k-, 16k- or 32k-step memory can be selected by parameter settings.)		
		Comments and file registers can be created in the program memory by parameter settings.		
		Comments: Up to 6350 points (50 points/500 steps)		
		File registers: Up to 7000 points (500 points/500 steps)		
	Built-in memory capacity/type	64000-step (Symbolic information can be stored.*2)/RAM (backed up by built-in lithium battery (FX3U-32BL))		
		· Battery life: Approx. 5 years (ambient temperature: 25 °C (77°F))		
	Memory cassette (Option)	Flash memory (The max. memory capacity varies depending on the model of the memory cassette.) · FX3U-FLROM-1M*3: 64000 steps (no loader function, symbolic information can be stored in the dedicated area (1300 kB).) · FX3U-FLROM-64L: 64000 steps (loader function, symbolic information can be stored.*2) · FX3U-FLROM-64: 64000 steps (no loader function, symbolic information can be stored.*2) · FX3U-FLROM-16: 16000 steps (no loader function, symbolic information can be stored.*2) Max. allowable write: 10000 times		
	Writing function during running	Available (programs, excluding SFC program or list program, can be changed while PLC is running.)		
	Password protection	Provided (with entry code function)		
Power failure retention (Device)	Capacity for power failure retention	Built-in battery: Entire internal device (M, S, T, C, D, R) keep area		
		Memory cassette: File register max. 7000 points		
File storage capacity	Sequence program	1		
Display module (Mounting compatibility depends on model*4)	Display device	STN monochrome LCD, with backlight (green)		
	Display characters	16 letters × 4 lines (2 byte letters: 8 letters × 4 lines) English Alphabet, Numbers, Japanese Characters, Shift JIS Level-1, 2		
	Functions	Monitor/test, user registration monitor, error check, status display, random message display		
Clock function	Displayed information	Year, month, day, hour, minute, second, day of week 1980 to 2079 (with correction for leap year) 2- or 4-digit year		
	Precision	Monthly difference: ±45 sec at 25 °C (77 °F)		
	Retention method	Built-in lithium battery (FX3U-32BL)		
	Retention time	Approx. 5 years (ambient temperature: 25 °C (77 °F))		
Kinds of instructions	Basic instructions	Ver. 2.30 or later · Sequence instructions: 29 · Step-ladder instructions: 2 Former than Ver. 2.30 · Sequence instructions: 27 · Step-ladder instructions: 2		
	Applied instructions	219 kinds, 498 instructions		
Processing speed	Basic instructions	0.065 μs/instruction		
	Applied instructions	0.642 μs to several hundred μs/instruction		
No. of input/output points	(1) Extension combined number of input points	248 points	(3) total points	(1) + (2) ≤ (3) total number of points is 256 or less.
	(2) Extension combined number of output points	248 points		
	(4) No. of remote I/O points (CC-Link)	256 points or less*5		The total number of remote I/O points in CC-Link, AnyWireASLINK must be 256 points or less.
	(4) No. of remote I/O points (AnyWireASLINK)	128 points or less		
	(4) No. of remote I/O points	248 points or less		—
	(3) + (4) total number of points	384 points or less		—

∗1: When using the HKY instruction, the response will be delayed by the key input filter, so the scan time must be set to 20 ms or more.

∗2: Storage of the source information is supported from Ver. 3.00. The capacity of the source information that can be written will vary by the maximum capacity of each memory cassette and the memory capacity set with the parameters.

∗3: Supported in Ver. 3.00 or later.

∗4: FX3U is optional. FX3UC cannot be mounted.

∗5: 256 points or less when using FX3U-16CCL-M, and 224 points or less when using FX2N-16CCL-M.

◇ FX3U/FX3UC series device points

FX3U/FX3UC Main Units							
Item			Base	Device No.	At shipment from factory		Specifications
					Points	Total points	
Input/output relay	X	Input relay	8	X000 to X367	248 points	248 points	The total number of X and Y assigned to input/output points is up to 256 points.
	Y	Output relay	8	Y000 to Y367	248 points	248 points	
Auxiliary relay	M	For general*1	10	M0 to M499	500 points	7680 points	—
		For keeping*2		M500 to M1023	524 points		—
		For keeping*3		M1024 to M7679	6656 points		—
		For special		M8000 to M8511	512 points	512 points	—
The FX3 series does not have L, B, SB or F.							
State	S	Initial state*1	10	S0 to S9	10 points	4096 points	—
		For general*1		S10 to S499	490 points		—
		For keeping*2		S500 to S899	400 points		—
		For annunciator*2		S900 to S999	100 points		—
		For keeping*3		S1000 to S4095	3096 points		—
Timer (on-delay timer)	T	100 ms	10	T0 to T191	192 points	512 points	0.1 to 3276.7 sec.
		100 ms [for subroutine/ interruption subroutine]		T192 to T199	8 points		0.1 to 3276.7 sec.
		10 ms		T200 to T245	46 points		0.01 to 327.67 sec.
		1 ms accumulating type		T246 to T249	4 points		0.001 to 32.767 sec.
		100 ms accumulating type		T250 to T255	6 points		0.1 to 3276.7 sec.
		1 ms		T256 to T511	256 points		0.001 to 32.767 sec.
Counter	C	Increment for general (16 bits)*1	10	C0 to C99	100 points	200 points	Counting from 0 to 32767
		Increment for keeping by parameter settings. (16 bits)*2		C100 to C199	100 points		
		Both directions for general (32 bits)*1		C200 to C219	20 points	35 points	Counting from -2147483648 to +2147483647
		Increment for keeping (32 bits)*2		C220 to C234	15 points		
High speed counter	C	1-phase 1-count input in both directions (32 bits)*3	10	C235 to C245	Up to 8 points can be used in range from C235 to C255.		Counting from -2147483648 to +2147483647 · Hardware counter 1-phase: 100 kHz × 6 points, 10 kHz × 2 points 2-phase: 50 kHz (multiply by 1), 50 kHz (multiply by 4) · Software counter 1-phase: 40 kHz 2-phase: 40 kHz (multiply by 1), 10 kHz (multiply by 4) · FX3U-4HSX-ADP (only FX3U series) 1-phase: 200 kHz 2-phase: 100 kHz
		1-phase 2-count input in both directions (32 bits)*3		C246 to C250			
		2-phase 2-count input in both directions (32 bits)*3		C251 to C255			
Data register (32 bits when paired)	D	For general (16 bits)*1	10	D0 to D199	200 points	8000 points	—
		For keeping (16 bits)*2		D200 to D511	312 points		—
		For keeping (16 bits)*3 <File register>		D512 to D7999 <D1000 to D7999>	7488 points <7000 points>		D1000 and later in 7488 points of fixed data register for keeping can be set as file register points in 500-point units by changing the parameter settings.
		For special (16 bits)		D8000 to D8511	512 points	512 points	—
	V	For index (16 bits)	10	V0 to V7	8 points	16 points	—
	Z			Z0 to Z7	8 points		
Extension register	R	For keeping (16 bits)*3	10	R0 to R32767	32768 points	32768 points	Retained by battery during power failure
Extension file register	ER	For keeping (16 bits)	10	ER0 to ER32767	32768 points	32768 points	Usable only when memory cassette is mounted*4
Pointer	P	For branching of JUMP and CALL	10	P0 to P4095	4096 points	4096 points	For CJ instructions and CALL instructions
	I	Input interruption and input delay interruption		I0□□ to I5□□	6 points	15 points	—
		Timer interruption		I6□□ to I8□□	3 points		—
		Counter interruption		I010 to I060	6 points		For HSCS instructions
Nesting	N	For master control	10	N0 to N7	8 points	8 points	For MC instructions
Constant	—	Decimal number (K)	—	16 bits	-32768 to +32767		
				32 bits	-2147483648 to +2147483647		
	—	Hexadecimal number (H)	—	16 bits	0 to FFFF		
				32 bits	0 to FFFFFFFF		
	—	Real number (E)	—	32 bits	-1.0×2^{128} to -1.0×2^{-126}, 0, 1.0×2^{-126} to 1.0×2^{128} Decimal-point and exponential notations are possible.		
	—	Character string (" ")	—	Character string	Designation by characters enclosed with " ". Up to 32 one-byte characters can be used for a constant in an instruction.		

∗1: Non-battery backup area. This can be changed to battery backup area with parameter settings.

∗2: Battery backup area. The non-battery backup area can be changed with the parameter settings.

∗3: Battery backup fixed area. The area characteristics cannot be changed.

∗4: Allowable write count to memory cassette is 10000 times or less.

◇ FX3G/FX3GE/FX3GC series performance specifications

Item		FX3G/FX3GE Main Units	FX3GC Main Units
Operation control system		Stored program repetitive operation system with interruption function	
Input/output control system		Batch processing system (when END instruction is executed), input/output refresh instruction and pulse catch function are provided.	
Programming language		Relay symbol system + step-ladder system (SFC notation possible)	
Program memory	Program capacity	32000 steps (32000 steps including comments and file registers)	
	Built-in memory capacity/type	32000-step EEPROM, keyword protection function (with customer keyword function) Number of allowable writes: 20000 times	
	Memory cassette (Option)	EEPROM 32000 steps [with loader functions] Max. allowable write: 10000 times	–
	Writing function during running	Available (programs, excluding SFC program or list program, can be changed while PLC is running.)	
Real-time clock	Clock function*1	Built-in 1980 to 2079 (with leap year correction), 2- or 4-digit year, Monthly difference: ±45 sec at 25 °C (77 °F)	
Kinds of instructions	Sequence, step-ladder	Sequence instructions: 29, step-ladder instructions: 2	
	Applied instructions	125 types	121 types
Processing speed	Basic instructions	0.21 μs/instruction (during standard mode), 0.42 μs/instruction (during expansion mode).*3	
	Applied instructions	0.5 μs to several 100 μs/instruction (during standard mode), 1.2 μs to several 100 μs/instruction (during expansion mode)*3	
No. of input/output points	(1) Extension combined number of input points	X000 to X177 128 points or less	Total: 128 points or less
	(2) Extension combined number of output points	Y000 to Y177 128 points or less	
	(3) No. of remote I/O points	128 points or less (total number of points for CC-Link, AnyWireASLINK)	
	Total No. of points of (1) to (3)	256 points or less	
Input/output relay	Input relay	X000 to X177 128 points Device No. is octal No. Total input/output is 128 points.	
	Output relay	Y000 to Y177 128 points Device No. is octal No. Total input/output is 128 points.	
Auxiliary relay	For general	M0 to M383 384 points	
	For keeping (EEPROM keep)	M384 to M1535 1152 points	
	For general*2	M1536 to M7679 6144 points	
	For special	M8000 to M8511 512 points	
State	Initial state (EEPROM keep)	S0 to S9 10 points	
	For keeping (EEPROM keep)	S10 to S999 990 points	
	For general*2	S1000 to S4095 3096 points	
Timer (on-delay timer)	100 ms	T0 to T191 192 points (0.1 to 3276.7 sec.)	
	100 ms [for subroutine/interruption subroutine]	T192 to T199 8 points (0.1 to 3276.7 sec.)	
	10 ms	T200 to T245 46 points (0.01 to 327.67 sec.)	
	1 ms accumulating type (EEPROM keep)	T246 to T249 4 points (0.001 to 32.767 sec.)	
	100 ms accumulating type (EEPROM keep)	T250 to T255 6 points (0.1 to 3276.7 sec.)	
	1 ms	T256 to T319 64 points (0.001 to 32.767 sec.)	
Analog volume		VR1: D8030, VR2: D8031 2 points (0 to 255)	–
Counter	Increment for general (16 bits)	C0 to C15 16 points (Counting from 0 to 32767)	
	Increment for keeping by parameter settings. (16 bits EEPROM)	C16 to C199 184 points (Counting from 0 to 32767)	
	Both directions for general (32 bits)	C200 to C219 20 points (Counting from -2147483648 to +2147483647)	
	Increment for keeping (32 bits EEPROM)	C220 to C234 15 points (Counting from -2147483648 to +2147483647)	
High speed counter For keeping (EEPROM keep)	1-phase 1-count input in both directions (32 bits)	C235 to C245	C235 to C255 6 points (Counting from -2147483648 to +2147483647) 1-phase: 60 kHz × 4 points, 10 kHz × 2 points 2-phase: 30 kHz × 2 points, 5 kHz × 1 points
	1-phase 2-count input in both directions (32 bits)	C246 to C250	
	2-phase 2-count input in both directions (32 bits)	C251 to C255	
Data register (32 bits when paired)	For general (16 bits)	D0 to D127 128 points	
	For keeping (16 bits EEPROM)	D128 to D1099 972 points	
	For general (16 bits)*2	D1100 to D7999 6900 points	
	File register (inside EEPROM)	D1000 to D7999 7000 points (Using the parameters, D1000 and following can be set as 500-point unit file registers <EEPROM>.)*5	
	For special (16 bits)	D8000 to D8511 512 points	
	For index (16 bits)	V0 to V7, Z0 to Z7 16 points	
Extension register (16 bits)*2		R0 to R23999 24000 points	
Extension file register (16 bits)		ER0 to ER23999 24000 points (Inside EEPROM; EEPROM inside memory cassette when using memory cassette)*5	ER0 to ER23999 24000 points (Stored in main unit's built-in EEPROM)*6
Pointer	For branching of JUMP and CALL	P0 to P2047 2048 points For CJ instructions and CALL instructions	
	Input interrupt	I0□□ to I5□□ 6 points	
	Timer interruption	I6□□ to I8□□ 3 points	
Nesting	For master control	N0 to N7 8 points For MC instructions	
Constant	Decimal number (K)	16 bits -32768 to +32767	
		32 bits -2147483648 to +2147483647	
	Hexadecimal number (H)	16 bits 0 to FFFF	
		32 bits 0 to FFFFFFFF	
	Real number (E)*4	32 bits -1.0×2^{128} to -1.0×2^{-126}, 0, 1.0×2^{-126} to 1.0×2^{128} Decimal-point and exponential notations are possible.	

∗1: A full charge takes 30 minutes, and can retain the current value for ten days.
When optional battery is mounted, data can be retained for more than 10 days. (ambient temperature: 25°C (77°F))

∗2: When optional battery is mounted, area can be changed to battery backup area with the parameter settings.

∗3: Expansion mode is enabled when the program capacity is set to 16001 steps or more with the parameters.

∗4: Supported with main unit Ver. 1.10 and above.

∗5: The allowable write count to the built-in memory is 20000 times or less, and to the memory cassette is 10000 times or less.

∗6: The allowable write count to the built-in memory is 20000 times or less.

◇ FX3S series performance specifications

Item		FX3S Main Units
Operation control system		Stored program repetitive operation system with interruption function
Input/output control system		Batch processing system (when END instruction is executed), input/output refresh instruction and pulse catch function are provided.
Programming language		Relay symbol system + step-ladder system (SFC notation possible)
Program memory	Program capacity	4000 steps (16000 steps including comments and file registers)
	Built-in memory capacity/type	16000 step EEPROM, keyword protection function (with customer keyword function) Allowable write count: 20000 times
	Memory cassette (Option)	EEPROM 32000 steps (Note, only 16000 steps can be used) With loader function, allowable write count: 10000 times
	Writing function during running	Available (programs, excluding SFC program or list program, can be changed while PLC is running.)
Real-time clock	Clock function*1	Built-in 1980 to 2079 (with correction for leap year) 2- or 4-digit year, Monthly difference: ±45 sec at 25 °C (77 °F)
Kinds of instructions	Sequence, step-ladder	Sequence instructions: 29, step-ladder instructions: 2
	Applied instructions	116 types
Processing speed	Basic instructions	0.21 μs/instruction
	Applied instructions	0.5 μs to several hundred μs/instruction
No. of input/output points	Input points	X000 to X017 16 points or less (not extendable)
	No. of output points	Y000 to Y015 14 points or less (not extendable)
Input relay, output relay		X000 to X017 16 points Device No. is octal No. Y000 to Y015 14 points Device No. is octal No.
Auxiliary relay	For general	M0 to M383 384 points
	For keeping (EEPROM keep)	M384 to M511 128 points
	For general	M512 to M1535 1024 points
	For special	M8000 to M8511 512 points
State	Initial state (EEPROM keep)	S0 to S9 10 points
	For keeping (EEPROM keep)	S10 to S127 118 points
	For general	S128 to S255 128 points
Timer (on-delay timer)	100 ms	T0 to T62 63 points (0.1 to 3276.7 sec.)
	10 ms	When M8028 is turned ON, T32 to T62 can be changed to 10 ms timer. (0.01 to 327.67 sec.)
	1 ms	T63 to T127 65 points (0.001 to 32.767 sec.)
	1 ms accumulating type (EEPROM keep)	T128 to T131 4 points (0.001 to 32.767 sec.)
	100 ms accumulating type (EEPROM keep)	T132 to T137 6 points (0.1 to 3276.7 sec.)
Analog volume	Other than FX3S-30M□/E□-2AD	VR1: D8030, VR2: D8031 2 points (0 to 255)
Analog voltage input	Only FX3S-30M□/E□-2AD	Ch1: D8270, Ch2: D8271 2 points (0 to 10 V DC)
Counter	Increment for general (16 bits)	C0 to C15 16 points (Counting from 0 to 32767)
	Increment for keeping by parameter settings. (16 bits EEPROM)	C16 to C31 16 points (Counting from 0 to 32767)
	Both directions for general (32 bits)	C200 to C234 35 points (Counting from -2147483648 to +2147483647)
High speed counter For keeping (EEPROM keep)	1-phase 1-count input in both directions (32 bits)	C235 to C255 6 points (Counting from -2147483648 to +2147483647) 1-phase: 60 kHz × 2 points, 10 kHz × 4 points 2-phase: 30 kHz × 1 points, 5 kHz × 1 points
	1-phase 2-count input in both directions (32 bits)	
	2-phase 2-count input in both directions (32 bits)	
Data register (32 bits when paired)	For general (16 bits)	D0 to D127 128 points
	For keeping (16 bits EEPROM)	D128 to D255 128 points
	For general (16 bits)	D256 to D2999 2744 points
	File register (inside EEPROM)	D1000 to D2999 max. 2000 points (Using the parameters, D1000 and following can be set as 500-point unit file registers in the program area <EEPROM>)*2
	For special (16 bits)	D8000 to D8511 512 points
	For index (16 bits)	V0 to V7, Z0 to Z7 16 points
Pointer	For branching of JUMP and CALL	P0 to P255 256 points For CJ instructions and CALL instructions
	Input interrupt	I0□□ to I5□□ 6 points
	Timer interruption	I6□□ to I8□□ 3 points
Nesting	For master control	N0 to N7 8 points For MC instructions
Constant	Decimal number (K)	16 bits -32768 to +32767
		32 bits -2147483648 to +2147483647
	Hexadecimal number (H)	16 bits 0 to FFFF
		32 bits 0 to FFFFFFFF
	Real number (E)	32 bits -1.0×2^{128} to -1.0×2^{-126}, 0, 1.0×2^{-126} to 1.0×2^{128} Decimal-point and exponential notations are possible.

*1: A full charge takes 30 minutes, and can retain the current value for ten days. (ambient temperature: 25 °C (77 °F))

*2: The allowable write count to the built-in memory is 20000 times or less, and to the memory cassette is 10000 times or less.

Products List

FX5UJ/FX5U/FX5UC

◇ CPU module

Model	Specifications					External dimensions (mm) (W × H × D)
	Rated voltage	Input		Output		
◆FX5UJ CPU module						
FX5UJ-24MR/ES	100 to 240 V AC 50/60 Hz	14 points	24 V DC sink/source	10 points	Relay	95 × 90 × 83
FX5UJ-24MT/ES					Transistor/sink	
FX5UJ-24MT/ESS					Transistor/source	
FX5UJ-40MR/ES		24 points		16 points	Relay	130 × 90 × 83
FX5UJ-40MT/ES					Transistor/sink	
FX5UJ-40MT/ESS					Transistor/source	
FX5UJ-60MR/ES		36 points		24 points	Relay	175 × 90 × 83
FX5UJ-60MT/ES					Transistor/sink	
FX5UJ-60MT/ESS					Transistor/source	
◆FX5U CPU module						
FX5U-32MR/ES	100 to 240 V AC 50/60 Hz	16 points	24 V DC sink/source	16 points	Relay	150 × 90 × 83
FX5U-32MT/ES					Transistor/sink	
FX5U-32MT/ESS					Transistor/source	
FX5U-64MR/ES		32 points		32 points	Relay	220 × 90 × 83
FX5U-64MT/ES					Transistor/sink	
FX5U-64MT/ESS					Transistor/source	
FX5U-80MR/ES		40 points		40 points	Relay	285 × 90 × 83
FX5U-80MT/ES					Transistor/sink	
FX5U-80MT/ESS					Transistor/source	
FX5U-32MR/DS	24 V DC	16 points	24 V DC sink/source	16 points	Relay	150 × 90 × 83
FX5U-32MT/DS					Transistor/sink	
FX5U-32MT/DSS					Transistor/source	
FX5U-64MR/DS		32 points		32 points	Relay	220 × 90 × 83
FX5U-64MT/DS					Transistor/sink	
FX5U-64MT/DSS					Transistor/source	
FX5U-80MR/DS		40 points		40 points	Relay	285 × 90 × 83
FX5U-80MT/DS					Transistor/sink	
FX5U-80MT/DSS					Transistor/source	
◆FX5UC CPU module						
FX5UC-32MT/D	24 V DC	16 points	24 V DC sink	16 points	Transistor/sink	42.1 × 90 × 89.1
FX5UC-32MT/DSS			24 V DC sink/source		Transistor/source	
FX5UC-32MT/DS-TS					Transistor/sink	48.1 × 90 × 93.7
FX5UC-32MT/DSS-TS					Transistor/source	
FX5UC-32MR/DS-TS		16 points	24 V DC sink/source	16 points	Relay	68.2 × 90 × 93.7
FX5UC-64MT/D		32 points	24 V DC sink	32 points	Transistor/sink	62.2 × 90 × 89.1
FX5UC-64MT/DSS			24 V DC sink/source		Transistor/source	
FX5UC-96MT/D		48 points	24 V DC sink	48 points	Transistor/sink	82.3 × 90 × 89.1
FX5UC-96MT/DSS			24 V DC sink/source		Transistor/source	

◇ Safety extension module

Model	Specifications
FX5-SF-MU4T5	Safety main module
FX5-SF-8DI4	Safety input expansion module

◇ I/O module

Model	Specifications					External dimensions (mm) (W × H × D)
	Rated voltage	Input		Output		
■■■Extension cable type■■■						
◆Input module						
FX5-8EX/ES	Supplied from CPU module	8 points	24 V DC sink/source	—	—	40 × 90 × 83
FX5-16EX/ES		16 points		—	—	
◆Output module						
FX5-8EYR/ES	Supplied from CPU module	—	—	8 points	Relay	40 × 90 × 83
FX5-8EYT/ES					Transistor/sink	
FX5-8EYT/ESS					Transistor/source	
FX5-16EYR/ES		—	—	16 points	Relay	
FX5-16EYT/ES					Transistor/sink	
FX5-16EYT/ESS					Transistor/source	
◆Input/output module						
FX5-16ER/ES	Supplied from CPU module	8 points	24 V DC sink/source	8 points	Relay	40 × 90 × 83
FX5-16ET/ES					Transistor/sink	
FX5-16ET/ESS					Transistor/source	
◆High-speed pulse input/output module						
FX5-16ET/ES-H	Supplied from CPU module	8 points	24 V DC sink/source	8 points	Transistor/sink	40 × 90 × 83
FX5-16ET/ESS-H					Transistor/source	
◆Powered input/output module						
FX5-32ER/ES	100 to 240 V AC 50/60 Hz	16 points	24 V DC sink/source	16 points	Relay	150 × 90 × 83
FX5-32ET/ES					Transistor/sink	
FX5-32ET/ESS					Transistor/source	
FX5-32ER/DS	24 V DC	16 points	24 V DC sink/source	16 points	Relay	
FX5-32ET/DS					Transistor/sink	
FX5-32ET/DSS					Transistor/source	
■■■Extension connector type■■■						
◆Input module						
FX5-C16EX/D	Supplied from CPU module	16 points	24 V DC sink	—	—	14.6 × 90 × 87
FX5-C16EX/DS			24 V DC sink/source			
FX5-C32EX/D		32 points	24 V DC sink	—	—	20.1 × 90 × 87
FX5-C32EX/DS			24 V DC sink/source			
FX5-C32EX/DS-TS						20.1 × 90 × 93.7
◆Output module						
FX5-C16EYT/D	Supplied from CPU module	—	—	16 points	Transistor/sink	14.6 × 90 × 87
FX5-C16EYT/DSS					Transistor/source	
FX5-C16EYR/D-TS		—	—	16 points	Relay	30.7 × 90 × 93.7
FX5-C32EYT/D		—	—	32 points	Transistor/sink	20.1 × 90 × 87
FX5-C32EYT/DSS					Transistor/source	
FX5-C32EYT/D-TS					Transistor/sink	20.1 × 90 × 93.7
FX5-C32EYT/DSS-TS					Transistor/source	
◆Input/output module						
FX5-C32ET/D	Supplied from CPU module	16 points	24 V DC sink	16 points	Transistor/sink	20.1 × 90 × 87
FX5-C32ET/DSS			24 V DC sink/source		Transistor/source	
FX5-C32ET/DS-TS					Transistor/sink	20.1 × 90 × 93.7
FX5-C32ET/DSS-TS					Transistor/source	

◇ Expansion board, expansion adapter

Model	Specifications
FX5-232-BD	For RS-232C communication
FX5-485-BD	For RS-485 communication
FX5-422-BD-GOT	For GOT connection RS-422 communication
FX5-232ADP	For RS-232C communication
FX5-485ADP	For RS-485 communication
FX5-4AD-ADP	4 ch analog input adapter
FX5-4AD-PT-ADP	4 ch temperature sensor (resistance temperature detector) input
FX5-4AD-TC-ADP	4 ch temperature sensor (thermocouple) input
FX5-4DA-ADP	4 ch analog output adapter

◇ FX5 extension power supply module, bus conversion module, connector conversion module

Model	Specifications
FX5-1PSU-5V	FX5U (AC power supply type) extension power supply
FX5-C1PS-5V	FX5U (DC power supply type)/ FX5UC extension power supply
FX5-CNV-BUS	Bus conversion FX5 (extension cable type) → FX3
FX5-CNV-BUSC	Bus conversion FX5 (extension connector type) → FX3
FX5-CNV-IF	Connector conversion FX5 (extension cable type) → FX5 (extension connector type)
FX5-CNV-IFC	Connector conversion FX5 (extension connector type) → FX5 (extension cable type)

◇ FX5 intelligent function module

Model	Specifications
FX5-4AD	4 ch analog input
FX5-4DA	4 ch analog output
FX5-8AD	8 ch multiple input
FX5-4LC	4 ch temperature control
FX5-20PG-P	2-axis pulse train positioning (transistor output)
FX5-20PG-D	2-axis pulse train positioning (Differential driver type)
FX5-40SSC-S	Simple motion 4-axis control
FX5-80SSC-S	Simple motion 8-axis control
FX5-ENET	Ethernet module
FX5-ENET/IP	EtherNet/IP module
FX5-CCL-MS	CC-Link system master/intelligent device station
FX5-CCLIEF	Intelligent device station for CC-Link IE Field network
FX5-ASL-M	AnyWireASLINK system master module
FX5-DP-M	PROFIBUS-DP master module

◇ FX3 extension power supply module

Model	Specifications
FX3U-1PSU-5V	FX3 extension power supply

◇ FX3 intelligent function module

Model	Specifications
FX3U-4AD	4 ch analog input
FX3U-4DA	4 ch analog output
FX3U-4LC	4 ch temperature control
FX3U-1PG	Positioning pulse output 200 kpps
FX3U-2HC	2 ch 200 kHz high-speed counter
FX3U-16CCL-M	Master for CC-Link V2
FX3U-64CCL	Interface for CC-Link V2
FX3U-128ASL-M	Master for AnyWireALSINK system
FX3U-32DP	PROFIBUS-DP slave

◇ Software package

Type	Model	Specifications
MELSOFT iQ Works (DVD-ROM)	SW2DND-IQWK-E*1	FA engineering software (English version)*2
MELSOFT GX Works3 (DVD-ROM)	SW1DND-GXW3-E	PLC engineering software*2 (English version bundled product: GX Works 2, with GX Developer included)
MX Component	SW4DNC-ACT-E	ActiveX library for communication
MX Sheet	SW2DNC-SHEET-E	Microsoft® Excel® communication support tool
MX Works	SW2DNC-SHEETSET-E	A set of MX Component and MX Sheet

∗1: If you have a conventional model (SW1DN□-IQWK-E), you cannot update.
Please purchase an upgraded version separately.
For details, please contact our sales representative.

∗2: For the corresponding models of each software, please refer to the manual of each product.

◇ Communication cable

Model		Specifications
FX-232CAB-1	3 m	9-pin D-sub (female) ⇔ 9-pin D-sub (female) (for DOS/V, etc.)
MR-J3USBCBL3M	3 m	USB cables for connecting a personal computer
GT09-C30USB-5P	3 m	

◇ Input/output cable

Model		Specifications
FX-16E-150CAB	1.5 m	For connection between terminal module and FX5 PLC (Flat cable with connectors at both ends)
FX-16E-300CAB	3.0 m	
FX-16E-500CAB	5.0 m	
FX-16E-500CAB-S	5.0 m	Loose wire with connector on one end
FX-16E-150CAB-R	1.5 m	For connection between terminal module and FX5 PLC (Multi-core round cable with connectors at both ends)
FX-16E-300CAB-R	3.0 m	
FX-16E-500CAB-R	5.0 m	

◇ Input/output connector

Model	Specifications
FX2C-I/O-CON	20-pin connector and 10 pressure connectors for flat cable
FX2C-I/O-CON-S	20-pin connector and 5 sets of housing for loose wire and crimp contact (for 0.3 mm^2)
FX2C-I/O-CON-SA	20-pin connector and 5 sets of housing for loose wire and crimp contact (for 0.5 mm^2)
A6CON1	40-pin connector, soldered type for external device connection (straight protrusion)
A6CON2	40-pin connector, crimped type for external device connection (straight protrusion)
A6CON4	40-pin connector, soldered type for external device connection (both straight/inclined protrusion type)
FX-I/O-CON2-S	40-pin connector, 2 sets for discrete wire, AWG22 (0.3 mm^2)
FX-I/O-CON2-SA	40-pin connector, 2 sets for discrete wire, AWG20 (0.5 mm^2)

◇ Terminal module

Model	Specifications
FX-16E-TB	16 input or output points
FX-32E-TB	32 input or output points
FX-16E-TB/UL	16 input or output points
FX-32E-TB/UL	32 input or output points
FX-16EYR-TB	16 relay output points 2 A/1 point (8 A/4 points)
FX-16EYS-TB	16 triac output points, 0.3 A/1 point (0.8 A/4 points)
FX-16EYT-TB	16 transistor output points, 0.5 A/1 point (0.8 A/4 points) (sink output)
FX-16EYR-ES-TB/UL	16 relay output points 2 A/1 point (8 A/4 points)
FX-16EYS-ES-TB/UL	16 triac output points, 0.3 A/1 point (0.8 A/4 points)
FX-16EYT-ES-TB/UL	16 transistor output points, 0.5 A/1 point (0.8 A/4 points) (sink output)
FX-16EYT-ESS-TB/UL	16 transistor output points, 0.5 A/1 point (0.8 A/4 points) (source output)

◇ Power cable

Model	Specifications
FX2NC-100MPCB	FX5UC CPU module, for 24 V DC power supply
FX2NC-100BPCB	Extension module (extension connector type), for 24 V DC input power supply
FX2NC-10BPCB1	Extension module (extension connector type), for 24 V DC input power supply connection wiring

◇ Extended cable, connector conversion adapter

Model		Specifications
FX5-30EC	30 cm	For the extension of FX5 extension module
FX5-65EC	65 cm	
FX5-CNV-BC		For the connection between an extended extension cable and an FX5 input/output module (extension cable type), a high-speed pulse input/output module, or an FX5 intelligent function module

◇ SD memory card, battery

Model	Specifications
NZ1MEM-2GBSD	SD memory card (2 GB)
NZ1MEM-4GBSD	SDHC memory card (4 GB)
NZ1MEM-8GBSD	SDHC memory card (8 GB)
NZ1MEM-16GBSD	SDHC memory card (16 GB)
FX3U-32BL	Battery

FX3 series

◇ Main unit

Model	Points		Outline dimensions (mm)
	Input	Output	(W × H × D)
◆FX3S series			
FX3S-10MR/ES	6	4	60 × 90 × 75
FX3S-10MT/ES			
FX3S-10MT/ESS			
FX3S-14MR/ES	8	6	60 × 90 × 75
FX3S-14MT/ES			
FX3S-14MT/ESS			
FX3S-20MR/ES	12	8	75 × 90 × 75
FX3S-20MT/ES			
FX3S-20MT/ESS			
FX3S-30MR/ES	16	14	100 × 90 × 75
FX3S-30MT/ES			
FX3S-30MT/ESS			
FX3S-30MR/ES-2AD	16	14	100 × 90 × 75
FX3S-30MT/ES-2AD			
FX3S-30MT/ESS-2AD			
FX3S-10MR/DS	6	4	60 × 90 × 49
FX3S-10MT/DS			
FX3S-10MT/DSS			
FX3S-14MR/DS	8	6	60 × 90 × 49
FX3S-14MT/DS			
FX3S-14MT/DSS			
FX3S-20MR/DS	12	8	75 × 90 × 49
FX3S-20MT/DS			
FX3S-20MT/DSS			
FX3S-30MR/DS	16	14	100 × 90 × 49
FX3S-30MT/DS			
FX3S-30MT/DSS			
◆FX3G series			
FX3G-14MR/ES	8	6	90 × 90 × 86
FX3G-14MT/ES			
FX3G-14MT/ESS			
FX3G-24MR/ES	14	10	90 × 90 × 86
FX3G-24MT/ES			
FX3G-24MT/ESS			
FX3G-40MR/ES	24	16	130 × 90 × 86
FX3G-40MT/ES			
FX3G-40MT/ESS			
FX3G-60MR/ES	36	24	175 × 90 × 86
FX3G-60MT/ES			
FX3G-60MT/ESS			
FX3G-14MR/DS	8	6	90 × 90 × 86
FX3G-14MT/DS			
FX3G-14MT/DSS			
FX3G-24MR/DS	14	10	90 × 90 × 86
FX3G-24MT/DS			
FX3G-24MT/DSS			
FX3G-40MR/DS	24	16	130 × 90 × 86
FX3G-40MT/DS			
FX3G-40MT/DSS			
FX3G-60MR/DS	36	24	175 × 90 × 86
FX3G-60MT/DS			
FX3G-60MT/DSS			
◆FX3GE series			
FX3GE-24MR/ES	14	10	130 × 90 × 86
FX3GE-24MT/ES			
FX3GE-24MT/ESS			
FX3GE-24MR/DS			
FX3GE-24MT/DS			
FX3GE-24MT/DSS			
FX3GE-40MR/ES	24	16	175 × 90 × 86
FX3GE-40MT/ES			
FX3GE-40MT/ESS			
FX3GE-40MR/DS			
FX3GE-40MT/DS			
FX3GE-40MT/DSS			

Model	Points		Outline dimensions (mm)
	Input	Output	(W × H × D)
◆FX3GC series			
FX3GC-32MT/D	16	16	34 × 90 × 87
FX3GC-32MT/DSS			
◆FX3U series			
FX3U-16MR/ES	8	8	130 × 90 × 86
FX3U-16MT/ES			
FX3U-16MT/ESS			
FX3U-32MR/ES	16	16	150 × 90 × 86
FX3U-32MT/ES			
FX3U-32MS/ES			
FX3U-32MT/ESS			
FX3U-32MR/UA1			182 × 90 × 86
FX3U-48MR/ES	24	24	182 × 90 × 86
FX3U-48MT/ES			
FX3U-48MT/ESS			
FX3U-64MR/ES	32	32	220 × 90 × 86
FX3U-64MT/ES			
FX3U-64MS/ES			
FX3U-64MT/ESS			
FX3U-64MR/UA1			285 × 90 × 86
FX3U-80MR/ES	40	40	285 × 90 × 86
FX3U-80MT/ES			
FX3U-80MT/ESS			
FX3U-128MR/ES	64	64	350 × 90 × 86
FX3U-128MT/ES			
FX3U-128MT/ESS			
FX3U-16MR/DS	8	8	130 × 90 × 86
FX3U-16MT/DS			
FX3U-16MT/DSS			
FX3U-32MR/DS	16	16	150 × 90 × 86
FX3U-32MT/DS			
FX3U-32MT/DSS			
FX3U-48MR/DS	24	24	182 × 90 × 86
FX3U-48MT/DS			
FX3U-48MT/DSS			
FX3U-64MR/DS	32	32	220 × 90 × 86
FX3U-64MT/DS			
FX3U-64MT/DSS			
FX3U-80MR/DS	40	40	285 × 90 × 86
FX3U-80MT/DS			
FX3U-80MT/DSS			
◆FX3UC series			
FX3UC-16MR/D-T	8	8	34 × 90 × 89
FX3UC-16MR/DS-T			
FX3UC-16MT/D	8	8	34 × 90 × 87
FX3UC-16MT/DSS			
FX3UC-32MT/D	16	16	34 × 90 × 87
FX3UC-32MT/DSS			
FX3UC-64MT/D	32	32	59.7 × 90 × 87
FX3UC-64MT/DSS			
FX3UC-96MT/D	48	48	85.4 × 90 × 87
FX3UC-96MT/DSS			

Products other than the above, expansion devices and spare part which can be used alone are not published in this material.

◇ Extension, peripheral device, and battery, etc.

Model	Specifications		Compatible PLC					
	Input	Output	FX3S	FX3G	FX3GE	FX3GC	FX3U	FX3UC
◆Extension unit								
FX2N-32ER-ES/UL	16 points	16 points	—	○	○	—	○	—
FX2N-32ET-ESS/UL			—	○	○	—	○	—
FX2N-32ER			—	○	○	—	○	—
FX2N-32ET			—	○	○	—	○	—
FX2N-32ES			—	○	○	—	○	—
FX2N-48ER-ES/UL	24 points	24 points	—	○	○	—	○	—
FX2N-48ET-ESS/UL			—	○	○	—	○	—
FX2N-48ER			—	○	○	—	○	—
FX2N-48ET			—	○	○	—	○	—
FX2N-48ER-DS			—	○	○	—	○	—
FX2N-48ET-DSS			—	○	○	—	○	—
FX2N-48ER-D			—	○	○	—	○	—
FX2N-48ET-D			—	○	○	—	○	—
FX2N-48ER-UA1/UL			—	○	○	—	○	—
◆Input/output mixed block								
FX2N-8ER-ES/UL	4 points	4 points	—	○	○	◇	○	◇
FX2NC-64ET	32 points	32 points	—	—	—	○	—	○
◆Input block								
FX2N-8EX-ES/UL	8 points	—	—	○	○	◇	○	◇
FX2N-8EX			—	○	○	◇	○	◇
FX2N-8EX-UA1/UL			—	○	○	◇	○	◇
FX2N-16EX-ES/UL	16 points	—	—	○	○	◇	○	◇
FX2N-16EX			—	○	○	◇	○	◇
FX2N-16EX-C			—	○	○	◇	○	◇
FX2N-16EXL-C			—	○	○	◇	○	◇
FX2NC-16EX-T-DS			—	—	—	○	—	○
FX2NC-16EX-DS			—	—	—	○	—	○
FX2NC-16EX			—	—	—	○	—	○
FX2NC-16EX-T			—	—	—	○	—	○
FX2NC-32EX	32 points	—	—	—	—	○	—	○
FX2NC-32EX-DS			—	—	—	○	—	○
◆Output block								
FX2N-8EYR-ES/UL	—	8 points	—	○	○	◇	○	◇
FX2N-8EYR-S-ES/UL			—	○	○	◇	○	◇
FX2N-8EYT-ESS/UL			—	○	○	◇	○	◇
FX2N-8EYR			—	○	○	◇	○	◇
FX2N-8EYT			—	○	○	◇	○	◇
FX2N-8EYT-H			—	○	○	◇	○	◇
FX2N-8EYR-S-ES/UL			—	○	○	◇	○	◇
FX2N-16EYR-ES/UL	—	16 points	—	○	○	◇	○	◇
FX2N-16EYT-ESS/UL			—	○	○	◇	○	◇
FX2N-16EYR			—	○	○	◇	○	◇
FX2N-16EYT			—	○	○	◇	○	◇
FX2N-16EYT-C			—	○	○	◇	○	◇
FX2N-16EYS			—	○	○	◇	○	◇
FX2NC-16EYR-T			—	—	—	○	—	○
FX2NC-16EYR-T-DS			—	—	—	○	—	○
FX2NC-16EYT			—	—	—	○	—	○
FX2NC-16EYT-DSS			—	—	—	○	—	○
FX2NC-32EYT	—	32 points	—	—	—	○	—	○
FX2NC-32EYT-DSS			—	—	—	○	—	○
◆Analog input/output								
FX2N-5A	4 ch	1 ch	—	○	○	◇	○	◇
FX2N-2DA	—	2 ch	—	○	○	◇	○	◇
FX3U-4DA	—	4 ch	—	○	○	◇	○	✶9
FX2N-2AD	2 ch	—	—	○	○	◇	○	◇
FX3U-4AD	4 ch	—	—	○	○	◇	○	✶9
FX3UC-4AD	4 ch	—	—	—	—	○	—	○
FX2N-8AD	8 ch	—	—	○	○	◇	○	◇
◆Temperature sensor input block								
FX3U-4LC	4 ch temperature regulator		—	○	○	◇	○	✶1
◆High-speed counter block								
FX2N-1HC Scheduled to end	1 ch 2-phase 50 kHz		—	—	—	—	○	✶1
FX2NC-1HC Scheduled to end	1 ch 2-phase 50 kHz		—	—	—	—	—	○
FX3U-2HC	2 ch 2-phase 200 kHz		—	—	—	—	○	✶1

Model	Specifications		Compatible PLC					
	Input	Output	FX3S	FX3G	FX3GE	FX3GC	FX3U	FX3UC
◆Positioning related module/block								
FX3U-1PG	1-axis 200 kHz		—	—	—	—	○	✶1
FX2N-10PG	1-axis 1 M kHz		—	—	—	—	○	◇
FX2N-10GM Scheduled to end	1-axis 200 kHz		—	—	—	—	○	◇
FX2N-20GM Scheduled to end	2-axis 200 kHz		—	—	—	—	○	◇
FX3U-20SSC-H	2-axis SSCNET III		—	—	—	—	○	✶1
FX2N-1RM-E-SET Scheduled to end	Cam switch		—	—	—	—	○	◇
◆Communication block								
FX-485PC-IF-SET	Signal exchange		○	○	○	○	○	○
FX2N-232IF	1 ch RS-232C communication		—	—	—	—	○	◇
FX3U-ENET	Ethernet		—	○	○	◇	✶2	✶2
FX3U-ENET-L✶11	Ethernet		—	—	—	—	✶2	✶2
FX3U-16CCL-M	CC-Link master station		—	○	○	◇	○	✶1
FX3U-64CCL	Intelligent device station		—	○	○	◇	○	✶1
FX2N-32CCL	Remote device station		—	○	○	◇	○	◇
FX2N-64CL-M	CC-Link/LT master station		—	○	○	◇	○	◇
FX3U-128ASL-M	AnyWireASLINK master station		—	○	○	◇	○	✶1
FX3U-64DP-M✶11	PROFIBUS-DP master station		—	—	—	—	○	◇
FX3U-32DP✶11	PROFIBUS-DP slave		—	○	○	◇	○	◇
◆Communication adapter								
FX3U-232ADP-MB	RS-232C (MODBUS) communication		★	☆	○	○	●	●
FX3U-485ADP-MB	RS-485 (MODBUS) communication		★	☆	○	○	●	●
FX3U-ENET-ADP	Ethernet		✶10	✶7	—	✶7	✶8	✶8
◆Analog, temperature sensor adapter								
FX3U-3A-ADP	2 ch	1 ch	★	✶3	○	○	✶4	✶4
FX3U-4DA-ADP	—	4 ch	★	☆	○	○	●	○
FX3U-4AD-ADP	4 ch	—	★	☆	○	○	●	○
FX3U-4AD-PT-ADP	4 ch	—	★	☆	○	○	●	○
FX3U-4AD-PTW-ADP	4 ch	—	★	☆	○	○	●	○
FX3U-4AD-TC-ADP	4 ch	—	★	☆	○	○	●	○
FX3U-4AD-PNK-ADP	4 ch	—	★	☆	○	○	●	○
◆High-speed input/output adapter								
FX3U-4HSX-ADP	4 ch	—	—	—	—	—	○	—
FX3U-2HSY-ADP	—	2 ch	—	—	—	—	○	—
◆CF card special adapter								
FX3U-CF-ADP	For CF card connection		—	—	—	—	✶4	✶4
◆FX3S interface adapter								
FX3S-CNV-ADP	For adapter connection		○	—	—	—	—	—
◆FX3G interface adapter								
FX3G-CNV-ADP	For adapter connection		—	○	—	—	—	—
◆Expansion board for FX3S, FX3G(E)								
FX3G-8AV-BD	8-point volume		○	✶5	○	—	—	—
FX3G-232-BD	1 ch RS-232C communication		○	○	○	—	—	—
FX3G-422-BD	1 ch RS-422 communication		○	○	○	—	—	—
FX3G-485-BD	1 ch RS-485 communication		○	○	○	—	—	—
FX3G-485-BD-RJ	RS-485 communication		○	○	○	—	—	—
FX3G-4EX-BD	4 points	—	✶5	✶1	○	—	—	—
FX3G-2EYT-BD	—	2 points	✶5	✶1	○	—	—	—
FX3G-2AD-BD	2 ch	—	○	✶5	○	—	—	—
FX3G-1DA-BD	—	1 ch	○	✶5	○	—	—	—
◆Expansion board for FX3U								
FX3U-8AV-BD	8-point volume		—	—	—	—	✶6	—
FX3U-232-BD	1 ch RS-232C communication		—	—	—	—	○	—
FX3U-422-BD	1 ch RS-422 communication		—	—	—	—	○	—
FX3U-485-BD	1 ch RS-485 communication		—	—	—	—	○	—
FX3U-USB-BD	USB connection		—	—	—	—	○	—
FX3U-CNV-BD	For adapter connection		—	—	—	—	○	—
◆Battery								
FX3U-32BL	For FX3G(C)(E), FX3U(C), etc.		—	✶12	✶12	✶12	✶13	✶13

◇: FX2NC-CNV-IF or FX3UC-1PS-5V required
●: Extension board required
☆: FX3G-CNV-ADP required
★: FX3S-CNV-ADP required

✶1: Main unit Ver. 2.20 and above (FX3UC requires FX2NC-CNV-IF or FX3UC-1PS-5V).
✶2: Main unit Ver. 2.21 and above (FX3UC requires FX2NC-CNV-IF or FX3UC-1PS-5V).
✶3: Main unit Ver.1.20 and above and FX3G-CNV-ADP are required.
✶4: Expansion board is required to connect main unit Ver. 2.61 and above FX3U.
✶5: Main unit Ver. 1.10 and above.
✶6: Supported with main unit Ver. 2.70.
✶7: Main unit Ver. 2.00 and above, and FX3G-CNV-ADP are required (FX3GC is not required).
✶8: Expansion board is required to connect main unit Ver. 3.10 and above FX3U.
✶9: Main unit Ver. 1.30 and above, and FX2NC-CNV-IF or FX3UC-1PS-5V are required.
✶10: FX3U-ENET-ADP Ver. 1.20 and above, and FX3S-CNV-ADP are required.
✶11: Refer to the product manual for the compatible version of the PLC.
✶12: Option
✶13: Spare parts

◇ Extension and peripheral device, etc.

Model		Specifications		Compatible PLC					
		Input	Output	FX3S	FX3G	FX3GE	FX3GC	FX3U	FX3UC
◆Extension power supply unit									
FX3UC-1PS-5V		For FX3GC, FX3UC Extension power supply		—	—	—	○	—	○
FX3U-1PSU-5V		For FX3G, FX3GE, FX3U Extension power supply		—	∗8	∗8	—	∗8	—
◆Extension block extension cable									
FX0N-30EC	30 cm	Extension block extension length		—	○	○	◇	○	◇
FX0N-65EC	65 cm	Extension block extension length		—	○	○	◇	○	◇
◆Connector converter									
FX2N-CNV-BC		Extension cable relay		—	○	○	◇	○	◇
FX2NC-CNV-IF		Holder for external mounting		—	—	—	○	—	○
◆Display module									
FX3S-5DM		Setting display		∗4	—	—	—	—	—
FX3G-5DM		Setting display		—	∗1	○	—	—	—
FX3U-7DM		Setting display		—	—	—	—	○	—
FX3U-7DM-HLD		Holder for external mounting		—	—	—	—	○	—
◆Memory cassettes									
FX3G-EEPROM-32L		With 32 k loader function		○	○	○	—	—	—
FX3U-FLROM-16		16 k step		—	—	—	—	○	○
FX3U-FLROM-64		64 k step		—	—	—	—	○	○
FX3U-FLROM-64L		With 64 k loader function		—	—	—	—	○	○
FX3U-FLROM-1M		64 k source information 1.3 MB		—	—	—	—	∗2	∗2
◆Power cables									
FX2NC-100MPCB		For main unit		—	—	—	○	—	○
FX2NC-100BPCB		For extension		—	—	—	○	—	○
FX2NC-10BPCB1		For input extension blocks		—	—	—	○	—	○
◆Terminal block									
FX-16E-TB		Depends on connection source		—	○	○	○	○	○
FX-32E-TB		Depends on connection source		—	○	○	○	○	○
FX-16EYR-TB		—	16 points	—	○	○	○	○	○
FX-16EYS-TB		—	16 points	—	○	○	○	○	○
FX-16EYT-TB		—	16 points	—	○	○	○	○	○
FX-16EX-A1-TB		16 points	—	—	○	○	○	○	○
FX-16E-TB/UL		Depends on connection source		—	○	○	○	○	○
FX-32E-TB/UL		Depends on connection source		—	○	○	○	○	○
FX-16EYR-ES-TB/UL		—	16 points	—	○	○	○	○	○
FX-16EYS-ES-TB/UL		—	16 points	—	○	○	○	○	○
FX-16EYT-ES-TB/UL		—	16 points	—	○	○	○	○	○
FX-16EYT-ESS-TB/UL		—	16 points	—	○	○	○	○	○
◆Input/output connection cable									
FX-16E-150CAB	1.5 m	Flat cable between TB-FX		—	∗3	∗3	○	∗3	○
FX-16E-300CAB	3.0 m	Flat cable between TB-FX		—	∗3	∗3	○	∗3	○
FX-16E-500CAB	5.0 m	Flat cable between TB-FX		—	∗3	∗3	○	∗3	○
FX-32E-150CAB	1.5 m	Flat cable between TB-FX		—	—	—	∗3	—	∗3
FX-32E-300CAB	3.0 m	Flat cable between TB-FX		—	—	—	∗3	—	∗3
FX-32E-500CAB	5.0 m	Flat cable between TB-FX		—	—	—	∗3	—	∗3
FX-16E-500CAB-S	5.0 m	FX side connector loose wire		—	∗3	∗3	○	∗3	○
FX-16E-150CAB-R	1.5 m	Round cable between TB-FX		—	∗3	∗3	○	∗3	○
FX-16E-300CAB-R	3.0 m	Round cable between TB-FX		—	∗3	∗3	○	∗3	○
FX-16E-500CAB-R	5.0 m	Round cable between TB-FX		—	∗3	∗3	○	∗3	○
◆Input/output connector									
FX2C-I/O-CON	20-pin	Connector 10-piece set		—	∗3	∗3	○	∗3	○
FX2C-I/O-CON-S	20-pin	Connector 5-piece set enclosed (for 0.3 mm²)		—	∗3	∗3	○	∗3	○
FX2C-I/O-CON-SA	20-pin	Connector 5-piece set enclosed (for 0.5 mm²)		—	∗3	∗3	○	∗3	○
FX-I/O-CON2	40-pin	Connector 2-piece set enclosed		—	—	—	∗3	—	∗3
FX-I/O-CON2-S	40-pin	Connector 2-piece set enclosed (for 0.3 mm²)		—	—	—	∗3	—	∗3
FX-I/O-CON2-SA	40-pin	Connector 2-piece set enclosed (for 0.5 mm²)		—	—	—	∗3	—	∗3

∗1: Supported with main unit Ver. 1.10 and above
∗2: Supported with main unit Ver. 3.00 and above
∗3: Refer to each PLC manual for details on the products that can be used.
∗4: Supported with main unit Ver. 1.20 and above
∗5: Refer to the product manual for details on the Windows® compatible operating system.
∗6: FX-30P Ver. 1.50 and above.
∗7: FX-30P Ver. 1.30 and above.
∗8: Can be connected only to AC power type main unit.

◇ Sequence programs and peripheral devices, etc.

Model		Specifications		Compatible PLC					
		Input	Output	FX3S	FX3G	FX3GE	FX3GC	FX3U	FX3UC
◆MELSOFT GX series programming software									
SW□DND-GXW2-E		GX Works2		○	○	○	○	○	○
SW□D5C-GPPW-E		GX Developer		—	○	○	○	○	○
◆Configuration software									
SW1D5C-FXENET-E		FX Configurator-EN		—	○	○	○	○	○
SW1D5-FXENETL-E		FX Configurator-EN-L		—	—	—	—	○	○
◆MELSOFT MX series integrated data link software									
SW1D5C-ACT-E		MX Component		○	○	○	○	○	○
SW1D5C-SHEET-E		MX Sheet		○	○	○	○	○	○
SW1D5C-SHEETSET-E		MX Works		○	○	○	○	○	○
◆RS-232C cable for personal computer									
F2-232CAB-1	3 m	D-sub 9-pin female ⇔ D-sub 25-pin male		○	○	○	○	○	○
FX-232CAB-1	3 m	D-sub 9-pin female ⇔ D-sub 9-pin female		○	○	○	○	○	○
F2-232CAB	3 m	D-sub 25-pin male ⇔ D-sub 25-pin male		○	○	○	○	○	○
F2-232CAB-2	3 m	Half-pitch 14-pin ⇔ D-sub 25-pin male		○	○	○	○	○	○
FX-232CAB-2	3 m	Half-pitch 14-pin ⇔ D-sub 9-pin female		○	○	○	○	○	○
◆RS-422 cable for PLC									
FX-422CAB0	1.5 m	FX round connector ⇔ FX-232AWC-H		○	○	○	○	○	○
◆RS-232C/RS-422 converter									
FX-232AWC-H		Between FX-personal computer		○	○	○	○	○	○
◆USB/RS-422 converter									
FX-USB-AW		FX-personal computer		—	—	—	—	○	○
◆Handy programming panel (HPP)									
FX-30P		HPP unit, cable		∗6	○	○	∗7	○	○
◆PLC connection cable for FX-30P									
FX-20P-CAB0	1.5 m	FX round connector		○	○	○	○	○	○
FX-20P-CADP	0.3 m	FX round connector ⇔ FX square connector		○	○	○	○	○	○

◇ Peripheral device and connection cable for positioning

Model		Specifications	Compatible Models		
			FX2N-10GM	FX2N-20GM	FX3U-20SSC-H
◆Personal computer software∗5					
SW1D5C-FXSSC-E		FX Configurator-FP	—	—	○
FX-PCS-VPS/WIN-E Scheduled to end		For FX2N-10GM/20GM	○	○	—
◆Teaching panel					
E-20TP-SET0 Scheduled to end	3 m	With cable	○	○	—
E-20TP-CAB0 Scheduled to end	3 m	Cable	○	○	—
◆Connection cable for servo					
E-GMH-200CAB Scheduled to end	2 m	For MR-H	○	○	—
E-GMJ-200CAB Scheduled to end	2 m	For MR-J	○	○	—
E-GMJ2-200CAB1A Scheduled to end	2 m	For MR-J2(S)	○	○	—
E-GMC-200CAB Scheduled to end	2 m	For MR-C	○	○	—
E-GM-200CAB Scheduled to end	2 m	With GM side connector	○	○	—
◆Extension cable					
FX2N-GM-5EC Scheduled to end	55 mm	Connection between GM-FX	○	○	—
FX2N-GM-65EC Scheduled to end	65 cm	Connection between GM-FX	○	○	—

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Certification

MELSEC iQ-F/F series conforms to European Standards (EN) and North American Standards (UL/cUL).
Using MELSEC iQ-F/F series can reduce the workload to make machines/equipment conform to EN and UL/cUL standards.

◇ Compatible with international standards

The MELSEC iQ-F/F series conforms to CE marking (Europe) and UL/cUL standard (USA. Canada) and therefore can be used for overseas facilities.

◇ EN standards: Compliance with EC Directives/CE marking

EC directives are issued by the European Council of Ministers for the purpose of unifying European national regulations and smoothing distribution of safe guaranteed products. Approximately 20 types of major EC directives concerning product safety have been issued.
Attachment of a CE mark (CE marking) is mandatory on specific products before they may be distributed in the EU.
The EMC Directive (Electromagnetic Compatibility Directive), LVD Directive (Low Voltage Directive) and MD Directive (Machinery Directive) apply to the programmable controller, which is labeled as an electrical part of a machine product under the EC Directives.

(1) EMC Directive
The EMC Directive is a directive that requires products to have “Capacity to prevent output of obstructive noise that adversely affects external devices: Emission damage” and “Capacity to not malfunction due to obstructive noise from external source: Immunity”.
(2) LVD Directive (Low Voltage Directive)
The LVD Directive is enforced to distribute safe products that will not harm or damage people, objects or assets, etc. With the programmable controller, this means a product that does not pose a risk of electric shock, fire or injury, etc.
(3) MD Directive (Machinery Directive)
The MD Directive is for machines and machine parts that may cause injury to the operator due to mechanical moving parts.
Safety control equipment must be certified by a recognized body.

◇ UL/cUL Standards

UL is the United State's main private safety testing and certification agency for ensuring public safety.
UL sets the safety standards for a variety of fields. Strict reviews and testing are performed following the standards set forth by UL. Only products which pass these tests are allowed to carry the UL Mark.
As opposed to the EN Standards, the UL Standards do not have a legally binding effect. However, they are broadly used as the U.S. safety standards, and are an essential condition for selling products into the U.S.
UL is recognized as a certifying and testing agency by the Canadian Standards Association (CSA). Products evaluated and certified by UL in accordance with Canadian standards are permitted to carry the cUL Mark.

[Precautions on the use in UL/cUL Class I, Division 2 environment]
Products* marking Cl. I, DIV.2 indicating that they can be used in the Class I, Division 2 (filling in a flammable environment in case of abnormalities) on the rating plate can be used in Class I, Division 2 Group A, B, C, and D only. They can be used regardless of the display as long as they do not reach the danger.
Note that when using a product in Class I, Division 2 environment, the following measures need to be taken for the risk of explosion.

- As this product is an open-type device, attach it to the control board suitable for the installation environment and, for opening, to the control board which requires a tool or key.
- Substitution of products other than Class I, Division 2 compatible may result in degradation of Class I, Division 2 compliance. Therefore, do not substitute products other than compatible products.
- Do not disconnect/connect the device or disconnect the external connection terminal except when the power is turned off or where there is no danger
- Do not open the battery except where it is out of reach of danger.

c UL US LISTED

*: UL explosion-proof standard compliant products are as follows. (Manufactured in October 2017 and after)

- FX5CPU module
  FX5UC-32MT/D, FX5UC-32MT/DSS, FX5UC-64MT/D, FX5UC-64MT/DSS, FX5UC-96MT/D, FX5UC-96MT/DSS
- FX5 extension module
  FX5-C16EX/D, FX5-C16EX/DS, FX5-C16EYT/D, FX5-C16EYT/DSS, FX5-C32EX/D, FX5-C32EX/DS, FX5-C32EYT/D, FX5-C32EYT/DSS, FX5-C32ET/D, FX5-C32ET/DSS, FX5-232ADP, FX5-485ADP, FX5-C1PS-5V, FX5-CNV-BUSC, FX5-4AD-ADP, FX5-4DA-ADP

◇ Ship standards

The MELSEC iQ-F/F series complies with the shipping standards of each country.
It can be used for ship-related machinery and equipment.

Standard abbreviation	Standard name	Target country
DNV GL	DNV GL	Norway/Germany
RINA	REGISTRO ITALIANO NAVALE	Italy
ABS	American Bureau of Shipping	U.S.A.
LR	Lloyd's Register of Shipping	U.K.
BV	Bureau Veritas	France
NK	Nippon Kaiji Kyokai	Japan
KR	Korea Ship Association	Korea

◇ "ISO9001" international standard for quality-assurance system

Mitsubishi Electric Corporation Nagoya Works has acquired "ISO9001" international standard for quality-assurance system for the development/manufacture on the whole from order reception to shipment of all series of micro sequencer.
Of the ISO9000 series by which the International Organization for Standardization (ISO) defines the standards of quality-assurance systems, "ISO9001" assumes a wide range of quality-assurance systems related to development, manufacture, materials, quality and sales. The MELSEC iQ-F/F series is manufactured under the control system based on an internationally recognized quality-assurance system.
It is also used as a registration site of "ISO14001" environmental management system.

◇ Korean Certification Mark (KC Mark)

- The KC mark, which is a safety certification mark required to be affixed to the specified products distributed in Korea (products required to be legally certificated for safety, quality, environment, etc.), indicates compliance with various requirements.
- KC mark is indicated on FA products, which conform to the Radio Act. Note that other standards are not applicable.

FX5UJ/FX5U/FX5UC

◇ Type system (CPU module, input/output extension device)

(1)	CPU category	FX5UJ, FX5U, FX5UC, etc.	
(2)	Type category	C (Extension connector type) None (Extension cable type)	
(3)	Total number of input/output points	8, 16, 24, 32, 40, 60, 64, 80, 96 etc.	
(4)	Module category	M	CPU module
		E	Extension devices including both input and output devices
		EX	Input extension module
		EY	Output extension module
(5)	Output type	R	Relay output
		T	Transistor output

Model system

FX5 - C 32 M R /ES -□

(1) (2) (3) (4) (5) (6) (7)

(6) Power supply, input/output system						
		CPU module, extension module			Input/output extension module	
	Symbol	Power supply	Input type	Transistor output type	Input type	Transistor output type
	/ES	AC	24 V DC, sink/source	sink	sink/source	—
	/ESS	AC	24 V DC, sink/source	source	—	source
	/DS	DC	24 V DC, sink/source	sink	sink/source	—
	/DSS	DC	24 V DC, sink/source	source	—	source
	/D	DC	24 V DC, sink	sink	sink	sink

(7)	Other suffix symbols	-H	High-speed input/output function expansion
		-TS	Spring clamp terminal block

◇ General specifications

For specifications of intelligent function modules, refer to manuals of each product.

Item	Specifications				
Operating ambient temperature*1	FX5UJ			FX5U, FX5UC	
	0 to 55°C non-freezing			-20 to +55°C non-freezing*2 *3	
Storage ambient temperature	-25 to +75°C non-freezing				
Operating ambient humidity	5 to 95%RH, non-condensation*4				
Storage ambient humidity	5 to 95%RH, non-condensation				
Vibration resistance*5 *6		Frequency	Acceleration	Half amplitude	Sweep count
	Installed on DIN rail	5 to 8.4 Hz	—	1.75 mm	10 times each in X, Y, Z directions (80 min in each direction)
		8.4 to 150 Hz	4.9 m/s²	—	
	Direct installing*12	5 to 8.4 Hz	—	3.5 mm	
		8.4 to 150 Hz	9.8 m/s²	—	
Shock resistance*5	147 m/s², Action time: 11 ms, 3 times by half-sine pulse in each direction X, Y, and Z				
Noise durability	By noise simulator at noise voltage of 1000 Vp-p, noise width of 1 ms and period of 30 to 100 Hz				
Grounding	Class D grounding (grounding resistance: 100 Ω or less) <Common grounding with a heavy electrical system is not allowed.>*7				
Working atmosphere	Free from corrosive or flammable gas and excessive conductive dust				
Operating altitude*8	0 to 2000 m				
Installation location	Inside a control panel*9				
Overvoltage category*10	II or less				
Pollution degree*11	2 or less				
Equipment class	Class 2				

∗1 : The simultaneous ON ratio of available PLC inputs or outputs changes with respect to the ambient temperature. For details, refer to manuals of each product.

∗2 : 0 to 55°C for products manufactured before June 2016. For intelligent function modules, refer to the manual of each product.
The following products cannot be used when the ambient temperature is less than 0°C:
FX5-40SSC-S, FX5-80SSC-S, FX5-CNV-BUS, FX5-CNV-BUSC, battery (FX3U-32BL), SD memory cards (NZ1MEM-2GBSD, NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD, L1MEM-2GBSD and L1MEM-4GBSD), FX3 extension modules, terminal modules and I/O cables (FX-16E-500CAB-S, FX-16E-□CAB and FX-16E-□CAB-R)

∗3 : The specifications are different in the use at less than 0°C. For details, refer to the manual of each product.

∗4 : When used in a low-temperature environment, use in an environment with no sudden temperature changes. If there are sudden temperature changes because of opening/closing of the control panel or other reasons, condensation may occur, which may cause a fire, fault, or malfunction. Furthermore, use an air conditioner in dehumidifier mode to prevent condensation.

∗5 : The criterion is shown in IEC61131-2.

∗6 : When the system has equipment which specification values are lower than above mentioned vibration resistance specification values, the vibration resistance specification of the whole system is corresponding to the lower specification.

∗7 : For grounding, refer to manuals of each product.

∗8 : The PLC cannot be used at a pressure higher than the atmospheric pressure to avoid damage.

∗9 : The programmable controller is assumed to be installed in an environment equivalent to indoor.

∗10 : This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.

∗11 : This index indicates the degree to which conductive material is generated in the environment in which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. Temporary conductivity caused by condensation must be expected occasionally.

∗12 : FX5UC cannot be directly mounted.

◇ List of compatible products

Model	CE		UL/cUL	KC	Ship approvals						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆FX5UJ CPU modules											
FX5UJ-24MR/ES	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-24MT/ES	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-24MT/ESS	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-40MR/ES	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-40MT/ES	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-40MT/ESS	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-60MR/ES	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-60MT/ES	○	○	○	○	–	–	–	–	–	–	–
FX5UJ-60MT/ESS	○	○	○	○	–	–	–	–	–	–	–
◆FX5U CPU modules											
FX5U-32MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX5U-32MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX5U-32MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX5U-32MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX5U-32MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX5U-32MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5U-64MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX5U-64MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX5U-64MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX5U-64MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX5U-64MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX5U-64MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5U-80MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX5U-80MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX5U-80MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX5U-80MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX5U-80MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX5U-80MT/DSS	○	□	○	○	○	○	○	○	○	○	○
◆FX5UC CPU modules											
FX5UC-32MR/DS-TS	○	○	○	○	–	–	–	–	–	○	–
FX5UC-32MT/D	○	□	○	○	○	○	○	○	○	○	○
FX5UC-32MT/DS-TS	○	□	○	○	○	○	○	○	○	○	○
FX5UC-32MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5UC-32MT/DSS-TS	○	□	○	○	○	○	○	○	○	○	○
FX5UC-64MT/D	○	□	○	○	○	○	○	○	○	○	○
FX5UC-64MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5UC-96MT/D	○	□	○	○	○	○	○	○	○	○	○
FX5UC-96MT/DSS	○	□	○	○	○	○	○	○	○	○	○
◆FX5 I/O modules (terminal block type)											
FX5-8EX/ES	○	□	○	○	○	○	○	○	○	○	○
FX5-8EYR/ES	○	○	○	○	○	○	○	○	○	○	○
FX5-8EYT/ES	○	□	○	○	○	○	○	○	○	○	○
FX5-8EYT/ESS	○	□	○	○	○	○	○	○	○	○	○
FX5-16EX/ES	○	□	○	○	○	○	○	○	○	○	○
FX5-16EYR/ES	○	○	○	○	○	○	○	○	○	○	○
FX5-16EYT/ES	○	□	○	○	○	○	○	○	○	○	○
FX5-16EYT/ESS	○	□	○	○	○	○	○	○	○	○	○
FX5-16ET/ES-H	○	□	○	○	○	○	○	○	○	○	○
FX5-16ET/ESS-H	○	□	○	○	○	○	○	○	○	○	○
FX5-16ER/ES	○	○	○	○	○	○	○	○	○	○	○
FX5-16ET/ES	○	□	○	○	○	○	○	○	○	○	○
FX5-16ET/ESS	○	□	○	○	○	○	○	○	○	○	○
FX5-32ER/ES	○	○	○	○	○	○	○	○	○	○	○
FX5-32ET/ES	○	○	○	○	○	○	○	○	○	○	○
FX5-32ET/ESS	○	○	○	○	○	○	○	○	○	○	○
FX5-32ER/DS	○	○	○	○	○	○	○	○	○	○	○
FX5-32ET/DS	○	□	○	○	○	○	○	○	○	○	○
FX5-32ET/DSS	○	□	○	○	○	○	○	○	○	○	○

Model	CE		UL/cUL	KC	Ship approvals						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆FX5 safety extension module											
FX5-SF-MU4T5*3	○	□	○	○	–	–	–	–	–	–	–
FX5-SF-8D14*3	○	□	○	○	–	–	–	–	–	–	–
◆FX5 I/O modules (connector type)											
FX5-C16EX/D	○	□	○	○	○	○	○	○	○	○	○
FX5-C16EX/DS	○	□	○	○	○	○	○	○	○	○	○
FX5-C16EYT/D	○	□	○	○	○	○	○	○	○	○	○
FX5-C16EYT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5-C16EYR/D-TS	○	○	○	○	–	–	–	–	–	○	–
FX5-C32EX/D	○	□	○	○	○	○	○	○	○	○	○
FX5-C32EX/DS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32EX/DS-TS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32EYT/D	○	□	○	○	○	○	○	○	○	○	○
FX5-C32EYT/D-TS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32EYT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32EYT/DSS-TS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32ET/D	○	□	○	○	○	○	○	○	○	○	○
FX5-C32ET/DS-TS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32ET/DSS	○	□	○	○	○	○	○	○	○	○	○
FX5-C32ET/DSS-TS	○	□	○	○	○	○	○	○	○	○	○
◆FX5 intelligent function module											
FX5-4AD	○	□	○	○	○	○	○	○	–	○	–
FX5-4DA	○	□	○	○	○	○	○	○	–	○	–
FX5-8AD	○	□	○	○	○	○	○	○	○	○	○
FX5-4LC	○	□	○	○	–	–	–	–	–	–	–
FX5-20PG-P	○	□	○	○	–	–	–	–	–	–	–
FX5-20PG-D	○	□	○	○	–	–	–	–	–	–	–
FX5-40SSC-S	○	□	○	○	–	–	–	–	–	–	–
FX5-80SSC-S	○	□	○	○	–	–	–	–	–	–	–
FX5-ENET	○	□	○	○	–	–	–	–	–	○	–
FX5-ENET/IP	○	□	○	○	–	–	–	–	–	–	–
FX5-CCL-MS	○	□	○*1	○	○	○	○	○	–	○	–
FX5-CCLIEF	○	□	○	○	–	–	–	–	–	–	–
FX5-ASL-M	○	□	○	○	–	–	–	–	–	–	–
FX5-DP-M	○	□	○	○	–	–	–	–	–	○	–
◆FX5 extension power supply module											
FX5-1PSU-5V	○	○	○	○	○	○	○	○	○	○	○
FX5-C1PS-5V	○	□	○	○	○	○	○	○	○	○	○
◆FX5 bus conversion module											
FX5-CNV-BUS	○	□	○	○	○	○	○	○	○	○	○
FX5-CNV-BUSC	○	□	○	○	○	○	○	○	○	○	○
◆FX5 connector conversion module											
FX5-CNV-IF	○	□	○	○	○	○	○	○	○	○	○
FX5-CNV-IFC	○	□	○	○	○	○	○	○	○	○	○
◆FX5 connector conversion adapter											
FX5-CNV-BC	○	□	–	○	○	○	○	○	○	○	○
◆FX5 extended extension cable											
FX5-30EC	○	□	–	–	–	–	–	–	–	–	–
FX5-65EC	○	□	–	–	–	–	–	–	–	–	–
◆FX5 expansion adapter											
FX5-4AD-ADP	○	□	○	○	○	○	○	○	○	○	○
FX5-4AD-PT-ADP	○	□	○	○	○	○	○	○	○	○	○
FX5-4AD-TC-ADP	○	□	○	○	○	○	○	○	○	○	○
FX5-4DA-ADP	○	□	○*2	○	○	○	○	○	○	○	○
FX5-232ADP	○	□	○	○	○	○	○	○	○	○	○
FX5-485ADP	○	□	○	○	○	○	○	○	○	○	○
◆FX5UJ, FX5U expansion board											
FX5-232-BD	○	□	–	○	○	○	○	○	○	○	○
FX5-485-BD	○	□	–	○	○	○	○	○	○	○	○
FX5-422-BD-GOT	○	□	–	○	○	○	○	○	○	○	○

○: Compliant with standards or self-declaration □: No need to comply

∗1: The products (serial number: 1760001) manufactured in June 2017 and after complies with the UL standards (UL, cUL).

∗2: The products (serial number: 1660001) manufactured in June 2016 and after complies with the UL standards (UL, cUL).

∗3: Complies with the CE Machinery Directive (MD).

FX3 series

◇ Type system (Main unit, input/output extension devices)

(1)	Series name	FX3S, FX3G, FX3GE, FX3GC, FX3U, FX3UC, etc.	
(2)	Total number of input/output points	8, 16, 32, 40, 60, 80, etc.	
(3)	Module category	M	Main unit
		E	Extension devices including both input and output devices
		EX	Input extension blocks
		EY	Output extension blocks
(4)	Output type	R	Relay output
		S	Triac output
		T	Transistor output

Model system

FX3U - 16 M R /ES □

(1) (2) (3) (4) (5) (6)

(5) Power supply, input/output system	Main and extension unit				Input/output extension block	
Symbol	Power supply	Input type	Transistor output type	Input type	Transistor output type
No code	—	—	—	sink	sink
/ES -ES	AC	24 V DC, sink/source	sink	sink/source	—
/ESS -ESS	AC	24 V DC, sink/source	source	—	source
/DS -DS	DC	24 V DC, sink/source	sink	sink/source	—
/DSS -DSS	DC	24 V DC, sink/source	source	—	source
/UA1 -UA1	AC	100 V AC	—	100 V AC	—

(6) Other suffix symbols	-T	Terminal block connection*1
	-S-ES	Extension block for independent contact
	/UL	UL Standard compatible*2
	-2AD	Analog input 2 ch built-in

*1: For FX2NC-16EYR-T-DS and FX2NC-16EX-T-DS, the symbol before "-DS" is indicated.

*2: Refer to the Standards Correspondence Table for the compatibility of other products to UL Standards.

◇ General specifications

Item		Specifications				
Temperature		0 to 55°C (32 to 131°F) ... during operation -25 to +75°C (-13 to 167°F) ... during storage				
Relative humidity		5 to 95 %RH (with no dew condensation) ... during operation				
Vibration resistance*1			Frequency	Acceleration	Half amplitude	10 times each in X, Y, Z directions (80 min in each direction)
		When mounted on DIN rail*2	10 to 57 Hz	—	0.035 mm	
			57 to 150 Hz	4.9 m/s²	—	
		Direct installing*2	10 to 57 Hz	—	0.075 mm	
			57 to 150 Hz	9.8 m/s²	—	
Shock resistance*1		147 m/s², Action time: 11 ms, 3 times by half-sine pulse in each direction X, Y, and Z				
Noise resistance		By noise simulator at noise voltage of 1000 Vp-p, noise width of 1 ms and period of 30 to 100 Hz				
FX3GC, FX3UC,	Withstand voltage	500 V AC for one minute	Between all terminal batch and grounding terminal			
	Insulation resistance	5 MΩ or more when measured with 500 V DC insulation resistance meter				
FX3S, FX3G, FX3GE, FX3U	Withstand voltage*3	1500 V AC for one minute or 500 V AC for one minute	Between each terminal and grounding terminal			
	Insulation resistance*3	5 MΩ or more when measured with 500 V DC insulation resistance meter				
Grounding		Class D grounding (grounding resistance: 100 Ω or less) <Common grounding with a heavy electrical system is not allowed. Use dedicated ground or common ground.				
Working atmosphere		Free from corrosive or flammable gas and excessive conductive dust				
Operating altitude		2000 m or less*4				

*1: The judgment standards follow IEC 61131-2.

*2: The supported mounting method will vary according to the model. Refer to the manual of each series for details.

*3: Refer to the manual for details on the voltage resistance and insulation resistance test.

*4: Use in an environment pressurized to higher than atmospheric pressure is not possible. There is a risk of failure.

◇ Main unit

Model	CE		UL/cUL	KC	Ship approvals*						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆FX3S series											
FX3S-10MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-10MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-10MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3S-14MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-14MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-14MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3S-20MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-20MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-20MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MR/ES-2AD	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MT/ES-2AD	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MT/ESS-2AD	○	○	○	○	○	○	○	○	○	○	○
FX3S-10MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3S-10MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3S-10MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3S-14MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3S-14MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3S-14MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3S-20MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3S-20MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3S-20MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3S-30MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3S-30MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3S-30MT/DSS	○	□	○	○	○	○	○	○	○	○	○
◆FX3G series											
FX3G-14MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3G-14MT/ES											
FX3G-14MT/ESS											
FX3G-24MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3G-24MT/ES											
FX3G-24MT/ESS											
FX3G-40MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3G-40MT/ES											
FX3G-40MT/ESS											
FX3G-60MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3G-60MT/ES											
FX3G-60MT/ESS											
FX3G-14MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3G-14MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3G-14MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3G-24MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3G-24MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3G-24MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3G-40MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3G-40MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3G-40MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3G-60MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3G-60MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3G-60MT/DSS	○	□	○	○	○	○	○	○	○	○	○
◆FX3GE series											
FX3GE-24MR/DS	○	○	○	○	–	–	–	–	–	–	–
FX3GE-24MR/ES	○	○	○	○	–	–	–	–	–	–	–
FX3GE-24MT/DS	○	□	○	○	–	–	–	–	–	–	–
FX3GE-24MT/DSS	○	□	○	○	–	–	–	–	–	–	–
FX3GE-24MT/ES	○	○	○	○	–	–	–	–	–	–	–
FX3GE-24MT/ESS	○	○	○	○	–	–	–	–	–	–	–
FX3GE-40MR/DS	○	○	○	○	–	–	–	–	–	–	–
FX3GE-40MR/ES	○	○	○	○	–	–	–	–	–	–	–
FX3GE-40MT/DS	○	□	○	○	–	–	–	–	–	–	–
FX3GE-40MT/DSS	○	□	○	○	–	–	–	–	–	–	–
FX3GE-40MT/ES	○	○	○	○	–	–	–	–	–	–	–
FX3GE-40MT/ESS	○	○	○	○	–	–	–	–	–	–	–
◆FX3GC series											
FX3GC-32MT/D	○	□	○	○	–	–	–	–	–	–	–
FX3GC-32MT/DSS											

Model	CE		UL/cUL	KC	Ship approvals*						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆FX3U series											
FX3U-16MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-16MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-16MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3U-32MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-32MS/ES	○	○	○	○	–	–	–	–	–	–	–
FX3U-32MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-32MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3U-32MR/UA1	○	○	○	○	–	–	–	–	–	–	–
FX3U-48MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-48MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-48MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3U-64MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-64MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-64MS/ES	○	○	○	○	–	–	–	–	–	–	–
FX3U-64MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3U-64MR/UA1	○	○	○	○	–	–	–	–	–	–	–
FX3U-80MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-80MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-80MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3U-128MR/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-128MT/ES	○	○	○	○	○	○	○	○	○	○	○
FX3U-128MT/ESS	○	○	○	○	○	○	○	○	○	○	○
FX3U-16MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3U-16MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3U-16MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3U-32MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3U-32MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3U-32MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3U-48MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3U-48MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3U-48MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3U-64MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3U-64MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3U-64MT/DSS	○	□	○	○	○	○	○	○	○	○	○
FX3U-80MR/DS	○	○	○	○	○	○	○	○	○	○	○
FX3U-80MT/DS	○	□	○	○	○	○	○	○	○	○	○
FX3U-80MT/DSS	○	□	○	○	○	○	○	○	○	○	○
◆FX3UC series											
FX3UC-16MR/D-T	○	○	○	○	–	–	–	–	–	–	–
FX3UC-16MR/DS-T											
FX3UC-16MT/D	○	□	○	○	○	○	○	○	○	–	–
FX3UC-16MT/DSS											
FX3UC-32MT/D	○	□	○	○	○	○	○	○	○	–	–
FX3UC-32MT/DSS											
FX3UC-64MT/D	○	□	○	○	○	○	○	○	○	–	–
FX3UC-64MT/DSS											
FX3UC-96MT/D	○	□	○	○	○	○	○	○	○	–	–
FX3UC-96MT/DSS											

○: Compliant with standards or self-declaration □: No need to comply

∗: Contact Mitsubishi for information on the latest compatible shipping standards.

◇ Peripheral devices for programming

Model	CE		UL/cUL	KC	Ship approvals*1						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆Converter between PLC and personal computer											
FX-USB-AW	○	□	–	○	–	–	–	–	–	–	–
FX-232AWC-H	○	□	–	○	–	–	–	–	–	–	–
◆Handy programming panel (HPP)											
FX-30P	○	□	○	○	–	–	–	–	–	–	–

◇ Extension and peripheral devices, etc.

Model	CE		UL/cUL	KC	Ship approvals*1						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆Extension unit											
FX2N-32ER-ES/UL	○	○	○	○	○	○	○	○	○	–	○
FX2N-32ET-ESS/UL	○	○	○	○	○	○	○	○	○	–	○
FX2N-48ER-ES/UL	○	○	○	○	○	○	○	○	○	–	○
FX2N-48ET-ESS/UL	○	○	○	○	○	○	○	○	○	–	○
FX2N-48ER-DS	○	○	○	○	○	○	–	–	–	–	○
FX2N-48ET-DSS	○	□	○	○	○	○	–	–	–	–	○
FX2N-48ER-UA1/UL	○	○	○	–	○	–	–	–	–	–	○
◆Input/output mixed block											
FX2N-8ER-ES/UL	○	○	○	○	–	○	–	–	–	–	–
◆Input block											
FX2N-8EX-ES/UL	○	□	○	○	–	○	–	–	–	–	–
FX2N-8EX-UA1/UL	–	–	○	–	–	–	–	–	–	–	–
FX2N-16EX-ES/UL	○	□	○	○	○	○	○	○	○	○	○
FX2NC-16EX-DS	○	□	○	○	○	○	○	–	–	–	–
FX2NC-16EX-T-DS	○	□	○	○	○	○	○	–	–	–	–
FX2NC-32EX-DS	○	□	○	○	○	○	○	–	–	–	–
FX2NC-16EX-T	○	□	○	○	–	–	–	–	–	–	–
FX2NC-16EX	○	□	○	○	–	–	–	–	–	–	–
FX2NC-32EX	○	□	○	○	–	–	–	–	–	–	–
◆Output block											
FX2N-8EYR-ES/UL	○	○	○	○	–	○	–	–	–	–	–
FX2N-8EYT-ESS/UL	○	□	○	○	–	○	–	–	–	–	–
FX2N-8EYR-S-ES/UL	○	○	○	–	–	–	–	–	–	–	–
FX2N-16EYR-ES/UL	○	○	○	○	○	○	○	○	○	○	○
FX2N-16EYT-ESS/UL	○	□	○	○	○	○	○	○	○	○	○
FX2NC-16EYR-T-DS	○	○	○	○	○	○	○	–	–	–	–
FX2NC-16EYT-DSS	○	□	○	○	○	○	○	–	–	–	–
FX2NC-32EYT-DSS	○	□	○	○	○	○	○	–	–	–	–
FX2NC-16EYR-T	○	○	○	○	–	–	–	–	–	–	–
FX2NC-16EYT	○	□	○	○	–	–	–	–	–	–	–
FX2NC-32EYT	○	□	○	○	–	–	–	–	–	–	–
◆Special block, special module											
FX2N-5A	○	□	○	○	–	–	–	○	○	–	–
FX2N-2DA	○	□	○	○	○	–	–	–	–	○	○
FX3U-4DA	○	□	○	○	–	–	–	–	–	–	–
FX2N-2AD	○	□	○	○	○	–	–	–	–	○	○
FX3U-4AD	○	□	○	○	–	–	–	–	–	–	–
FX3UC-4AD	○	□	○	○	–	–	–	–	–	–	–
FX2N-8AD	○	□	○	○	–	–	–	○	○	○	–
FX2N-2LC	○	□	○	○	–	–	–	–	–	–	–
FX3U-4LC	○	□	○	○	–	–	–	–	–	–	–
FX2N-1HC	○	□	○	○	○	○	○	○	○	–	○
FX2NC-1HC	○	□	○	○	–	–	–	–	–	–	–
FX3U-2HC	○	□	○	○	–	–	–	–	–	–	–
FX3U-1PG	○	□	○	○	–	–	–	–	–	–	–
FX2N-10PG	○	□	○	○	–	–	–	–	–	–	–
FX3U-20SSC-H	○	□	○	○	–	–	–	–	–	–	–
FX2N-10GM	○	□	○	○	–	–	–	–	–	–	–
FX2N-20GM	○	□	○	○	–	–	–	–	–	–	–
FX2N-1RM-E-SET	○	□	–	○	○	–	–	–	–	–	–
FX3U-64DP-M	○	□	○	○	–	○	○	–	–	–	–
FX3U-32DP	○	□	○	○	–	○	○	–	–	–	–
FX3U-ENET	○	□	○	○	–	○	○	–	–	–	–
FX3U-ENET-L	○	□	○	○	–	–	–	–	–	–	–
FX3U-16CCL-M	○	□	○	○	–	–	–	–	–	–	–
FX3U-64CCL	○	□	○	○	–	–	–	–	–	–	–
FX2N-32CCL	○	□	–	○	–	–	–	–	–	–	–
FX2N-64CL-M	○	□	○	○	–	–	–	–	–	–	–
FX3U-128ASL-M	○*2	□	○	–	–	–	–	–	–	–	–
FX2N-232IF	○	□	–	○	○	○	○	○	○	–	○

Model	CE		UL/cUL	KC	Ship approvals*1						
	EMC	LVD			ABS	DNV GL	LR	BV	RINA	NK	KR
◆Special adapter											
FX3S-CNV-ADP	○	□	○	□	○	○	○	○	○	○	○
FX3G-CNV-ADP	○	□	○	□	○	○	○	○	○	○	○
FX3U-ENET-ADP	○	□	○	○	–	–	–	–	–	–	–
FX3U-232ADP-MB	○	□	○	○	○	○	○	○	○	○	○
FX3U-485ADP-MB	○	□	○	○	○	○	○	○	○	○	○
FX3U-3A-ADP	○	□	○	○	–	–	–	–	–	–	–
FX3U-4AD-ADP	○	□	○	○	○	○	○	○	○	○	○
FX3U-4DA-ADP	○	□	○	○	○	○	○	○	○	○	○
FX3U-4AD-PT-ADP	○	□	○	○	○	○	○	○	○	○	○
FX3U-4AD-PNK-ADP	○	□	○	○	–	–	–	–	–	–	–
FX3U-4AD-PTW-ADP	○	□	○	○	–	–	–	–	–	–	–
FX3U-4AD-TC-ADP	○	□	○	○	○	○	○	○	○	○	○
FX3U-4HSX-ADP	○	□	○	○	○	○	○	○	○	○	○
FX3U-2HSY-ADP	○	□	○	○	○	○	○	○	○	○	○
FX3U-CF-ADP	○	□	○	○	–	–	–	–	–	–	–
◆Expansion board											
FX3G-8AV-BD	○	□	–	□	○	○	○	○	○	○	○
FX3G-232-BD	○	□	–	○	○	○	○	○	○	○	○
FX3G-422-BD	○	□	–	□	○	○	○	○	○	○	○
FX3G-485-BD	○	□	–	□	○	○	○	○	○	○	○
FX3G-485-BD-RJ	○	□	–	○	–	–	–	–	–	–	–
FX3G-4EX-BD	○	□	–	○	–	–	–	–	–	–	–
FX3G-2EYT-BD	○	□	–	○	–	–	–	–	–	–	–
FX3G-2AD-BD	○	□	–	○	○	○	○	○	○	○	○
FX3G-1DA-BD	○	□	–	○	○	○	○	○	○	○	○
FX3U-8AV-BD	○	□	–	□	–	–	–	–	–	–	–
FX3U-232-BD	○	□	–	○	○	○	○	○	○	○	○
FX3U-422-BD	○	□	–	○	○	○	○	○	○	○	○
FX3U-485-BD	○	□	–	○	○	○	○	○	○	○	○
FX3U-USB-BD	○	□	–	○	○	○	○	○	○	○	○
FX3U-CNV-BD	○	□	–	□	○	○	○	○	○	○	○
◆Display module											
FX3S-5DM	○	□	–	○	–	–	–	–	–	–	–
FX3G-5DM	○	□	–	○	○	○	○	○	○	○	○
FX3U-7DM	○	□	–	○	○	○	○	○	○	○	○
◆Memory cassette											
FX3G-EEPROM-32L	○	□	–	□	○	○	○	○	○	○	○
FX3U-FLROM-16	○	□	–	□	○	○	○	○	○	○	○
FX3U-FLROM-64	○	□	–	□	○	○	○	○	○	○	○
FX3U-FLROM-64L	○	□	–	□	○	○	○	○	○	○	○
FX3U-FLROM-1M	○	□	–	□	–	–	–	–	–	–	–
◆Extension power supply unit, connector conversion adapter											
FX3U-1PSU-5V	○	○	○	○	–	–	–	–	–	–	–
FX3UC-1PS-5V	○	□	○	○	○	○	○	○	○	–	–
FX2NC-CNV-IF	–	–	–	–	–	–	○	–	–	–	–
◆Terminal block											
FX-16E-TB	–	–	○	□	–	–	–	–	–	–	–
FX-16E-TB/UL	–	–	○	□	–	–	–	–	–	–	–
FX-32E-TB	–	–	○	□	–	–	–	–	–	–	–
FX-32E-TB/UL	–	–	○	□	–	–	–	–	–	–	–
FX-16EYR-TB	–	–	○	□	–	–	–	–	–	–	–
FX-16EYT-TB	–	–	–	□	–	–	–	–	–	–	–
FX-16EYR-ES-TB/UL	–	–	○	□	–	–	–	–	–	–	–
FX-16EYS-ES-TB/UL	–	–	–	□	–	–	–	–	–	–	–
FX-16EYT-ESS-TB/UL	–	–	–	□	–	–	–	–	–	–	–

○ : Compliant with standards or self-declaration □: No need to comply

∗1: Contact Mitsubishi for information on the latest compatible shipping standards.

∗2: Zone A

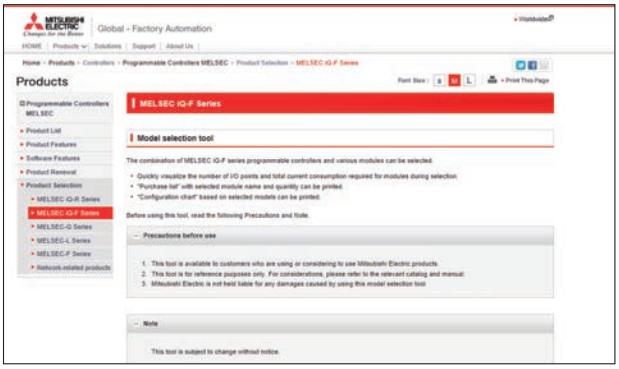
MELSEC iQ-F model selection tool

Model selection tool

Mitsubishi Electric FA site's model selection tool helps you select a model

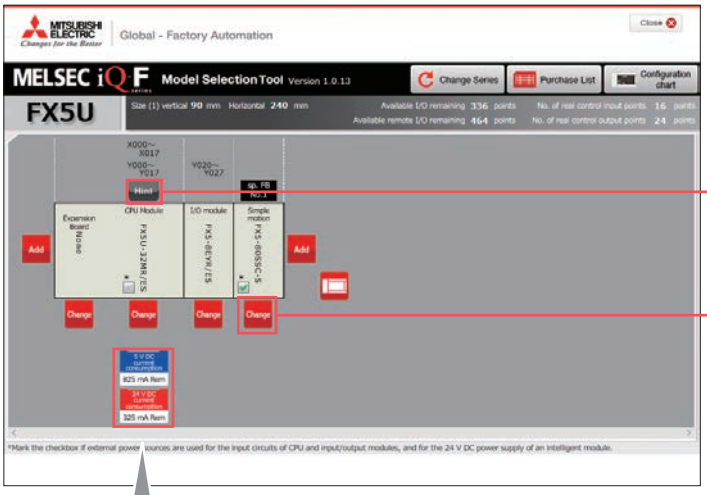
Just select the modules and options that match your requests to easily create a system configuration diagram that matches the selection, and prepare a list of purchase parts required when placing your order.

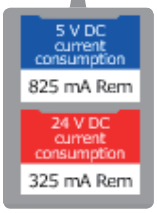
Top screen ⇨ [Products] ⇨ [Controllers]
⇨ [Programmable Controllers MELSEC] ⇨ [Product Selection] ⇨ MELSEC iQ-F Series



List of functions

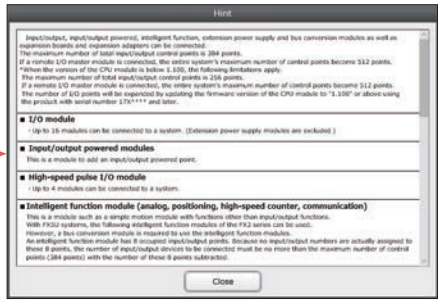
- Display of input/output number assignment
- Display of remaining power
- Display of outline dimensions
- Availability of extension connections
- Display of actual number of I/O points and remaining number of points
- Selection of service power supply/external power supply





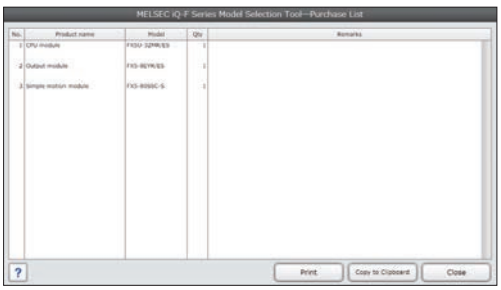
You can confirm the remaining current value of 5 V DC and 24 V DC at a glance.

Press the Hint button to check the number of CPU modules that can be extended, and to view detailed explanations.

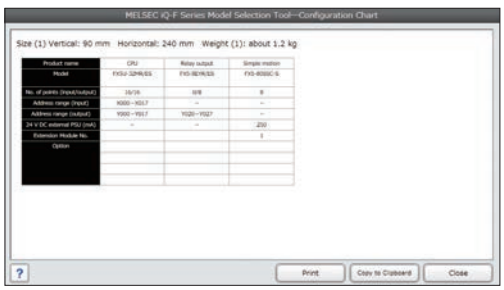


Press the Change button to insert, exchange, or delete additional modules.

Purchasing List

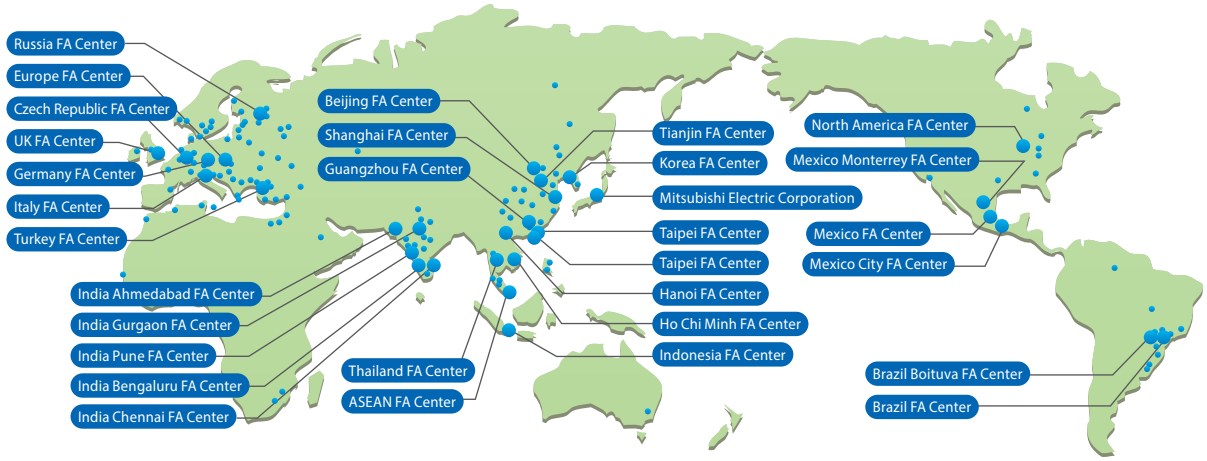


Configuration drawing



Global FA Center

Mitsubishi Electric Corporation FA Centers support all our customers and users of MELSEC iQ-F series all over the world.



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India (Pune)	MITSUBISHI ELECTRIC INDIA PVT. LTD. Pune Branch	(TEL:+91-20-2710-2000)
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About this product catalog

Due to the constantly growing product range and new or changed product features, the information in this catalog may be updated without notice. Please contact your Mitsubishi Electric product provider for more details.

Texts, figures and diagrams shown in this product catalog are intended exclusively for explanation and assistance in planning and ordering the FX5 programmable logic controllers (PLCs) and the associated accessories. Only the manuals supplied with the modules are relevant for installation, commissioning and handling of the modules and the accessories. The information given in the manuals must be read before installation and commissioning of the modules or software.

If any questions arise regarding the application or use of the PLC modules and accessories described in this catalog, please contact your Mitsubishi Electric product provider.

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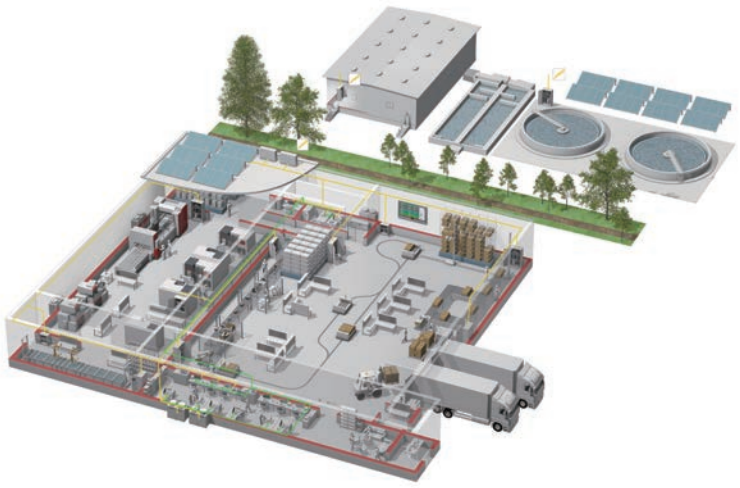

Mitsubishi Electric offers a wide range of automation equipment from PLCs and HMIs to CNC and EDM machines.

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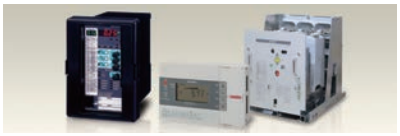
Low voltage: MCCB, MCB, ACB



Medium voltage: VCB, VCC

Power monitoring, energy management

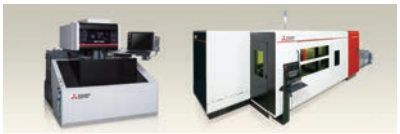
Compact and Modular Controllers

Inverters, Servos and Motors

Visualisation: HMIs

Numerical Control (NC)

Robots: SCARA, Articulated arm



Processing machines: EDM, Lasers, IDS

Transformers, Air conditioning, Photovoltaic systems

* Not all products are available in all countries.

Programmable Controllers
MELSEC iQ-F/F Series Selection Guide

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