for a greener tomorrow

MITSUBISHI ELECTRIC
Changes for the Better

FACTORY AUTOMATION

# PROGRAMMABLE CONTROLLERS
# FX Family Catalog

e-F@ctory

High-end Model FX3U FX3UC

Standard Model FX3GE FX3G FX3GC

Entry level Model FX3S

# FX3 series

**Push the limits of control.**

# 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


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# FX3 series

## Push the limits of control.

The Mitsubishi Electric FX3 PLC Family continues to be successful as a provider of customizable compact control solutions allowing customers to choose the best model to fit their applications.

### *Ease of use*

Control systems that require minimal setup and keep program development time short.

### *Affordable*

A high performance to cost ratio makes economical design solutions for a diverse range of applications a reality.
These features combined with Mitsubishi Electric´s legacy in quality and reliability ensure that the 3rd generation of micro controllers will continue to be at the forefront of the compact PLC market and provide customers with a leading edge.

## Models

### Entry level Model

FX3S

Simple and cost effective. Basic model that supports analog and communication expansion. Perfect for simple automation tasks.

### Standard Model

FX3GE

FX3G

FX3GC

From automation to network, to more advanced control.
Supports features required for basic control and a variety of applications.

| | | |
|---|---|---|
| Function | Controllable I/O: 10 - 30 points | Controllable I/O: 14 - 128 points(Max. 256 with CC-Link remote I/O) |

## *Flexible*

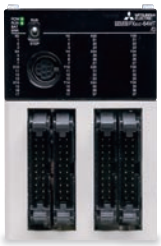
A configurable design that permits open communication, large I/O handling, as well as precise positioning and analog control, creating systems that adapt to customer requirements.

## *Customer Confidence*

With a design philosophy spanning more than a quarter century, a customer base spread across the globe, a host of industrial certifications and almost 10 million CPUs sold, the FX3 series continues to sustain its position as the compact PLC of choice.

## High-end Model

FX3U



FX3UC

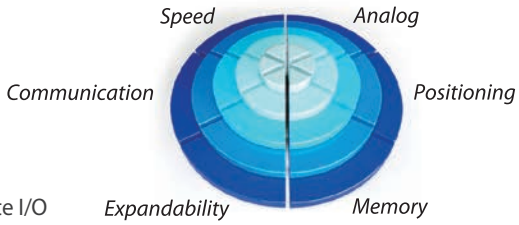
Superior speed, power, and flexibility.
Realize high speed control, network support, data logging, and more.

Controllable I/O: 16 - 256 points(Max. 384 with CC-Link remote I/O)

# FX Main Units Lineup

FX3U

Controllable I/O: 16 - 256 points
Max. 384 with CC-Link or AnyWireASLINK remote I/O
(Main Unit I/O: 16/32/48/64/80/128 points)



## Top of the line

The FX3U is the original dual system-bus, high-speed, fully expandable compact PLC designed to seamlessly control communication, networking, analog, and positioning systems. With a maximum of 384 controllable local and networked I/O via CC-Link, the FX3U uses its power and flexibility to provide a solution for a variety of applications.

- 3rd generation compact PLC
- High efficiency with more speed, performance, memory, and new functions
- Built-in high speed processing and positioning
- The FX3U can control a maximum of 256 connected I/O, and up to 384 points with CC-Link or AnyWireASLINK remote I/O.

### Product Details

All-in-one CPU, power supply and I/O includes high expandability using Expansion Boards and Special Adapters to add functionality.

### Fast Instruction Times

Basic Instructions: 0.065 µs / instruction (Contact Instruction)
Applied Instructions: 0.642 µs / instruction (MOV Instruction)

### Large Memory

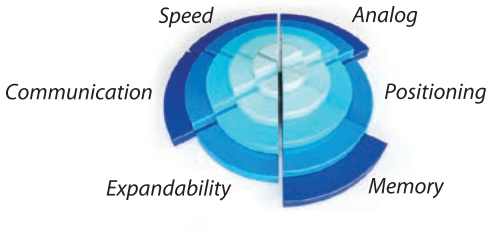
64,000 steps of built-in program memory.
Flash Memory Cassettes with loader function are available.

### Applicable Standards

All products support EN and UL/cUL standards.
Various shipping approvals are supported as well.

### Large Device Memory

| | |
|---|---|
| Auxiliary Relays | 7,680 points |
| Timers | 512 points |
| Counters | 235 points |
| Data Registers | 8,000 points |
| Extension Registers | 32,768 points |
| Extension File Registers (with optional Memory Cassette) | 32,768 points |




# FX3UC

Controllable I/O: 16 - 256 points
Max. 384 with CC-Link or AnyWireASLINK remote I/O
(Main Unit I/O: 16/32/64/96 points)

## Slim Fit

The FX3UC is the ultra-compact high speed, fully expandable PLC. Based on 24 V DC power and using connector-type transistor I/O, the FX3UC is designed for space conscious and modular applications. Created inline with the FX3U series, the FX3UC incorporates such attributes as built-in high speed I/O and the dual system-bus architecture, optimizing communication, networking, analog, and positioning control.

- 3rd generation super-compact PLC
- Reduced size and wiring using connector-type I/O
- Built-in high speed processing and positioning
- Even with its ultra-compact size, the FX3UC can be expanded to locally control up to 256 I/O, and up to 384 points with CC-Link or AnyWireASLINK remote I/O.

### Product Details

Ultra-compact size main unit, power supply and I/O. Same programming specification as the FX3U products in an ultra compact housing with connector type wiring for fast and fault free wiring.

### Fast Instruction Times

Basic Instructions: 0.065 µs / instruction (Contact Instruction)
Applied Instructions: 0.642 µs / instruction (MOV Instruction)

### Large Memory

64,000 steps of built-in program memory.
Flash Memory Cassettes with loader function are available.

### Applicable Standards

All products support EN and UL/cUL standards.
Various shipping approvals are supported as well.

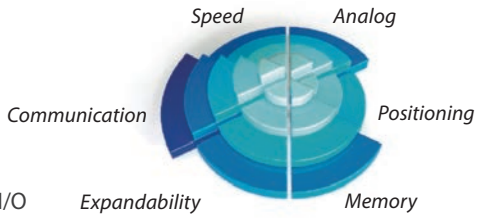
### Large Device Memory

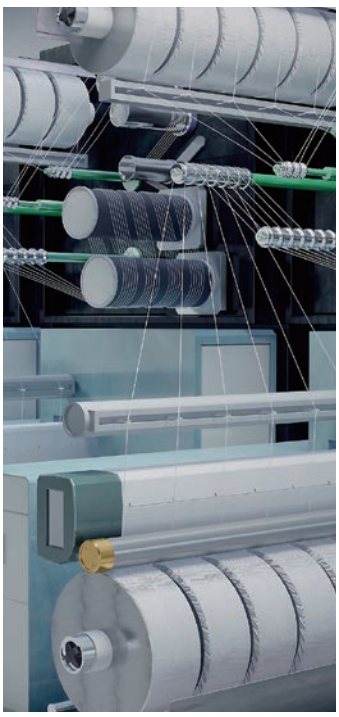
| | |
|---|---|
| Auxiliary Relays | 7,680 points |
| Timers | 512 points |
| Counters | 235 points |
| Data Registers | 8,000 points |
| Extension Registers | 32,768 points |
| Extension File Registers (with optional Memory Cassette) | 32,768 points |

# FX Main Units Lineup

## FX3G

Controllable I/O: 14 - 128 points
Max. 256 with CC-Link or AnyWireASLINK remote I/O
(Main Unit I/O: 14/24/40/60 points)



## Customized Control

The FX3G is an introductory compact PLC designed for simple yet performance-critical applications. Incorporating innovative FX3 series technology the customer is presented with a suite of benefits.

- 3rd generation compact PLC
- Highly flexible
- Dual system-bus architecture
- The FX3G can control a maximum of 128 connected I/O, and up to 256 points with CC-Link or AnyWireASLINK remote I/O.

*: The standard mode is selected when the program capacity is set to 16000 steps or less using a parameter. The extension mode is selected when the program capacity is set to 16001 steps or more using a parameter.

### Product Details

All-in-one CPU, power supply and I/O includes usage of the FX3 series ADP bus system and expansion boards (BD).

### Instruction Times

Basic Instructions:
Standard mode*: 0.21 µs/instruction (Contact Instruction)
Extension mode*: 0.42 µs/instruction (Contact Instruction)
Applied Instructions:
Standard mode*: 0.52 µs/instruction (MOV Instruction)
Extension mode*: 1.29 µs/instruction (MOV Instruction)

### Large Memory

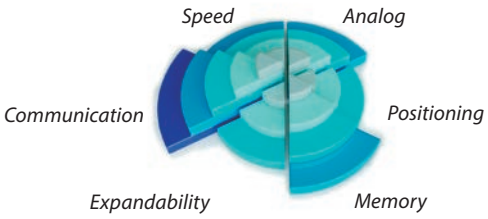
32,000 steps of built-in program memory.
EEPROM memory cassette with loader function is available.

### Applicable Standards

All products support EN and UL/cUL standards.
Various shipping approvals are supported as well.

### Large Device Memory

| | |
|---|---|
| Auxiliary Relays | 7,680 points |
| Timers | 320 points |
| Counters | 235 points |
| Data Registers | 8,000 points |
| Extension Registers | 24,000 points |
| Extension File Registers | 24,000 points |




# FX3GC

Controllable I/O: 32 - 128 points
Max. 256 with CC-Link or AnyWireASLINK remote I/O
(Main Unit I/O: 32 points)

## Super Compact Control

The FX3GC expands the FX3 series line up with the connector type PLC entry model. Having the same processing capability as the highly successful FX3G, this super compact product reduces installation space, wiring time and potential wiring faults.

- 3rd generation super-compact PLC
- Reduced size and wiring using connector-type I/O
- Dual system-bus architecture
- Control of up to 128 directly connected I/O, or up to 256 I/O with CC-Link or AnyWireASLINK remote I/O.

*: The standard mode is selected when the program capacity is set to 16000 steps or less using a parameter. The extension mode is selected when the program capacity is set to 16001 steps or more using a parameter.

### Product Details

All-in-one CPU, power supply and I/O.
Same programming specification as the FX3G products in an ultra compact housing with connector type wiring for fast and fault free wiring.

### Instruction Times

Basic Instructions:
Standard mode*: 0.21 µs/instruction (Contact Instruction)
Extension mode*: 0.42 µs/instruction (Contact Instruction)
Applied Instructions:
Standard mode*: 0.52 µs/instruction (MOV Instruction)
Extension mode*: 1.29 µs/instruction (MOV Instruction)

### Large Memory

32,000 steps of built-in program memory.

### Applicable Standards

All products support EN and UL/cUL standards.
Various shipping approvals are supported as well.

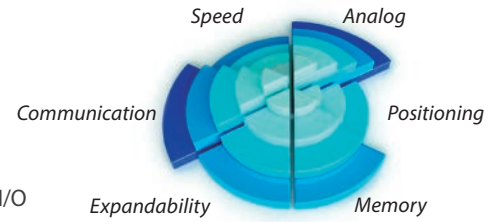
### Large Device Memory

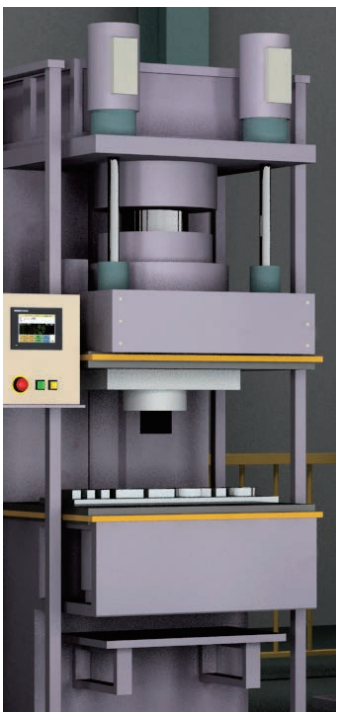
| | |
|---|---|
| Auxiliary Relays | 7,680 points |
| Timers | 320 points |
| Counters | 235 points |
| Data Registers | 8,000 points |
| Extension Registers | 24,000 points |
| Extension File Registers | 24,000 points |

# FX Main Units Lineup

FX3GE

Controllable I/O: 24 - 128 points
Max. 256 with CC-Link or AnyWireASLINK remote I/O
(Main Unit I/O: 24/40 points)



## Keep it simple

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

- 3rd generation, all-in-one PLC
- Highly flexible
- Dual system-bus architecture
- Control of up to 128 directly connected I/O, or up to 256 I/O with CC-Link or AnyWireASLINK remote I/O.

*: The standard mode is selected when the program capacity is set to 16000 steps or less using a parameter. The extension mode is selected when the program capacity is set to 16001 steps or more using a parameter.

### ■ Product Details

All-in-one CPU, power supply and I/O, with integrated analog I/O and Ethernet port ready to use straight out of the box.

### ■ Instruction Times

Basic Instructions:
Standard mode*: 0.21 µs/instruction (Contact Instruction)
Extension mode*: 0.42 µs/instruction (Contact Instruction)
Applied Instructions:
Standard mode*: 0.52 µs/instruction (MOV Instruction)
Extension mode*: 1.29 µs/instruction (MOV Instruction)

### ■ Large Memory

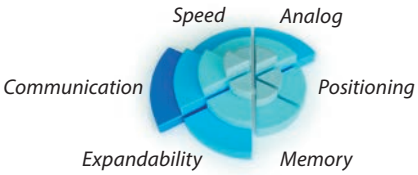
32,000 steps of built-in program memory.
EEPROM memory cassette with loader function is available.

### ■ Applicable Standards

All products support EN and UL/cUL standards.

### ■ Large Device Memory

| | |
|---|---|
| Auxiliary Relays | 7,680 points |
| Timers | 320 points |
| Counters | 235 points |
| Data Registers | 8,000 points |
| Extension Registers | 24,000 points |
| Extension File Registers | 24,000 points |




FX3S

Controllable I/O: 10 - 30 points
(Main Unit I/O: 10/14/20/30 points)

## Keep it simple

The FX3S is the fit-and-forget PLC solution for space and cost conscious applications requiring up to 30 I/O. This minimum-expandability, battery-less maintenancefree controller is perfect for handling straightforward processes and can be hidden away in locations without regular maintenance activities.

- Basic controller for general applications
- High performance with minimal size

### Product Details

All-in-one CPU, power supply and I/O. Expansion options includes adapter and expansion boards for communication, analog control, or temperature input.

### Instruction Times

Basic Instructions: 0.21 µs/ instruction (Contact Instruction)
Applied Instructions: 0.5 µs to several hundred µs/ instruction

### Large Memory

4,000 steps of built-in program memory.
No battery. No maintenance.

### Applicable Standards

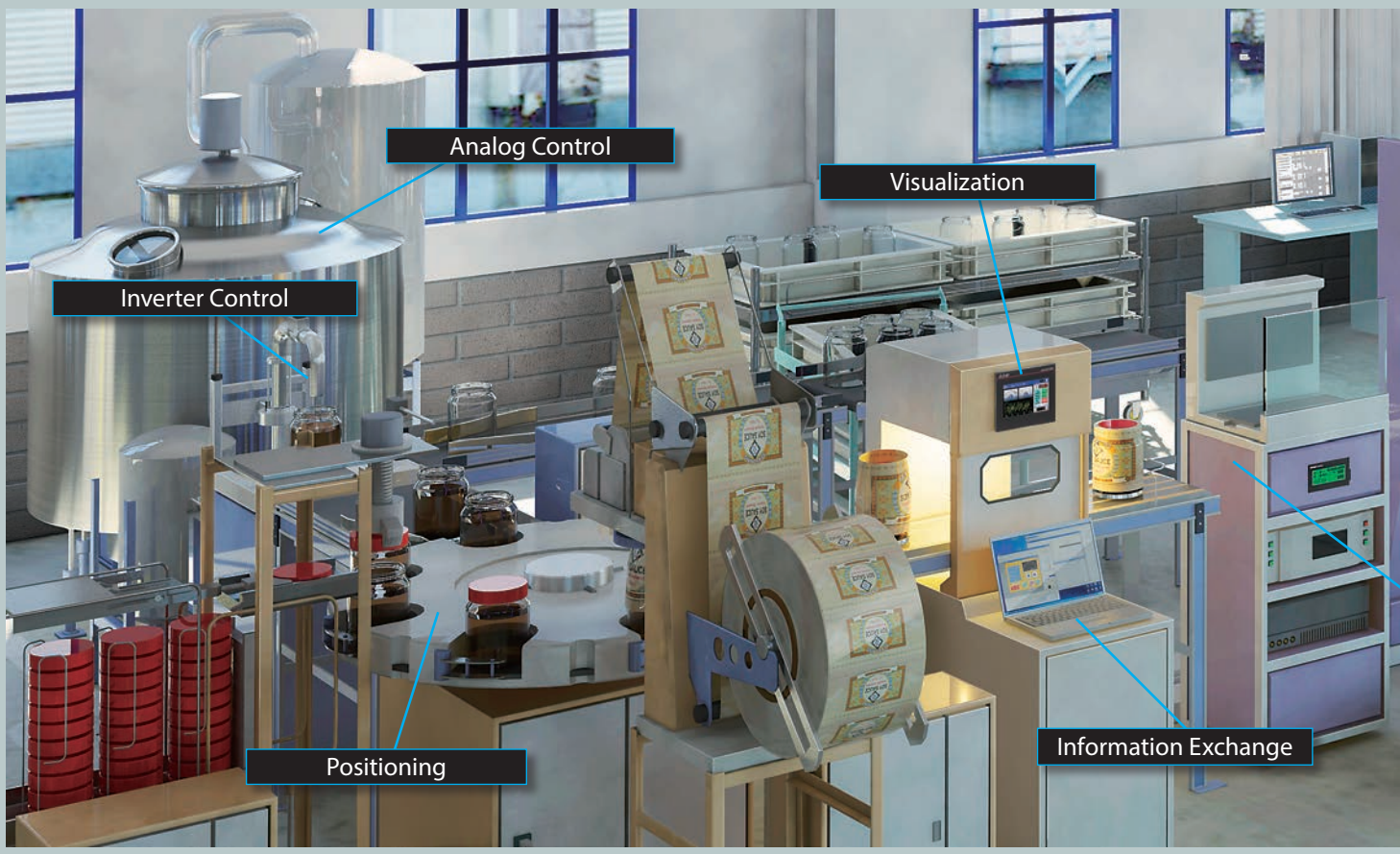
All products support EN and UL/cUL standards.
Various shipping approvals are supported as well.

### Large Device Memory

| | |
|---|---|
| Auxiliary Relays | 1,536 points |
| Timers | 138 points |
| Counters | 67 points |
| Data Registers | 3,000 points |
| File Registers | 2,000 points |

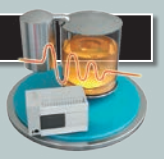
# FX Control Solutions

With superior built-in functionality and straightforward usability, the FX series meets the needs of a variety of user applications. Using the factory image below as an example, key attributes that form the basis of automation control are demonstrated by the FX control system.






## Analog Control



The FX series features easy Analog to Digital and Digital to Analog conversion for all models using Expansion Boards, Special Adapters, or Special Function Blocks.
For more information, go to Page 14.

## High-Speed Control

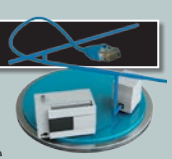
**Integrated High-Speed Counters**

With 6 to 8 high speed counters on each model, the FX series is perfectly suited for applications in need of pulse-catch functions, closed-loop feedback processing, or high-speed sensor use.
For more information, go to Page 15.

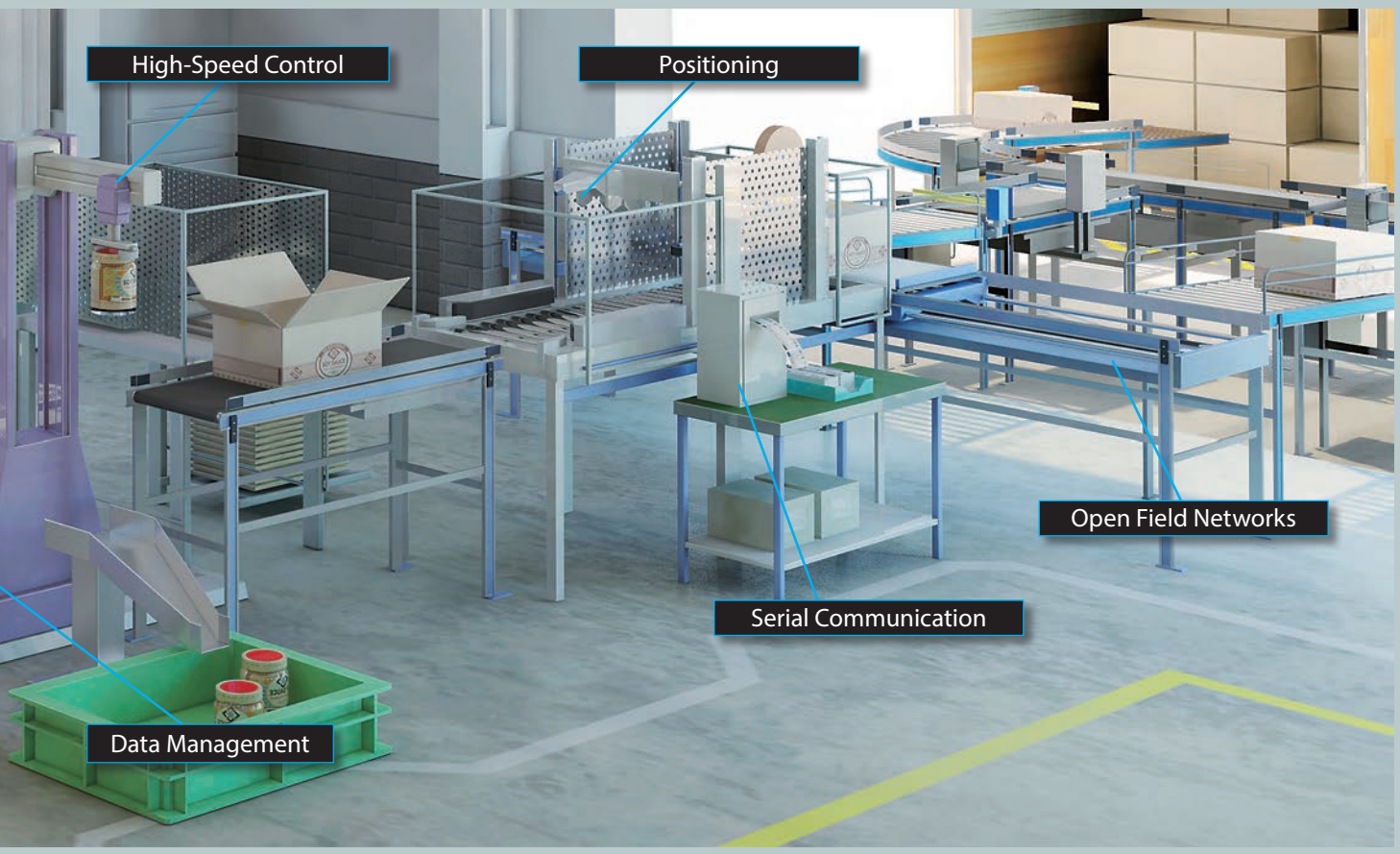
## Serial Communication

From PCs, printers, barcode readers, modems, and other PLCs, serial communication increases the flexibility of the FX series system to allow reliable data exchange over a variety of connections.
For more information, go to Page 19.

## Information Exchange



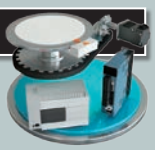
Information can be sent to a higher level PC that constantly monitors production, raising the reliability and overall efficiency of the system.
For more information, go to Page 20.




## Inverter Control

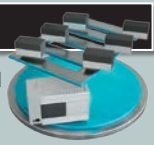
**Integrated FREQROL Protocol**
FX series PLCs contain the RS-485 communication protocol and special instructions that allow control of all Mitsubishi Electric FREQROL Inverters. For all other models, Analog inverter control can be used.
For more information, go to Page 15.

## Positioning



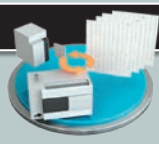
Built-in high-speed pulse outputs and special instructions enable the FX series main units to control up to 3 independent axes of servo motion from the main unit itself. With special function blocks, interpolated and networked servo control solutions are also available.
For more information, go to Page 16-17.

## Open Field Networks



Among the networks supported by the FX series are CC-Link and Ethernet, MODBUS®, and PROFIBUS, providing both a wide selection for new solutions and an interface into existing networks.
For more information, go to Page 18.

## Data Management



The FX3U-CF-ADP, for the FX3U and FX3UC enables data to be automatically written to a CF card at specified intervals or under certain conditions. The data is saved in universal CSV format with user-defined file names and automatic timestamps to enhance efficiency. For more information, go to Page 21.

## Visualization

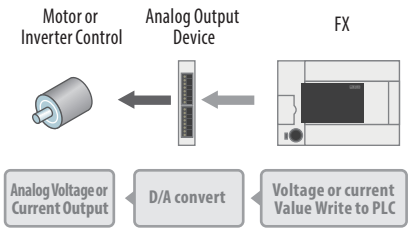
HMI options for the FX series range from simple text-based Display Units to advanced graphical touch-screen displays, known as the GOT2000 series Graphic Operation Terminals. GOT2000 models start at 3.8" and go up to 15".
For more information, go to Page 22-23.

# Analog Control

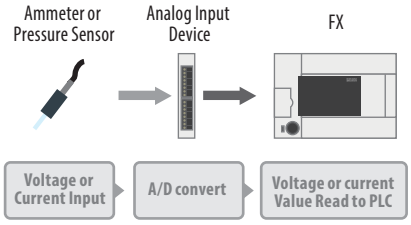
Expanding the FX PLC with analog inputs and outputs is required when the system needs to handle voltage or current inputs/outputs, temperature inputs, or temperature or PID control. The following expansion boards, special adapters, and special function blocks support different ranges and combinations of these features.

More details, please refer to the FX Analog Family.

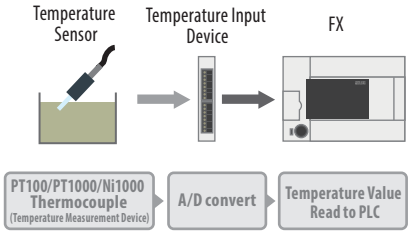
## Analog Output

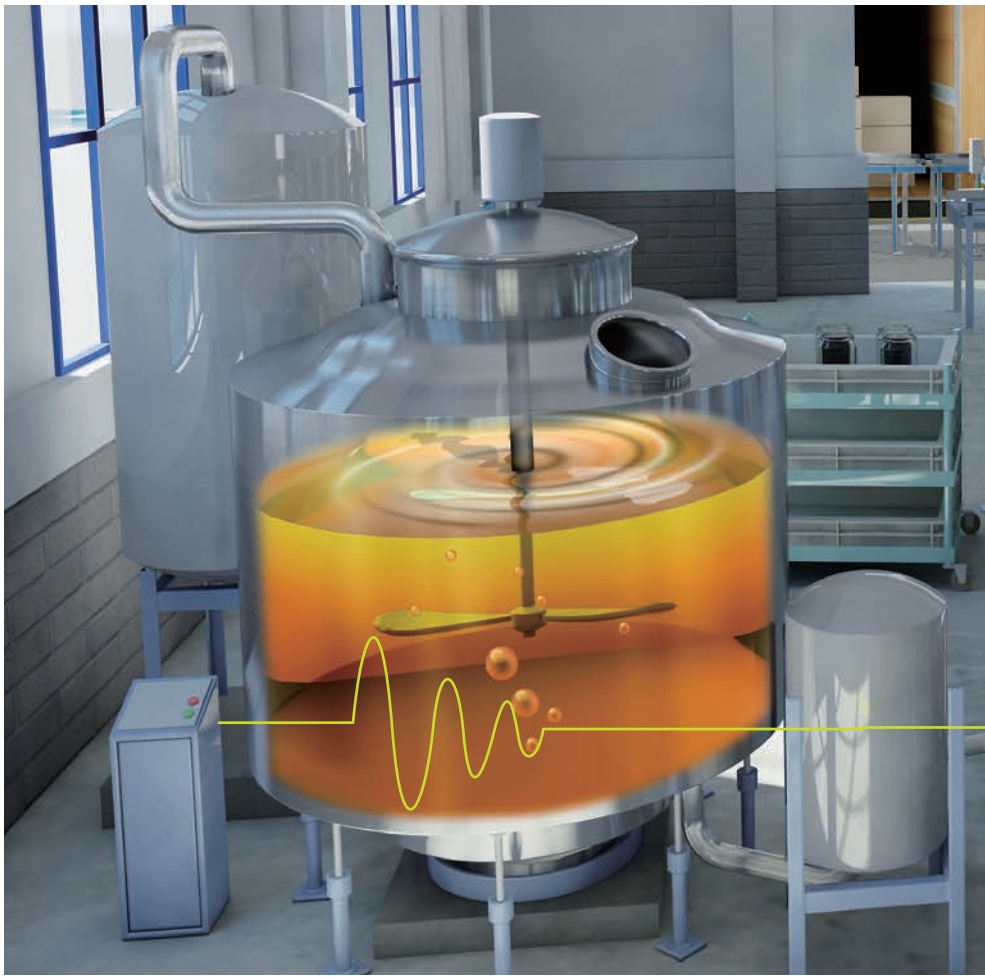



## Analog Input

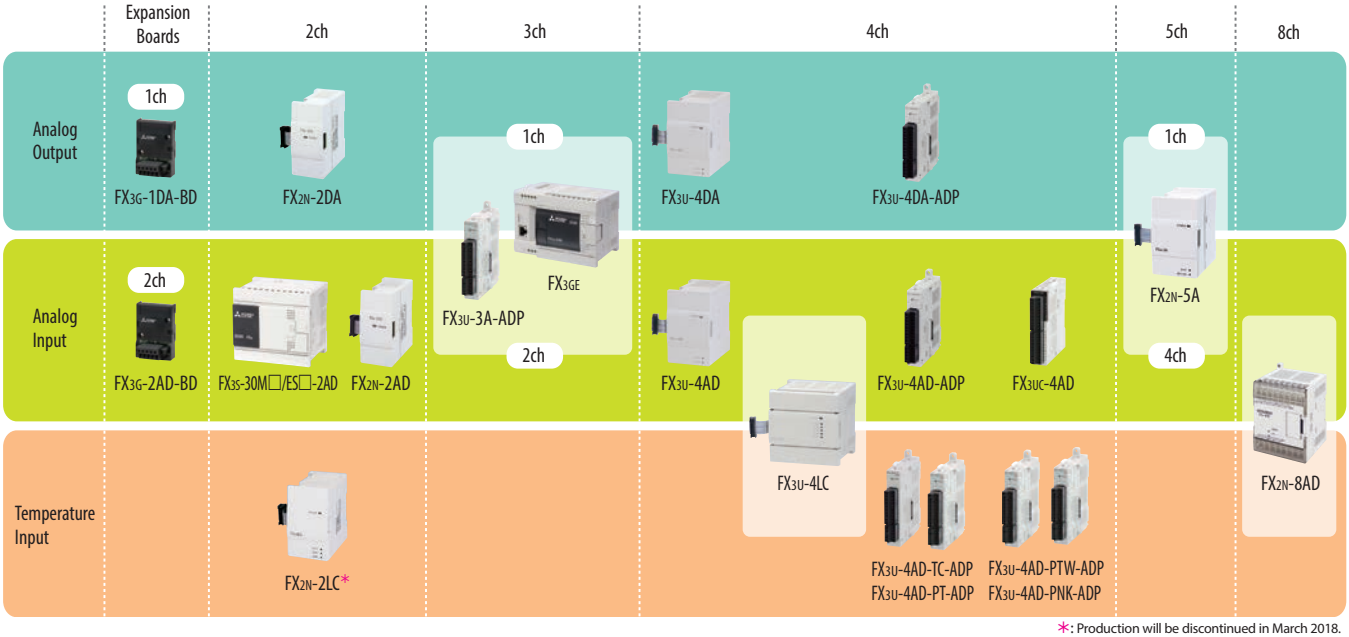



## Temperature Input



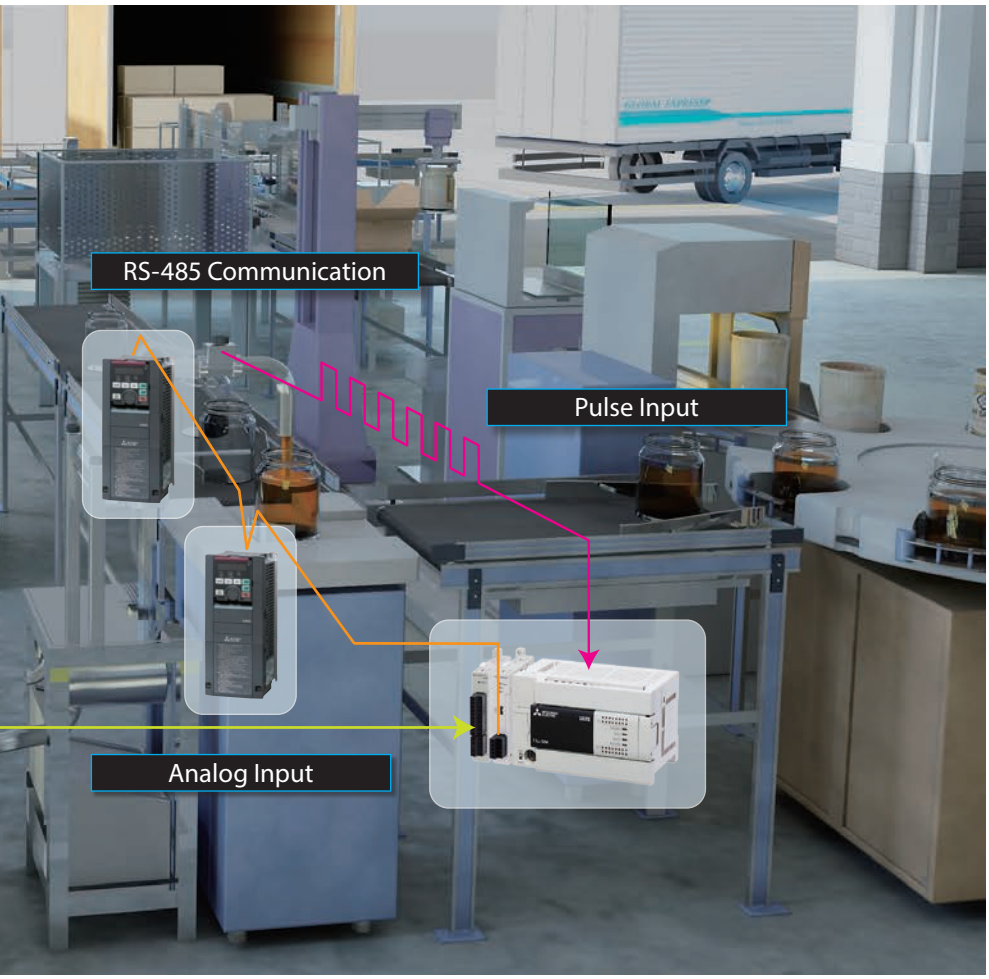
## Analog Modules Lineup



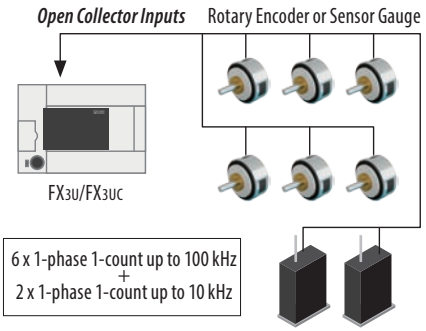

*: Production will be discontinued in March 2018.

# High-Speed Control

All FX series PLCs are equipped with built-in open collector high-speed counters; up to 60 kHz for the FX3G/FX3GC/FX3GE/FX3S and up to 100 kHz for the FX3U/FX3UC. These high-speed inputs are connected to external devices such as encoders and ultrasound sensors for system feedback control. The FX3U main unit can be expanded with high-speed input special adapters, enabling differential line receiver inputs up to 200 kHz.

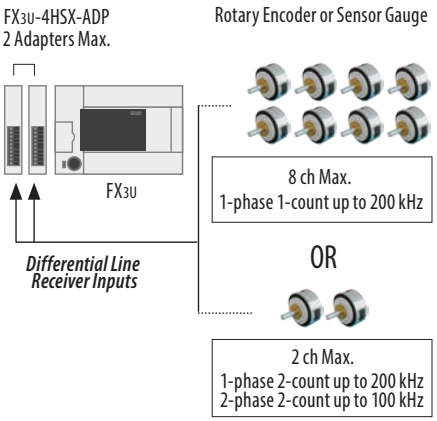



## FX Integrated High-Speed Counter




Note : Up to 50 kHz when using 2-phase 2-count

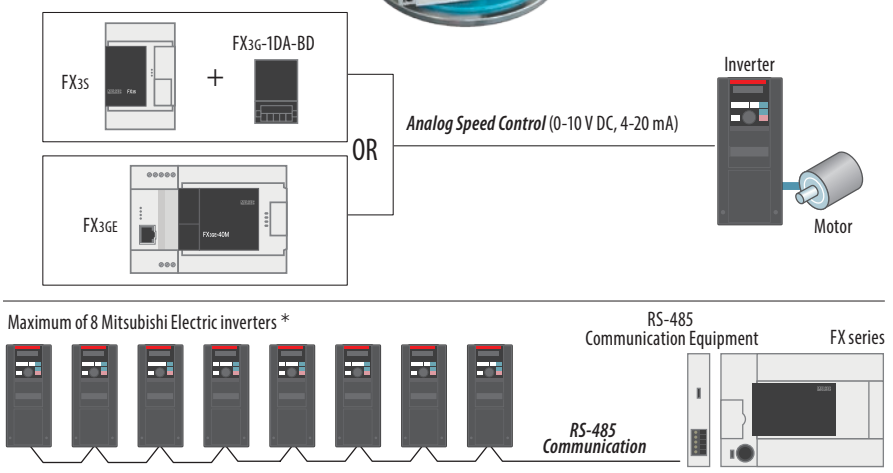
## FX with High-Speed Input Adapter




Note : When using high-speed input special adapters, the same numbered I/O terminals on the PLC main unit may not be used.

# Inverter Control

Also known as Variable Frequency Drives (VFDs), Inverters play a vital role in many conveyor, pumping, and positioning systems. While the output frequency of the inverter can be varied easily using analog outputs on any of the FX series PLCs, transfer of both parameters and commands between the PLC and Mitsubishi Electric Inverters can be handled in FX series PLCs through serial communication using FREQROL protocol. Each RS-485 interface on an FX series PLC can control up to 8 Inverters with a total network extension of up to 500 m when using the FX3U-485ADP-MB.




* : Applicable Inverters: A800/F800/E700/D700

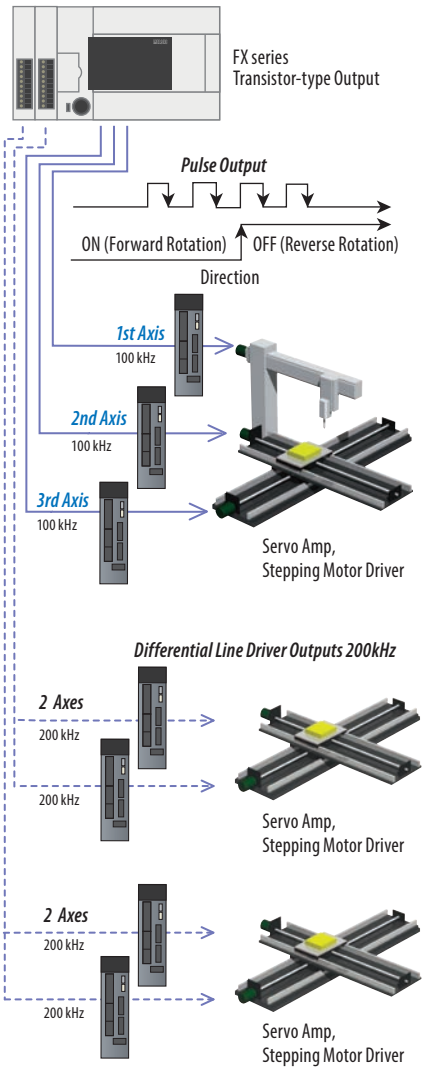
# Positioning

The built-in high-speed pulse outputs on all transistor-type FX series PLCs, along with special positioning operations instructions, are designed to satisfy simple independent-axis positioning applications using servo and stepping motors with speed and precision. For more advanced applications like 4-axis control and noise-free interpolation, the FX system can be expanded with special adapters and special function blocks. With high performance at a low cost, the FX series positioning possibilities provide a formidable package.

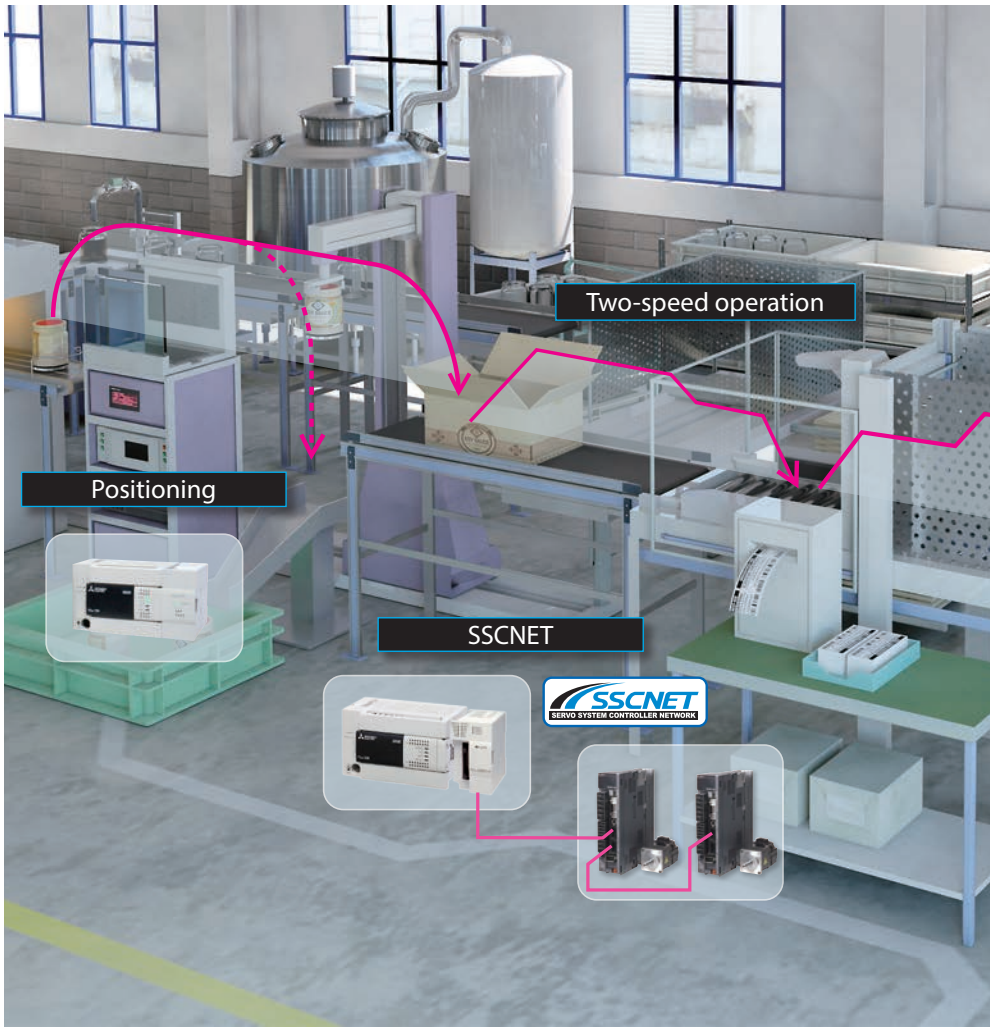
More details, please refer to the FX Positioning Family.

## Upgraded Built-in Positioning Instructions for Easier Use

The FX series allows for up to 3 axes of independent positioning control at up to 100 kHz. Connecting two high-speed output special adapters to the FX3U allows for up to 4 axes of control at up to 200 kHz. *

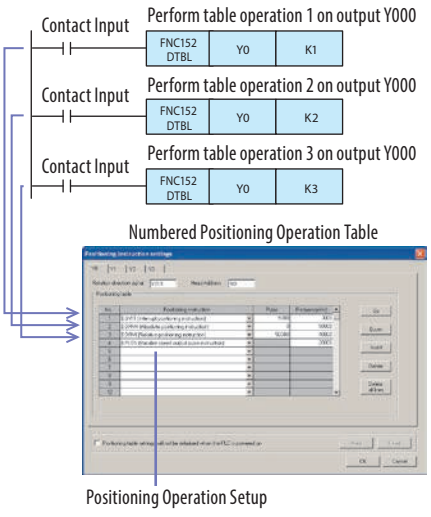



*: When using high-speed output special adapters, the same numbered I/O terminals on the PLC main unit may not be used.



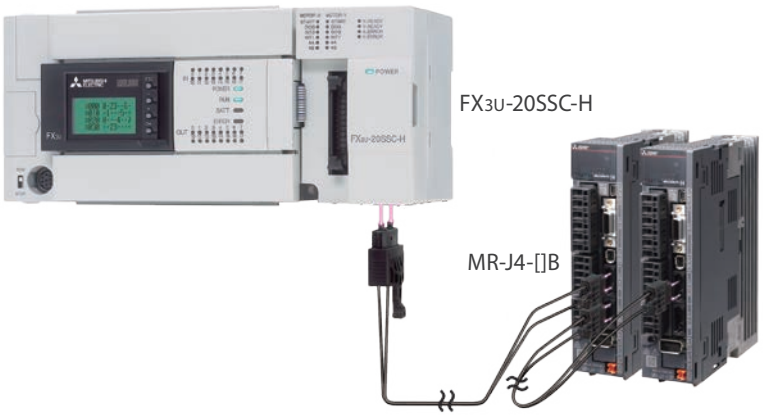

## Easy Step-By-Step Positioning Programming Using the DTBL Instruction.

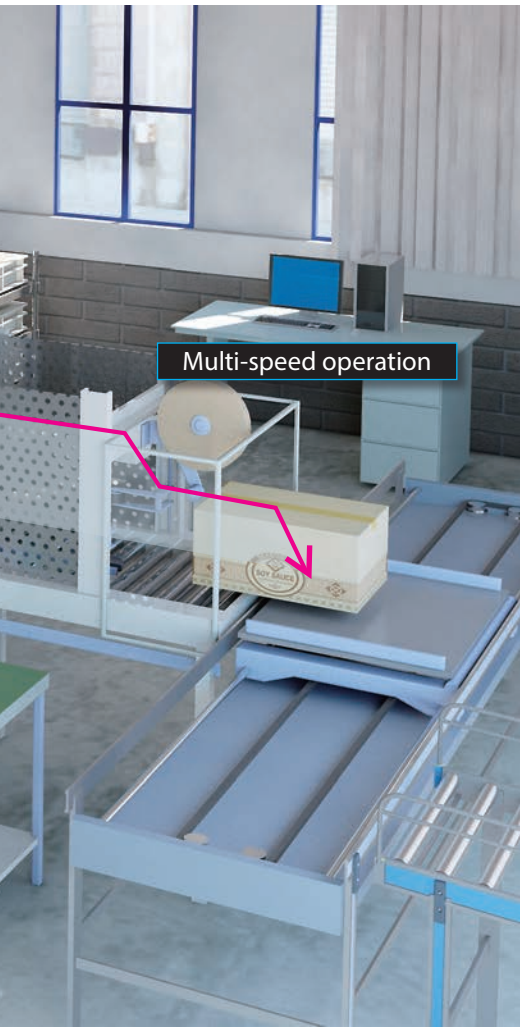
Only FX3U, FX3UC, FX3G, FX3GC, and FX3GE




## Positioning Modules Lineup

*: FX3U built-in axes are not available when the High-Speed Output ADPs are attached.



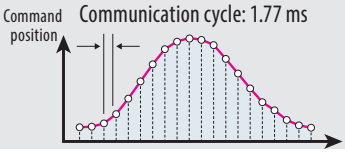




## High-Speed, High-Precision Positioning Solution

For advanced positioning applications, the FX3U and FX3UC controllers can be expanded with the FX3U-20SSC-H special function block. With SSCNET III, smooth, high-speed, high- precision operations become easy to setup and execute. Use the FX PLC to set positioning and servo parameters, while monitoring the absolute axis position for program interaction.

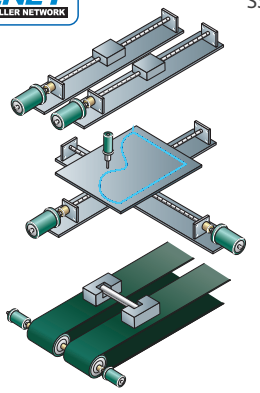
Plug-and-Play fiber optic cable connectivity to servo equipment eliminates wiring errors and enhances data transfer reliability and noise resistance while supporting node-to-node distances of up to 50 m. At 50 Mbps transmission speed with highly reduced communication cycle times as low as 1.77 ms, the FX3U-20SSC-H and SSCNET III drastically improve positioning accuracy and create a high-powered solution for a variety of applications.

***Short communication cycle***




## 2-Axis 50 Mbps Networked Control

Unparalleled communication speed through SSCNET III



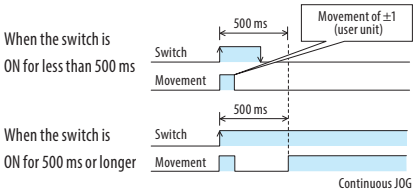
**Interpolated Positioning**
- 2-Axis Linear Interpolation
- 2-Axis Circular Interpolation

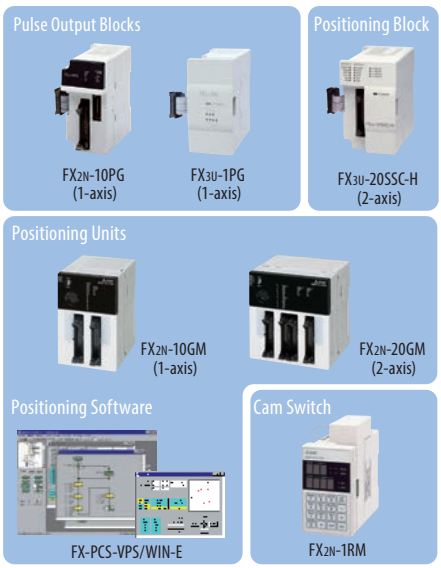
**Simultaneous Start Function**
Both the X and Y axes can be controlled with a timed start, allowing for synchronous positioning operations.

## Inching Operation

If the forward/reverse JOG activation time is within the JOG determination time, a pulse string equivalent to ±1 (user unit) is output at the current address.

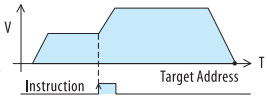
***Example JOG determination time: 500 ms***



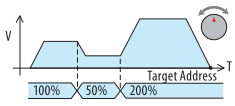




## Changing the Speed and Target Address

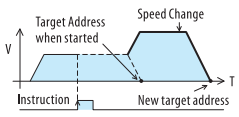
**Speed Change Function**
The operation speed can be changed arbitrarily during operation.




**Speed Override Function**
The operation speed ratio can be changed arbitrarily during operation.

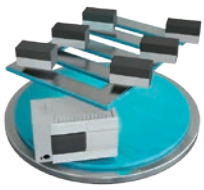


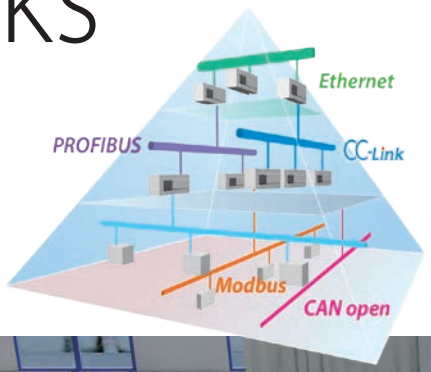

**Target Address Change Function**
The target address can be changed to a new address arbitrarily during operation.



# Open Field Networks

Across factory floors, though applications and databases may be made up of equipment from different manufacturers, reliable information must be passed both quickly and easily. To accomplish this, one must keep everyone speaking the same language, and therefore it is best to use open networks as a backbone to the control system. Several of the supported FX series open network extensions are shown below.

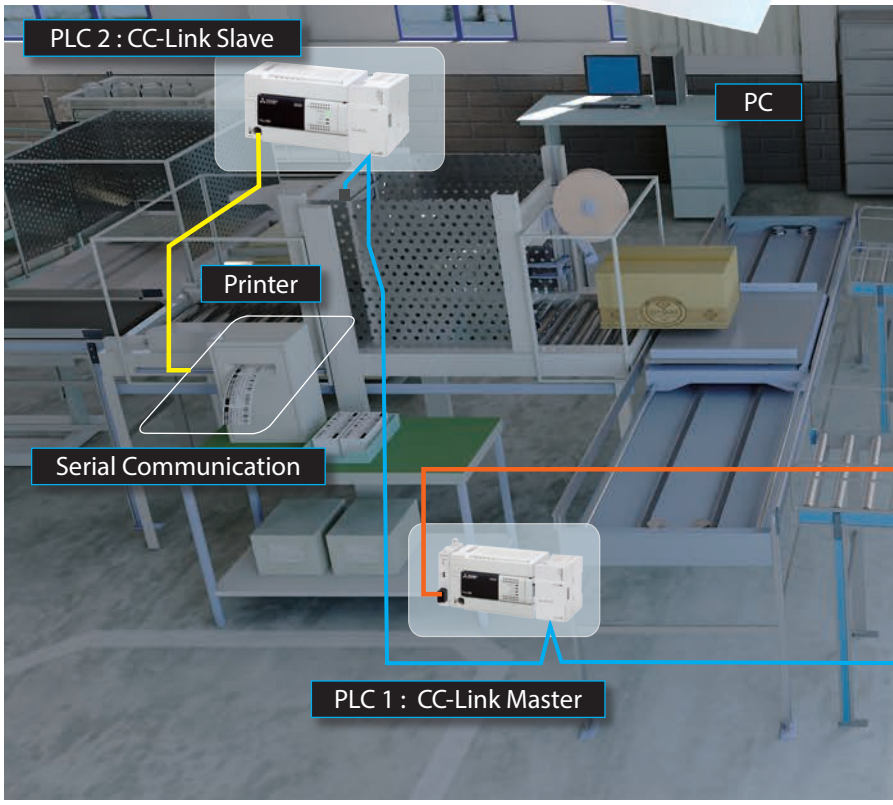




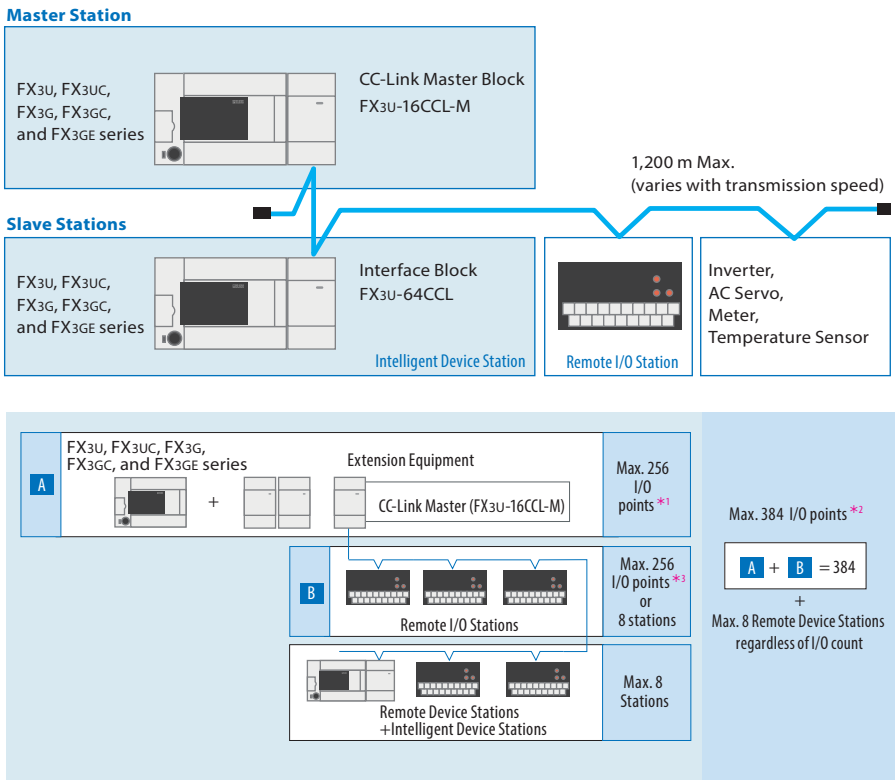

## CC-Link

For inter-system data transfer and remote I/O handling, CC-Link enables the update of word and bit devices refreshed at up to 10 Mbps. With CC-Link based I/O, the 256 I/O control limit of the FX3U/FX3UC goes up to 384*, and with CC- Link Ver. 2.00, expanded cyclic transmission can also be performed, enabling more link points to be established.
Programming via CC-Link is also a new feature of the FX series. A user connected to the master FX PLC programming port can access all connected intelligent device station FX PLCs from one location, saving time and money.

*: FX3G/FX3GC/FX3GE goes up to 256.




### CC-Link System Configuration



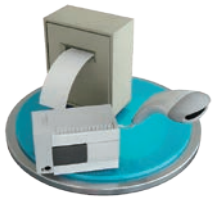

### Communication Modules Lineup

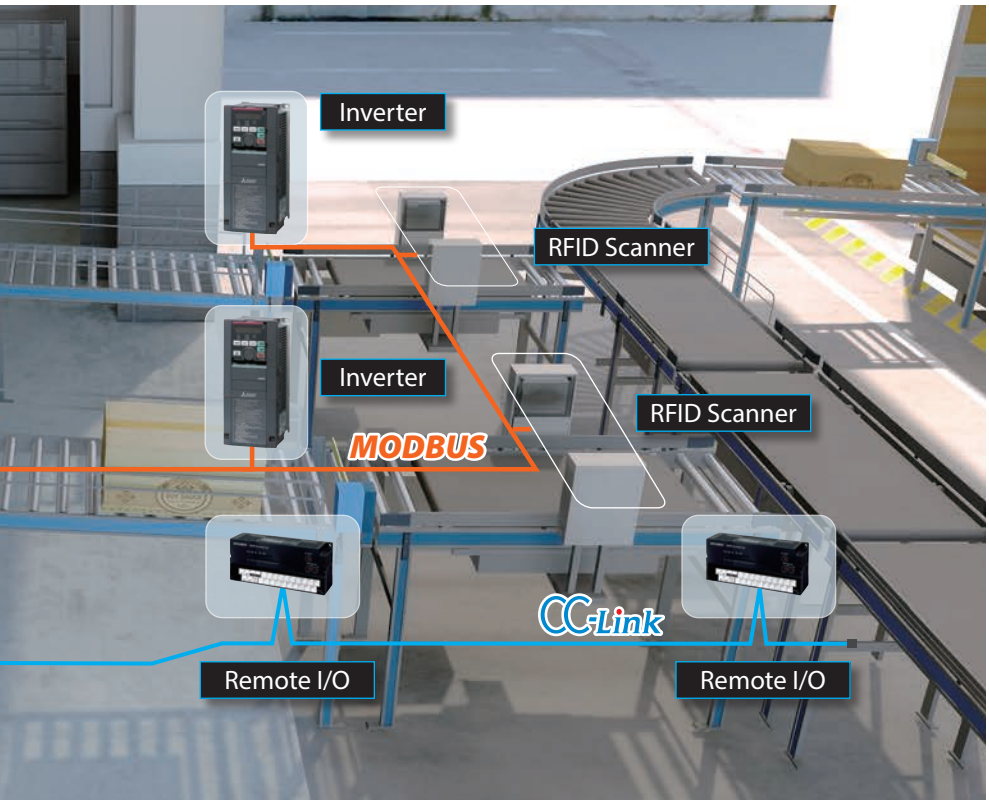
CC-Link

*1: FX3G/FX3GC/FX3GE up to 128 I/O points *2: FX3G/FX3GC/FX3GE goes up to 256.
*3: FX3G/FX3GC/FX3GE up to 128 I/O points or 4 stations.

# Serial Communication

For related systems and data transfer with external equipment and third party devices, serial communication has long been the established connection method. Serial communication allows the FX series to connect both efficiently and reliably with other PLCs, sensors, printers, and modems, etc. Multi-drop networks, non-protocol communication, and remote maintenance are just some of the many uses.






## MODBUS

Both an open network and a serial communicator, MODBUS-RTU allows FX series PLCs to interface with a wide range of equipment and devices. Using RS-485 and RS-232C, the FX3U-485ADP-MB and FX3U-232ADP-MB expand the networking capabilities of the FX system while still supporting general communication with other FX systems, non-protocol devices, and serial modems.
MODBUS serial communication parameters and communication execution are setup easily within the ladder program using GX Works2 or GX Developer, and the FX MODBUS Master uses the special ADPRW instruction to communicate with up to 16 Slave stations.



Serial Communication

FX3U-232-BD

FX3U-485-BD

FX3G-232-BD

FX3G-485-BD

FX3G-485-BD-RJ

MODBUS

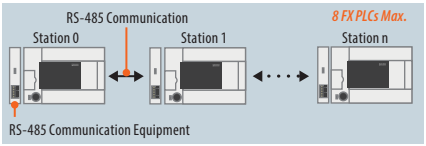
FX3U-232ADP-MB

FX3U-485ADP-MB

## Communication Protocols

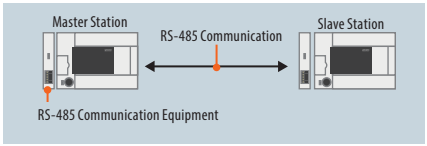
### N:N Network
Communication between FX series PLCs

Connect up to 8 FX PLCs using N:N Networking to allow data exchange between each station.



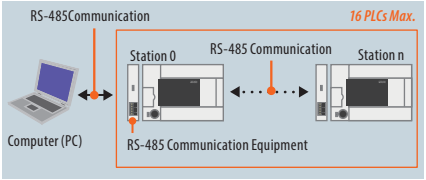

### Parallel Link
Communication between 2 FX series PLCs of the same series

Auxiliary Relays (M) and Data Registers (D) are updated automatically between two PLCs of the same series.

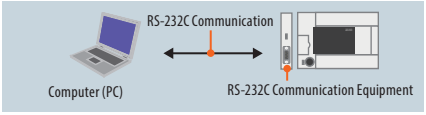



### Computer Link (Dedicated Protocol)
Communication with a PC

1:N Computer to PLC Communication
The PC can communicate with a network of up to 16 FX, A, and Q PLCs.

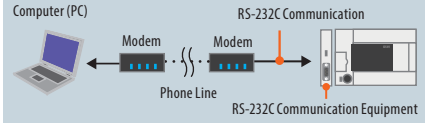



1:1 RS-232C Communication Equipment to PLC
When communicating over an RS-232C interface, the PC can communicate with one FX PLC.



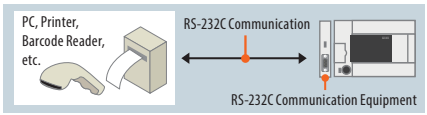

### Remote Maintenance
Communication with a PC

Using a modem connection, a PC can monitor/force devices and perform program upload/download to a PLC from remote locations.



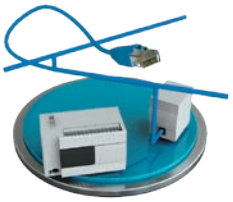

### Non-Protocol Communication (RS/RS2 Instructions)
PLC communication with Printers, Barcode Readers, etc.

Serial communication is possible between a PLC and any external equipment with an RS-232C or RS-485 (RS-422) interface.



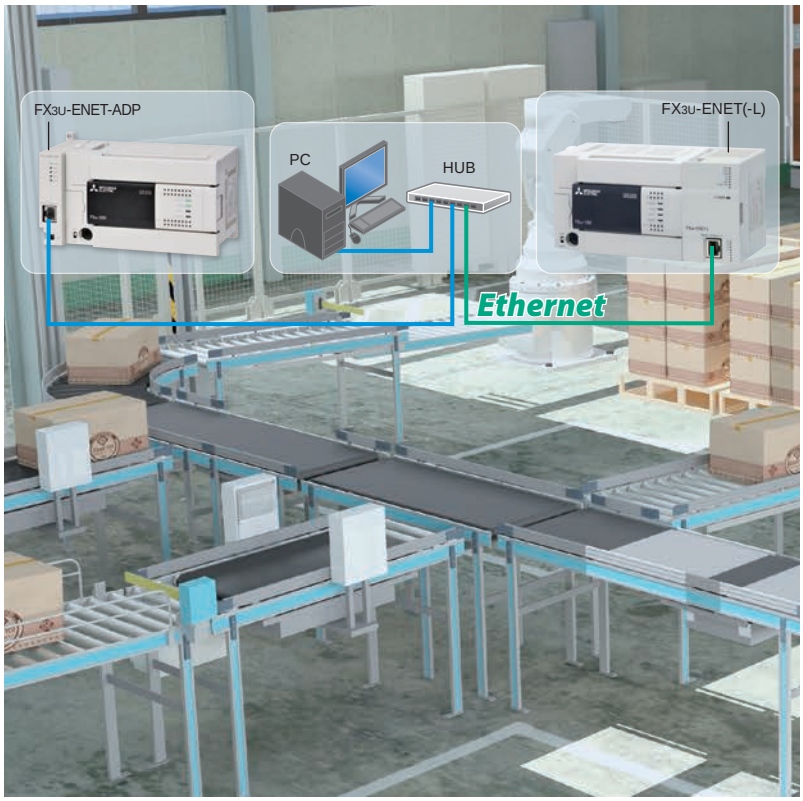
# Information Exchange

Networks and remote connections go hand in hand. Get connected for remote factory control and maintenance.



## Ethernet

In the information age, Ethernet has become the personal, commercial and industrial standard for easy and efficient data transfer. Whether it is between multiple PLC systems or PLC and PC servers, industrial users dictate foremost that data must always be consistent even in high-noise environments. The FX series uses industrial Ethernet on up to 8 ports, with features such as PLC-to-PLC communication, extensive e-mail send/receive options, and program upload/download.




### Ethernet Communication Modules Lineup

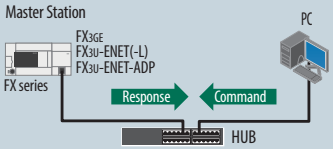
Ethernet

FX3GE FX3U-ENET-ADP FX3U-ENET(-L)

FX3GE support FX3U-ENET(-L) support FX3U-ENET-ADP support

### MC Protocol Communication

Device data read-out/writing to a PLC from a PC is possible.

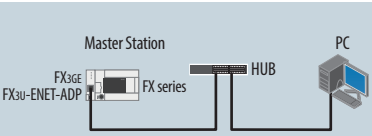



### Parameter Setup

Various parameters can easily be set from the parameter setting screen of GX Works2.

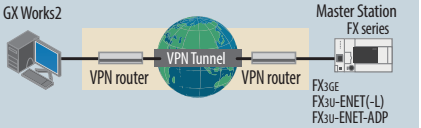
### Data Monitoring

PLC device values and the status of the Ethernet adapter can be monitored from a browser on a personal computer.




### Remote Maintenance

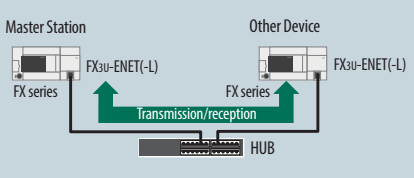
Program read/write can be made by GX Works2 connected via VPN.*




*: VPN (Virtual Private Network): Service that encrypts communication and connects points across a public network

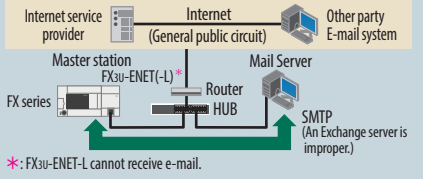
### Fixed Buffer Communication

Communication with PLC and other devices possible using buffer memory (fixed buffer).




### E-mail Transmission

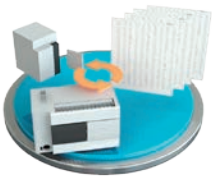
PLC can send and receive* e-mail via mail server (SMTP).




*: FX3U-ENET-L cannot receive e-mail.

# Data Management

Keeping records of components, key processes, and events are crucial for maintaining a reliable system. FX PLCs offer multiple methods for saving data depending on user needs.



## Data Logging

Write data to a CF card in the FX3U-CF-ADP for the FX3U and FX3UC. Logging of periodical or event-based data can be performed in 64 different files with user-defined names in universal CSV format. Time stamps can be activated to automatically tag data allowing easy analysis of trends.

### Data Logging Adapter

Data Logging

FX3U-CF-ADP

### Storing Data in the PLC

Utilize extension registers for data storage. 24,000 points are available in FX3G/FX3GC/FX3GE and 32,768 are available in FX3U/FX3UC.

FX3U

FX3G

### Storing Data in a Memory Cassette

Utilize extension file registers for data storage on a memory cassette. 24,000 extension file registers can be used with FX3G/FX3GE and 32,768 can be used with FX3U/FX3UC.

For FX3U/FX3UC

For FX3G/FX3GE

### Collecting Data on a Personal Computer

A PC that is always on can log PLC data with MX Component and MX Sheet.

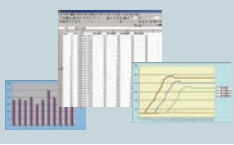
### Collecting Data onto CF Card

Easily log data in CSV format with a CF card special adapter connected to FX3U/FX3UC.

FX3U-CF-ADP

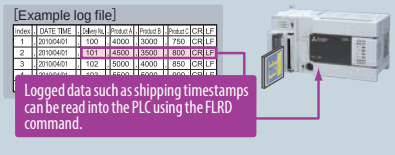
### Data Analysis

Data logged in CSV format on CF card can easily be read using spreadsheet software.
Graph the data for easy visualization and analysis.




### Read-Out of Data

The data logged on CF card can be read back into the PLC.



# Visualization

To provide ease of operation to a system, the overall look and feel of the interface is key.
The GOT2000 series Graphical Operation Terminal HMIs offers colorful and sharp touch-screen displays that make interacting with the system straight forward. If only a simple text-display is needed for simple monitoring and device setting, display modules are also available.

GOT2000

Graphic Operation Terminal

## With FX series PLCs

- *Transparent Mode*
- *List Editor*
- *Multi-Connection*
- *Common Software For All GOTs*
- *Backup / Restoration function*

# GT27

### Advanced model with multi-touch gesture functions.

Communication interfaces such as Ethernet, RS-232, RS-422/485, USB host/device and SD memory card are standard features. High capacity data processing ensures smooth screen operation even when multiple tasks, such as logging, script, alarm, or device data transfer, are running. In addition, image recording, image playback, video image input, and RGB output are available, thus all the functions of GOT2000 can be used on GT27 models.

| 5.7-inch |
|---|
| TFT LCD 65,536 colors |
| GT2705-VTBD |
| **8.4-inch** |
| TFT LCD 65,536 colors |
| GT2708-[]TBA |
| GT2510-[]TBD |
| **10.4-inch** |
| TFT LCD 65,536 colors |
| GT2710-STBA |
| GT2710-STBD |
| GT2710-VT[]A |
| GT2710-VT[]D |
| **12.1-inch** |
| TFT LCD 65,536 colors |
| GT2712-ST[]A |
| GT2712-ST[]D |
| **15-inch** |
| TFT LCD 65,536 colors |
| GT 2715-XTBA |
| GT2715-XTBD |

# GT25

### High performance, cost efficient, mid-range model.

High capacity data processing ensures smooth screen operation even when multiple tasks, such as logging, script, alarm, or device data transfer, are running.

| 8.4-inch |
|---|
| TFT LCD 65,536 colors |
| GT2508-VT[]A |
| GT2508-VT[]D |
| **10.4-inch** |
| TFT LCD 65,536 colors |
| GT2510-VT[]A |
| GT2510-VT[]D |

| 12.1-inch |
|---|
| TFT LCD 65,536 colors |
| GT2512-STBA |
| GT2512-STBD |

### Open Frame Model

Installing the GOT2000 from the back side of the control panel complements the machine-design surface. Using a stainless-look environmental protection sheet allows the touch panel to blend into the production machines for the pharmaceutical and food industries.

| 8.4-inch |
|---|
| TFT LCD 65,536 colors |
| GT2508F-VTNA |
| GT2508F-VTND |
| **10.4-inch** |
| TFT LCD 65,536 colors |
| GT2510F-VTNA |
| GT2510F-VTND |

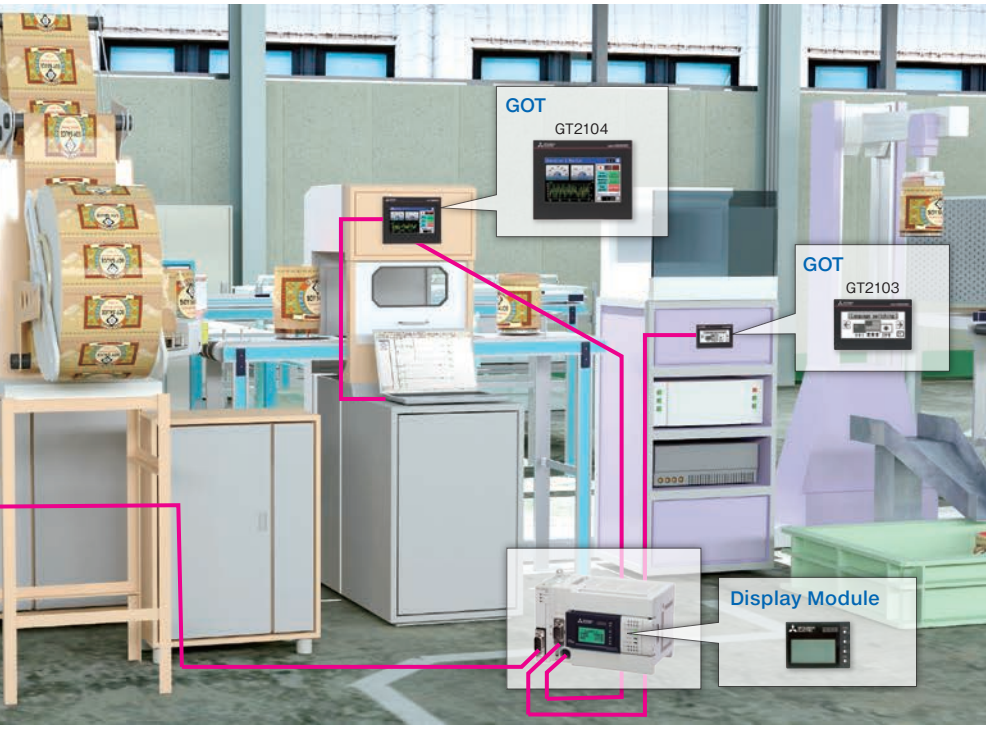
| 12.1-inch |
|---|
| TFT LCD 65,536 colors |
| GT2512F-STNA |
| GT2512F-STND |

## FX3G-5DM Display Module

This backlight display module can be installed directly into the front face of the FX3G or on top of an FX3G expansion board and can be used to display the built in real-time clock, bit device statuses and word device values, and error codes with step numbers, force bit device statuses, and adjust word device values. Keywords can be added or cancelled enabling security layers that only allow authorized operators to edit devices via the display module.

## FX3U-7DM Display Module & Holder

This backlight display module can be installed directly into the front face of the FX3U or mounted in a cabinet or panel using the dedicated connection cable and holder kit. The FX3U-7DM can be used to monitor and adjust devices similar to the FX3G-5DM, but with added features like device clearing and user message display.




## FX3S-5DM Display Module

This seven-segment and icon display module can be installed directly into the front face of the FX3S together with an expansion board. The FX3S-5DM can be used to monitor and change device states and values.

# GT21

### Compact model with exciting possibilities.

Introducing a compact model with high resolution LCD display. The GOT wide model satisfies your needs in various applications. Enhanced visualization in industrial environments and an excellent choice also for non-FA applications.

| 3.8-inch |
|---|
| TFT LCD |
| GT2103-PMBD |
| GT2103-PMBDS |
| GT2103-PMBDS2 |
| GT2103-PMBLS |

| 4.3-inch wide |
|---|
| TFT LCD 65,536 colors |
| GT2104-RTBD |
| **7-inch wide** |
| TFT LCD 16 gray scales |
| GT2107-WTBD |
| GT2107-WTSD |

# GOT SIMPLE

Using Mitsubishi Electric industrial devices together with the GOT SIMPLE series provides ideal, simple solutions that enhance efficiency and reduce cost in production.

| 7-inch |
|---|
| TFTLCD |
| GS2107-WTBD |
| **10-inch** |
| TFTLCD |
| GS2110-WTBD |

# Handy GOT

### Hand held terminals support mobile machine visualization and control.

| 5.7-inch |
|---|
| TFT LCD 65,536 colors Handy type |
| GT1455HS-QTBDE |
| TFT LCD 16 gray scales Handy type |
| GT1450HS-QMBDE |
| **6.5-inch** |
| TFT LCD 65,536 colors Handy type |
| GT1665HS-VTBD |
| Handy GOT mounting box |
| GT16H-CNB-42S |

The Handy GOT is used as an operation terminal in connection with the controllers such as MELSEC PLCs or third party PLCs. It is an all-in-one operation terminal that is equipped with the display unit with touch switches integrated with the mechanical keys for inputting a command to a machine.

# Software

In today's world, programming software for PLCs is a forever evolving process. Customers place more focus on reusable program code and user friendly software that helps to reduce errors and programming time, and manage the programming process.

## Programming and Simulation Software

## Program FX series PLCs with ease using GX Works2

### Simple to program, easy to use programming environment

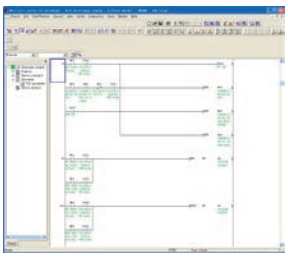
Improve design efficiency | Reduce debugging time | Reduce downtime | Protect important data

## GX Works2 offers two styles of project development to fit different programming needs.

- Program complex operation with familiar ladder
- Easy to use version of GX Developer
- Import projects from GX Developer

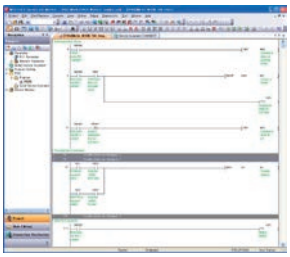
**Simple Project**

**GX Developer**



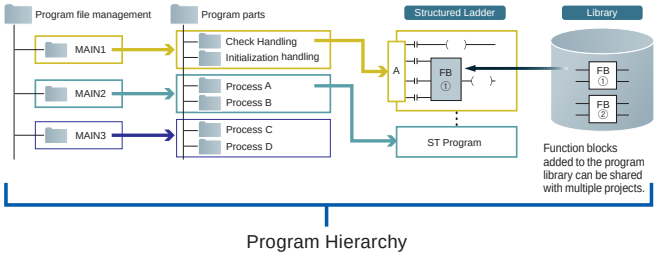
Import

**GX Works2**



- Embody frequently used code in function blocks, which can then be reused
- Use and share function blocks in a program library
- Write program code similar to C programming language

**Structured Project**




Program Hierarchy

Programming Software

### GX Works2

The key to good software is that it is easy to use and intuitive. The GX Works2 PLC programming package offers this in an exceptional way with different programming styles and advanced options. Other features like excellent debugging options, project documentation, and security management and more, reduce the total cost throughout a project.

FX Programming Packages

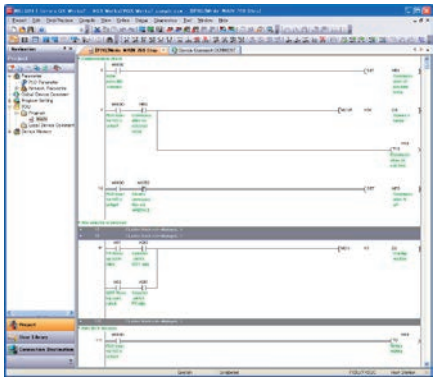
### FX Configurator-FP & FX Configurator-EN(-L)

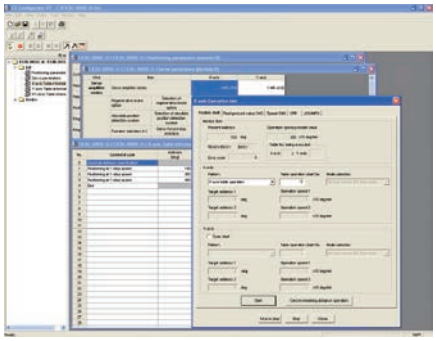
When using the FX3U-20SSC-H positioning block, or the FX3U-ENET Ethernet block, these FX programming packages simplify special function block setup and enable dedicated monitoring and testing capabilities between the PC and the module. The FX Configurator-FP configures the FX3U-20SSC-H positioning unit, including the parameter of the connected servos and features extensive monitoring and testing functions. The FX Configurator-EN(-L) provides an easy setup environment for the FX3U-ENET(-L) Ethernet block.

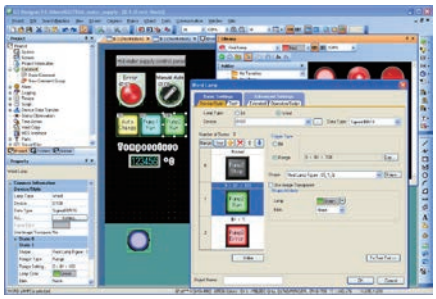
Screen Design Software

### GT Works3

The all new GT Works3 is the most advanced screen design environment.
Experience the dawn of a new era in visualization Design. To quickly transform the front end of your machine into a more user friendly and sophisticated interface you need a design environment that is both intuitive and efficient.
GT Works3 is the quintessential environment for visual design and configuration. User-oriented functions are integrated based on three main concepts - simplicity, definition and ease of use.







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# FX SERIES SELECTION GUIDE

Select System Item → Select Item Specification → Select an Applicable FX Model

| | System Item | Item Specification* | | Terminal-type I/O: Non-Extendable* FX3S | Terminal-type I/O: Extendable FX3G | Terminal-type I/O: Extendable FX3GE | Terminal-type I/O: Extendable FX3U | Connector-type I/O: Extendable FX3GC | Connector-type I/O: Extendable FX3UC |
|---|---|---|---|---|---|---|---|---|---|
| Hardware | I/O points | Up to 30 local I/O's | | ✓ | ★ | ★ | ★ | ★ | ★ |
| | | Up to 128 local I/O's | | | ✓ | ✓ | ★ | ✓ | ★ |
| | | Up to 256 local I/O's | | | | | ✓ | | ✓ |
| | | Up to 256 local and network I/O's | | | ✓ | ✓ | ★ | ✓ | ★ |
| | | Up to 384 local and network I/O's | | | | | ✓ | | ✓ |
| | Power Supply | AC Power | | ✓ | ✓ | ✓ | ✓ | | |
| | | DC Power | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | Input type | 100 V AC | | | | | ✓ | | |
| | | 24 V DC | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Output type | Relay | | ✓ | ✓ | ✓ | ✓ | | ✓ |
| | | Transistor | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Triac | | | | | ✓ | | |
| | CPU Speed | Standard | | ✓ | ✓ | ✓ | ★ | ✓ | ★ |
| | | Advanced | | | | | ✓ | | ✓ |
| | Communication ports | USB | | ✓ | ✓ | ✓ | | ✓ | |
| | | RS-422 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Ethernet | | | | ✓ | | | |
| | Analog I/O | Input : 2 Output : 1 | | ✓*1 | | ✓ | | | |
| Options | Analog I/O (Current / Voltage) | Up to 4 ADP channels | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Up to 8 ADP channels | | | ✓*2 | | ★ | ✓ | ★ |
| | | Up to 16 ADP channels | | | | | ✓ | | ✓ |
| | | Up to 64 special function block channels | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Temperature Sensor Input | Up to 4 ADP input channels | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Up to 8 ADP input channels | | | ✓*2 | | ★ | ✓ | ★ |
| | | Up to 16 ADP input channels | | | | | ✓ | | ✓ |
| | | Up to 64 special function block input channels | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Temperature control | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Network | CC-Link (Master/Slave) | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | CANopen® | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | J1939 | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Ethernet | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | PROFIBUS-DP | Master | | | | ✓ | | ✓ |
| | | | Slave | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Communication | N : N Network/Parallel Link | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Computer Link (RS-232C/RS-485) | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Non-Protocol Communication | 1 Channel (RS-232C/RS-485) | ✓ | ★ | ✓ | ★ | ★ | ★ |
| | | | Multi-Channel (RS-232C) | | ✓ | | ✓ | ✓ | ✓ |
| | | | Multi-Channel (RS-485) | | ✓ | | ✓ | ✓ | ✓ |
| | | Add-on Communication Ports | RS-485 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | | RS-232C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | | USB | | | | ✓ | | |
| | | Embedded USB | | ✓ | ✓ | ✓ | | ✓ | |
| | | MODBUS | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Inverter Control | Analog | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | Pulse width modulation | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | RS-485 Communication | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Positioning | 1 - 2 100 kHz Axis Built-in Positioning | | ✓ | ✓ | ✓ | ★ | ✓ | ★ |
| | | Up to 3 x 100 kHz Axis Built-in Positioning | | | ✓*3 | ✓*3 | ✓ | | ✓ |
| | | Up to 4 x 200 kHz Axis with High-Speed Output Adapters | | | | | ✓ | | |
| | | Up to 8 x 1 MHz Axis with Special Function Blocks | | | | | ✓ | | ✓ |
| | | Up to 16 SSCNET III Axis with Special Function Blocks | | | | | ✓ | | ✓ |
| | | Cam switching | | | | | ✓ | | ✓ |
| | High-Speed Counters | Up to 6 high speed counters, Max. 60 kHz | | ✓ | ✓ | ✓ | ★ | ✓ | ★ |
| | | Up to 8 high speed counters, Max. 100 kHz | | | | | ✓ | | ✓ |
| | | Up to 8 high speed counters with 200 kHz Adapter | | | | | ✓ | | |
| | | Additional Extension using High-Speed Counter Block | | | | | ✓ | | ✓ |
| | Storage | Source data storage | | | | | ✓ | | ✓ |
| | Data Logging | CF card Adapter | | | | | ✓ | | ✓ |

*: Some items require additional extension modules in order to function where other connection rules and requirements may apply. For more details, refer to the respective product manuals.

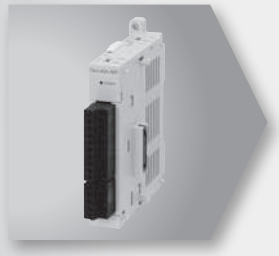
✓: Contains required functionality

★: Higher functionality or more expandability

*1: FX3S-30M□/ES□-2AD

*2: 14 and 24 I/O points main units: Max. 4 channels

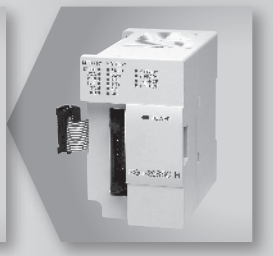
*3: 14 and 24 I/O points main units: Max. 2 axes



*Adapter*

*Main Unit*

*I/O Extension*



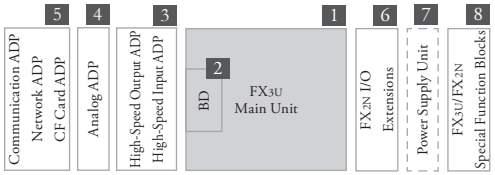
*Special Function Block*

*Expansion Board*

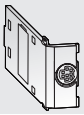
| | |
|---|---|
| **Expansion Boards**<br> | The expansion boards, also called BDs, are a basic CPU function extension. Thanks to the compact dimensions no additional installation space is required. Programming is done directly via special commands and dedicated data register in the PLC. Available are serial communication, analog and digital I/O BDs. |
| **Adapters**<br> | The Special Adapters, also called ADPs, add standard high-speed functions to the PLC. Mounted on the left side, these units are extremely compact and easy to use. The programming is similar to the BDs via special commands and dedicated data registers in the PLC. Available are various serial communication, Ethernet, analog, temperature input, positioning, high-speed counting and data logging ADPs.<br>Compared to the BDs the ADPs offer more flexibility and performance. |
| **Special Function Blocks**<br> | The Special Function Blocks, also called SFBs, are the most advanced function extension available for the FX PLC. Thanks to the standardized communication via memory integrated into the SFBs, programming is straightforward. The integrated CPU performs PLC scan time independent operation perfectly fitted for networking or positioning tasks, thus reducing the load on the PLC main unit. Up to 8 different units can be connected to the main unit. Available are analog, serial communication, networking, positioning, high-speed counting and temperature control.<br>Compared to the ADPs, the SFBs offer higher functionality and more flexibility.<br>Dedicated SFBs for the FX3GC and FX3UC are available as well. |
| **I/O Extensions**<br> | Digital I/O extensions are available with or without power supply. A wide range from 8 to 48 I/O points with different inputs and outputs are available. There is no limitation on the number of extension units or blocks, you can design the system to match application requirements, just make sure to check the system power supply and number of available I/O points.<br>Dedicated I/O blocks for the FX3GC and FX3UC are available as well. |

# FX SERIES CONFIGURATION

## FX3U




### Expansion Boards


FX3U-422-BD

2

**Communication**
FX3U-232-BD
FX3U-422-BD
FX3U-485-BD
FX3U-USB-BD

OR

**Interface Board**
FX3U-CNV-BD

**Analog Setpoint**
FX3U-8AV-BD

### Special Adapters

5

FX3U-ENET-ADP

**Communication**
FX3U-232ADP-MB
FX3U-485ADP-MB

**Network**
FX3U-ENET-ADP*1

**Data Logging**
FX3U-CF-ADP*2

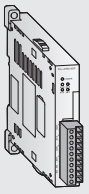
4

FX3U-4AD-PTW-ADP

**Analog**
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP*2

**Temperature**
FX3U-4AD-PT-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PNK-ADP

3

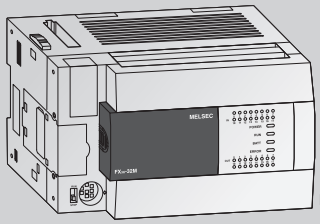

FX3U-4HSX-ADP

**High Speed Counter**
FX3U-4HSX-ADP

**Positioning**
FX3U-2HSY-ADP

### FX3U Main Units

1

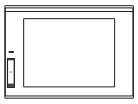

FX3U-32M

■ **FX3U Main Units 16-128 I/O**

| | | | |
|---|---|---|---|
| FX3U-16MR/ES(-A) AC D R | FX3U-48MR/ES(-A) AC D R | FX3U-80MR/ES(-A) AC D R |
| FX3U-16MT/ES(-A) AC D T1 | FX3U-48MT/ES(-A) AC D T1 | FX3U-80MT/ES(-A) AC D T1 |
| FX3U-16MT/ESS AC D T2 | FX3U-48MT/ESS AC D T2 | FX3U-80MT/ESS AC D T2 |
| FX3U-16MR/DS DC D R | FX3U-48MR/DS DC D R | FX3U-80MR/DS DC D R |
| FX3U-16MT/DS DC D T1 | FX3U-48MT/DS DC D T1 | FX3U-80MT/DS DC D T1 |
| FX3U-16MT/DSS DC D T2 | FX3U-48MT/DSS DC D T2 | FX3U-80MT/DSS DC D T2 |
| FX3U-32MR/ES(-A) AC D R | FX3U-64MR/ES(-A) AC D R | FX3U-128MR/ES(-A) AC D R |
| FX3U-32MT/ES(-A) AC D T1 | FX3U-64MT/ES(-A) AC D T1 | FX3U-128MT/ES(-A) AC D T1 |
| FX3U-32MT/ESS AC D T2 | FX3U-64MT/ESS AC D T2 | FX3U-128MT/ESS AC D T2 |
| FX3U-32MS/ES AC D TR | FX3U-64MS/ES AC D TR | |
| FX3U-32MR/DS DC D R | FX3U-64MR/DS DC D R | |
| FX3U-32MT/DS DC D T1 | FX3U-64MT/DS DC D T1 | |
| FX3U-32MT/DSS DC D T2 | FX3U-64MT/DSS DC D T2 | |
| FX3U-32MR/UA1 AC E R | FX3U-64MR/UA1 AC E R | |

AC AC Power supply
DC DC Power supply
D DC Input (sink/source)
E AC Input
R Relay Output
T1 Transistor (sink)
T2 Transistor (source)
TR Triac Output

### Optional Equipment and Software


GT25

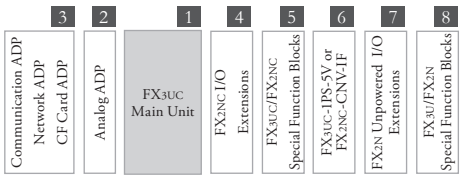
■ **GOT**
GOT2000
(GT27/GT25/GT23/GT21)
GOT SIMPLE

■ **Interface Converters**
FX-USB-AW
FX-232AWC-H

■ **Software**
GX Developer
GX Works2

*1: Firmware version 3.10 or later. *2: Firmware version 2.61 or later.

## FX3UC

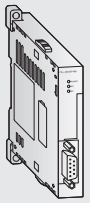



### Special Adapters

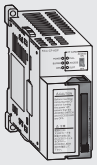
3

FX3U-ENET-ADP

**Network**
FX3U-ENET-ADP*1

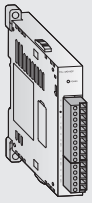

FX3U-232ADP-MB

**Communication**
FX3U-232ADP-MB
FX3U-485ADP-MB

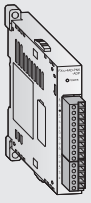

FX3U-CF-ADP

**Data Logging**
FX3U-CF-ADP*2

2


FX3U-4AD-ADP

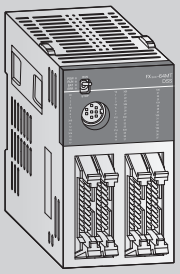
**Analog**
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP*2


FX3U-4AD-PNK-ADP

**Temperature**
FX3U-4AD-PT-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PNK-ADP

### FX3UC Main Units

1


FX3UC-64M

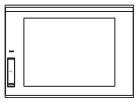
■ **FX3UC Main Units 16-96 I/O**

| | |
|---|---|
| FX3UC-16MT/D* DC D1 T1 | |
| FX3UC-16MT/DSS DC D2 T2 | |
| FX3UC-16MR/D-T* DC D1 R | |
| FX3UC-16MR/DS-T DC D2 R | |
| FX3UC-32MT/D* DC D1 T1 | |
| FX3UC-32MT/DSS DC D2 T2 | |
| FX3UC-64MT/D* DC D1 T1 | |
| FX3UC-64MT/DSS DC D2 T2 | |
| FX3UC-96MT/D* DC D1 T1 | |
| FX3UC-96MT/DSS DC D2 T2 | |

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

* Refer to the HARDWARE MANUAL for system configuration.

### Optional Equipment and Software

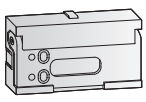

GT25

■ **GOT**
GOT2000
(GT27/GT25/
GT23/GT21)
GOT SIMPLE

■ **Software**
GX Developer
GX Works2

■ **Interface Converters**
FX-USB-AW
FX-232AWC-H

### Accessories


FX3U-FLROM-64L

■ **Memory Cassettes**
FX3U-FLROM-16
FX3U-FLROM-64
FX3U-FLROM-64L
FX3U-FLROM-1M*3

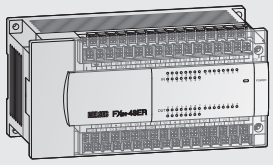
■ **I/O Cables**
General I/O cable
FX-16E-500CAB-S (5m)

■ **Connecting to Terminal Blocks**
FX-16E-150CAB (1.5 m)
FX-16E-300CAB (3 m)
FX-16E-500CAB (5 m)

*1: Firmware version 3.10 or later. *2: The FX3UC supports the FX3U-CF-ADP and FX3U-3A-ADP from firmware version 2.61 or later. *3: Firmware version 3.00 or later.

## Special Function Modules

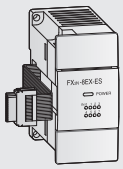
### ■ I/O Extension Modules

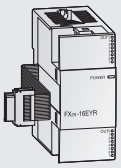

FX2N-48ER

**Powered Extension Units**

Input/Output Extension Units

FX2N-32ER-ES/UL
FX2N-32ET-ESS/UL
FX2N-48ER-DS
FX2N-48ER-ES/UL
FX2N-48ER-UA1/UL
FX2N-48ET-DSS
FX2N-48ET-ESS/UL


FX2N-8EX-ES


FX2N-16EYR

**Unpowered Extension Blocks** 6

Input Extension Blocks

FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Output Extension Blocks

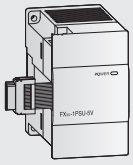
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/Output Extension Block

FX2N-8ER-ES/UL

### ■ Power Supply Unit

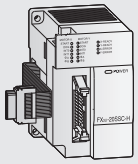
7

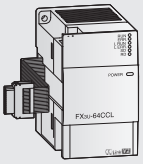

FX3U-1PSU-5V

Power Supply Unit

FX3U-1PSU-5V

### ■ Special Function Blocks


FX3U-20SSC-H


FX3U-64CCL

8

**Analog**

FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

**Temperature**

FX2N-2LC*3
FX3U-4LC

**Positioning**

FX3U-1PG
FX2N-10PG
FX3U-20SSC-H
FX2N-1RM-E-SET
FX2N-10GM
FX2N-20GM

**High Speed Counter**

FX2N-1HC
FX3U-2HC

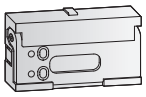
**Network**

FX2N-32CCL
FX3U-16CCL-M
FX3U-64CCL
FX3U-ENET
FX3U-ENET-L
FX3U-128ASL-M

**Communication**

FX2N-232IF

## Accessories


FX3U-FLROM-64L

### ■ Memory Cassettes

FX3U-FLROM-16
FX3U-FLROM-64
FX3U-FLROM-64L
FX3U-FLROM-1M*4

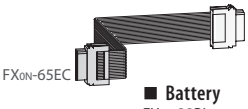
FX3U-7DM

### ■ Display Module

FX3U-7DM

### ■ Display Module Holder

FX3U-7DM-HLD


FX0N-65EC

### ■ Extension Cables

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

### ■ Battery

FX3U-32BL

### ■ PLC Bus Connector

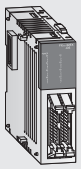
FX2N-CNV-BC

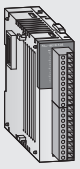
*3: Production will be discontinued in March 2018. *4: Firmware version 3.00 or later.

## Special Function Modules*4

### ■ I/O Extension Blocks

4


FX2NC-32EX


FX2NC-16EYR-T

**Input Extension Blocks**

FX2NC-16EX-T-DS
FX2NC-16EX-DS
FX2NC-32EX-DS

**Output Extension Blocks**

FX2NC-16EYR-T-DS
FX2NC-16EYT-DSS
FX2NC-32EYT-DSS

6

FX3UC-1PS-5V

**Power Supply Unit**

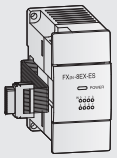
FX3UC-1PS-5V

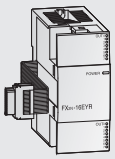
OR

**Interface Converter**

FX2NC-CNV-IF

**Unpowered Extension Blocks** 7


FX2N-8EX-ES


FX2N-16EYR

Input Extension Blocks

FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Output Extension Blocks

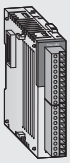
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/Output Extension Block

FX2N-8ER-ES/UL

### ■ Special Function Blocks

5

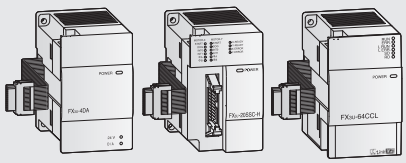

FX3UC-4AD

**Analog**

FX3UC-4AD

**High Speed Counter**

FX2NC-1HC


FX3U-4DA FX3U-20SSC-H FX3U-64CCL

8

**Analog**

FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

**Temperature**

FX2N-2LC*5
FX3U-4LC

**Positioning**

FX3U-1PG
FX2N-10PG
FX2N-10GM
FX2N-1RM-E-SET
FX3U-20SSC-H
FX2N-20GM

**High Speed Counter**

FX2N-1HC
FX3U-2HC

**Network**

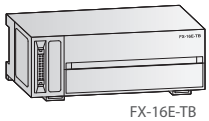
FX2N-32CCL
FX3U-16CCL-M
FX3U-64CCL
FX3U-ENET
FX3U-ENET-L
FX3U-128ASL-M

**Communication**

FX2N-232IF

### ■ Connector Parts

FX2C-I/O-CON
FX2C-I/O-CON-S
FX2C-I/O-CON-SA


FX-16E-TB

### ■ Terminal Blocks

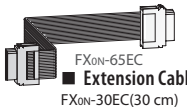
FX-16E-TB
FX-16E-TB/UL
FX-16EYR-TB
FX-16EYR-ES-TB/UL
FX-16EYS-TB
FX-16EYS-ES-TB/UL
FX-16EYT-TB
FX-16EYT-ES-TB/UL
FX-16EYT-ESS-TB/UL
FX-32E-TB
FX-32E-TB/UL

### ■ Input Switches

FX2C-16SW-C
FX2C-16SW-TB

### ■ Battery

FX3U-32BL


FX0N-65EC

### ■ Extension Cables

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

### ■ PLC Bus Connector

FX2N-CNV-BC

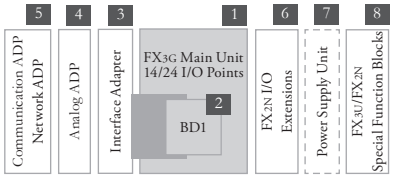
### ■ Power Supply Cables

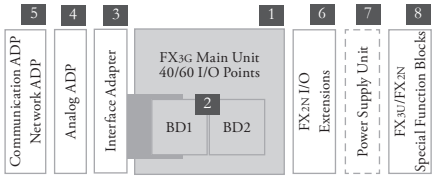
FX2NC-100MPCB(1 m)
FX2NC-100BPCB(1 m)
FX2NC-10BPCB1(0.1 m)

*4: The special function Modules of FX3UC-****/DS(S)[]. *5: Production will be discontinued in March 2018.

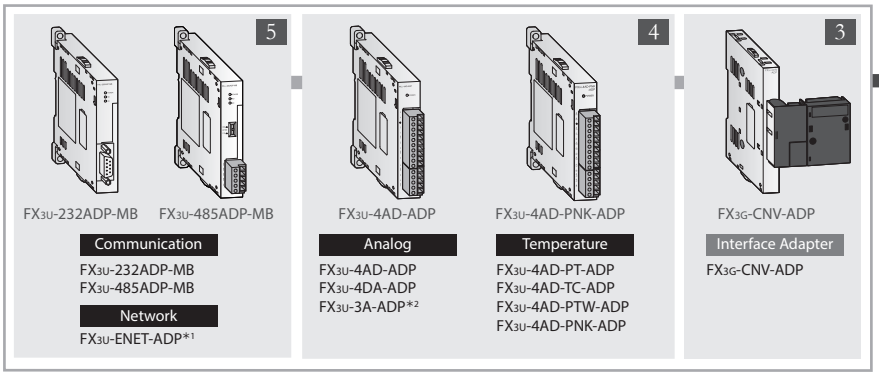
# FX SERIES CONFIGURATION

## FX3G



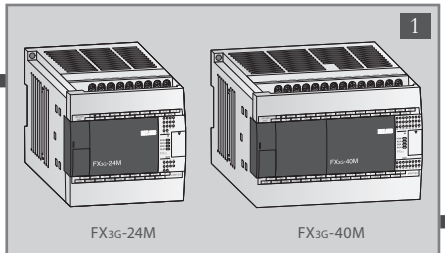




### Special Adapters




*1: Firmware version 2.00 or later. *2: Firmware version 1.20 or later.

### FX3G Main Units

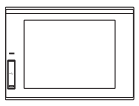



■ FX3G Main Units 14-60 I/O

| | | | |
|---|---|---|---|
| FX3G-14MR/ES(-A) | AC D R | FX3G-40MR/ES(-A) | AC D R |
| FX3G-14MT/ES(-A) | AC D T1 | FX3G-40MT/ES(-A) | AC D T1 |
| FX3G-14MT/ESS | AC D T2 | FX3G-40MT/ESS | AC D T2 |
| FX3G-14MR/DS | DC D R | FX3G-40MR/DS | DC D R |
| FX3G-14MT/DS | DC D T1 | FX3G-40MT/DS | DC D T1 |
| FX3G-14MT/DSS | DC D T2 | FX3G-40MT/DSS | DC D T2 |
| FX3G-24MR/ES(-A) | AC D R | FX3G-60MR/ES(-A) | AC D R |
| FX3G-24MT/ES(-A) | AC D T1 | FX3G-60MT/ES(-A) | AC D T1 |
| FX3G-24MT/ESS | AC D T2 | FX3G-60MT/ESS | AC D T2 |
| FX3G-24MR/DS | DC D R | FX3G-60MR/DS | DC D R |
| FX3G-24MT/DS | DC D T1 | FX3G-60MT/DS | DC D T1 |
| FX3G-24MT/DSS | DC D T2 | FX3G-60MT/DSS | DC D T2 |

AC AC Power supply
DC DC Power supply
D DC Input (sink/source)
R Relay Output
T1 Transistor Output (sink)
T2 Transistor Output (source)

### Optional Equipment and Software




■ GOT
GOT2000 (GT27/GT25/GT23/GT21)
GOT SIMPLE

■ Interface Converter
FX-232AWC-H

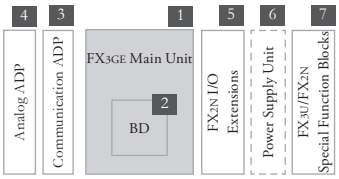
■ Software
GX Developer
GX Works2

### Expansion Boards

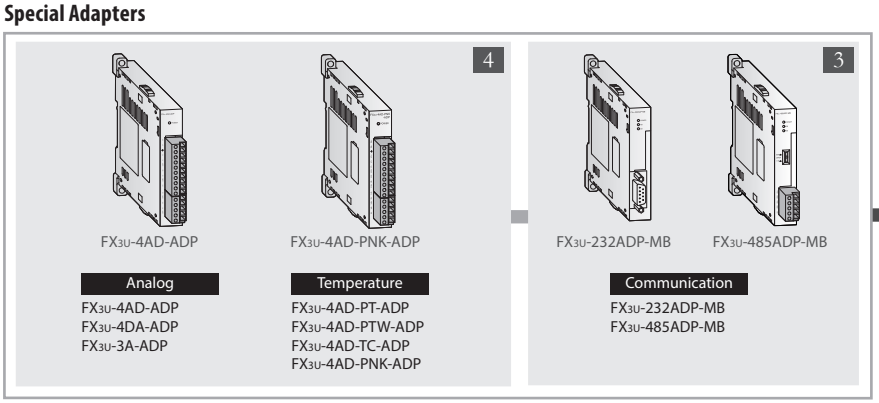
2
Communication
FX3G-232-BD
FX3G-422-BD
FX3G-485-BD
FX3G-485-BD-RJ
Analog Setpoint
FX3G-8AV-BD*3
Analog
FX3G-2AD-BD*3
FX3G-1DA-BD*3
Input/Output
FX3G-4EX-BD*4
FX3G-2EYT-BD*4

*3: Firmware version 1.10 or later. *4: Firmware version 2.20 or later.

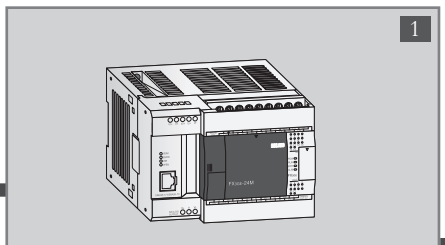
## FX3GE




### Special Adapters




### FX3GE Main Units

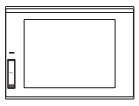



■ FX3GE Main Units 24-40 I/O

| | | | |
|---|---|---|---|
| FX3GE-24MR/ES | AC D R | FX3GE-40MR/ES | AC D R |
| FX3GE-24MT/ES | AC D T1 | FX3GE-40MT/ES | AC D T1 |
| FX3GE-24MT/ESS | AC D T2 | FX3GE-40MT/ESS | AC D T2 |
| FX3GE-24MR/DS | DC D R | FX3GE-40MR/DS | DC D R |
| FX3GE-24MT/DS | DC D T1 | FX3GE-40MT/DS | DC D T1 |
| FX3GE-24MT/DSS | DC D T2 | FX3GE-40MT/DSS | DC D T2 |

AC AC Power supply
DC DC Power supply
D DC Input (sink/source)
R Relay Output
T1 Transistor Output (sink)
T2 Transistor Output (source)

### Optional Equipment and Software




■ GOT
GOT2000 (GT27/GT25/GT23/GT21)
GOT SIMPLE

■ Interface Converter
FX-232AWC-H

■ Software*1
GX Developer
GX Works2

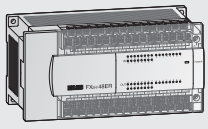
### Expansion Boards

2
Communication
FX3G-232-BD
FX3G-422-BD
FX3G-485-BD
FX3G-485-BD-RJ
Analog Setpoint
FX3G-8AV-BD
Analog
FX3G-2AD-BD
FX3G-1DA-BD
Input/Output
FX3G-4EX-BD
FX3G-2EYT-BD

*1: To program FX3GE, select FX3G as the PLC type.

## Special Function Modules

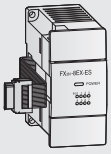
### ■ I/O Extension Modules



FX2N-48ER

**Powered Extension Units**

| Input/Output Extension Units |
|---|
| FX2N-32ER-ES/UL |
| FX2N-32ET-ESS/UL |
| FX2N-48ER-DS |
| FX2N-48ER-ES/UL |
| FX2N-48ER-UA1/UL |
| FX2N-48ET-DSS |
| FX2N-48ET-ESS/UL |



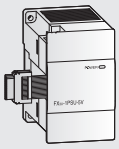
FX2N-8EX-ES

**Unpowered Extension Blocks**

| Input Extension Blocks | Output Extension Blocks | Input/Output Extension Block |
|---|---|---|
| FX2N-8EX-ES/UL | FX2N-8EYR-ES/UL | FX2N-8ER-ES/UL |
| FX2N-8EX-UA1/UL | FX2N-8EYT-ESS/UL | |
| FX2N-16EX-ES/UL | FX2N-16EYR-ES/UL | |
| | FX2N-16EYT-ESS/UL | |
| | FX2N-16EYS | |

6

### ■ Power Supply Unit

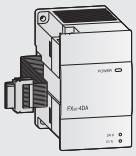


FX3U-1PSU-5V

| Power Supply Unit |
|---|
| FX3U-1PSU-5V |

7

### ■ Special Function Blocks



FX3U-4DA

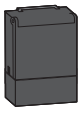
| Analog | Temperature | Network |
|---|---|---|
| FX2N-2AD | FX2N-2LC*5 | FX2N-32CCL |
| FX3U-4AD | FX3U-4LC | FX3U-16CCL-M |
| FX2N-2DA | | FX3U-64CCL |
| FX3U-4DA | | FX3U-ENET |
| FX2N-5A | | FX3U-128ASL-M |
| FX2N-8AD | | |

8

## Accessories

### ■ Memory Cassette

FX3G-EEPROM-32L



FX3G-EEPROM-32L

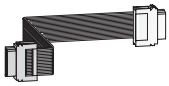
### ■ Display Module

FX3G-5DM

FX3G-5DM

### ■ Extension Cables

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



FX0N-65EC

### ■ PLC Bus Connector

FX2N-CNV-BC

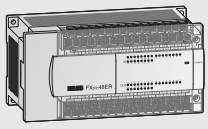
### ■ Battery

FX3U-32BL

*5: Production will be discontinued in March 2018.

## Special Function Modules

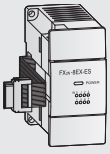
### ■ I/O Extension Modules



FX2N-48ER

**Powered Extension Units**

| Input/Output Extension Units |
|---|
| FX2N-32ER-ES/UL |
| FX2N-32ET-ESS/UL |
| FX2N-48ER-DS |
| FX2N-48ER-ES/UL |
| FX2N-48ER-UA1/UL |
| FX2N-48ET-DSS |
| FX2N-48ET-ESS/UL |



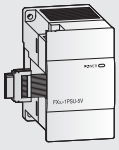
FX2N-8EX-ES

**Unpowered Extension Blocks**

| Input Extension Blocks | Output Extension Blocks | Input/Output Extension Block |
|---|---|---|
| FX2N-8EX-ES/UL | FX2N-8EYR-ES/UL | FX2N-8ER-ES/UL |
| FX2N-8EX-UA1/UL | FX2N-8EYT-ESS/UL | |
| FX2N-16EX-ES/UL | FX2N-16EYR-ES/UL | |
| | FX2N-16EYT-ESS/UL | |
| | FX2N-16EYS | |

5

### ■ Power Supply Unit

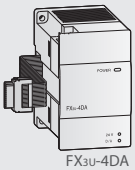


FX3U-1PSU-5V

| Power Supply Unit |
|---|
| FX3U-1PSU-5V |

6

### ■ Special Function Blocks



FX3U-4DA

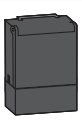
| Analog | Temperature | Network |
|---|---|---|
| FX2N-2AD | FX2N-2LC*2 | FX2N-32CCL |
| FX3U-4AD | FX3U-4LC | FX3U-16CCL-M |
| FX2N-2DA | | FX3U-64CCL |
| FX3U-4DA | | FX3U-ENET |
| FX2N-5A | | FX3U-128ASL-M |
| FX2N-8AD | | |

7

## Accessories

### ■ Memory Cassette

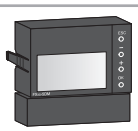
FX3G-EEPROM-32L



FX3G-EEPROM-32L

### ■ Display Module

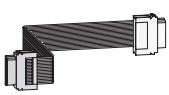
FX3G-5DM



FX3G-5DM

### ■ Extension Cables

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



FX0N-65EC

### ■ PLC Bus Connector

FX2N-CNV-BC

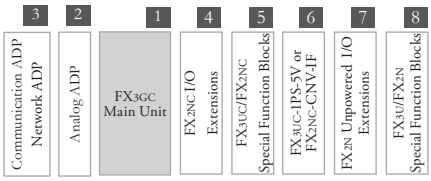
### ■ Battery

FX3U-32BL

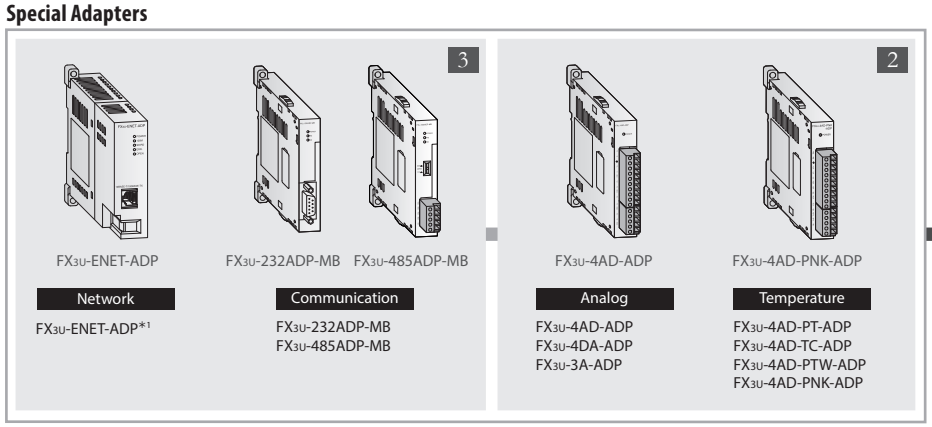
*2: Production will be discontinued in March 2018.

# FX SERIES CONFIGURATION

## FX3GC




### Special Adapters




**Network**
FX3U-ENET-ADP*1

**Communication**
FX3U-232ADP-MB
FX3U-485ADP-MB

**Analog**
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP

**Temperature**
FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

### FX3GC Main Units

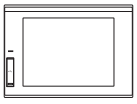
■ **FX3GC Main Units 32 I/O**
FX3GC-32MT/D* DC D1 T1
FX3GC-32MT/DSS DC D2 T2

DC DC Power supply
D1 D1 DC input (sink)
D2 D2 DC input (sink, source)
T1 Transistor Output (sink)
T2 Transistor Output (source)

* Refer to the HARDWARE MANUAL for system configuration.

*1: Firmware version 2.00 or later.

### Optional Equipment and Software



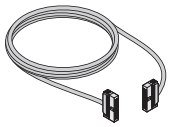

■ **GOT**
GOT2000 (GT27/GT25/GT23/GT21)
GOT SIMPLE

■ **Interface Converter**
FX-232AWC-H

■ **Software**
GX Developer
GX Works2

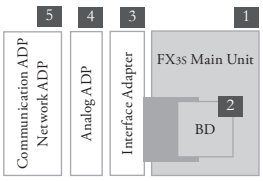
### Accessories

■ **I/O Cables**
General I/O cable
FX-16E-500CAB-S (5 m)

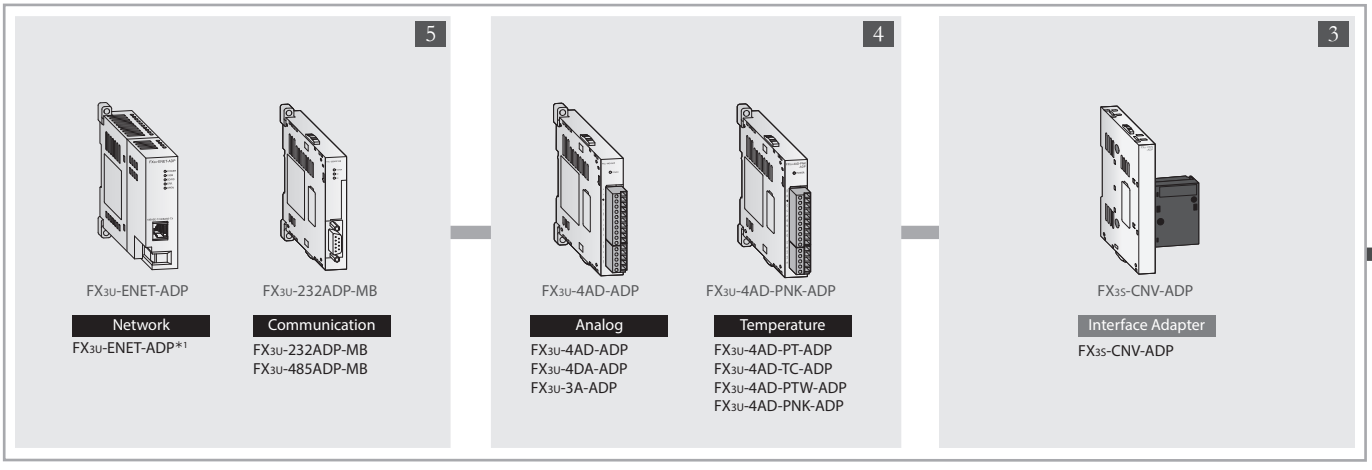


■ **Connecting to Terminal Blocks**
FX-16E-150CAB (1.5 m)
FX-16E-300CAB (3 m)
FX-16E-500CAB (5 m)

## FX3S




### Special Adapters




**Network**
FX3U-ENET-ADP*1

**Communication**
FX3U-232ADP-MB
FX3U-485ADP-MB

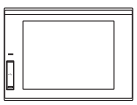
**Analog**
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP

**Temperature**
FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

**Interface Adapter**
FX3S-CNV-ADP

*1: The FX3S is supported by FX3U-ENET-ADP Ver. 1.20 or later.

### Optional Equipment and Software




■ **GOT**
GOT2000 (GT27/GT25/GT23/GT21)
GOT SIMPLE

■ **Interface Converter**
FX-232AWC-H

■ **Software**
GX Works2

### Expansion Boards

**Communication**
FX3G-232-BD
FX3G-422-BD
FX3G-485-BD
FX3G-485-BD-RJ

**Analog Setpoint**
FX3G-8AV-BD

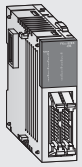
**Analog**
FX3G-2AD-BD
FX3G-1DA-BD

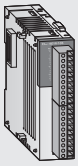
**Input/Output**
FX3G-4EX-BD*2
FX3G-2EYT-BD*2

*2: Firmware version 1.10 or later.

## Special Function Modules

### ■ I/O Extension Blocks

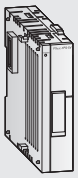

FX2NC-32EX


FX2NC-16EYR-T

**4**

**Input Extension Blocks**
FX2NC-16EX-T-DS
FX2NC-16EX-DS
FX2NC-32EX-DS

**Output Extension Blocks**
FX2NC-16EYR-T-DS
FX2NC-16EYT-DSS
FX2NC-32EYT-DSS

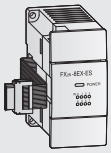

FX3UC-1PS-5V

**6**

**Power Supply Unit**
FX3UC-1PS-5V

OR

**Interface Converter**
FX2NC-CNV-IF


FX2N-8EX-ES

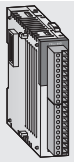
**Unpowered Extension Blocks** **7**

**Input Extension Blocks**
FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

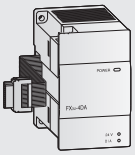
**Output Extension Blocks**
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

**Input/Output Extension Blocks**
FX2N-8ER-ES/UL

### ■ Special Function Blocks


FX3UC-4AD

**Analog** **5**
FX3UC-4AD


FX3U-4DA

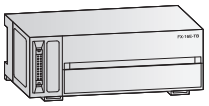
**Analog** **8**
FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

**Temperature**
FX2N-2LC*2
FX3U-4LC

**Network**
FX2N-32CCL
FX3U-16CCL-M
FX3U-64CCL
FX3U-ENET
FX3U-128ASL-M

*2: Production will be discontinued in March 2018.

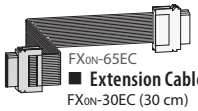
### ■ Connector Parts
FX2C-I/O-CON
FX2C-I/O-CON-S
FX2C-I/O-CON-SA


FX-16E-TB

### ■ Terminal Blocks
FX-16E-TB
FX-16E-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
FX-32E-TB
FX-32E-TB/UL

### ■ Input Switches
FX2C-16SW-C
FX2C-16SW-TB

### ■ Battery
FX3U-32BL


FX0N-65EC

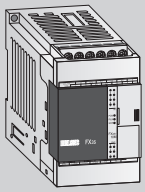
### ■ Extension Cables
FX0N-30EC (30 cm)
FX0N-65EC (65 cm)

### ■ PLC Bus Connector
FX2N-CNV-BC

### ■ Power Supply Cables
FX2NC-100MPCB (1 m)
FX2NC-100BPCB (1 m)
FX2NC-10BPCB1 (0.1 m)

## FX3S Main Units

**1**


FX3S-10M

### ■ FX3S Main Units 10-30 I/O

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FX3S-10MR/ES | AC D R | FX3S-14MR/ES | AC D R | FX3S-20MR/ES | AC D R | FX3S-30MR/ES | AC D R |
| FX3S-10MT/ES | AC D T1 | FX3S-14MT/ES | AC D T1 | FX3S-20MT/ES | AC D T1 | FX3S-30MT/ES | AC D T1 |
| FX3S-10MT/ESS | AC D T2 | FX3S-14MT/ESS | AC D T2 | FX3S-20MT/ESS | AC D T2 | FX3S-30MT/ESS | AC D T2 |
| FX3S-10MR/DS | DC D R | FX3S-14MR/DS | DC D R | FX3S-20MR/DS | DC D R | FX3S-30MR/DS | DC D R |
| FX3S-10MT/DS | DC D T1 | FX3S-14MT/DS | DC D T1 | FX3S-20MT/DS | DC D T1 | FX3S-30MT/DS | DC D T1 |
| FX3S-10MT/DSS | DC D T2 | FX3S-14MT/DSS | DC D T2 | FX3S-20MT/DSS | DC D T2 | FX3S-30MT/DSS | DC D T2 |

### ■ FX3S Main Units 30 I/O and Analog Inputs

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

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

## Accessories

FX3G-EEPROM-32L

### ■ Memory Cassette
FX3G-EEPROM-32L

### ■ Display Module
FX3S-5DM*3

*3: Firmware version 1.20 or later.

## Programming Specifications

**Programming**

| System specifications | | FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|
| I/O points | | 30 total | 256 total<br>(combined local and CC-Link or AnyWireASLINK remote I/O) | 384 total<br>(combined local and CC-Link or AnyWireASLINK remote I/O) |
| Address range | | Max. 30 direct addressing | Max. 128 direct addressing and<br>Max. 128 remote I/O | Max. 256 direct addressing and<br>Max. 256 remote I/O |
| Program memory | | 16,000 steps EEPROM<br>(Program capacity is 4,000 steps.) | 32,000 steps EEPROM (internal),<br>exchangeable EEPROM memory cassette* | 64,000 steps RAM (internal),<br>exchangeable FLROM memory cassette |
| Instruction Time | Basic instructions | 0.21 µs/instruction | 0.21 µs/instruction (Standard mode),<br>0.42 µs/instruction (Extension mode) | 0.21 µs/instruction |
| | Applied instructions | 0.5 µs to several hundred µs/instruction | 0.5 µs to several hundred µs/instruction (Standard mode), 1.2 µs to several hundred µs/instruction | 0.5 µs to several hundred µs/instruction |
| Number of instructions | | 29 sequence instructions,<br>2 step ladder instructions,<br>116 applied instructions | 29 sequence instructions,<br>2 step ladder instructions,<br>125 applied instructions | 29 sequence instructions,<br>2 step ladder instructions,<br>218 applied instructions |
| Programming language | Simple project | Ladder, SFC, ST (Structured Text) | | |
| | Structured project | Structured Ladder/FBD, SFC, ST | | |
| Program execution | | Cyclical execution, refresh mode processing | | |
| Program protection | | 2 different keywords, Max password length 16 characters | | |

*: Not for FX3GC

**Devices**

| System specifications | FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|
| Auxiliary relays | 1,536 total, with 1,408 general<br>(M0 - M383 and M512 - M1535) and<br>128 EEPROM latched (M384 - M511) | 7,680 total, with 384 general (M0 - M383),<br>1,152 EEPROM latched (M384 - M1535),<br>and 6,144 general/optional latched (M1536 - M7679) | 7,680 total, with 500 general (M0 - M499),<br>524 optional latched (M500 - M1023),<br>and 6,656 latched (M1024 - M7679) |
| Special auxiliary relays | 512 (M8000 - M8511) | | |
| State relays | 256 total, with 128 EEPROM latched<br>(S0 - S127)<br>and 128 general (S128 - S255) | 4,096 total, with 1,000 EEPROM latched (S0 - S999)<br>and 3,096 general/optional latched (S1000 - S4095) | 4,096 total, with 1,000 optional latched (S0 - S999)<br>and 3,096 latched (S1000 - S4095) |
| Timers | 169 total, with<br>69 100 ms (T0 - T62 and T132 - T137),<br>31 100/10 ms (T32 - T62),<br>and 69 1 ms (T63 - T131) | 320 total, with<br>206 100 ms (T0 - T199 and T250 - T255),<br>46 10 ms (T200 - T245),<br>and 68 1 ms (T246 - T249 and T256 - T319) | 512 total, with<br>206 100 ms (T0 - T191, T192 - T199 and T250 - T255),<br>46 10 ms (T200 - T245),<br>and 260 1 ms (T246 - T249 and T256 - T511) |
| External setpoint entry via potentiometer | 2* | | — |
| Counters | 67 total (16 bit and 32 bit),<br>with 51 general<br>(C0 - C15 and C200 - C234) and<br>16 EEPROM latched (C16 - C31) | 235 total (16 bit and 32 bit),<br>with 36 general<br>(C0 - C15 and C200 - C219) and<br>199 EEPROM latched<br>(C16 - C199 and C220 - C234) | 235 total (16 bit and 32 bit),<br>with 120 general<br>(C0 - C99 and C200 - C219) and<br>115 latched<br>(C100 - C199 and C220 - C234) |
| High-speed counters | 21 total, with 16 1-phase (C235 - C250) and 5 2-phase (C251 - C255) | | |
| High-speed counter speed | 1-phase, 6 points max: 60 kHz/2 points,<br>10 kHz/4 points<br>2-phase, 2 points max: 30 kHz/1 point,<br>5 kHz/1 point | 1-phase, 6 points max: 60 kHz/4 points,<br>10 kHz/2 points<br>2-phase, 3 points max: 30 kHz/2 points,<br>5 kHz/1 point | 1-phase, 8 points max: 100 kHz/6 points<br>10 kHz /2 points<br>2-phase, 2 points max: 50 kHz/2 points |
| Real-time clock | Year, month, day, hour, minute, second, day of the week | | |
| Data registers | 3,000 total, with 2,872 general<br>(D0 - D127 and D256 - D2999) and<br>128 EEPROM latched (D128 - D255) | 8,000 total, with 128 general (D0 - D127),<br>972 EEPROM latched (D128 - D1099),<br>and 6,900 general/optional latched (D1100 - D7999) | 8,000 total, with 200 general (D0 - D199),<br>312 optional latched (D200 - D511),<br>and 7,488 latched (D512 - D7999) |
| Extension registers | — | 24,000 (R0 - R23999) | 32,768 (R0 - R32767) |
| Extension file registers | — | 24,000 (ER0 - R23999) internal/optional memory* | 32,768 (ER0 - R32767) optional memory |
| Index registers | 16 | | |
| Special data registers | 512 (D8000 - D8511) | | |
| Pointers | 256 | 2,048 | 4,096 |
| Nestings | 8 | | |
| Interrupt inputs | 6 | | |
| Constants | 16 bit: K: -32,768 to +32,767; H: 0 to FFFF;<br>32 bit: K: -2,147,483,648 to +2,147,483,647; H: 0 to FFFF FFFF;<br>E: $-1.0 \times 2^{128}$ to $-1.0 \times 2^{-126}$, 0 , $1.0 \times 2^{-126}$ to $1.0 \times 2^{128}$ Decimal-point and exponential notations are possible. | | |

*: Not for FX3GC

## MEMO

| FNC No. | Mnemonic | Function | Applicable PLC FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|---|
| Program Flow | | | | | |
| 0 | CJ | Conditional Jump | ● | ● | ● |
| 1 | CALL | Call Subroutine | ● | ● | ● |
| 2 | SRET | Subroutine Return | ● | ● | ● |
| 3 | IRET | Interrupt Return | ● | ● | ● |
| 4 | EI | Enable Interrupt | ● | ● | ● |
| 5 | DI | Disable Interrupt | ● | ● | ● |
| 6 | FEND | Main Routine Program End | ● | ● | ● |
| 7 | WDT | Watchdog Timer Refresh | ● | ● | ● |
| 8 | FOR | Start a FOR/NEXT Loop | ● | ● | ● |
| 9 | NEXT | End a FOR/NEXT Loop | ● | ● | ● |
| Move and Compare | | | | | |
| 10 | CMP | Compare | ● | ● | ● |
| 11 | ZCP | Zone Compare | ● | ● | ● |
| 12 | MOV | Move | ● | ● | ● |
| 13 | SMOV | Shift Move | ● | ● | ● |
| 14 | CML | Complement | ● | ● | ● |
| 15 | BMOV | Block Move | ● | ● | ● |
| 16 | FMOV | Fill Move | ● | ● | ● |
| 17 | XCH | Exchange | — | — | ● |
| 18 | BCD | Conversion to Binary Coded Decimal | ● | ● | ● |
| 19 | BIN | Conversion to Binary | ● | ● | ● |
| Arithmetic and Logical Operation (+, –, ×, ÷) | | | | | |
| 20 | ADD | Addition | ● | ● | ● |
| 21 | SUB | Subtraction | ● | ● | ● |
| 22 | MUL | Multiplication | ● | ● | ● |
| 23 | DIV | Division | ● | ● | ● |
| 24 | INC | Increment | ● | ● | ● |
| 25 | DEC | Decrement | ● | ● | ● |
| 26 | WAND | Logical Word AND | ● | ● | ● |
| 27 | WOR | Logical Word OR | ● | ● | ● |
| 28 | WXOR | Logical Exclusive OR | ● | ● | ● |
| 29 | NEG | Negation | — | — | ● |
| Rotation and Shift Operation | | | | | |
| 30 | ROR | Rotation Right | ● | ● | ● |
| 31 | ROL | Rotation Left | ● | ● | ● |
| 32 | RCR | Rotation Right with Carry | — | — | ● |
| 33 | RCL | Rotation Left with Carry | — | — | ● |
| 34 | SFTR | Bit Shift Right | ● | ● | ● |
| 35 | SFTL | Bit Shift Left | ● | ● | ● |
| 36 | WSFR | Word Shift Right | ● | ● | ● |
| 37 | WSFL | Word Shift Left | ● | ● | ● |
| 38 | SFWR | Shift Write [FIFO/FILO Control] | ● | ● | ● |
| 39 | SFRD | Shift Read [FIFO Control] | ● | ● | ● |
| Data Operation | | | | | |
| 40 | ZRST | Zone Reset | ● | ● | ● |
| 41 | DECO | Decode | ● | ● | ● |
| 42 | ENCO | Encode | ● | ● | ● |
| 43 | SUM | Sum of Active Bits | ● | ● | ● |
| 44 | BON | Check Specified Bit Status | ● | ● | ● |

| FNC No. | Mnemonic | Function | Applicable PLC FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|---|
| 45 | MEAN | Mean | ● | ● | ● |
| 46 | ANS | Timed Annunciator Set | — | ● | ● |
| 47 | ANR | Annunciator Reset | — | ● | ● |
| 48 | SQR | Square Root | — | — | ● |
| 49 | FLT | Conversion to Floating Point | ● | ● | ● |
| High-Speed Processing | | | | | |
| 50 | REF | Refresh | ● | ● | ● |
| 51 | REFF | Refresh and Filter Adjust | — | — | ● |
| 52 | MTR | Input Matrix | ● | ● | ● |
| 53 | HSCS | High-Speed Counter Set | ● | ● | ● |
| 54 | HSCR | High-Speed Counter Reset | ● | ● | ● |
| 55 | HSZ | High-Speed Counter Zone Compare | ● | ● | ● |
| 56 | SPD | Speed Detection | ● | ● | ● |
| 57 | PLSY | Pulse Y Output | ● | ● | ● |
| 58 | PWM | Pulse Width Modulation | ● | ● | ● |
| 59 | PLSR | Acceleration/Deceleration Setup | ● | ● | ● |
| Handy Instruction | | | | | |
| 60 | IST | Initial State | ● | ● | ● |
| 61 | SER | Search a Data Stack | ● | ● | ● |
| 62 | ABSD | Absolute Drum Sequencer | ● | ● | ● |
| 63 | INCD | Incremental Drum Sequencer | ● | ● | ● |
| 64 | TTMR | Teaching Timer | — | — | ● |
| 65 | STMR | Special Timer | — | — | ● |
| 66 | ALT | Alternate State | ● | ● | ● |
| 67 | RAMP | Ramp Variable Value | ● | ● | ● |
| 68 | ROTC | Rotary Table Control | — | — | ● |
| 69 | SORT | Sort Tabulated Data | — | — | ● |
| External FX I/O Device | | | | | |
| 70 | TKY | Ten Key Input | — | — | ● |
| 71 | HKY | Hexadecimal Input | — | — | ● |
| 72 | DSW | Digital Switch (Thumbwheel Input) | ● | ● | ● |
| 73 | SEGD | Seven Segment Decoder | — | — | ● |
| 74 | SEGL | Seven Segment With Latch | ● | ● | ● |
| 75 | ARWS | Arrow Switch | — | — | ● |
| 76 | ASC | ASCII Code Data Input | — | — | ● |
| 77 | PR | Print (ASCII Code) | — | — | ● |
| 78 | FROM | Read From a Special Function Block | — | ● | ● |
| 79 | TO | Write To a Special Function Block | — | ● | ● |
| External FX Device | | | | | |
| 80 | RS | Serial Communication | ● | ● | ● |
| 81 | PRUN | Parallel Run (Octal Mode) | ● | ● | ● |
| 82 | ASCI | Hexadecimal to ASCII Conversion | ● | ● | ● |
| 83 | HEX | ASCII to Hexadecimal Conversion | ● | ● | ● |
| 84 | CCD | Check Code | ● | ● | ● |
| 85 | VRRD | Volume Read | ● | ●* | ● |
| 86 | VRSC | Volume Scale | ● | ●* | ● |
| 87 | RS2 | Serial Communication 2 | ● | ● | ● |
| 88 | PID | PID Control Loop | ● | ● | ● |

*: Not for FX3GC

| FNC No. | Mnemonic | Function | Applicable PLC FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|---|
| Data Transfer 2 | | | | | |
| 102 | ZPUSH | Batch Store of Index Register | — | — | ● |
| 103 | ZPOP | Batch POP of Index Register | — | — | ● |
| Floating Point | | | | | |
| 110 | ECMP | Floating Point Compare | ● | ● | ● |
| 111 | EZCP | Floating Point Zone Compare | — | — | ● |
| 112 | EMOV | Floating Point Move | ● | ● | ● |
| 116 | ESTR | Floating Point to Character String Conversion | — | — | ● |
| 117 | EVAL | Character String to Floating Point Conversion | — | — | ● |
| 118 | EBCD | Floating Point to Scientific Notation Conversion | — | — | ● |
| 119 | EBIN | Scientific Notation to Floating Point Conversion | — | — | ● |
| 120 | EADD | Floating Point Addition | ● | ● | ● |
| 121 | ESUB | Floating Point Subtraction | ● | ● | ● |
| 122 | EMUL | Floating Point Multiplication | ● | ● | ● |
| 123 | EDIV | Floating Point Division | ● | ● | ● |
| 124 | EXP | Floating Point Exponent | — | — | ● |
| 125 | LOGE | Floating Point Natural Logarithm | — | — | ● |
| 126 | LOG10 | Floating Point Common Logarithm | — | — | ● |
| 127 | ESQR | Floating Point Square Root | ● | ● | ● |
| 128 | ENEG | Floating Point Negation | — | — | ● |
| 129 | INT | Floating Point to Integer Conversion | ● | ● | ● |
| 130 | SIN | Floating Point Sine | — | — | ● |
| 131 | COS | Floating Point Cosine | — | — | ● |
| 132 | TAN | Floating Point Tangent | — | — | ● |
| 133 | ASIN | Floating Point Arc Sine | — | — | ● |
| 134 | ACOS | Floating Point Arc Cosine | — | — | ● |
| 135 | ATAN | Floating Point Arc Tangent | — | — | ● |
| 136 | RAD | Floating Point Degrees to Radian Conversion | — | — | ● |
| 137 | DEG | Floating Point Radian to Degrees Conversion | — | — | ● |
| Data Operation 2 | | | | | |
| 140 | WSUM | Sum of Word Data | — | — | ● |
| 141 | WTOB | WORD to BYTE | — | — | ● |
| 142 | BTOW | BYTE to WORD | — | — | ● |
| 143 | UNI | 4-bit Linking of Word Data | — | — | ● |
| 144 | DIS | 4-bit Grouping of Word Data | — | — | ● |
| 147 | SWAP | Byte Swap | — | — | ● |
| 149 | SORT2 | Sort Tabulated Data 2 | — | — | ● |
| Positioning Control | | | | | |
| 150 | DSZR | DOG Search Zero Return | ● | ● | ● |
| 151 | DVIT | Interrupt Positioning | — | — | ● |
| 152 | TBL | Batch Data Positioning Mode | — | ● | ● |
| 155 | ABS | Absolute Current Value Read | ● | ● | ● |
| 156 | ZRN | Zero Return | ● | ● | ● |
| 157 | PLSV | Variable Speed Pulse Output | ● | ● | ● |
| 158 | DRVI | Drive to Increment | ● | ● | ● |
| 159 | DRVA | Drive to Absolute | ● | ● | ● |

| FNC No. | Mnemonic | Function | Applicable PLC FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|---|
| Real Time Clock Control | | | | | |
| 160 | TCMP | RTC Data Compare | ● | ● | ● |
| 161 | TZCP | RTC Data Zone Compare | ● | ● | ● |
| 162 | TADD | RTC Data Addition | ● | ● | ● |
| 163 | TSUB | RTC Data Subtraction | ● | ● | ● |
| 164 | HTOS | Hour to Second Conversion | — | — | ● |
| 165 | STOH | Second to Hour Conversion | — | — | ● |
| 166 | TRD | Read RTC Data | ● | ● | ● |
| 167 | TWR | Set RTC Data | ● | ● | ● |
| 169 | HOUR | Hour Meter | ● | ● | ● |
| External Device | | | | | |
| 170 | GRY | Decimal to Gray Code Conversion | ● | ● | ● |
| 171 | GBIN | Gray Code to Decimal Conversion | ● | ● | ● |
| 176 | RD3A | Read form Dedicated Analog Block | — | ● | ● |
| 177 | WR3A | Write to Dedicated Analog Block | — | ● | ● |
| Other | | | | | |
| 182 | COMRD | Read Device Comment Data | — | — | ● |
| 184 | RND | Random Number Generation | — | — | ● |
| 186 | DUTY | Timing Pulse Generation | — | — | ● |
| 188 | CRC | Cyclic Redundancy Check | — | — | ● |
| 189 | HCMOV | High-Speed Counter Move | — | — | ● |
| Block Data Operation | | | | | |
| 192 | BK+ | Block Data Addition | — | — | ● |
| 193 | BK- | Block Data Subtraction | — | — | ● |
| 194 | BKCMP= | Block Data Compare (S1) = (S2) | — | — | ● |
| 195 | BKCMP> | Block Data Compare (S1) > (S2) | — | — | ● |
| 196 | BKCMP< | Block Data Compare (S1) < (S2) | — | — | ● |
| 197 | BKCMP< > | Block Data Compare (S1) ≠ (S2) | — | — | ● |
| 198 | BKCMP<= | Block Data Compare (S1) ≤ (S2) | — | — | ● |
| 199 | BKCMP>= | Block Data Compare (S1) ≥ (S2) | — | — | ● |
| Character String Control | | | | | |
| 200 | STR | BIN to Character String Conversion | — | — | ● |
| 201 | VAL | Character String to BIN Conversion | — | — | ● |
| 202 | $+ | Link Character Strings | — | — | ● |
| 203 | LEN | Character String Length Detection | — | — | ● |
| 204 | RIGHT | Extracting Character String Data From the Right | — | — | ● |
| 205 | LEFT | Extracting Character String Data from the Left | — | — | ● |
| 206 | MIDR | Random Selection of Character Strings | — | — | ● |
| 207 | MIDW | Random Replacement of Character Strings | — | — | ● |
| 208 | INSTR | Character String Search | — | — | ● |
| 209 | $MOV | Character String Transfer | — | — | ● |
| Data Operation 3 | | | | | |
| 210 | FDEL | Deleting Data from Tables | — | — | ● |
| 211 | FINS | Inserting Data to Tables | — | — | ● |
| 212 | POP | Shift Last Data Read [FILO Control] | — | — | ● |
| 213 | SFR | Bit Shift Right with Carry | — | — | ● |
| 214 | SFL | Bit Shift Left with Carry | — | — | ● |

| FNC No. | Mnemonic | Function | Applicable PLC FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|---|
| Data Comparison | | | | | |
| 224 | LD= | Load Compare (S1)=(S2) | ● | ● | ● |
| 225 | LD> | Load Compare (S1)>(S2) | ● | ● | ● |
| 226 | LD< | Load Compare (S1)<(S2) | ● | ● | ● |
| 228 | LD<> | Load Compare (S1)≠(S2) | ● | ● | ● |
| 229 | LD<= | Load Compare (S1)≤(S2) | ● | ● | ● |
| 230 | LD>= | Load Compare (S1)≥(S2) | ● | ● | ● |
| 232 | AND= | AND Compare (S1)=(S2) | ● | ● | ● |
| 233 | AND> | AND Compare (S1)>(S2) | ● | ● | ● |
| 234 | AND< | AND Compare (S1)<(S2) | ● | ● | ● |
| 236 | AND<> | AND Compare (S1)≠(S2) | ● | ● | ● |
| 237 | AND<= | AND Compare (S1)≤(S2) | ● | ● | ● |
| 238 | AND>= | AND Compare (S1)≥(S2) | ● | ● | ● |
| 240 | OR= | OR Compare (S1)=(S2) | ● | ● | ● |
| 241 | OR> | OR Compare (S1)>(S2) | ● | ● | ● |
| 242 | OR< | OR Compare (S1)<(S2) | ● | ● | ● |
| 244 | OR<> | OR Compare (S1)≠(S2) | ● | ● | ● |
| 245 | OR<= | OR Compare (S1)≤(S2) | ● | ● | ● |
| 246 | OR>= | OR Compare (S1)≥(S2) | ● | ● | ● |
| Data Table Operation | | | | | |
| 256 | LIMIT | Limit Control | — | — | ● |
| 257 | BAND | Dead Band Control | — | — | ● |
| 258 | ZONE | Zone Control | — | — | ● |
| 259 | SCL | Scaling (Coordinate by Point Data) | — | — | ● |
| 260 | DABIN | Decimal ASCII to BIN Conversion | — | — | ● |
| 261 | BINDA | BIN to Decimal ASCII Conversion | — | — | ● |
| 269 | SCL2 | Scaling 2 (Coordinate by X/Y Data) | — | — | ● |
| External Device Communication (Inverter Communication) | | | | | |
| 270 | IVCK | Inverter Status Check | ● | ● | ● |
| 271 | IVDR | Inverter Drive | ● | ● | ● |
| 272 | IVRD | Inverter Parameter Read | ● | ● | ● |
| 273 | IVWR | Inverter Parameter Write | ● | ● | ● |
| 274 | IVBWR | Inverter Parameter Block Write | — | — | ● |
| 275 | IVMC | Inverter Multi Command | ● | ● | ● |
| Data Transfer 3 | | | | | |
| 276 | ADPRW | MODBUS Read/Write | ● | ● | ● |
| 278 | RBFM | Divided BFM Read | — | — | ● |
| 279 | WBFM | Divided BFM Write | — | — | ● |
| High-Speed Processing 2 | | | | | |
| 280 | HSCT | High-Speed Counter Compare With Data Table | — | — | ● |
| Extension File Register Control | | | | | |
| 290 | LOADR | Load From ER | — | ● | ● |
| 291 | SAVER | Save to ER | — | — | ● |
| 292 | INITR | Initialize R and ER | — | — | ● |
| 293 | LOGR | Logging R and ER | — | — | ● |
| 294 | RWER | Rewrite to ER | — | ● | ● |
| 295 | INITER | Initialize ER | — | — | ● |

| FNC No. | Mnemonic | Function | Applicable PLC FX3S | FX3G/FX3GC/FX3GE | FX3U/FX3UC |
|---|---|---|---|---|---|
| Data Logging | | | | | |
| 300 | FLCRT | File Create/Check | — | — | ● |
| 301 | FLDEL | File Delete/CF Card Format | — | — | ● |
| 302 | FLWR | Data Write | — | — | ● |
| 303 | FLRD | Data Read | — | — | ● |
| 304 | FLCMD | FX3U-CF-ADP Command | — | — | ● |
| 305 | FLSTRD | FX3U-CF-ADP Status Read | — | — | ● |

## Environmental Specifications

| General specifications | FX3S | FX3G/FX3GE | FX3GC | FX3U | FX3UC |
|---|---|---|---|---|---|
| Ambient temperature | 0 – 55 °C (storage temperature: -25 – +75 °C) | | | | |
| Noise durability | 1000 Vpp with noise generator; 1 µs at 30 – 100 Hz | | | | |
| Dielectric withstand voltage | AC PSU: 1500 V AC, 1 min. / DC PSU: 500 V AC, 1 min. | | 500 V AC, 1 min. | AC PSU: 1500 V AC, 1 min. / DC PSU: 500 V AC, 1 min. | 500 V AC, 1 min. |
| Ambient relative humidity | 5 – 95% (non-condensing) | | | | |
| Vibration resistance* | | | | | |

| | Frequency (Hz) | Acceleration (m/s²) | Half amplitude (mm) | |
|---|---|---|---|---|
| When installed on DIN rail | 10 to 57 | — | 0.035 | Sweep Count for X, Y, Z: 10 times (80 min in each direction) |
| | 57 to 150 | 4.9 | — | |
| When installed directly | 10 to 57 | — | 0.075 | |
| | 57 to 150 | 9.8 | — | |

| | | | | | |
|---|---|---|---|---|---|
| Shock resistance* | 147 m/s² Acceleration, Action time: 11ms, 3 times by half-sine pulse in each direction X, Y, and Z | | | | |
| Insulation resistance | 500 V DC, 5 MΩ | | | | |
| Ground | Class D: Grounding resistance 100 Ω or less | | | | |
| Fuse | AC models:<br>250 V 1 A<br>DC models:<br>250 V 1.6 A | AC models:<br>250 V 1 A (FX3G-14/24M)<br>(FX3GE-24M)<br>250 V 3.15 A (FX3G-40/60M)<br>(FX3GE-40M)<br>DC models:<br>125 V 2.5 A (FX3G-14/24M)<br>(FX3GE-24M)<br>125 V 3.15 A (FX3G-40/60M)<br>(FX3GE-40M) | 125 V 3.15 A | From FX3U-16M[] to FX3U-32M[] and FX3U-32MR/UA1: 250 V 3.15 A; From FX3U-48M[] to FX3U-128M[] and FX3U-64MR/UA1: 250 V 5 A | 125 V 3.15 A |
| Environment | Avoid environments containing corrosive gases, install in a dust-free location. | | | | |
| Certifications | Please refer to the Certifications page in this catalog. | | | | |

* The criterion is shown IEC 61131-2.

## Electrical Specifications

| Power Supply Specifications | FX3S<br>AC Powered Models (FX3S-[]M[]/ES/ESS/E[]-2AD) | FX3S<br>DC Powered Modules (FX3S-[]M[]/DS/DSS) | FX3G/FX3GE<br>AC Powered Models (FX3G(E)-[]M[]/ES/ESS) | FX3G/FX3GE<br>DC Powered Models (FX3G(E)-[]M[]/DS/DSS) |
|---|---|---|---|---|
| Power supply | 100–240 V AC (+10 %/-15 %), 50/60 Hz (±10 %) | 24 V DC (+20%/-15%) | 100–240 V AC (+10 %/-15 %), 50/60 Hz | 24 V DC (+20%/-15 %) |
| Inrush current at ON | 15 A/5 ms (at 100 V AC); 28 A/5 ms (at 200 V AC) | 20 A/< 1 ms (at 24 V DC) | 30 A/< 5 ms (at 100 V AC); 50 A/< 5 ms (at 200 V AC) | 30 A/< 1 ms (at 24 V DC) |
| Allowable momentary power failure time | 10 ms | 5 ms | 10 ms | 5 ms |
| 24 V DC service power supply | 400 mA | — | 400 mA | — |

| Power Supply Specifications | FX3GC<br>DC Powered Models (FX3GC-[]M[]/D/DSS) | FX3U<br>AC Powered Models (FX3U-[]M[]/ES/ESS) | FX3U<br>DC Powered Models (FX3U-[]M[]/DS/DSS) | FX3UC<br>DC Powered Models (FX3UC-[]M[]/D/DSS/D[]-T) |
|---|---|---|---|---|
| Power supply | 24 V DC ( +20%/-15 %) | 100–240 V AC (+10%/-15%), 50/60 Hz | 24 V DC (+20%/-30%) | 24 V DC (+20% /-15%)<br>Ripple Voltage (p-p)5% or less |
| Inrush current at ON | 30 A/< 0.5 ms (at 24 V DC) | 30 A/< 5 ms (at 100 V AC); 65 A/< 5 ms (at 200 V AC) | 35 A/< 0.5 ms (at 24 V DC) | 30 A/< 0.5 ms (at 24 V DC) |
| Allowable momentary power failure time | 5 ms | 10 ms* | 5 ms | 5 ms |
| 24 V DC service power supply | — | FX3U-16/32MR/ES: 400 mA/ FX3U-48/64/80/128MR/ES: 600 mA | — | — |

* When the supply voltage is 200 V AC, the time can be changed to 10 to 100 ms by editing the user program.

| Output Specifications | | | FX3S Relay Models | FX3S Transistor Models | FX3G/FX3GE Relay Models | FX3G/FX3GE Transistor Models | FX3GC Transistor Models |
|---|---|---|---|---|---|---|---|
| Switching voltage (Max.) | | V | < 240 V AC, < 30 V DC | 5–30 V DC | < 240 V AC, < 30 V DC | 5–30 V DC | 5–30 V DC |
| Max. output current | - per output | A | 2 | 0.5 | 2 | 0.5 | 0.3 A (Y0–Y1), and 0.1 A (Y2 or higher) |
| | - per group*1 | A | 8 | 0.8 | 8 | 0.8 | 0.8 |
| Max. switching current | - inductive load | | 80 VA | 12 W | 80 VA | 12 W | 38.4 W (7.2 W per point for Y0–Y1 and 2.4 W per point for Y2 or higher) |
| Response time | | ms | 10 | < 0.2 (< 5 µs for Y0,Y1 ) | 10 | < 0.2 (< 5 µs for Y0,Y1 )*4 | < 0.2 (< 5 µs for Y0–Y1) |
| Life of contacts (switching times) | | | 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA*2 | — | 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA*2 | — | —*3 |

| Output Specifications | | | FX3U Relay Models | FX3U Transistor Models | FX3U Triac Modules | FX3UC Relay Models | FX3UC Transistor Models |
|---|---|---|---|---|---|---|---|
| Switching voltage (Max.) | | V | < 240 V AC, < 30 V DC | 5–30 V DC | 85–242 V AC | < 240 V AC, < 30 V DC | 5–30 V DC |
| Max. output current | - per output | A | 2 | 0.5 | 0.3 | 2 | 0.3 A (Y0–Y3), and 0.1 A (Y4 or higher) |
| | - per group*1 | A | 8 | 0.8 | 0.8 | 8 | 0.8 |
| Max. switching current | - inductive load | | 80 VA | 12 W | 15 VA/100 V AC 30 VA/200 V AC | 80 VA | 38.4 W (7.2 W per point for Y0–Y3 and 2.4 W per point for Y4 or higher) |
| Response time | | ms | 10 | < 0.2 (< 5 µs for Y0–Y2 ) | < 10 | 10 | < 0.2 (< 5 µs for Y0–Y2) |
| Life of contacts (switching times) | | | 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA*2 | — | — | 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA*2 | —*3 |

*1 This limitation applies to the maximum output current for each reference terminal (Common), each serving 1 to 4 relay, transistor or triac outputs. Please observe the reference terminal assignments for group identification.

*2 Not guaranteed by Mitsubishi Electric. *3 Refer to the specifications of the Terminal Block being used. *4 The 40 and 60 I/O point main units supports 5 µs for Y2.

## FX3U

### Main Units with 16 I/0

| Specifications | | FX3U-16MR/DS | FX3U-16MR/ES(-A) | FX3U-16MT/DSS | FX3U-16MT/DS | FX3U-16MT/ESS | FX3U-16MT/ES(-A) |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 16 | 16 | 16 | 16 | 16 | 16 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 8 | 8 | 8 | 8 | 8 | 8 |
| Integrated outputs | | 8 | 8 | 8 | 8 | 8 | 8 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 25 | 30 | 25 | 25 | 30 | 30 |
| Weight | kg | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| Dimensions (W x H x D) | mm | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 |

### Main Units with 32 I/0

| Specifications | | FX3U-32MR/DS | FX3U-32MR/ES(-A) | FX3U-32MT/DSS | FX3U-32MT/DS | FX3U-32MT/ESS | FX3U-32MT/ES(-A) | FX3U-32MS/ES | FX3U-32MR/UA1 |
|---|---|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source | AC input |
| Integrated inputs | | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Integrated outputs | | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) | Triac | Relay |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 30 | 35 | 30 | 30 | 35 | 35 | 35 | 35 |
| Weight | kg | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.85 |
| Dimensions (W x H x D) | mm | 150 x 90 x 86 | 150 x 90 x 86 | 150 x 90 x 86 | 150 x 90 x 86 | 150 x 90 x 86 | 150 x 90 x 86 | 150 x 90 x 86 | 182 x 90 x 86 |

### Main Units with 48 I/0

| Specifications | | FX3U-48MR/DS | FX3U-48MR/ES(-A) | FX3U-48MT/DSS | FX3U-48MT/DS | FX3U-48MT/ESS | FX3U-48MT/ES(-A) |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 48 | 48 | 48 | 48 | 48 | 48 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Integrated outputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 35 | 40 | 35 | 35 | 40 | 40 |
| Weight | kg | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Dimensions (W x H x D) | mm | 182 x 90 x 86 | 182 x 90 x 86 | 182 x 90 x 86 | 182 x 90 x 86 | 182 x 90 x 86 | 182 x 90 x 86 |

### Main Units with 64 I/0

| Specifications | | FX3U-64MR/DS | FX3U-64MR/ES(-A) | FX3U-64MT/DSS | FX3U-64MT/DS | FX3U-64MT/ESS | FX3U-64MT/ES(-A) | FX3U-64MS/ES | FX3U-64MR/UA1 |
|---|---|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source | AC input |
| Integrated inputs | | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Integrated outputs | | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) | Triac | Relay |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 40 | 45 | 40 | 40 | 45 | 45 | 45 | 45 |
| Weight | kg | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.20 |
| Dimensions (W x H x D) | mm | 220 x 90 x 86 | 220 x 90 x 86 | 220 x 90 x 86 | 220 x 90 x 86 | 220 x 90 x 86 | 220 x 90 x 86 | 220 x 90 x 86 | 285 x 90 x 86 |

# FX MAIN UNITS SPECIFICATIONS

## Main Units with 80 I/0

| Specifications | | FX3U-80MR/DS | FX3U-80MR/ES | FX3U-80MT/DSS | FX3U-80MT/DS | FX3U-80MT/ESS | FX3U-80MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 80 | 80 | 80 | 80 | 80 | 80 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 40 | 40 | 40 | 40 | 40 | 40 |
| Integrated outputs | | 40 | 40 | 40 | 40 | 40 | 40 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 45 | 50 | 45 | 45 | 50 | 50 |
| Weight | kg | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| Dimensions (W x H x D) | mm | 285 x 90 x 86 | 285 x 90 x 86 | 285 x 90 x 86 | 285 x 90 x 86 | 285 x 90 x 86 | 285 x 90 x 86 |

## Main Units with 128 I/0

| Specifications | | FX3U-128MR/ES | FX3U-128MT/ESS | FX3U-128MT/ES |
|---|---|---|---|---|
| Integrated inputs/outputs | | 128 | 128 | 128 |
| Input type | | sink/source | sink/source | sink/source |
| Integrated inputs | | 64 | 64 | 64 |
| Integrated outputs | | 64 | 64 | 64 |
| Output type | | Relay | Transistor (source) | Transistor (sink) |
| Power supply | | 100–240 V AC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 65 | 65 | 65 |
| Weight | kg | 1.80 | 1.80 | 1.80 |
| Dimensions (W x H x D) | mm | 350 x 90 x 86 | 350 x 90 x 86 | 350 x 90 x 86 |

# FX3UC

## Main Units with 16 – 96 I/0

| Specifications | | FX3UC-16MR/D-T | FX3UC-16MR/DS-T | FX3UC-16MT/D | FX3UC-16MT/DSS | FX3UC-32MT/D | FX3UC-32MT/DSS |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 16 | 16 | 16 | 16 | 32 | 32 |
| Integrated inputs | | 8 | 8 | 8 | 8 | 16 | 16 |
| Input type | | Sink | Sink/Source | Sink | Sink/Source | Sink | Sink/Source |
| Integrated outputs | | 8 | 8 | 8 | 8 | 16 | 16 |
| Output type | | Relay | Relay | Transistor (sink) | Transistor (source) | Transistor (sink) | Transistor (source) |
| Power supply | | 24 V DC | 24 V DC | 24 V DC | 24 V DC | 24 V DC | 24 V DC |
| Power consumption | W | 6 | 6 | 6 | 6 | 8 | 8 |
| Weight | kg | 0.25 | 0.25 | 0.2 | 0.2 | 0.2 | 0.2 |
| Dimensions (W x H x D) | mm | 34 x 90 x 89 | 34 x 90 x 89 | 34 x 90 x 74 | 34 x 90 x 74 | 34 x 90 x 74 | 34 x 90 x 74 |

| Specifications | | FX3UC-64MT/D | FX3UC-64MT/DSS | FX3UC-96MT/D | FX3UC-96MT/DSS |
|---|---|---|---|---|---|
| Integrated inputs/outputs | | 64 | 64 | 96 | 96 |
| Integrated inputs | | 32 | 32 | 48 | 48 |
| Input type | | Sink | Sink/Source | Sink | Sink/Source |
| Integrated outputs | | 32 | 32 | 48 | 48 |
| Power supply | | 24 V DC | 24 V DC | 24 V DC | 24 V DC |
| Output type | | Transistor (sink) | Transistor (source) | Transistor (sink) | Transistor (source) |
| Power consumption | W | 11 | 11 | 14 | 14 |
| Weight | kg | 0.3 | 0.3 | 0.35 | 0.35 |
| Dimensions (W x H x D) | mm | 59.7 x 90 x 74 | 59.7 x 90 x 74 | 85.4 x 90 x 74 | 85.4 x 90 x 74 |

## FX3G

### Main Units with 14 I/O

| Specifications | | FX3G-14MR/DS | FX3G-14MR/ES | FX3G-14MT/DSS | FX3G-14MT/DS | FX3G-14MT/ESS | FX3G-14MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 14 | 14 | 14 | 14 | 14 | 14 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 8 | 8 | 8 | 8 | 8 | 8 |
| Integrated outputs | | 6 | 6 | 6 | 6 | 6 | 6 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 19 | 31 | 19 | 19 | 31 | 31 |
| Weight | kg | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Dimensions (W x H x D) | mm | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 |

### Main Units with 24 I/O

| Specifications | | FX3G-24MR/DS | FX3G-24MR/ES | FX3G-24MT/DSS | FX3G-24MT/DS | FX3G-24MT/ESS | FX3G-24MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 14 | 14 | 14 | 14 | 14 | 14 |
| Integrated outputs | | 10 | 10 | 10 | 10 | 10 | 10 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 21 | 32 | 21 | 21 | 32 | 32 |
| Weight | kg | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| Dimensions (W x H x D) | mm | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 | 90 x 90 x 86 |

### Main Units with 40 I/O

| Specifications | | FX3G-40MR/DS | FX3G-40MR/ES | FX3G-40MT/DSS | FX3G-40MT/DS | FX3G-40MT/ESS | FX3G-40MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 40 | 40 | 40 | 40 | 40 | 40 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Integrated outputs | | 16 | 16 | 16 | 16 | 16 | 16 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 25 | 37 | 25 | 25 | 37 | 37 |
| Weight | kg | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Dimensions (W x H x D) | mm | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 |

### Main Units with 60 I/O

| Specifications | | FX3G-60MR/DS | FX3G-60MR/ES | FX3G-60MT/DSS | FX3G-60MT/DS | FX3G-60MT/ESS | FX3G-60MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 60 | 60 | 60 | 60 | 60 | 60 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 36 | 36 | 36 | 36 | 36 | 36 |
| Integrated outputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 29 | 40 | 29 | 29 | 40 | 40 |
| Weight | kg | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Dimensions (W x H x D) | mm | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 |

## FX3GE

### Main Units with 24 I/O

| Specifications | | FX3GE-24MR/DS | FX3GE-24MR/ES | FX3GE-24MT/DSS | FX3GE-24MT/DS | FX3GE-24MT/ESS | FX3GE-24MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 14 | 14 | 14 | 14 | 14 | 14 |
| Integrated outputs | | 10 | 10 | 10 | 10 | 10 | 10 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 21 | 32 | 21 | 21 | 32 | 32 |
| Weight | kg | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Dimensions (W x H x D) | mm | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 | 130 x 90 x 86 |

### Main Units with 40 I/O

| Specifications | | FX3GE-40MR/DS | FX3GE-40MR/ES | FX3GE-40MT/DSS | FX3GE-40MT/DS | FX3GE-40MT/ESS | FX3GE-40MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 40 | 40 | 40 | 40 | 40 | 40 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 24 | 24 | 24 | 24 | 24 | 24 |
| Integrated outputs | | 16 | 16 | 16 | 16 | 16 | 16 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 25 | 37 | 25 | 25 | 37 | 37 |
| Weight | kg | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Dimensions (W x H x D) | mm | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 | 175 x 90 x 86 |

## FX3GC

### Main Units with 32 I/O

| Specifications | | FX3GC-32MT/D | FX3GC-32MT/DSS |
|---|---|---|---|
| Integrated inputs/outputs | | 32 | 32 |
| Input type | | sink | sink/source |
| Integrated inputs | | 16 | 16 |
| Input type | | Sink | Sink/Source |
| Integrated outputs | | 16 | 16 |
| Output type | | Transistor(sink) | Transistor(source) |
| Power supply | | 24 V DC | 24 V DC |
| Power consumption | W | 8 | 8 |
| Weight | kg | 0.2 | 0.2 |
| Dimensions (W x H x D) | mm | 34 x 90 x 87 | 34 x 90 x 87 |

## FX3S

### Main Units with 10 I/O

| Specifications | | FX3S-10MR/DS | FX3S-10MR/ES | FX3S-10MT/DSS | FX3S-10MT/DS | FX3S-10MT/ESS | FX3S-10MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 10 | 10 | 10 | 10 | 10 | 10 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 6 | 6 | 6 | 6 | 6 | 6 |
| Integrated outputs | | 4 | 4 | 4 | 4 | 4 | 4 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 6 | 19 | 6 | 6 | 19 | 19 |
| Weight | kg | 0.22 | 0.30 | 0.22 | 0.22 | 0.30 | 0.30 |
| Dimensions (W x H x D) | mm | 60 x 40 x 49 | 60 x 90 x 75 | 60 x 40 x 49 | 60 x 40 x 49 | 60 x 90 x 75 | 60 x 90 x 75 |

## Main Units with 14 I/O

| Specifications | | FX3S-14MR/DS | FX3S-14MR/ES | FX3S-14MT/DSS | FX3S-14MT/DS | FX3S-14MT/ESS | FX3S-14MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 14 | 14 | 14 | 14 | 14 | 14 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 8 | 8 | 8 | 8 | 8 | 8 |
| Integrated outputs | | 6 | 6 | 6 | 6 | 6 | 6 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 100–240 V AC | 100–240 V AC | 100–240 V AC | 100–240 V AC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 6.5 | 6 | 6.5 | 6.5 | 6 | 6 |
| Weight | kg | 0.22 | 0.30 | 0.22 | 0.22 | 0.30 | 0.30 |
| Dimensions (W x H x D) | mm | 60 x 90 x 49 | 60 x 90 x 49 | 60 x 90 x 49 | 60 x 90 x 49 | 60 x 90 x 49 | 60 x 90 x 49 |

## Main Units with 20 – 30 I/O

| Specifications | | FX3S-20MR/DS | FX3S-20MR/ES | FX3S-20MT/DSS | FX3S-20MT/DS | FX3S-20MT/ESS | FX3S-20MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 20 | 20 | 20 | 20 | 20 | 20 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 12 | 12 | 12 | 12 | 12 | 12 |
| Integrated outputs | | 8 | 8 | 8 | 8 | 8 | 8 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 7 | 20 | 7 | 7 | 20 | 20 |
| Weight | kg | 0.30 | 0.40 | 0.30 | 0.30 | 0.40 | 0.40 |
| Dimensions (W x H x D) | mm | 75 x 90 x 49 | 75 x 90 x 75 | 75 x 90 x 49 | 75 x 90 x 49 | 75 x 90 x 75 | 75 x 90 x 75 |

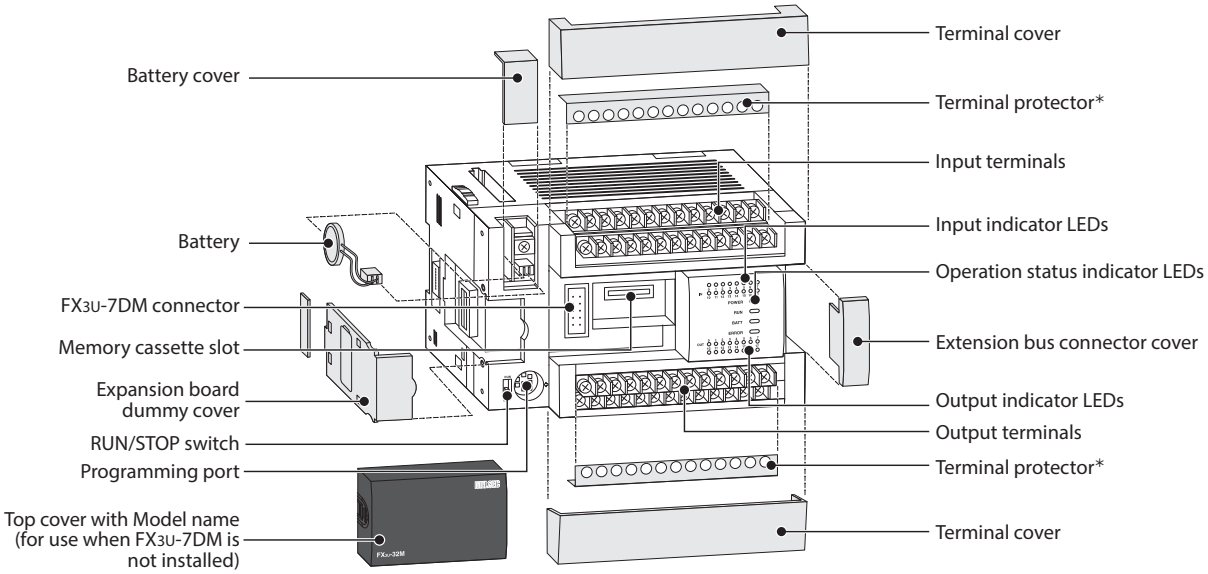
## Main Units with 30 I/O

| Specifications | | FX3S-30MR/DS | FX3S-30MR/ES | FX3S-30MT/DSS | FX3S-30MT/DS | FX3S-30MT/ESS | FX3S-30MT/ES |
|---|---|---|---|---|---|---|---|
| Integrated inputs/outputs | | 30 | 30 | 30 | 30 | 30 | 30 |
| Input type | | sink/source | sink/source | sink/source | sink/source | sink/source | sink/source |
| Integrated inputs | | 16 | 16 | 16 | 16 | 16 | 16 |
| Integrated outputs | | 14 | 14 | 14 | 14 | 14 | 14 |
| Output type | | Relay | Relay | Transistor (source) | Transistor (sink) | Transistor (source) | Transistor (sink) |
| Power supply | | 24 V DC | 100–240 V AC | 24 V DC | 24 V DC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 8.5 | 21 | 8.5 | 8.5 | 21 | 21 |
| Weight | kg | 0.35 | 0.45 | 0.35 | 0.35 | 0.45 | 0.45 |
| Dimensions (W x H x D) | mm | 100 x 90 x 49 | 100 x 90 x 75 | 100 x 90 x 49 | 100 x 90 x 49 | 100 x 90 x 75 | 100 x 90 x 75 |

## Main Units with 30 I/O and analog inputs

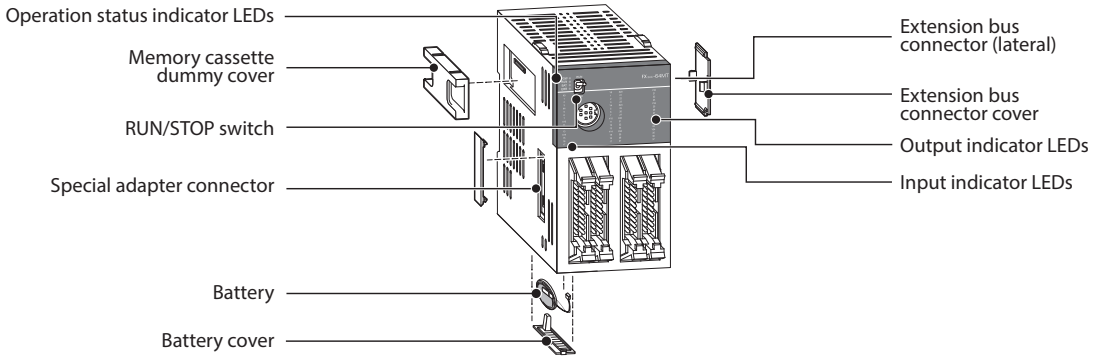
| Specifications | | FX3S-30MR/ES-2AD | FX3S-30MT/ESS-2AD | FX3S-30MT/ES-2AD |
|---|---|---|---|---|
| Integrated inputs/outputs | | 30 | 30 | 30 |
| Integrated inputs | | 16 | 16 | 16 |
| Input type | | sink/source | sink/source | sink/source |
| Integrated outputs | | 14 | 14 | 14 |
| Output type | | Relay | Transistor (source) | Transistor (sink) |
| Analog input range | | 0 to 10 V DC (Input resistance: 115.7 kΩ) | 0 to 10 V DC (Input resistance: 115.7 kΩ) | 0 to 10 V DC (Input resistance: 115.7 kΩ) |
| Analog channels | inputs | 2 | 2 | 2 |
| Resolution | voltage | 10 mV (10 V/1000) | 10 mV (10 V/1000) | 10 mV (10 V/1000) |
| Power supply | | 100–240 V AC | 100–240 V AC | 100–240 V AC |
| Power consumption | W | 21 | 21 | 21 |
| Weight | kg | 0.45 | 0.45 | 0.45 |
| Dimensions (W x H x D) | mm | 100 x 90 x 75 | 100 x 90 x 75 | 100 x 90 x 75 |

## FX3U

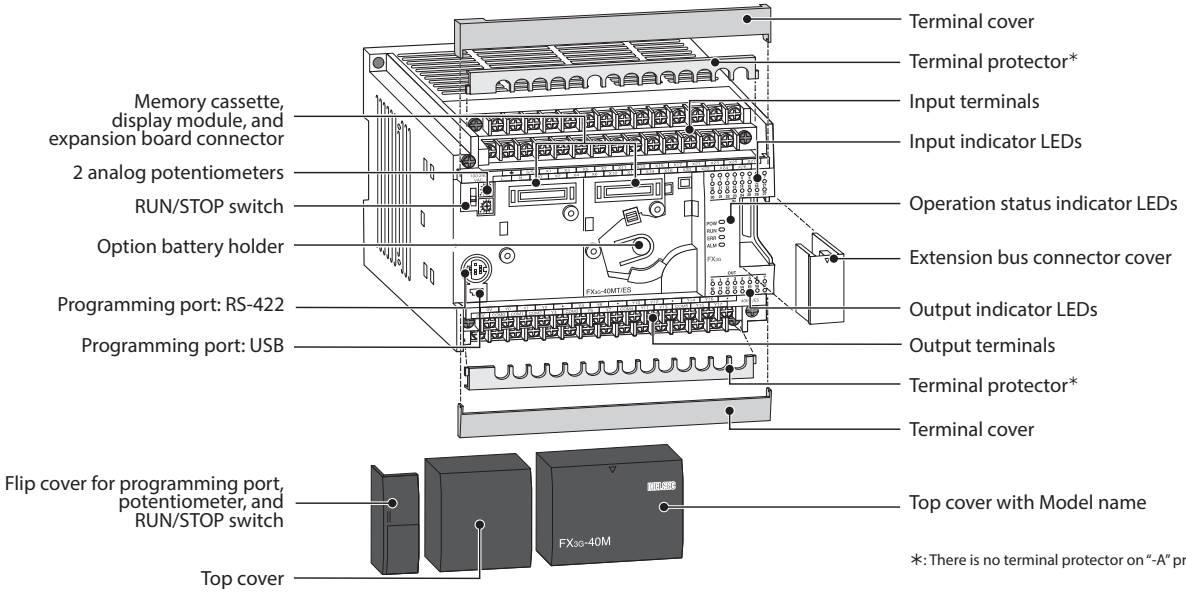



*: There is no terminal protector on "-A" product.

## FX3UC

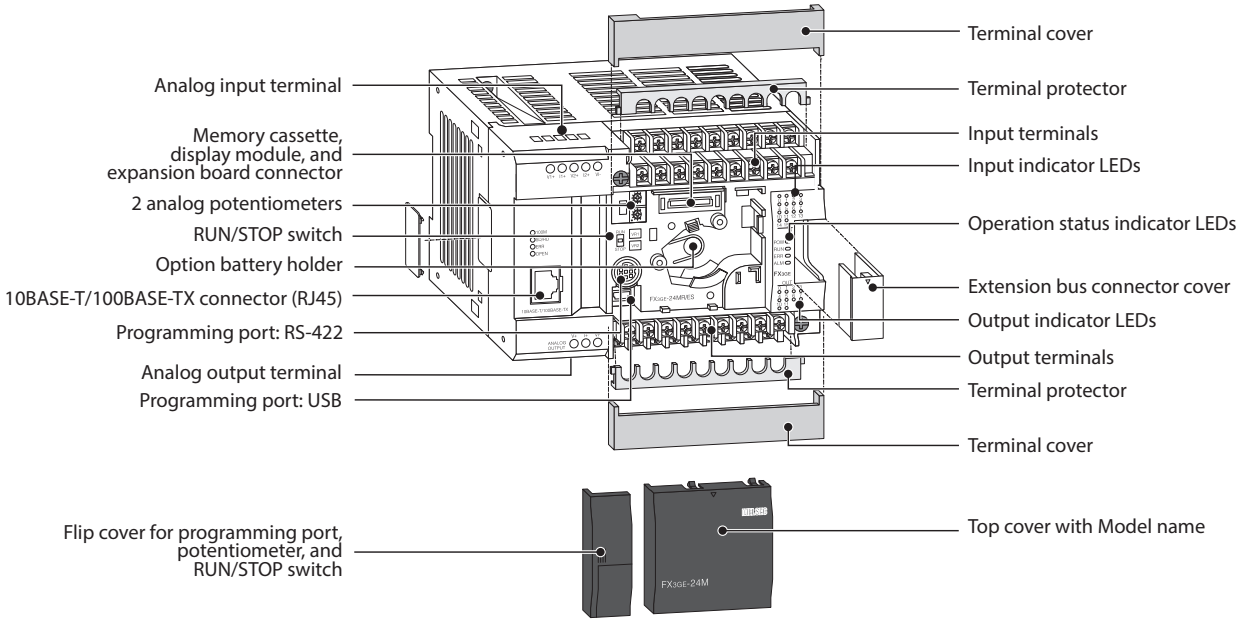



## FX3G

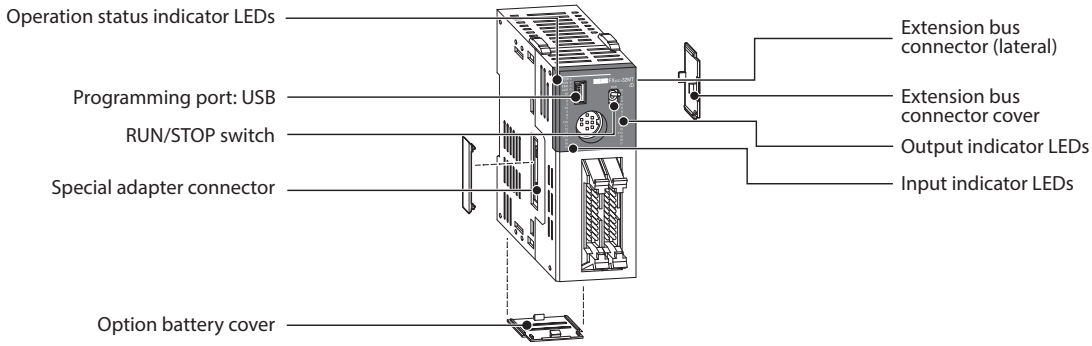



*: There is no terminal protector on "-A" product.

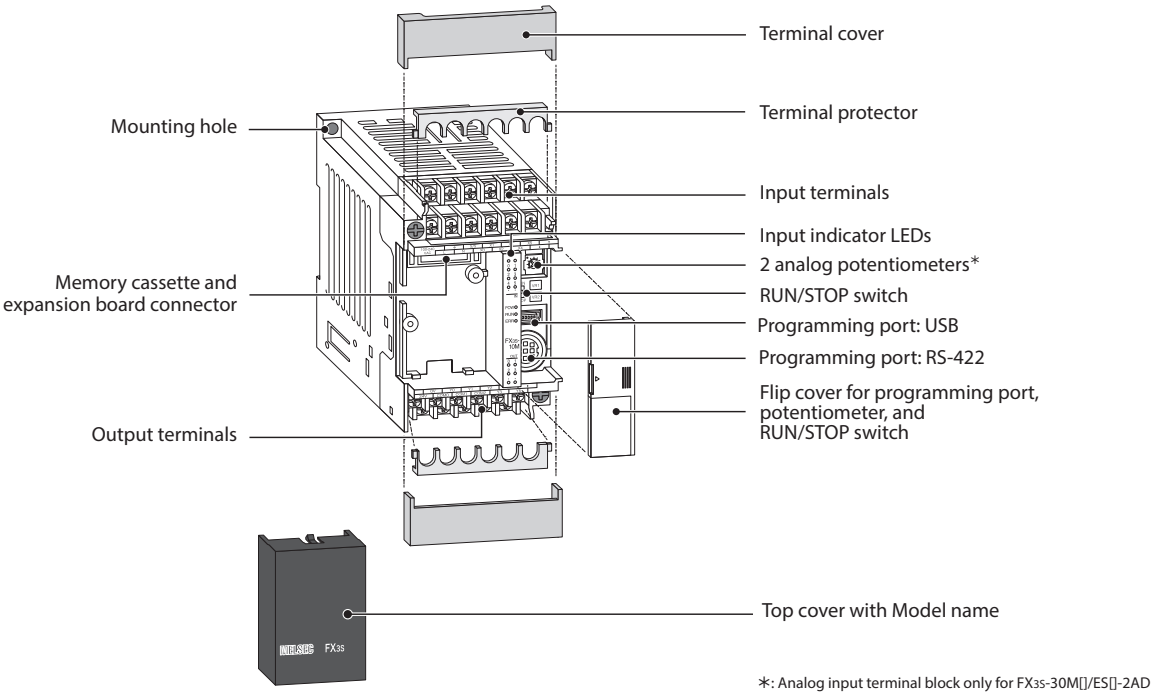
## FX3GE


Terminal cover
Analog input terminal
Terminal protector
Memory cassette, display module, and expansion board connector
Input terminals
Input indicator LEDs
2 analog potentiometers
Operation status indicator LEDs
RUN/STOP switch
Option battery holder
Extension bus connector cover
10BASE-T/100BASE-TX connector (RJ45)
Output indicator LEDs
Programming port: RS-422
Output terminals
Analog output terminal
Terminal protector
Programming port: USB
Terminal cover
Flip cover for programming port, potentiometer, and RUN/STOP switch
Top cover with Model name
FX3GE-24M

## FX3GC


Operation status indicator LEDs
Extension bus connector (lateral)
Programming port: USB
Extension bus connector cover
RUN/STOP switch
Output indicator LEDs
Special adapter connector
Input indicator LEDs
Option battery cover

## FX3S

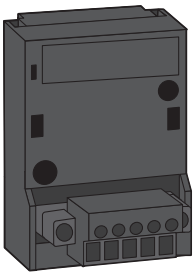



*: Analog input terminal block only for FX3S-30M[]/ES[]-2AD

## MEMO

## ■ Expansion Boards

☑ FX3S ☑ FX3G ☑ FX3GE ☐ FX3GC ☐ FX3U ☐ FX3UC



FX3G-4EX-BD

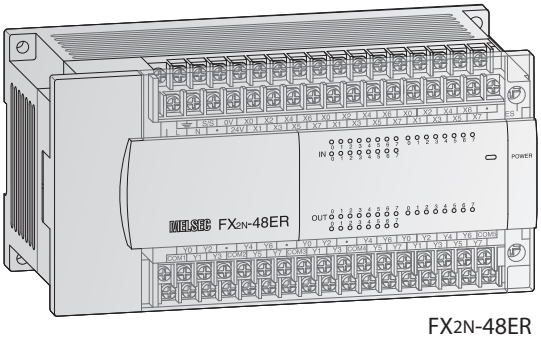
### FX3G-4EX-BD and FX3G-2EYT-BD Expansion Boards

The FX3G series expansion boards are available for the FX3S, FX3G and FX3GE main unit and add 4 inputs or 2 outputs to the system. These boards are advantageous when only a few additional I/O are required without adding to the installation space.

| Specifications | | | FX3G-4EX-BD | FX3G-2EYT-BD |
|---|---|---|---|---|
| Integrated inputs/outputs | | | 4 | 2 |
| Power supply | | | 5 V DC (from main unit); 24 V DC/25 mA (S/S terminal) | 5 V DC (from main unit) |
| Integrated inputs | | | 4 | — |
| Input | | voltage | 24 V DC (+20%/-15%) | — |
| | | current | 5 mA (24 V DC) | — |
| Integrated outputs | | | — | 2 |
| Output type | | | — | Transistor |
| Max. switching voltage | | | — | 5 – 30 V DC |
| Weight | | kg | 0.02 | 0.02 |
| Dimensions (W x H x D) | | mm | 35 x 51.2 x 29.2 | 35 x 51.2 x 29.2 |

## ■ Powered Extension Units

☐ FX3S ☑ FX3G ☑ FX3GE ☐ FX3GC ☑ FX3U ☐ FX3UC




FX2N-48ER

### FX2N Extension Units

The FX2N series extension units are available with 32 or 48 integrated I/O with selectable relay or transistor output models.

**Features:**

- Input and output indicator LEDs
- FX3G, FX3GE, and FX3U series compatible
- Removable terminal blocks
- Integrated service power supply with up to 250 mA or 460 mA capacity

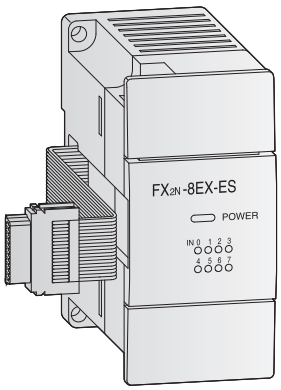
| Specifications | | | | FX2N-32ER-ES/UL | FX2N-32ET-ESS/UL | FX2N-48ER-DS | FX2N-48ER-ES/UL | FX2N-48ER-UA1/UL | FX2N-48ET-DSS | FX2N-48ET-ESS/UL |
|---|---|---|---|---|---|---|---|---|---|---|
| Electrical data | Integrated inputs/outputs | | | 32 | 32 | 48 | 48 | 48 | 48 | 48 |
| | Power supply | AC range (+10%, -15%) | | 100 – 240 V | 100 – 240 V | — | 100 – 240 V | 100 – 240 V | — | 100 – 240 V |
| | | Frequency at AC | Hz | 50/60 | 50/60 | — | 50/60 | 50/60 | — | 50/60 |
| | | DC range (+20%, -30%) | | — | — | 24 V | — | — | 24 V | — |
| | Max. input apparent power | | | 30 W | 30 W | 30 W | 35 W | 35 W | 30 W | 35 W |
| | Inrush current at ON | 100 V AC | | 40 A< 5 ms | 40 A< 5 ms | — | 40 A< 5 ms | 40 A< 5 ms | 40 A< 5 ms | 40 A< 5 ms |
| | | 200 V AC | | 60 A< 5 ms | — | — | 60 A< 5 ms | 60 A< 5 ms | 60 A< 5 ms | 60 A< 5 ms |
| | Allowable momentary power failure time | | ms | 10 | 10 | 5 | 10 | — | 5 | 10 |
| | External service power supply (24 V DC) | | mA | 250 | 250 | — | 460 | — | — | 460 |
| | Power supply int. bus (5 V DC) | | mA | 690 | 690 | 690 | 690 | 690 | 690 | 690 |
| Inputs | Integrated inputs | | | 16 | 16 | 24 | 24 | 24 | 24 | 24 |
| | Min. current for logical 1 | | mA | 3.5 | 3.5 | 3.5 | 3.5 | 3.8 | 3.5 | 3.5 |
| | Max. current for logical 0 | | mA | 1.5 | 1.5 | 1.5 | 1.5 | 1.7 | 1.5 | 1.5 |
| | Response time | | | 10 ms (at time of shipment) | | | | | | |
| Outputs | Integrated outputs | | | 16 | 16 | 24 | 24 | 24 | 24 | 24 |
| | Output type | | | Relay | Transistor (source) | Relay | Relay | Relay | Transistor (source) | Transistor (source) |
| | Switching voltage (Max.) | | | Relay version: < 264 V AC, < 30 V DC; Transistor version: 5 – 30 V DC | | | | | | |
| | Max. output current | - per output | A | 2 | 0.5 | 2 | 2 | 2 | 0.5 | 0.5 |
| | | - per group*1 | A | 8 | 0.8 | 8 | 8 | 8 | 0.8 | 0.8 |
| | Max. switching power | - inductive load | | 80 VA | 12 W | 80 VA | 80 VA | 80 VA | 12 W | 12 W |
| | Response time | | ms | 10 | < 0.2 | 10 | 10 | 10 | < 0.2 | < 0.2 |
| | Life of contacts (switching times)*2 | | | Relay version: 3,000,000 at 20 VA, 1,000,000 at 35 VA, 200,000 at 80 VA; Transistor version: - | | | | | | |
| Mechanical data | Weight | | kg | 0.65 | 0.65 | 0.85 | 0.85 | 1.0 | 0.85 | 0.85 |
| | Dimensions (W x H x D) | | mm | 150 x 90 x 87 | 150 x 90 x 87 | 182 x 90 x 87 | 182 x 90 x 87 | 220 x 90 x 87 | 182 x 90 x 87 | 182 x 90 x 87 |

*1 This limitation applies to the maximum output current for each reference terminal (Common), each serving 1 to 4 relay or transistor outputs. Please observe the reference terminal assignments for group identification.

*2 Not guaranteed by Mitsubishi Electric

## ■ Unpowered Extension Blocks

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX2N-8EX-ES

### FX2N Extension Blocks

The FX2N series 8 integrated I/O extension blocks are selectable with relay or transistor outputs.

*Note: When attaching an extension block to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

### Features:

- Input and output indicator LEDs
- FX3G, FX3GE, FX3GC, FX3U, and FX3UC series compatible
- Vertically arranged terminals with upper or lower side cable placement available

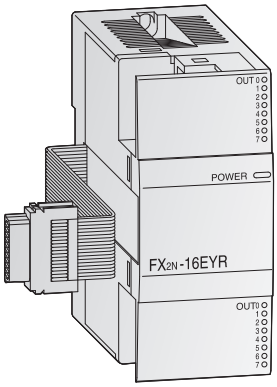
| Specifications | | | FX2N-8ER-ES/UL | FX2N-8EX-ES/UL | FX2N-8EX-UA1/UL | FX2N-8EYR-ES/UL | FX2N-8EYT-ESS/UL |
|---|---|---|---|---|---|---|---|
| **Electrical data** | | | | | | | |
| Integrated inputs/outputs | | | 8 | 8 | 8 | 8 | 8 |
| Power supply | | | All extension blocks are powered by the main unit or attached extension unit. | | | | |
| **Inputs** | | | | | | | |
| Integrated inputs | | | 4 | 8 | 8 | — | — |
| Min. current for logical 1 | | mA | 3.5 | 3.5 | ≥3.8 | — | — |
| Max. current for logical 0 | | mA | 1.5 | 1.5 | ≤1.7 | — | — |
| Response time | | | 10 ms | | | | |
| **Outputs** | | | | | | | |
| Integrated outputs | | | 4 | — | — | 8 | 8 |
| Output type | | | Relay | — | — | Relay | Transistor (source) |
| Max. switching voltage | | | Relay version: < 240 V AC, < 30 V DC; Transistor version: 5 – 30 V DC | | | | |
| Max. output current | - per output | A | 2 | — | — | 2 | 0.5 |
| | - per group*1 | A | 8 | — | — | 8 | 0.8 |
| Max. switching power | - inductive load | | 80 VA | — | — | 80 VA | 12 W |
| Response time | | ms | 10 | 10 | 10 | 10 | < 0.2 |
| Life of contacts (switching times)*2 | | | Relay version: 3,000,000 at 20 VA, 1,000,000 at 35VA, 200,000 at 80 VA; Transistor version: - | | | | |
| **Mechanical data** | | | | | | | |
| Weight | | kg | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Dimensions (W x H x D) | | mm | 43 x 90 x 87 | 43 x 90 x 87 | 43 x 90 x 87 | 43 x 90 x 87 | 43 x 90 x 87 |

*1 This limitation applies to the maximum output current for each reference terminal (Common), each serving 1 to 4 relay or transistor outputs. Please observe the reference terminal assignments for group identification.

*2 Not guaranteed by Mitsubishi Electric

## ■ Unpowered Extension Blocks

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX2N-16EYR

### FX2N Extension Blocks

The FX2N series 16 integrated I/O extension blocks are selectable with relay, transistor, or triac outputs.

*Note: When attaching an extension block to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

### Features:

- Input and output indicator LEDs
- FX3G, FX3GE, FX3GC, FX3U, and, FX3UC series compatible
- Vertically arranged terminals with upper or lower side cable placement available

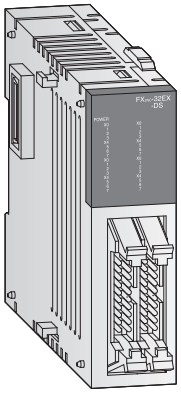
| Specifications | | | FX2N-16EX-ES/UL | FX2N-16EYR-ES/UL | FX2N-16EYT-ESS/UL | FX2N-16EYS |
|---|---|---|---|---|---|---|
| **Electrical data** | | | | | | |
| Integrated inputs/outputs | | | 16 | 16 | 16 | 16 |
| Power supply | | | All extension blocks are powered by the main unit or attached extension unit. | | | |
| **Inputs** | | | | | | |
| Integrated inputs | | | 16 | — | — | — |
| Min. current for logical 1 | | mA | 3.5 | — | — | — |
| Max. current for logical 0 | | mA | 1.5 | — | — | — |
| Response time | | | 10 ms | | | |
| **Outputs** | | | | | | |
| Integrated outputs | | | — | 16 | 16 | 16 |
| Output type | | | — | Relay | Transistor (source) | Triac |
| Switching voltage (Max.) | | V | Relay version: < 240 V AC, < 30 V DC; Transistor version: 5 – 30 V DC; Triac version: 85–242 V AC | | | |
| Max. output current | - per output | A | — | 2 | 0.5 | 0.3 |
| | - per group*1 | A | — | 8 | 1.6 | 0.8 |
| Max. switching power | - inductive load | | — | 80 VA | 12 W | 15 VA/AC 100 V, 30 VA/AC 200 V |
| Response time | | ms | — | 10 | < 0.2 | OFF→ON < 1, ON→OFF < 10 |
| Life of contacts (switching times)*2 | | | Relay version: 3,000,000 at 20 VA, 1,000,000 at 35 VA, 200,000 at 80 VA; Transistor version: - ; Triac version: - | | | |
| **Mechanical data** | | | | | | |
| Weight | | kg | 0.3 | 0.3 | 0.3 | 0.3 |
| Dimensions (W x H x D) | | mm | 40 x 90 x 87 | 40 x 90 x 87 | 40 x 90 x 87 | 40 x 90 x 87 |

*1 This limitation applies to the maximum output current for each reference terminal (Common), each serving 1 to 4 relay, transistor, or triac outputs. Please observe the reference terminal assignments for group identification.

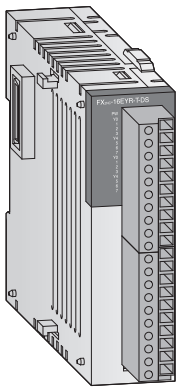
*2 Not guaranteed by Mitsubishi Electric

## ■ Unpowered Extension Blocks

☐ FX3S ☐ FX3G ☐ FX3GE ☑ FX3GC ☐ FX3U ☑ FX3UC



FX2NC-32EX-DS



FX2NC-16EYR-T-DS

### FX2NC Extension Blocks

The FX2NC series extension blocks are available with 16 or 32 integrated I/O with selectable relay or transistor 16-output models.

**Features:**

- Ultra-compact dimensions
- Input and output indicator LEDs
- Removable terminal blocks for FX2NC-16EYR-T-DS and FX2NC-16EX-T-DS
- Adapter modules and system cabling sets available for units with ribbon cable connectors (transistor output types)

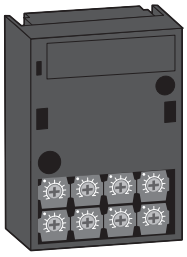
| Specifications | | | FX2NC-16EX-T-DS | FX2NC-16EYR-T-DS | FX2NC-16EX-DS | FX2NC-16EYT-DSS | FX2NC-32EX-DS | FX2NC-32EYT-DSS |
|---|---|---|---|---|---|---|---|---|
| **Electrical data** | | | | | | | | |
| Integrated inputs/outputs | | | 16 | 16 | 16 | 16 | 32 | 32 |
| Power supply | | | All extension blocks are powered by the main unit. | | | | | |
| **Inputs** | | | | | | | | |
| Integrated inputs | | | 16 | — | 16 | — | 32 | — |
| Input current | | | 5 | — | 5 | — | 5 | — |
| Min. current for logical 1 | | mA | 3.5 | — | 3.5 | — | 3.5 | — |
| Max. current for logical 0 | | mA | 1.5 | — | 1.5 | — | 1.5 | — |
| Isolation | | | Photocoupler isolation between input terminals and PC power for all base units. | | | | | |
| Response time | | | 10 ms | — | 10 ms | — | 10 ms | — |
| **Outputs** | | | | | | | | |
| Integrated outputs | | | — | 16 | — | 16 | — | 32 |
| Output type | | | — | Relay | — | Transistor (source) | — | Transistor (source) |
| ON voltage (Max.) | | V | Relay version: < 240 V AC, < 30 V DC; Transistor version: 5 – 30 V DC | | | | | |
| Max. output current | - per output | A | — | 2 | — | 0.1 | — | 0.1 |
| | - per group*1 | A | — | 4 | — | 0.8 | — | 0.8 |
| Max. switching power | - inductive load | | — | 80 VA | — | 2.4 W | — | 2.4 W |
| Response time | | ms | — | 10 | — | < 0.2 | — | < 0.2 |
| Life of contacts (switching times)*2 | | | Relay version: 3,000,000 at 20 VA, 1,000,000 at 35VA, 200,000 at 80 VA; Transistor version: - | | | | | |
| **Mechanical data** | | | | | | | | |
| Connection type | | | Removable screw terminal blocks | Removable screw terminal blocks | Ribbon cable connector | Ribbon cable connector | Ribbon cable connector | Ribbon cable connector |
| Weight | | kg | 0.15 | 0.15 | 0.15 | 0.15 | 0.2 | 0.2 |
| Dimensions (W x H x D) | | mm | 20.2 x 90 x 89 | 24.2 x 90 x 89 | 14.6 x 90 x 87 | 14.6 x 90 x 87 | 26.2 x 90 x 87 | 26.2 x 90 x 87 |

*1 This limitation applies to the maximum output current for each reference terminal (Common), each serving 1 to 4 relay or transistor outputs. Please observe the reference terminal assignments for group identification.

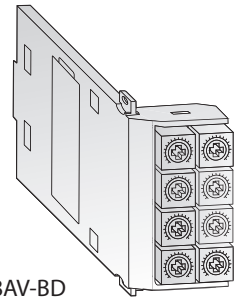
*2 Not guaranteed by Mitsubishi Electric

## ■ Analog Boards

☑ FX3S ☑ FX3G ☑ FX3GE ☐ FX3GC ☑ FX3U ☐ FX3UC



FX3G-8AV-BD

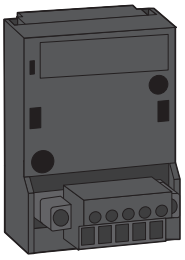


FX3U-8AV-BD

### FX3G-8AV-BD and FX3U-8AV-BD Analog Setpoint boards

The FX3G-8AV-BD analog setpoint board is available for the FX3S, FX3G, and FX3GE. The FX3U-8AV-BD analog setpoint board is available for the FX3U. Both provide 8 analog setpoint potentiometers to the FX system. These setpoints can be polled by the PLC and used as default values for timers, counters, and data registers with dedicated instructions VRRD/VRSC (FNC85/86).

| Specifications | | FX3G-8AV-BD | FX3U-8AV-BD |
|---|---|---|---|
| Power supply | | 5 V DC (from main unit) | 5 V DC (from main unit) |
| Adjustment range | | 8 - bit | 8 - bit |
| Related I/O points | | 0 | 0 |
| Potentiometer evaluation | | Via PLC applied instruction (FNC 85/86) | Via PLC applied instruction (FNC 85/86) |
| Weight | kg | 0.02 | 0.02 |
| Dimensions (W x H x D) | mm | 35 x 51.2 x 12 | 46.1 x 55.9 x 19.7 |



FX3G-2AD-BD

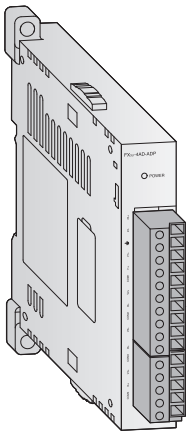
### FX3G-2AD-BD Analog Expansion Board

The FX3G-2AD-BD analog input expansion board is available for the FX3S, FX3G, and FX3GE main units. It provides 2 analog inputs. The board converts analog voltage or current signals into digital values which can be used in the FX PLC.

| Specifications | | | FX3G-2AD-BD |
|---|---|---|---|
| Power supply | | | 5 V DC (from main unit) |
| Analog channels | inputs | | 2 |
| Analog input range | | | 0 to 10 V DC/4 to 20 mA |
| Resolution | voltage | | 2.5 mV (12 bit) |
| | current | | 8 µA (11 bit) |
| Overall accuracy for fullscale | | | ± 1.0% |
| Related I/O points | | | 0 |
| Weight | | kg | 0.02 |
| Dimensions (W x H x D) | | mm | 35 x 51.2 x 29.2 |

## ■ Analog Input Special Adapter

☑ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX3U-4AD-ADP

### FX3U-4AD-ADP

The FX3U-4AD-ADP analog input special adapter is available for FX3 series main units and is used for adding 4 channels of analog input to the FX PLC.

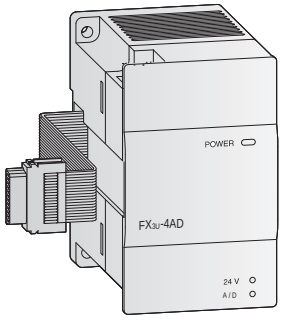
*Note: When connecting to an FX3S, FX3G, or FX3U main unit, an interface adapter or interface board is required.*

| Specifications | | | FX3U-4AD-ADP |
|---|---|---|---|
| Power supply | | | 5 V DC/15 mA (from main unit);<br>24 V DC/40 mA |
| Analog channels | inputs | | 4 |
| Analog range | | | 0 to 10 V DC/4 to 20 mA |
| Resolution | voltage | | 2.5 mV (12 bit) |
| | current | | 10 µA (11 bit) |
| Overall accuracy for fullscale | | | ±0.5 % – ±1.0%* |
| Related I/O points | | | 0 |
| Weight | | kg | 0.1 |
| Dimensions (W x H x D) | | mm | 17.6 x 90 x 89.5 |

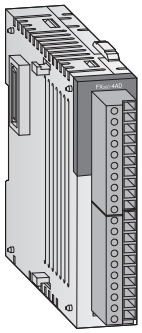
* Dependent on the ambient temperature and signal quality

## ■ Analog Input Blocks

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-4AD



FX3UC-4AD

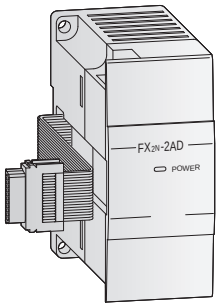
### FX3U-4AD, FX3UC-4AD

The FX3U and FX3UC analog input blocks are available for FX3G, FX3GE, FX3GC, FX3U, and FX3UC series main units and are used to convert analog voltage or current signals into digital values which can be used in the FX PLC. These blocks provide users with 4 analog input channels with adjustable digital filters, history data, and use an integrated high-performance CPU which converts each analog input in 500µs.

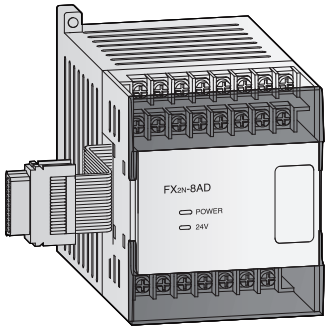
*Note: The FX3UC-4AD can only be used with the FX3GC or FX3UC main unit. When attaching the FX3U-4AD analog block to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | | FX3U-4AD | FX3UC-4AD |
|---|---|---|---|---|
| Power supply | | | 5 V DC/110 mA (from main unit); 24 V DC/90 mA | 5 V DC/100mA (from main unit); 24 V DC/80mA |
| Analog channels | inputs | | 4 | |
| Analog input range | | | -10 to +10 V DC/ -20 to +20 mA/4 to 20 mA DC | |
| Resolution | voltage | | 0.32 mV (15 bit + sign) | |
| | current | | 1.25 µA (14 bit + sign) | |
| Overall accuracy for fullscale | | | ±0.3% – ±1.0 % fullscale* | |
| Related I/O points | | | 8 | |
| Weight | | kg | 0.2 | 0.13 |
| Dimensions (W x H x D) | | mm | 55 x 90 x 87 | 20.2 x 90 x 89 |

* Dependent on the ambient temperature




FX2N-2AD




FX2N-8AD

### FX2N-2AD, FX2N-8AD

The FX2N analog input blocks are used to convert analog voltage or current signals into digital values which can be used in the FX PLC. These blocks provide 2 to 8 analog inputs and use internal buffer memory to setup value sampling parameters.

*Note: When attaching an FX2N analog block to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

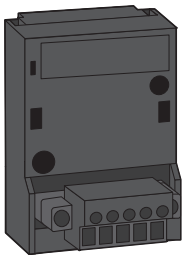
| Specifications | | | FX2N-2AD | FX2N-8AD |
|---|---|---|---|---|
| Power supply | | | 5 V DC/20 mA (from main unit); 24 V DC/50 mA (from main unit) | 5 V DC/50 mA (from main unit); 24 V DC/80 mA |
| Analog channels | inputs | | 2 | 8 |
| Analog input range | | | 0 to 10 VDC/ 0 to 5 V DC/ 4 to 20 mA DC | -10 to + 10 V DC/ -20 to + 20mA DC/ 4 to 20 mA DC |
| Resolution | voltage | | 2.5 mV (12 bit) | 0.63 mV (14 bit +sign) |
| | current | | 4 µA (12 bit) | 2.5 µA (13 bit +sign) |
| Overall accuracy for fullscale | voltage | | ±1.0% | ±0.3% – ±0.5 %* |
| | current | | | |
| Related I/O points | | | 8 | 8 |
| Weight | | kg | 0.2 | 0.4 |
| Dimensions (W x H x D) | | mm | 43 x 90 x 87 | 75 x 90 x 75 |

* Dependent on the ambient temperature

Note: The FX2N-8AD can be configured to accept standard analog inputs as well as selected temperature inputs such as K, T or J type thermocouples.

## ■ Analog Output Board

☑ FX3S ☑ FX3G ☑ FX3GE ☐ FX3GC ☐ FX3U ☐ FX3UC



FX3G-1DA-BD

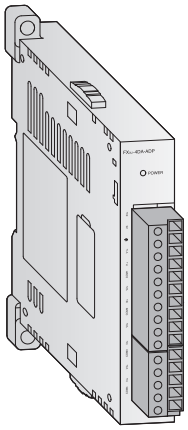
### FX3G-1DA-BD Analog Expansion Board

The FX3G-1DA-BD analog output expansion board is available for the FX3S, FX3G, and FX3GE main units. It provides 1 analog output. The expansion board converts digital values from the FX3S, FX3G, or FX3GE PLC to an analog voltage or current signal.

| Specifications | | | FX3G-1DA-BD |
|---|---|---|---|
| Power supply | | | 5 V DC (from main unit) |
| Analog channels | outputs | | 1 |
| Analog output range | | | 0 to 10 V DC/4 to 20 mA |
| Resolution | | | 2.5 mV (12 bit)/8 µA (11 bit) |
| Overall accuracy for fullscale | | | ±1.0% |
| Related I/O points | | | 0 |
| Weight | | kg | 0.02 |
| Dimensions (W x H x D) | | mm | 35 x 51.2 x 29.2 |

## ■ Analog Output Special Adapter

☑ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX3U-4DA-ADP

### FX3U-4DA-ADP

The FX3U-4DA-ADP analog output special adapter is available for FX series main units and is used for adding 4 channels of analog output to the FX PLC.

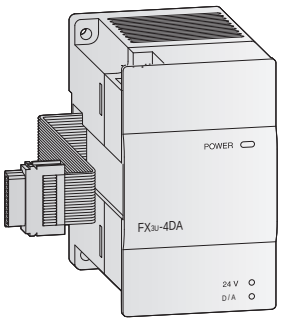
*Note: When connecting to an FX3S, FX3G, or FX3U main unit, an interface adapter or interface board is required.*

| Specifications | | | FX3U-4DA-ADP |
|---|---|---|---|
| Power supply | | | 5 V DC/15 mA (from main unit);<br>24 V DC/150 mA |
| Analog channels | outputs | | 4 |
| Analog range | | | 0 to 10 V DC/4 to 20 mA DC |
| Resolution | voltage | | 2.5 mV (12 bit) |
| | current | | 4 µA (12 bit) |
| Overall accuracy for fullscale | | | ±0.5 % – ±1.0%* |
| Related I/O points | | | 0 |
| Weight | | kg | 0.1 |
| Dimensions (W x H x D) | | mm | 17.6 x 90 x 89.5 |

* Dependent on the ambient temperature and signal quality

## ■ Analog Output Blocks

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-4DA

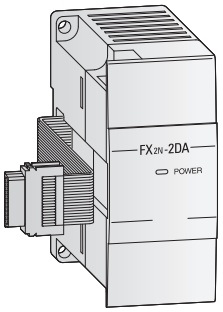
### FX3U-4DA

The FX3U-4DA is available for FX3G, FX3GE, FX3GC, FX3U, and FX3UC series main units and is used to convert digital values in the PLC to voltage or current analog output signals. This block provides users with 4 analog output channels with optional output table function and uses an integrated high-performance CPU which converts all 4 analog signals in 1ms.

*Note: When attaching the FX3U-4DA analog block to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX3U-4DA |
|---|---|---|
| Power supply | | 5 V DC/120 mA (from main unit);<br>24 V DC/160 mA |
| Analog channels | outputs | 4 |
| Analog output range | | -10 to + 10 V DC/<br>0 to 20 mA/4 to 20 mA DC |
| Resolution | voltage | 0.32 mV (15 bit + sign) |
| | current | 0.63 µA (15 bit) |
| Overall accuracy for fullscale | | ±0.3 – ±0.5 %* |
| Related I/O points | | 8 |
| Weight | kg | 0.2 |
| Dimensions (W x H x D) | mm | 55 x 90 x 87 |

* Dependent on the ambient temperature




FX2N-2DA

### FX2N-2DA

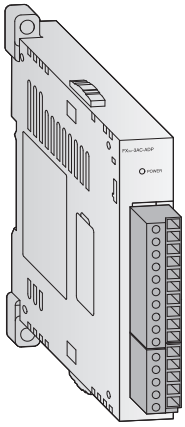
The FX2N-2DA analog output block is used to convert digital values in the PLC to voltage or current analog output signals. This block provides 2 analog outputs. The adjustment of the offset and gain values sets a digital equivalent to the analog data.

| Specifications | | FX2N-2DA |
|---|---|---|
| Power supply | | 5 V DC/30 mA (from main unit);<br>24 V DC/85 mA (from main unit) |
| Analog channels | inputs | — |
| | outputs | 2 |
| Analog output range | | 0 to 10 V DC/<br>0 to 5 V DC/<br>4 to 20 mA DC |
| Resolution | voltage | 2.5 mV (12 bit) |
| | current | 4 µA (12 bit) |
| Overall accuracy for fullscale | | ±1.0%* |
| Related I/O points | | 8 |
| Weight | kg | 0.2 |
| Dimensions (W x H x D) | mm | 43 x 90 x 87 |

* Dependent on the ambient temperature

## ■ Combination Analog I/O Adapter

☑ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX3U-3A-ADP

### FX3U-3A-ADP

The FX3U-3A-ADP is used for both digital-to-analog and analog-to-digital conversion. This adapter provides users with 2 analog input channels and 1 analog voltage or current output channel.

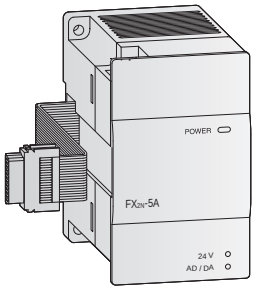
*Note: When connecting to an FX3S, FX3G, or FX3U main unit, an interface adapter or interface board is required.*

| Specifications | | | FX3U-3A-ADP |
|---|---|---|---|
| Power supply | | | 5 V DC/20 mA (from main unit);<br>24 V DC/90 mA |
| Analog channels | inputs | | 2 |
| | outputs | | 1 |
| Analog Input range (resolution) | voltage | | 0 to 10 V DC (2.5 mV/12 bit) |
| | current | | 4 to 20 mA (5 µA/12 bit) |
| Analog Output range (resolution) | voltage | | 0 to 10 V DC (2.5 mV/12 bit) |
| | current | | 4 to 20 mA (4 µA/12 bit) |
| Overall accuracy for fullscale | | | ±0.5 % – ±1.0%* |
| Related I/O points | | | 0 |
| Weight | | kg | 0.1 |
| Dimensions (W x H x D) | | mm | 17.6 x 90 x 89.5 |

* Dependent on the ambient temperature

## ■ Combination Analog I/O Block

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX2N-5A

### FX2N-5A

The FX2N-5A is used for both digital-to-analog and analog-to-digital conversion. This block provides users with 4 analog input channels and 1 analog voltage or current output channel.

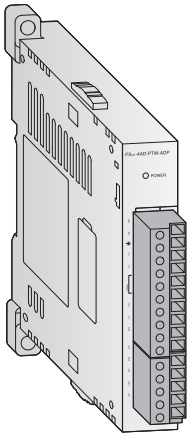
*Note: When attaching the FX2N-5A analog block to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | | FX2N-5A |
|---|---|---|---|
| Power supply | | | 5 V DC/70mA (from main unit);<br>24 V DC/90 mA |
| Analog channels | inputs | | 4 |
| | outputs | | 1 |
| Analog Input range (resolution) | voltage | | -10 to +10 V (15 bit +sign),<br>-100 to +100 mV (11 bit +sign) |
| | current | | -20 to +20 mA DC (14 bit + sign),<br>4 to +20 mA DC (14 bit) |
| Analog Output range (resolution) | voltage | | -10 to +10 V DC (12 bit) |
| | current | | 0/4 to 20 mA DC (10 bit) |
| Overall accuracy for fullscale | | | ±0.3% – ±1.0%* |
| Related I/O points | | | 8 |
| Weight | | kg | 0.3 |
| Dimensions (W x H x D) | | mm | 55 x 90 x 87 |

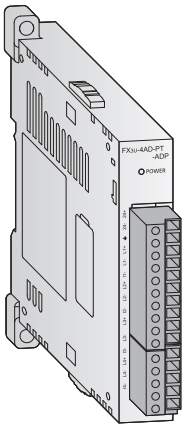
* Dependent on the ambient temperature

## ■ Temperature Input Special Adapters

☑ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX3U-4AD-PTW-ADP



FX3U-4AD-PT-ADP

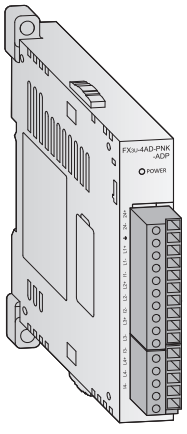
### FX3U-4AD-PTW-ADP, FX3U-4AD-PT-ADP

These analog temperature input special adapters are available for FX series main units and are used for Pt100 temperature sensor input. The FX3U-4AD-PTW-ADP special adapters provide users with 4 channels of Pt100 analog input ranging from -100 to 600°C, while the FX3U-4AD-PT-ADP has a input range of -50 to 250°C.

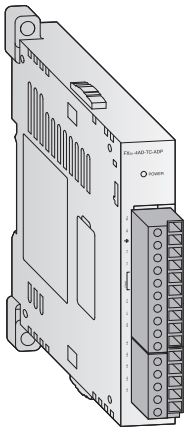
*Note: When connecting to an FX3S, FX3G, or FX3U main unit, an interface adapter or interface board is required.*

| Specifications | | FX3U-4AD-PTW-ADP | FX3U-4AD-PT-ADP |
|---|---|---|---|
| Power supply | | 5 V DC/15 mA (from main unit); 24 V DC/50 mA | 5 V DC/15 mA (from main unit); 24 V DC/50 mA |
| Analog inputs | | 4 (Pt100 sensors) | 4 (Pt100 sensors) |
| Compensated temperature range | ℃ | -100 to +600 | -50 to +250 |
| Digital outputs | | -1000 to +6000 | -500 to +2500 |
| Resolution | | 0.2 to 0.3℃ | 0.1℃ |
| Overall accuracy for fullscale | | ±0.5% – ±1.0%* | ±0.5% – ±1.0%* |
| Related I/O points | | 0 | 0 |
| Weight | kg | 0.1 | 0.1 |
| Dimensions (W x H x D) | mm | 17.6 x 90 x 89.5 | 17.6 x 90 x 89.5 |

* Dependent on the ambient temperature



FX3U-4AD-PNK-ADP



FX3U-4AD-TC-ADP

### FX3U-4AD-PNK-ADP, FX3U-4AD-TC-ADP

These analog temperature input special adapters are available for FX series main units and are used for J and K type thermocouple and Pt1000/Ni1000 temperature sensor input. These special adapters provide users with 4 analog input channels with selectable input types to fit the application.

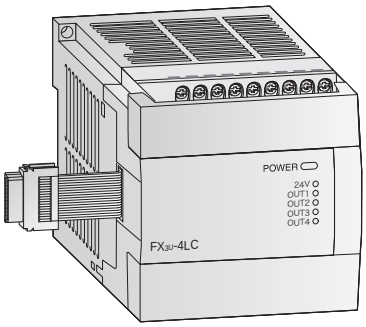
*Note: When connecting to an FX3S, FX3G, or FX3U main unit, an interface adapter or interface board is required.*

| Specifications | | FX3U-4AD-PNK-ADP | FX3U-4AD-TC-ADP |
|---|---|---|---|
| Power supply | | 5 V DC/15 mA (from main unit); 24 V DC/50 mA | 5 V DC/15 mA (from main unit); 24 V DC/45 mA |
| Analog inputs | | 4 (Pt1000 or Ni1000) | 4 (J or K type) |
| Compensated temperature range | ℃ | -50 to +250 (Pt1000)/ -40 to +110 (Ni1000) | -100 to +600 (J type)/ -100 to +1000 (K type) |
| Digital outputs | | -500 to +2500 (Pt1000)/ -400 to +1100 (Ni1000) | -1000 to +6000 (J type)/ -1000 to +10000 (K type) |
| Resolution | | 0.1℃ | 0.3℃ (J type)/0.4℃ (K type) |
| Overall accuracy for fullscale | | ±0.5% – ±1.0%* | ±0.5% – ±1.0%* |
| Related I/O points | | 0 | 0 |
| Weight | kg | 0.1 | 0.1 |
| Dimensions (W x H x D) | mm | 17.6 x 90 x 89.5 | 17.6 x 90 x 89.5 |

* Dependent on the ambient temperature

## ■ Temperature Control Blocks

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-4LC

### FX2N-2LC*1, FX3U-4LC

These temperature control blocks are used when the internal PID functions are not precise or fast enough. The 4 inputs on the FX3U-4LC support Thermocouple elements, PT elements and micro voltage inputs. The two inputs on the FX2N-2LC support Thermocouple elements and PT100 elements. Each channel of the FX3U-4LC controls two outputs for heating and cooling. The FX2N-2LC is equipped with 1 output per channel for heating control. The FX3U-4LC supports cascade control as well.

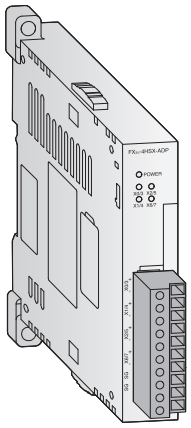
*Note: When attaching the FX3U-4LC or FX2N-2LC analog blocks to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX2N-2LC | FX3U-4LC |
|---|---|---|---|
| Power supply | | 5 V DC/70 mA (from main unit); 24 V DC/55 mA | 5 V DC/160 mA (from main unit); 24 V DC/50 mA |
| Analog inputs | | 2 points (Thermocouple and Pt100 sensor) | 4 points (Thermocouple, PT and micro Voltage) |
| Compensated temperature range | | Examples:<br>• Type K: -100 to +1300 (°C)/ -100 to +2400 (°F)<br>• Type J: -100.0 to +800.0 (°C)/ -100 to +2100 (°F) | Examples:<br>• Type K: -100 to +1300 (°C)/ -100 to +2400 (°F)<br>• Type J: -100.0 to +800.0 (°C)/ -100 to +2100 (°F)<br>• Voltage input: 0 to 10 mV DC, 0 to 100 mV DC |
| Outputs | | 2 transistor outputs | 4 transistor outputs embedded, 4 external points |
| Resolution | | 0.1 °C or 1 °C | Temperature input: 0.1°C/0.1°F or 1°C/1°F<br>Voltage input: 0.5 µV |
| Overall accuracy for fullscale | | ±0.3% – ±0.7% (±1 digit)*2 | ±0.3% – ±0.7% (±1 digit)*2 |
| Related I/O points | | 8 | 8 |
| Weight | kg | 0.3 | 0.4 |
| Dimensions (W x H x D) | mm | 55 x 90 x 87 | 90 x 90 x 87 |

*1 Production will be discontinued in March 2018. *2 Dependent on the ambient temperature

## ■ High-Speed Input Special Adapter

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☐ FX3UC



FX3U-4HSX-ADP

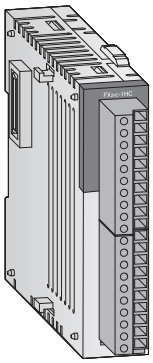
### FX3U-4HSX-ADP

The FX3U-4HSX-ADP is available for the FX3U main unit and are used to allow direct processing of positioning applications on the FX system. The FX3U-4HSX-ADP upgrades 4 of the built-in high-speed counter inputs to 200 kHz capacity.

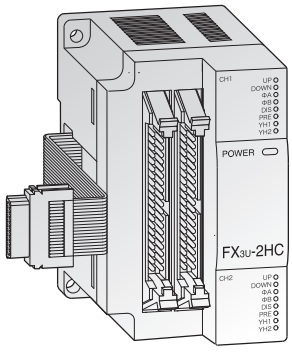
| Specifications | | | FX3U-4HSX-ADP |
|---|---|---|---|
| Power supply | | | 5 V DC/30 mA (from main unit);<br>24 V DC/30 mA (from main unit) |
| Maximum connectivity | | | 2 |
| Related I/O points | | | 4 |
| I/O type | inputs | | 4 |
| | outputs | | — |
| Max. frequency | inputs | kHz | 1-phase: 200<br>2-phase: 100 |
| | outputs | kHz | — |
| Input format | | | Differential line receiver (equivalent to AM26C32) |
| Output format | | | — |
| Maximum cable length | | m | 10 |
| Input voltage | | | 5 V DC |
| Output load | | | — |
| Weight | | kg | 0.08 |
| Dimensions (W x H x D) | | mm | 17.6 x 90 x 89.5 |

## ■ High-Speed Counter Blocks

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC



FX2NC-1HC




FX3U-2HC

### FX2N-1HC, FX2NC-1HC, and FX3U-2HC

FX2N-1HC, FX2NC-1HC, and FX3U-2HC provide additional high speed counter or counters to the attached FX main unit. The FX2N-1HC and FX2NC-1HC count 1- or 2-phase pulses up to a frequency of 50 kHz using 16 or 32 bits. The FX3U-2HC increases the maximum frequency to 200 kHz.

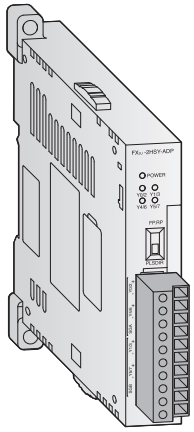
The two integrated transistor outputs per counter can be switched independently of one another by means of internal comparison functions. Hence, simple positioning tasks can also be handled economically. In addition, all three blocks can be used as a ring counter.

*Note: The FX2NC-1HC may only be used in combination with an FX3UC main unit. When attaching the FX2N-1HC or FX3U-2HC high-speed counter block to an FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | | FX2N-1HC | FX2NC-1HC | FX3U-2HC |
|---|---|---|---|---|---|
| Signal level | | | 5, 12, 24 V DC | | 5, 12, 24 V DC |
| Power supply | | | 5 V DC/90 mA (from main unit) | | 5 V DC/245 mA (from main unit) |
| Counter inputs | | | 1-phase (1 input or 2 input)<br>2-phase (1edge , 2edge or 4 edge count ) | | |
| Max. counting frequency | | | 50 kHz | | 200 kHz |
| Input format | | | Differential line receiver/Open collector | | |
| Input channels | | | 1 | | 2 |
| Type of counter | | | Up/down counter, ring counter | | |
| Counting range | | 16 bit | 0 to +65,535 | | |
| | | 32 bit | -2,147,483,648 to +2,147,483,647 | | |
| Output type | | | 2 x transistor (5 to 24 V DC/0.5 A) | | 4 x transistor (5 to 24V DC/0.5 A) |
| Related I/O points | | | 8 | | |
| Weight | | kg | 0.3 | 0.13 | 0.2 |
| Dimensions (W x H x D) | | mm | 55 x 90 x 87 | 20.2 x 90 x 89 | 55 x 90 x 87 |

## ■ High-Speed Output Special Adapter

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☐ FX3UC



FX3U-2HSY-ADP

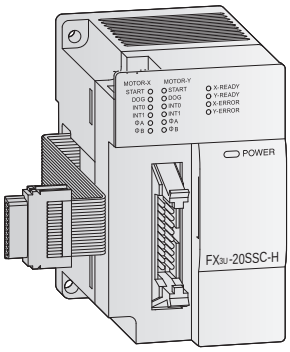
### FX3U-2HSY-ADP

The FX3U-2HSY-ADP is available for the FX3U main unit and is used to allow direct processing of positioning applications on the FX system. The FX3U-2HSY-ADP upgrades 2 of the built-in high-speed outputs to 200 kHz capacity.

| Specifications | | | FX3U-2HSY-ADP |
|---|---|---|---|
| Power supply | | | 5 V DC/30 mA (from main unit);<br>24 V DC/60 mA (from main unit) |
| Max. connectivity | | | 2 |
| Related I/O points | | | 4 |
| I/O type | inputs | | — |
| | outputs | | (2 output points occupied per high-speed output) |
| Max. frequency | inputs | kHz | — |
| | outputs | kHz | 200 |
| Input format | | | — |
| Output format | | | Differential line driver<br>(equivalent to AM26C31)<br>Pulse/Direction or Forward/Reverse Rotation |
| Max. cable length | | m | 10 |
| Input voltage | | | — |
| Output load | | | less than 25 mA |
| Weight | | kg | 0.08 |
| Dimensions (W x H x D) | | mm | 17.6 x 90 x 89.5 |

## ■ 2-Axis Positioning Block

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC




FX3U-20SSC-H

### FX3U-20SSC-H

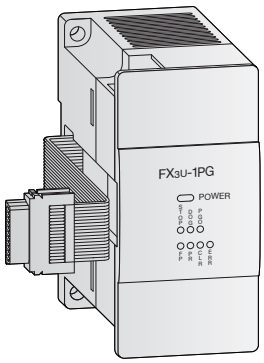
The FX3U-20SSC-H is a high-performance 2-axis positioning block for the FX3U and FX3UC main units. The module uses the SSCNET III servo system control network which implements noise-free fiber optic cabling with station-to-station spacing of up to 50 m and communication speeds up to 50 Mbps. Servo amplifier and positioning parameters are all saved within the module for easy recovery and re-installation. The block features simultaneous and interpolated 2-axis positioning control by way of operation patterns as well as pre-defined table setup. With its dedicated setup, monitor, and testing software, FX Configurator-FP, all aspects of the servo system can be centrally accessed and adjusted.

*Note: When attaching FX3U-20SSC-H positioning blocks to an FX3UC main unit, the FX2NC-CNV-IF interface converter or theFX3UC-1PS-5V power supply unit is required.*

| Specifications | | | FX3U-20SSC-H |
|---|---|---|---|
| Number of controllable axes | | | 2 axes |
| Related I/O points | | | 8 |
| Connectable servo amplifier | | | MELSERVO MR-J4-B, MR-J3-BS, MR-J3-B, or MR-J3-W Max. 2 amplifiers can be connected<br>Standard cord length: Station-to-station Max. 20 m<br>Long distance cord length: Station-to-station Max. 50 m |
| Servo bus | | | SSCNET III |
| Scan cycle | | | 1.77 ms |
| Positioning | Method | | Increment/Absolute |
| | User Units | | PLS, µm, $10^{-4}$inch, mdeg |
| | Unit magnification | | 1, 10, 100, and 1000-fold |
| | Positioning range | | -2,147,483,648 to 2,147,483,647 PLS |
| | Speed units | | Hz, cm/min, 10deg/min, inch/min |
| | Acceleration/ deceleration process | | Trapezoidal acceleration/deceleration, S-pattern acceleration/deceleration: 1 to 5000ms<br>Only trapezoidal acceleration/deceleration is available for interpolation |
| | Starting time | | 1.6ms or less |
| | Interpolation function | | 2-axis linear interpolation, 2-axis circular interpolation |
| Power supply | | | 24 V DC +20% -15% Ripple (p-p) within 5% |
| Power consumption | | | 5 W |
| Weight | | kg | 0.3 |
| Dimensions (W x H x D) | | mm | 55 x 90 x 87 |

## ■ 1-Axis Positioning Blocks

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC




FX3U-1PG

### FX3U-1PG, FX2N-10PG

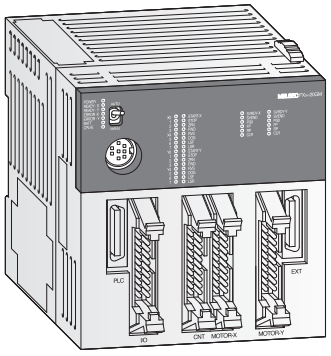
The FX3U-1PG and FX2N-10PG positioning blocks are extremely efficient single-axis positioning modules for controlling either step drives or servo drives with a pulse train. The blocks are very suitable for achieving accurate positioning in combination with the FX series using a wide range of manual and automatic functions. The configuration and allocation of the positioning data are carried out directly via the PLC program.

*Note: When attaching FX2N or FX3U positioning blocks to an FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX3U-1PG | FX2N-10PG |
|---|---|---|---|
| Signal level for digital inputs | | 24 V DC/40 mA | 5 V DC/100 mA; 24 V DC/70 mA |
| Power supply | | 5 V DC/150 mA (from main unit) | 5 V DC/120 mA (from main unit) |
| Accessible axes | | 1 | 1 |
| Output frequency | | Max. 200 kHz | Max. 1 MHz |
| Related I/O points | | 8 | 8 |
| Weight | kg | 0.2 | 0.2 |
| Dimensions (W x H x D) | mm | 43 x 90 x 87 | 43 x 90 x 87 |

## ■ Stand-Alone Positioning Blocks

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC



FX2N-20GM

### FX2N-10GM, FX2N-20GM

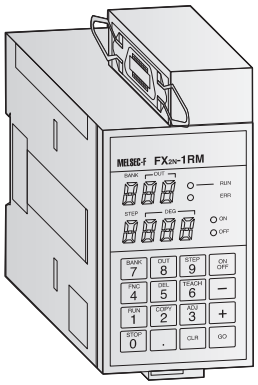
The FX2N-10GM and FX2N-20GM positioning blocks are pulse train output units that enable the positioning control of stepping motors or servo motors via the drive unit. The dedicated software uses flow-chart based programming to easily complete simple to complicated positioning tasks. Furthermore, with stand-alone functionality, the FX2N-10GM and FX2N-20GM are able to control up to 48 I/O.

*Note: When attaching FX2N positioning blocks to an FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

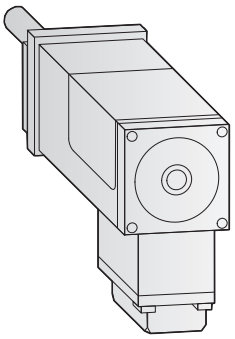
| Specifications | | | FX2N-10GM | FX2N-20GM |
|---|---|---|---|---|
| Number of controllable axes | | | 1 axis | 2 axes (independently or simultaneously) |
| Program memory | | | 3.8 K steps with EEPROM | 7.8 K steps with built-in RAM (battery backup): EEPROM optionally |
| Positioning | | method | Absolute data or incremental | Absolute data or incremental |
| | | units | mm, inch, degree and pulse | mm, inch, degree and pulse |
| | | counting resolution | 31 bit + sign, -2,147,483,648 to 2,147,483,647 | 31 bit + sign, -2,147,483,648 to 2,147,483,647 |
| | | Max. output frequency | 200 kHz | 200 kHz |
| | | speed | 1,530,000 mm/min. | 1,530,000 mm/min. |
| Related I/O points | | | 8 | 8 |
| Power supply | | | 24 V DC (-15 % to +10 %) | 24 V DC (-15 % to +10 %) |
| Power consumption | | | 5 W | 10 W |
| Weight | | kg | 0.3 | 0.4 |
| Dimensions (W x H x D) | | mm | 60 x 90 x 87 | 86 x 90 x 87 |

## ■ Cam-Switch Block

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC




FX2N-1RM-E



F2-720RSV

### FX2N-1RM-E-SET

The FX2N-1RM-E-SET is often called an electronic cam block. It can be used to replace a mechanical cam system with a virtual electronic cam sequence using a resolver module. This makes system setup quick and easy and offers users the benefit of making simple adjustments to gain the best system performance.

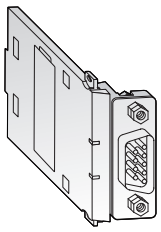
*Note: When attaching the FX2N-1RM-E-SET to an FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX2N-1RM-E-SET |
|---|---|---|
| Number of controllable axes | | 1 using resolver F2-720RSV |
| Maximum connectivity | | 3 |
| Number of cam output I/O | | 48 outputs (32 may be ON at one time) |
| Control resolution | | 1 revolution of 720 divisions (0.5 degrees) or 360 divisions (1 degree) |
| Response | | 415 rpm with 0.5 degrees or 830 rpm with 1 degree |
| ON/OFF frequency | | 8 times per CAM profile |
| Resolver | | 3000 rpm |
| Maximum cable length | | up to 100 m |
| Power supply | | 24 V DC (-15 % to +10 %); 300 mA (400 mA when 32 outputs are ON) |
| Related I/O points | | 8* |
| Weight | kg | 0.5 |
| Dimensions (W x H x D) | mm | 55 x 111 x 97 |

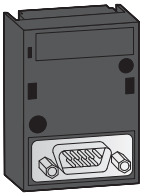
* The number of related I/O points will always be 8, regardless of how many units are attached.

## ■ Expansion Boards

☑ FX3S ☑ FX3G ☑ FX3GE ☐ FX3GC ☑ FX3U ☐ FX3UC



FX3U-232-BD

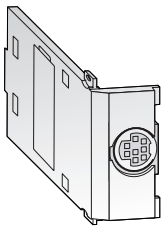


FX3G-232-BD

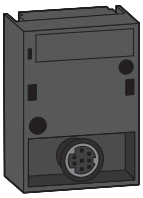
### FX3G-232-BD and FX3U-232-BD Communication Expanison Boards

These communication expansion boards allow their respective FX main units to communicate with external devices and other FX main units over RS-232C.

| Specifications | | FX3G-232-BD | FX3U-232-BD |
|---|---|---|---|
| Applicable main units | | FX3S, FX3G, FX3GE | FX3U |
| Interface | | RS-232C with 9 pole D-SUB connector | |
| Power supply | | 5 V DC/20 mA (from main unit) | |
| Related I/O points | | — | — |
| Weight | kg | 0.02 | 0.02 |
| Dimensions (W x H x D) | mm | 35 x 51.2 x 17.2 | 19.3 x 46.1 x 62.7 |



FX3U-422-BD

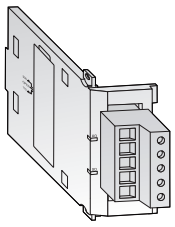


FX3G-422-BD

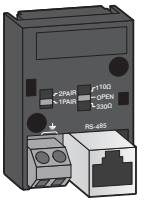
### FX3G-422-BD and FX3U-422-BD Communication Expanison Boards

These communication expansion boards add an additional RS-422 programming port to their respective FX main units to communicate with external equipment.

| Specifications | | FX3G-422-BD | FX3U-422-BD |
|---|---|---|---|
| Applicable main units | | FX3S, FX3G, FX3GE | FX3U |
| Interface | | RS-422 with 8 pole mini DIN connector | |
| Power supply | | 5 V DC/20 mA (from main unit) | |
| Related I/O points | | — | — |
| Weight | kg | 0.02 | 0.02 |
| Dimensions (W x H x D) | mm | 35 x 51.2 x 14.9 | 19.6 x 46.1 x 53.5 |



FX3U-485-BD

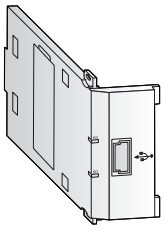


FX3G-485-BD-RJ

### FX3G-485-BD, FX3G-485-BD-RJ and FX3U-485-BD Communication Expanison Boards

These communication expansion boards allow their respective FX main units to communicate with external devices and other FX main units over an RS-485 serial communication network.

| Specifications | | FX3G-485-BD | FX3G-485-BD-RJ | FX3U-485-BD |
|---|---|---|---|---|
| Applicable main units | | FX3S, FX3G, FX3GE | FX3S, FX3G, FX3GE | FX3U |
| Interface | | RS-485 | RJ-45 | RS-485 |
| Power supply | | 5 V DC/20 mA (from main unit) | 5 V DC/20 mA (from main unit) | 5 V DC/40 mA (from main unit) |
| Related I/O points | | — | — | — |
| Weight | kg | 0.02 | 0.02 | 0.02 |
| Dimensions (W x H x D) | mm | 35 x 51.2 x 29.2 | 35 x 51.2 x 22 | 19.6 x 46.1 x 69 |



FX3U-USB-BD

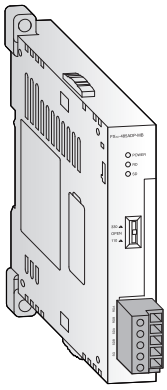
### FX3U-USB-BD Communication Expansion Board

The FX3U-USB-BD communication expansion board is available for the FX3U main unit and provides a direct PC-to-PLC connection port for a standard USB cable.

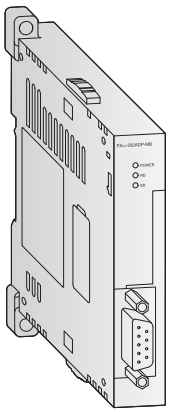
| Specifications | | FX3U-USB-BD |
|---|---|---|
| Applicable main units | | FX3U |
| Power supply | | 5 V DC/15 mA (from main unit), 30 mA (from PC USB connector) |
| Weight | kg | 0.02 |
| Dimensions (W x H x D) | mm | 19.6 x 46.1 x 53.5 |

## ■ MODBUS & Serial Communication Special Adapters

☑ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX3U-485ADP-MB



FX3U-232ADP-MB

### FX3U-485ADP-MB, FX3U-232ADP-MB

The FX3U-485ADP-MB and FX3U-232ADP-MB communication special adapters are available for FX series main units and support a wide range of serial communication standards including MODBUS. MODBUS functionality requires an FX3U or FX3UC main unit of firmware version 2.40 or later, an FX3G main unit of firmware version 1.30 or later and for MODBUS master functionality, GX Developer 8.45X or later.

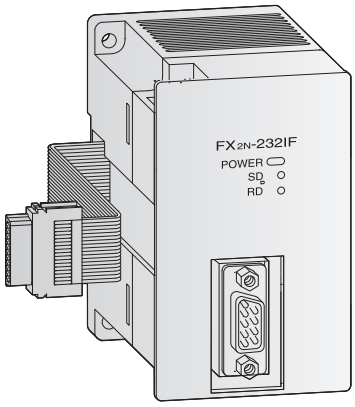
*Note: When attaching the FX3U-485ADP-MB or FX3U-232ADP-MB to an FX3S, FX3G, or FX3U main unit, an interface adapter or interface board is required.*

| Specifications | | FX3U-485ADP-MB | FX3U-232ADP-MB |
|---|---|---|---|
| Power supply | | 5 V DC/20 mA (from main unit) | 5 V DC/30 mA (from main unit) |
| Interface | | RS-485 | RS-232C |
| Communication speed* | | Max. 115.2 kbps | Max. 115.2 kbps |
| Communication distance | | Max. 500 m | Max. 15 m |
| Related I/O points | | 0 | 0 |
| Weight | kg | 0.08 | 0.08 |
| Dimensions (W x H x D) | mm | 17.6 x 90 x 89.5 | 17.6 x 90 x 89.5 |

* Communication speed depends on the serial communication method being used (N:N Network, Parallel Link, Computer Link, Inverter communication, Non-protocol communication, Programming communication, Remote Maintenance, or MODBUS).

## ■ Serial Communication Block

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC




FX2N-232IF

### FX2N-232IF

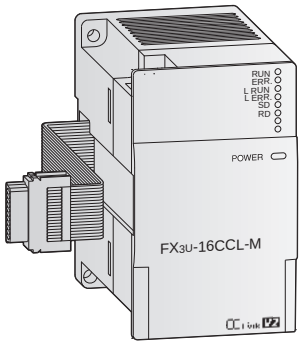
The FX2N-232IF serial communication block provides an RS-232C serial communication interface for use with external equipment such as PCs, printers, and barcode readers. Sent and received transmission data is stored in the internal buffer memory of the block and can be accessed by the PLC through the right-side extension bus using the FROM/TO instructions.

*Note: When attaching the FX2N-232IF to an FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

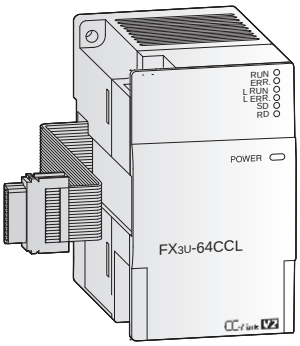
| Specifications | | FX2N-232IF |
|---|---|---|
| Interface | | RS-232C with 9 pole D-SUB connector (photocoupler isolation) |
| Power supply | | 5 V DC/40 mA (from main unit); 24 V DC/80mA |
| Communication speed | | Max. 19.2 kbps |
| Communication distance | | Max. 15 m |
| Communication cable | | Shielded cable |
| Communication mode | | Full duplex |
| Protocols | | Non-protocol mode/start stop synchronisation |
| Send and receive buffer | | 512 bytes each |
| Format | | 7 or 8 bit, parity none/even/odd, stop bit: 1 or 2 |
| Related I/O points | | 8 |
| Weight | kg | 0.3 |
| Dimensions (W x H x D) | mm | 55 x 90 x 87 |

## ■ CC-Link V2 Blocks

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-16CCL-M




FX3U-64CCL

### FX3U-16CCL-M Master Block and FX3U-64CCL Interface Block

These 2 units are available for FX3G, FX3GC ,FX3GE, FX3U and FX3UC main units and enable CC-Link V2 functionality for expanded cyclic transmission and programming via CC-Link.
A large range of CC-Link devices can be found in the Mitsubishi Electric CC-Link conpatible product catalog.

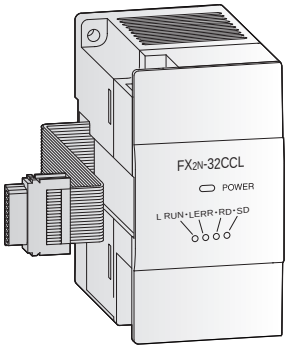
*Note: When attaching the FX3U-16CCL-M or FX3U-64CCL to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX3U-16CCL-M | FX3U-64CCL |
|---|---|---|---|
| Module type | | Master station | Intelligent device station |
| Link points per station | I/O points | 128 (Occupying 1 station with Octuple expanded cyclic setting) | 128 (Occupying 1 station with Octuple expanded cyclic setting) |
| | registers | 32 (Occupying 1 station with Octuple expanded cyclic setting) | 32 (Occupying 1 station with Octuple expanded cyclic setting) |
| Max. number of I/O points | | 256 (with FX3G/FX3GC/FX3GE PLC), 384 (with FX3U/FX3UC PLC)* | |
| Number of connectable modules | | Max. 16 | — |
| Related I/O points | | 8 | 8 |
| Max. transmission speed | | 10 Mbps | 10 Mbps |
| Power supply | | 24 V DC/240 mA | 24 V DC/220 mA |
| Weight | kg | 0.3 | 0.3 |
| Dimensions (W x H x D) | mm | 55 x 90 x 87 | 55 x 90 x 87 |

* Including I/O points in PLC and network.

## ■ CC-Link Block

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX2N-32CCL

### FX2N-32CCL Slave Block

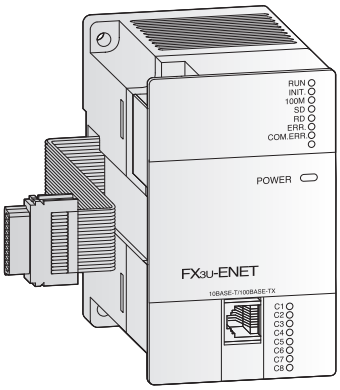
The FX2N-32CCL block allows the attached FX3G, FX3GC ,FX3GE, FX3U and FX3UC main unit to be a slave on a CC-Link V1 network.
A large range of CC-Link devices can be found in the Mitsubishi Electric CC-Link conpatible product catalog.

*Note: When attaching the FX2N-32CCL to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX2N-32CCL |
|---|---|---|
| Module type | | Remote device station |
| CC-Link Version | | Ver. 1.00 |
| Link points per station (Occupies 1 station) | I/O points | 32 |
| | registers | 4 |
| Related I/O points | | 8 |
| Max. transmission speed | | 10 Mbps |
| Power supply | | 5 V DC/130 mA (from main unit); 24 V DC/50 mA |
| Weight | kg | 0.3 |
| Dimensions (W x H x D) | mm | 43 x 90 x 87 |

## ■ Ethernet Communication Block

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-ENET

### FX3U-ENET and FX3U-ENET-L Communication Blocks

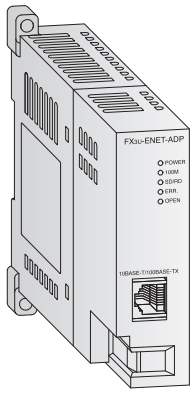
The FX3U-ENET and FX3U-ENET-L communication blocks are available for FX3 series main units and enables 4 or 8 ports of simultaneous Ethernet communication with features such as peer-to-peer communication, extensive e-mail options, and program upload/download. Easy communication parameter setup and block troubleshooting is also possible using the dedicated software, FX Configurator-EN or FX Configurator-EN-L.

*Note: When attaching the FX3U-ENET or FX3U-ENET-L to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX3U-ENET | FX3U-ENET-L |
|---|---|---|---|
| Applicable main units | | FX3G, FX3GC, FX3GE, FX3U, FX3UC | FX3U, FX3UC |
| Applicable software | | FX Configurator-EN | FX Configurator-EN-L |
| Protocol | | MC Protocol, TCP/IP, UDP | MC Protocol, TCP/IP, UDP |
| Communication mode | | Full-duplex/half-duplex | Full-duplex/half-duplex |
| Number of simultaneous open connections | | 8 | 4 |
| Fixed buffer communication | | 1023 word x 8 | 1023 word x 2 |
| e-mail | | send/receive | send |
| Communication with mail server | | SMTP, POP3 | SMTP, POP3 |
| Interface | | IEEE802.3u (100BASE-TX), IEEE802.3 (10BASE-T) | IEEE802.3u (100BASE-TX), IEEE802.3 (10BASE-T) |
| Connector | | RJ45 | RJ45 |
| Max. transfer rate | | 100 Mbps, 10 Mbps | 100 Mbps, 10 Mbps |
| Max. segment length | | 100m | 100m |
| Cable | | CAT5e STP, CAT5 STP (100BASE-TX)<br>CAT5e STP, CAT5 STP, CAT3 STP (10BASE-T) | CAT5e STP, CAT5 STP (100BASE-TX)<br>CAT5e STP, CAT5 STP, CAT3 STP (10BASE-T) |
| Related I/O points | | 8 | 8 |
| Power supply | | 24 V DC/240 mA | 24 V DC/240 mA |
| Weight | kg | 0.3 | 0.3 |
| Dimensions (Wx H x D) | mm | 55 x 90 x 87 | 55 x 90 x 87 |

## ■ Ethernet Communication Special Adapter

☑ FX3S ☑ FX3G ☐ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-ENET-ADP

### FX3U-ENET-ADP

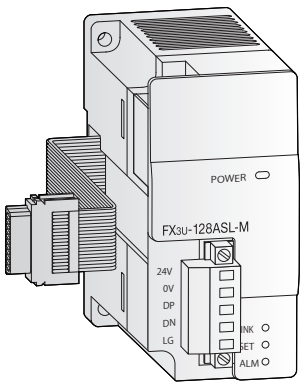
Easy to use FX3U-ENET-ADP for the FX series offers connectivity to GOT2000 HMI's, GX Works2 programming software and custom developed software via the open MC protocol. The PLC real time clock can be set from the network by the SNTP protocol.

*Note: When connecting the FX3U-ENET-ADP to an FX3S, FX3G, or FX3U PLC, a connector conversion adapter or expansion board respectively is required.*

| Specifications | | FX3U-ENET-ADP |
|---|---|---|
| Protocol | | MC Protocol, TCP/IP, UDP, SNTP |
| Communication mode | | Full-duplex/half-duplex |
| Number of simultaneous open connections | | 4 |
| Interface | | IEEE802.3u (100BASE-TX),<br>IEEE802.3 (10BASE-T) |
| Connector | | RJ45 |
| Max. transfer rate | | 100 Mbps, 10 Mbps |
| Cable | | CAT5e STP, CAT5 STP (100BASE-TX)<br>CAT5e STP, CAT5 STP, CAT3 STP (10BASE-T) |
| Related I/O points | | 0 |
| Power supply | | 5 V DC/30 mA (from main unit) |
| Weight | kg | 0.1 |
| Dimensions (Wx H x D) | mm | 23 x 90 x 81.5 |

## ■ AnyWireASLINK Block

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




### FX3U-128ASL-M

For FX3U-128ASL-M type AnyWireASLINK system master block, a unique transmission method of AnyWireASLINK is utilized in a transmission signal having a power supply (equiv. to 24 V DC, MAX. 2 A). It enables wire saving of max. 200 m using 4-core or 2-core power cables.

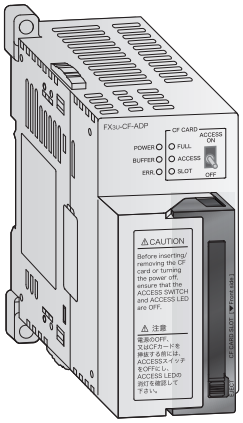
The FX3U-128ASL-M is jointly developed/manufactured with Anywire Corporation. Warranty details are different from other PLC products.

*Note: When attaching the FX3U-128ASL-M to an FX3GC or FX3UC main unit, the FX2NC-CNV-IF interface converter or the FX3UC-1PS-5V power supply unit is required.*

| Specifications | | FX3U-128ASL-M |
|---|---|---|
| Transmission clock | | 27.0 kHz |
| Max. transmission distance (total extension length) | | 200 m |
| Transmission system | | DC power supply transmission total frame cyclic system |
| Connection type | | Bus topology (multidrop system, T-branch system, tree branch system) |
| Transmission protocol | | Dedicated protocol (AnyWireASLINK) |
| Communication with PLC | | By FROM and TO instructions or direct specification of buffer memory via the buffer memory. |
| Max. number of connected I/O points | | 128 points (countable either by input or output) |
| Max. number of connected modules | | 128 modules |
| Power supply | | 5 V DC/130 mA |
| Related I/O points | | 8 points |
| No. of connectable blocks to the main unit | | 1 unit |
| Weight | kg | 0.2 |
| Dimensions (W x H x D) | mm | 43 x 90 x 95.5 |

## ■ Data Logging Adapter

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC




FX3U-CF-ADP

### FX3U-CF-ADP

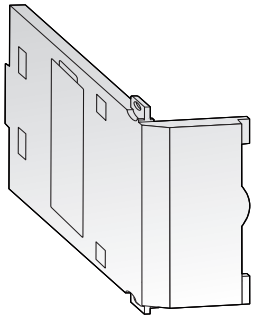
The FX3U-CF-ADP functions as a general purpose data logging adapter. Data logging is controlled by the PLC with dedicated commands for easy programming. Data transfer can be set to occur at periodical times or based on certain events. A timestamp can be automatically be added to data for tracing purposes. Data is stored on a CF card in CSV format.

*Note: The FX3U-CF-ADP is available for FX3U and FX3UC main units of firmware version 2.61 or later. The FX3U-CF-ADP is handled in the same way as a communication adapter or expansion board and occupies 1 communication channel.*

| Specifications | | FX3U-CF-ADP |
|---|---|---|
| Max file size (per file) | | 512 MB |
| Data format | | CSV format |
| Max. number of files | | 64 (including 1 FIFO file) |
| Related I/O points | | 0 |
| Applied instruction functions | | File create/check, File delete/CF card format, Data write, Data read, FX3U-CF-ADP command, FX3U-CF-ADP status read |
| Power supply | | 5 V DC/50 mA (from main unit), 24 V DC/130 mA |
| Weight | kg | 0.3 |
| Dimensions (W x H x D) | mm | 45 x 90 x 89.5 |

## ■ Interface Board

☐ FX3S ☐ FX3G ☐ FX3GE ☐ FX3GC ☑ FX3U ☐ FX3UC



FX3U-CNV-BD

### FX3U-CNV-BD

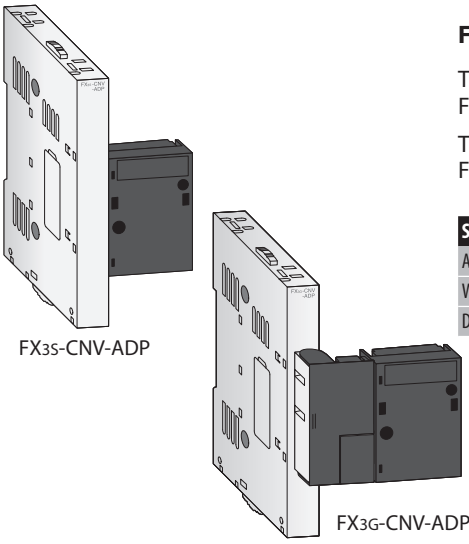
The FX series interface board enables connection of special adapters to the left- side of the associated FX3U main unit. Communication expansion boards may also be used for the FX3U main unit.

*Note: The FX3U-2HSY-ADP and FX3U-4HSX-ADP do not require an FX3U-CNV-BD interface board to connect to the FX3U main unit.*

| Specifications | | FX3U-CNV-BD |
|---|---|---|
| Applicable main units | | FX3U |
| Weight | kg | 0.01 |
| Dimensions (W x H x D) | mm | 19.6 x 46.1 x 53.5 |

## ■ Interface Adapters

☑ FX3S ☑ FX3G ☐ FX3GE ☐ FX3GC ☐ FX3U ☐ FX3UC



FX3S-CNV-ADP

FX3G-CNV-ADP

### FX3S-CNV-ADP, FX3G-CNV-ADP

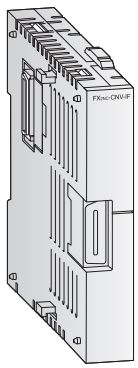
The FX3S-CNV-ADP interface adapter allows FX3S main units to connect with the standard FX3S left side adapter bus.

The FX3G-CNV-ADP interface adapter allows FX3G main units to connect with the standard FX3S left side adapter bus.

| Specifications | | FX3S-CNV-ADP | FX3G-CNV-ADP |
|---|---|---|---|
| Applicable main units | | FX3S | FX3G |
| Weight | kg | 0.1 | 0.1 |
| Dimensions (W x H x D) | mm | 14.6 x 90 x 74 | 14.6 x 90 x 86 |

## ■ Interface Converter

☐ FX3S ☐ FX3G ☐ FX3GE ☑ FX3GC ☐ FX3U ☑ FX3UC



FX2NC-CNV-IF

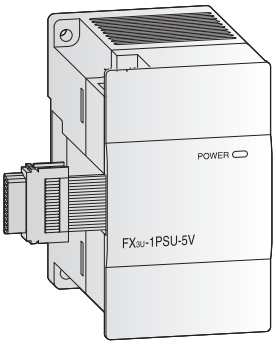
### FX2NC-CNV-IF

The FX2NC-CNV-IF interface converter allows FX3GC and FX3UC main units to connect with the standard FX3U right side extension bus.

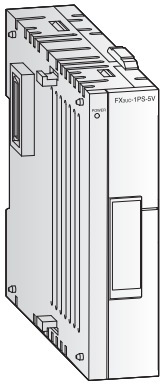
| Specifications | | FX2NC-CNV-IF |
|---|---|---|
| Bus connection | | FX3GC and FX3UC bus to FX3U bus |
| Weight | kg | 0.06 |
| Dimensions (W x H x D) | mm | 14.6 x 90 x 74 |

## ■ Power Supply Units

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC




FX3U-1PSU-5V



FX3UC-1PS-5V

### FX3U-1PSU-5V, FX3UC-1PS-5V

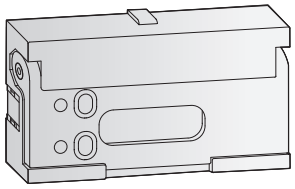
The FX series power supply units are used to add power onto the 5V and 24V extension buses when the built-in service power supplies are not sufficient. The FX3U-1PSU-5V is used with the FX3G/FX3GE/FX3U and the FX3UC-1PS-5V is used with the FX3GC and FX3UC. Up to 2 modules can be added onto one system. The FX3UC-1PS-5V can also be used in place of an FX2NC-CNV-IF as a connection interface to FX3U extension and special function modules.

*Note: The FX3U-1PSU-5V can not be used with 24V DC powered main units. Grounding and power cables should be adjusted to exit the unit from the top.*

| Specifications | | | FX3U-1PSU-5V | FX3UC-1PS-5V |
|---|---|---|---|---|
| Applicable main units | | | FX3G/FX3GE/FX3U (AC power supply type) | FX3GC/FX3UC |
| Input voltage | | | 100 – 240 V AC | 24 V DC +20% -15% |
| Input frequency | | | 50/60 Hz | — |
| Inrush current | | | 30 A Max. 5 ms or less/100 V AC<br>65 A Max. 5 ms or less/200 V AC | 30 A Max. 0.5 ms/24 V DC |
| Power consumption | | | 20 VA Max. | 25 W Max. |
| Output current (Internal for supply) | 24 V DC | | 0.3 A | — |
| | 5 V DC | | 1 A | 1 A |
| Holding time | | | 10 ms/100 V AC | 5 ms |
| Weight | | kg | 0.3 | 0.15 |
| Dimensions (W x H x D) | | mm | 55 x 90 x 87 | 24 .2 x 90 x 74 |

## ■ Memory Cassettes

☑ FX3S ☑ FX3G ☑ FX3GE ☐ FX3GC ☑ FX3U ☑ FX3UC



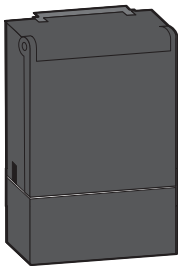
FX3U-FLROM-64L

### FX3U-FLROM-16, FX3U-FLROM-64, FX3U-FLROM-64L, and FX3U-FLROM-1M

The FX3U-FLROM-16, FX3U-FLROM-64, FX3U-FLROM-64L and FX3U-FLROM-1M are Flash based memory cassette available for the FX3U and FX3UC main units. The Loader functionality in the FX3U-FLROM-64L allows the memory cassette to upload and download programs to and from the internal memory of the FX3U and FX3UC main units. When the memory cassette is attached to the FX main unit without uploading or downloading, the program on the memory cassette is executed without affecting the program within the internal PLC memory.

| Specifications | | FX3U-FLROM-16 | FX3U-FLROM-64 | FX3U-FLROM-64L | FX3U-FLROM-1M |
|---|---|---|---|---|---|
| Applicable main units | | FX3U/FX3UC | FX3U/FX3UC | FX3U/FX3UC | FX3U/FX3UC |
| Number of steps | | 16,000 | 64,000 | 64,000 | 64,000 (source 1MB)* |
| Memory type | | Flash memory | Flash memory | Flash memory | Flash memory |
| Protect switch | | Provided | Provided | Provided | Provided |
| Data transfer buttons | | Not provided | Not provided | Provided | Not Provided |
| Dimensions (W x H x D) | mm | 37 x 20 x 6.1 | 37 x 20 x 6.1 | 37 x 20 x 6.1 | 37 x 20 x 6.1 |

* 64000 steps (program capacity) + 1300KB (symbolic information capacity)



FX3G-EEPROM-32L

### FX3G-EEPROM-32L

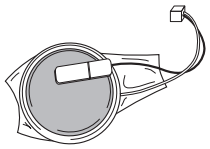
The FX3G-EEPROM-32L is an EEPROM based memory cassette available for the FX3S, FX3G, and FX3GE main units. With Loader functionality, the memory cassette can upload and download programs to and from the internal memory of the FX3S, FX3G, and FX3GE main units. When the memory cassette is attached to the main unit without uploading or downloading, the program on the memory cassette is executed without affecting the program within the internal PLC memory. The memory cassette can also be placed on top of standard FX3G BD expansion boards, FX3S-CNV-ADP, and FX3G-CNV-ADP.

| Specifications | | FX3G-EEPROM-32L |
|---|---|---|
| Applicable main units | | FX3S*/FX3G/FX3GE |
| Memory type | | EEPROM |
| Number of steps | | 2,000/4,000/8,000/16,000/32,000 |
| Protect switch | | Provided |
| Data transfer buttons | | Provided |
| Weight | kg | 0.02 |
| Dimensions (W x H x D) | mm | 35 x 51.2 x 9.6 |

* The FX3S series PLC can hold 16,000 steps of memory, but user program capacity is limited to 4000 steps.

## ■ Backup Batteries

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX3U-32BL

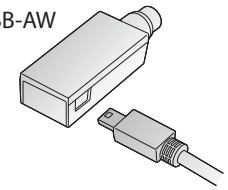
### FX2NC-32BL, FX3U-32BL

Backup batteries provide power to store relevant data within the FX main units and modules when they are not powered. For battery lifetime and battery changing procedures, refer to the relevant product manuals.

| Specifications | FX2NC-32BL | FX3U-32BL |
|---|---|---|
| Applicable units | FX2N-20GM module/FX-30P unit | FX3G/FX3GE/FX3GC/FX3U/FX3UC main units |

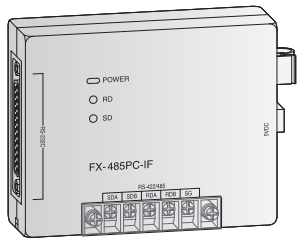
## ■ Interface Units

FX-USB-AW



### FX-USB-AW Interface converter

| Specifications | | FX-USB-AW | FX-232AWC-H |
|---|---|---|---|
| Applicable main units | | FX3U/FX3UC | FX3S/FX3G/FX3GE/FX3GC/FX3U/FX3UC |
| Application | | USB to RS-422 converter | RS-422 to RS-232C converter |
| Dimensions (W x H x D) | mm | 14 x 20 x 63 | 25 x 80 x 60 |



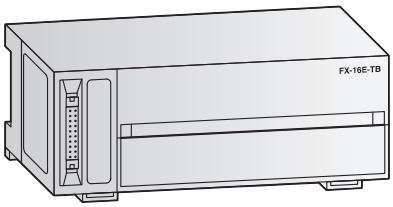

FX-485PC-IF

### FX-485PC-IF PC RS-485 Interface Unit

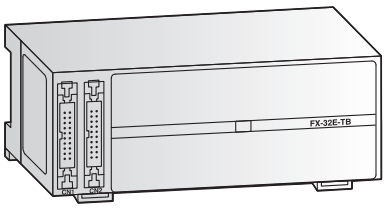
The FX-485PC-IF interface unit is used to bridge RS-232C and RS-485 communication between a PC and several FX PLCs connected on an RS-485 1:N multidrop network.

| Specifications | | FX-485PC-IF |
|---|---|---|
| Applicable main units | | FX3S/FX3G/FX3GE/FX3GC/FX3U/FX3UC |
| Power supply | | 5 V DC ±5%/260 mA |
| Interface | | RS-232C/RS-485 |
| Weight | kg | 0.4 |
| Dimensions (W x H x D) | mm | 100 x 80 x 30 |

## ■ Terminal Blocks




FX-16E-TB/UL




FX-32E-TB/UL

### Remote Terminal Blocks

Remote terminal blocks allow I/O modules to be placed at the point of control. The blocks are connected with FX3GC or FX3UC main units and FX-GM controllers using connector-type I/O cabling.

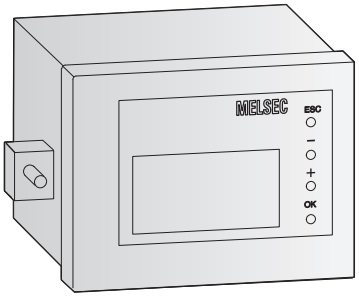
*Note: The products listed below may not comply with CE ratings.*

| Specifications | | | FX-16E-TB | FX-16E-TB/UL | FX-32E-TB | FX-32E-TB/UL |
|---|---|---|---|---|---|---|
| Number of | | inputs | up to 16 inputs or 16 outputs | | up to 32 inputs or 32 outputs | |
| | | outputs | | | | |
| Application | | | Connects directly to PLC input/output terminals. | | | |
| Weight | | kg | 0.3 | 0.3 | 0.3 | 0.3 |
| Dimensions (W x H x D) | | mm | 150 x 55 x 45 | 150 x 55 x 45 | 150 x 55 x 45 | 150 x 55 x 45 |

| Specifications | | | FX-16EYR-TB | FX-16EYR-TB/UL | FX-16EYS-TB | FX-16EYS-TB/UL |
|---|---|---|---|---|---|---|
| Number of | | inputs | — | — | — | — |
| | | outputs | 16 | 16 | 16 | 16 |
| Application | | | Relay output type | | Triac output type | |
| Weight | | kg | 0.3 | 0.3 | 0.3 | 0.3 |
| Dimensions (W x H x D) | | mm | 150 x 55 x 45 | 150 x 55 x 45 | 150 x 55 x 45 | 150 x 55 x 45 |

| Specifications | | | FX-16EYT-TB | FX-16EYT-ES-TB/UL | FX-16EYT-ESS-TB/UL |
|---|---|---|---|---|---|
| Number of | | inputs | — | — | — |
| | | outputs | 16 | 16 | 16 |
| Application | | | Sink transistor output type | | Source transistor output type |
| Weight | | kg | 0.3 | 0.3 | 0.3 |
| Dimensions (W x H x D) | | mm | 150 x 55 x 45 | 150 x 55 x 45 | 150 x 55 x 45 |

## ■ Display Modules

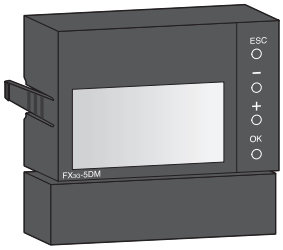



FX3U-7DM with FX3U-7DM-HLD

### FX3U-7DM Display Module and FX3U-7DM-HLD Holder

The FX3U-7DM display module can be attached directly to the front face of the FX3U main unit or mounted in a panel using the FX3U-7DM-HLD display module holder. The display module enables monitoring and adjustment of PLC data devices as well as user messages.

| Specifications | | FX3U-7DM | FX3U-7DM-HLD |
|---|---|---|---|
| Applicable main units | | FX3U | FX3U |
| Display | | 16 characters x 4 lines | — |
| Power supply | | 5 V DC/20 mA (from main unit) | — |
| Extension cable | | — | Included |
| Weight | kg | 0.02 | 0.01 |
| Dimensions (W x H x D ) | mm | 48 x 35 x 11.5 | 66.3 x 41.8 x 13 |

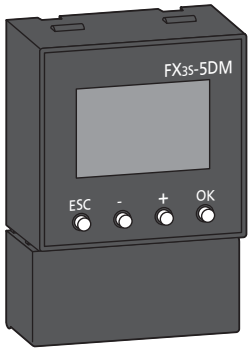



FX3G-5DM

### FX3G-5DM

The FX3G-5DM display module is attached directly to the front face of the FX3G and FX3GE main units or on top of the FX3G BD expansion boards. The display module enables monitoring and adjustment of PLC data devices. When installed together with the FX3G-EEPROM-32L memory cassette (only possible with the 40 and 60 I/O point main units) the control for upload and download of the program will be done via the display module.

| Specifications | | FX3G-5DM |
|---|---|---|
| Applicable main units | | FX3G/FX3GE |
| Display | | 16 characters x 4 lines |
| Weight | kg | 0.02 |
| Dimensions (W x H x D) | mm | 49.4 x 51.2 x 12 |

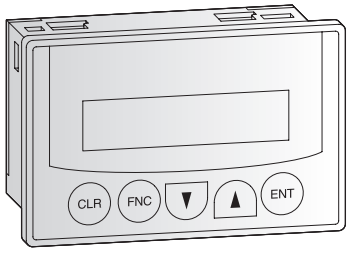



FX3S-5DM

### FX3S-5DM

The FX3S-5DM display module is installed to the FX3S series main unit or expansion board to monitor/change device states and values.

| Specifications | | FX3S-5DM |
|---|---|---|
| Applicable main units | | FX3S |
| Display | | LCD (with backlight) |
| Weight | kg | 0.02 |
| Dimensions (W x H x D) | mm | 35 x 51.2 x 12 |




FX-10DM-E

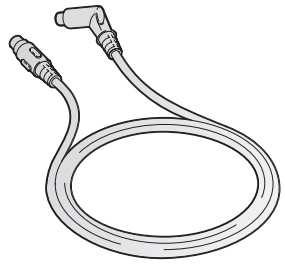
### FX-10DM-E*1

The text-based, panel-mounted FX-10DM-E control and display module provides a key-oriented user interface and enables monitoring and adjustment of PLC data devices.

| Specifications | | FX-10DM-E |
|---|---|---|
| Applicable main units | | FX3U/FX3UC*2 |
| Display | | LCD (with backlight) |
| Resolution | | 2 x 16 characters (80 x 16 pixels) |
| Power supply | | 5 V DC ±5%/220 mA (from main unit) |
| Weight | kg | 0.15 |
| Dimensions (W x H x D) | mm | 96 x 62 x 32 |

*1 Production will be discontinued in September 2017.
*2 When used with an FX3U or FX3UC main unit, the FX-10DM-E will only operate within the FX2N device range

## ■ Connection Cables



FX-20P-CAB0

### FX series Connection Cables

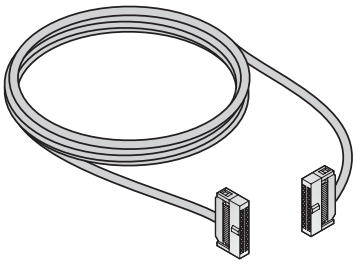
The cables listed in the following tables are used for FX series PLC programming, positioning applications, block connections and interface conversion.

### Connection cables for peripherals

| Specifications | | F2-RS-5CAB | F2-232CAB-1 | FX-232CAB-1 | FX-422CAB0 |
|---|---|---|---|---|---|
| Application | | FX2N-1RM to resolver | PC to FX-232AWC-H | PC to GOT | FX-232AWC-H to FX PLC |
| Length | m | 5.0 | 3.0 | 3.0 | 1.5 |

### Connection cables for programming unit

| Specifications | | FX-20P-CAB0 |
|---|---|---|
| Application | | FX-30P to FX PLC |
| Length | m | 1.5 |



FX-16E-500CAB

### Connection cables for FX3GC or FX3UC remote terminal blocks

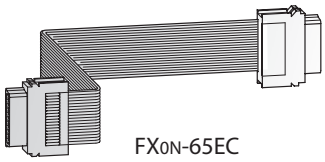
| Specifications | | FX-16E-500CAB-S | FX-16E-150CAB | FX-16E-300CAB | FX-16E-500CAB | FX-16E-150CAB-R | FX-16E-300CAB-R | FX-16E-500CAB-R |
|---|---|---|---|---|---|---|---|---|
| Application | | FX3GC/FX3UC to remote FX terminal block | | | | | | |
| Length | m | 5.0 | 1.5 | 3.0 | 5.0 | 1.5 | 3.0 | 5.0 |

### Connection cables for remote connection

| Specifications | | E-GMH-200CAB | E-GMJ-200CAB | E-GMJ2-200CAB1A | E-GMC-200CAB | E-GM-200CAB |
|---|---|---|---|---|---|---|
| Application | | FX-GM controller to servo | | | | |
| Length | m | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |

### Connection cables for extension bus

| Specifications | | FX0N-30EC | FX0N-65EC | FX2N-GM-65EC | FX2N-GM-5EC |
|---|---|---|---|---|---|
| Application | | PLC bus cable | PLC bus cable | GM bus cable | GM bus cable |
| Length | m | 0.3 | 0.65 | 0.65 | 0.05 |



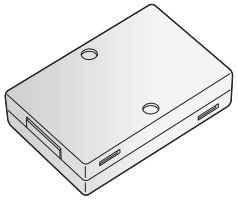
FX0N-65EC

### Connection cables for FX3GC or FX3UC main units

| Specifications | | FX2NC-100MPCB | FX2NC-100BPCB | FX2NC-10BPCB1 |
|---|---|---|---|---|
| Application | | 24 V DC power cable for main units | 24 V DC power cable for extension units | Power crossover cable for input extension blocks |
| Length | m | 1 | 1 | 0.01 |

## ■ PLC Bus Cable Connector

☐ FX3S ☑ FX3G ☑ FX3GE ☑ FX3GC ☑ FX3U ☑ FX3UC



FX2N-CNV-BC

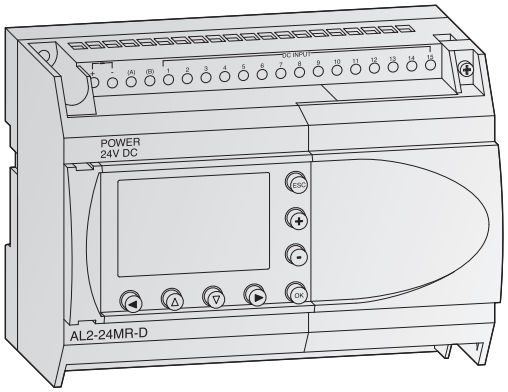
### FX2N-CNV-BC

The FX2N-CNV-BC is used to connect a PLC bus extension cable (FX0N-30EC or FX0N-65EC) to the bus cable of an FX3U extension module or special function module.

| Specifications | | FX2N-CNV-BC |
|---|---|---|
| Application | | PLC bus cable to FX3U extension module or special function module |
| Weight | kg | 0.04 |
| Dimensions (W x H x D) | mm | 40 x 60.5 x 16.5 |

# α2 series

## ■ Main Units




AL2-24MR-D

### α2 Main Units

The α2 controllers offer simple, reliable control for a range of automation applications including lighting, air conditioning, security systems, and temperature and water control.

**Features:**

- Relay and Transistor output options
- Analog input and output options
- High-speed counters up to 1 kHz
- GSM modem functionality
- Language support for 7 different languages
- Display area for messages and function block data

## Programming Specifications

| System specifications | α2 series |
|---|---|
| Programming method | Function block |
| Program capacity | 200 function blocks or 5000 bytes |
| Program processing | Cyclic processing of the stored program |
| Number of available instructions | 38 different function blocks |
| Program storage | Integrated EEPROM and optional additional EEPROM cassette |
| Data storage | At voltage loss the current status of values, running time meters, and real-time data are stored for up to 20 days (at temperatures of 0 to 25 °C) using capacitors |
| Processing time | 1 ms + 20 µs/logic instruction (complex commands 500 µs/instruction) |
| Real-time clock | Seconds, minutes, hours, day of week, month, year (4-digit); accuracy: 5 s/day; automatic daylight savings time adjustment |
| Program protection | 3 levels using program and keys |

## Environmental Specifications

| General Specifications | | α2 series |
|---|---|---|
| Ambient temperature | | Display: -10 – 55 °C, Hardware: -25 – 55 °C (storage temperature: -30 – +70 °C) |
| Protection rating | | IP 20 |
| Noise immunity | | 1000 Vpp with noise generator; 1 µs at 30 – 100 Hz, tested by noise simulator |
| Dielectric withstand voltage | | 3750 V AC, >1 min. according to EN60730 |
| Allowable relative humidity | | 35 – 85 % (no condensation) |
| Shock resistance | | Complies to IEC 68-2-27: 147 m/s² acceleration, 11 ms 3 x 3 directions |
| Vibration resistance | direct mounting | Complies to IEC-2-6: 19.6 m/s² acceleration, 80 min. in each direction |
| | DIN rail mounting | Complies to IEC-2-6: 9.8 m/s² acceleration, 80 min. in each direction |
| Insulation resistance | | 500 V DC, 7 MΩ Complies to EN60730-1 |
| Ambient conditions | | No corrosive gases, no dust |
| Certifications | | Please refer to the Certifications page in this catalog |

## Electrical Specifications

| Power Supply Specifications | DC Powered Models (AL2-[]MR-D) | AC Powered Models (AL2-[]MR-A) |
|---|---|---|
| Power supply | 24 V DC (+20 %/-15 %) | 100–240 V AC (+10 %/-15 %), 50/60 Hz |
| Inrush current at ON | ≤7.0 A (at 24 V DC) | ≤6.5 A (at 240 V AC) |
| Allowable momentary power failure time | 5 ms | 10 ms |
| **Digital Inputs** | | |
| Input voltage | 24 V DC (+20 %/-15 %) | 100–240 V AC (+10 %/-15 %), 50/60 Hz |
| Input current | The input current changes depending on Source or Sink.<br>For Sink: (AL2-10/14/24MR-D) =5.5 mA, 24 V DC<br>For Source: (AL2-10/14MR-D/AL2-24MR-D I01–I08 ) =6.0 mA, 24 V DC<br>(AL2-24MR-D I09–I15) =5.5 mA, 24 V DC | I01–I08<br>0.13 mA/120 V AC* 0.25 mA/240 V AC*<br>I09–I15<br>0.15 mA/120 V AC* 0.29 mA/240 V AC* |
| Response time OFF→ON | 10–20 ms | 35–85 ms, 120 V AC 25–55 ms, 240 V AC |
| Response time ON→OFF | 10–20 ms | 35–85 ms, 120 V AC 50–130 ms, 240 V AC |
| **Analog Inputs** | | |
| Analog input range | 0–500 | — |
| Resolution | 9 bit, (10 V/500) | — |
| Conversion speed ms | 8 | — |
| Input Voltage | 0–10 V DC | — |
| Input Impedance KΩ | 142 ±5 % | — |
| Accuracy | ±5 % (0.5 V DC) | — |

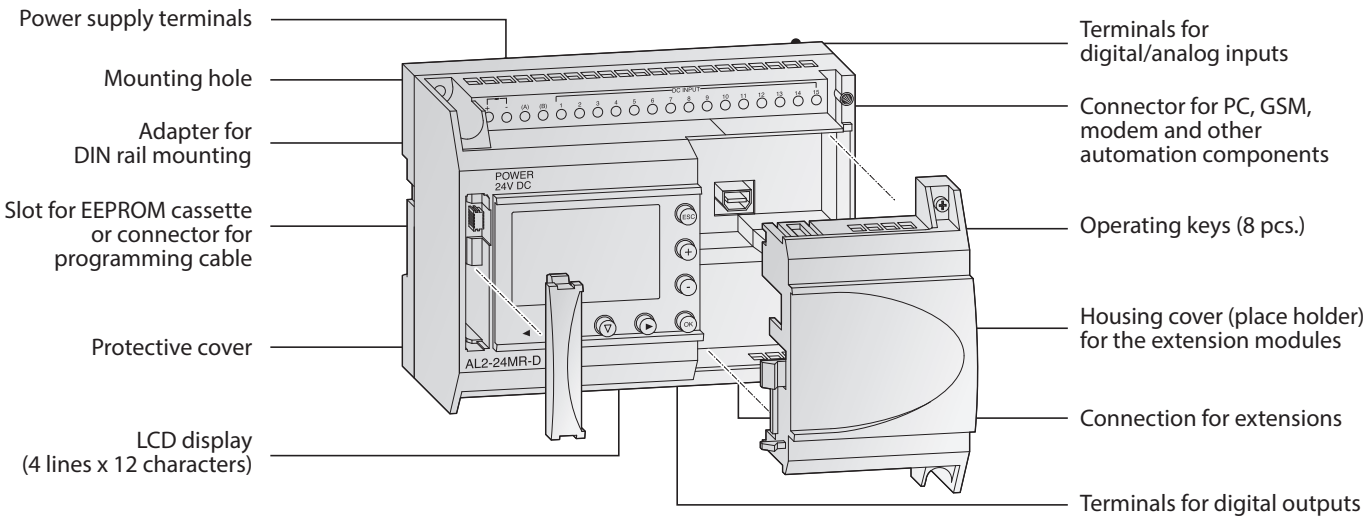
* Current leakage from the sensors connected to the inputs might provide enough current to turn the controller ON. Do not use two-wire sensors

| Output Specifications | All Models |
|---|---|
| Type | Relay |
| Switching voltage (Max.) | 250 V AC, 30 V DC |
| Rated current | 10M, 14M: 8 A/com 24M (001-004): 8 A/com 24M (005-009): 2 A/point |
| Max. switching load - inductive load | 14M, 24M: 249 VA/250 V AC, 373 VA/250 V AC 24M: 93 VA/125 V AC, 93 VA/250 V AC |
| Min. load | 10mA, 5 V DC (50 mW) |
| Response time | ≤10 ms |

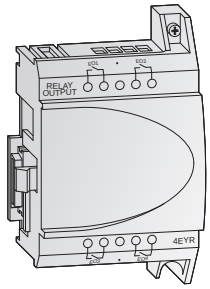
## Main Units with 10 – 24 I/0

| Specifications | AL2-10MR-A | AL2-10MR-D | AL2-14MR-A | AL2-14MR-D | AL2-24MR-A | AL2-24MR-D |
|---|---|---|---|---|---|---|
| **Electrical specifications** | | | | | | |
| Integrated inputs/outputs | 10 | 10 | 14 | 14 | 24 | 24 |
| Digital inputs | 6 | 6 | 8 | 8 | 15 | 15 |
| Analog inputs | — | 6 | — | 8 | — | 8 |
| Channels | — | 6 | — | 8 | — | 8 |
| Integrated outputs | 4 | 4 | 6 | 6 | 9 | 9 |
| Max. power consumption W | 4.9 | 4.0 | 5.5 | 7.5 | 7.0 | 9.0 |
| Typical power consumption All I/O ON/OFF W | 3.5/1.85 240 V AC<br>3.0/1.55 120 V AC | 2.5/0.75 | 4.5/2.0 240 V AC<br>3.5/1.5 120 V AC | 4.0/1.0 | 5.5/2.5 240 V AC<br>4.5/2.0 120 V AC | 5.0/1.0 |
| Weight kg | 0.2 | 0.2 | 0.3 | 0.3 | 0.35 | 0.3 |
| Dimensions (W x H x D) mm | 71.2 x 90 x 52 | 71.2 x 90 x 52 | 124.6 x 90 x 52 | 124.6 x 90 x 52 | 124.6 x 90 x 52 | 124.6 x 90 x 52 |

## Description of the Unit Components



## ■ I/O Extension Modules




### AL2-4EX-A2, AL2-4EX, AL2-4EYR, and AL2-4EYT

There are 4 different extension modules available for the α2 that extend the inputs and outputs of the controller. The modules are inserted directly into the α2 and therefore do not take up any additional space.

The AL2-4EX has an additional feature where 2 inputs may be used as high-speed counters with a counting frequency up to 1 kHz.

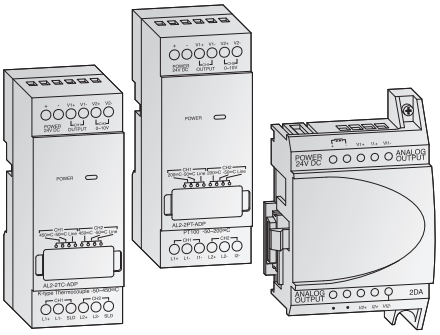
All modules feature photocoupler insulation for all I/O terminals.

*Note: The I/O extension modules cannot be used with the AL2-10MR-series.*

| Digital Extension Modules Specifications | AL2-4EX-A2 | AL2-4EX | AL2-4EYR | AL2-4EYT |
|---|---|---|---|---|
| **Inputs** | | | | |
| Integrated inputs | 4 | 4 | — | — |
| Input voltage | 220–240 V AC (+20%/-15%) 50/60 Hz | 24 V DC (+20%/-15%) | — | — |
| Input current | 7.5 mA at 240 V AC (50 Hz), 9.0 mA at 240 V AC (60 Hz) | 5.4 mA ±1 mA at 24 V DC | — | — |
| **Outputs** | | | | |
| Integrated outputs | — | — | 4 | 4 |
| Output type | — | — | Relay | Transistor |
| Switching voltage (Max.) | — | — | 250 V AC, 30 V DC | 5–24 V DC |
| Rated current | — | — | 2 A/point | 1 A/point |
| **Electrical specifications** | | | | |
| Power Supply AC range (+10 %, -15 %) | 220–240 V AC | 24 V DC | 100–240 V AC | 24 V DC |
| **Mechanical specifications** | | | | |
| Weight kg | 0.05 | 0.05 | 0.05 | 0.05 |
| Dimensions (W x H x D) mm | 53.1 x 90 x 24.5 | 53.1 x 90 x 24.5 | 53.1 x 90 x 24.5 | 53.1 x 90 x 24.5 |

*Note: EI1and EI2 of the AL2-4EX can be used as high-speed counter inputs. Each high speed counter input has an approximate response time of 0.5ms.*

## ■ Analog Extension Modules




### AL2-2DA, AL2-2PT-ADP, and AL2-2TC-ADP

The analog extension modules significantly increase the range of viable applications for the α2.

With these modules it is possible to measure temperature sensor inputs or output voltage or current signals.

Three different analog extension modules are available:

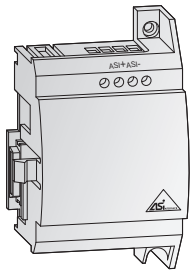
- The AL2-2DA offers two additional analog outputs for the α2 and allows for digital to analog voltage or current conversion. This module is inserted directly into the α2.

  *Note: The AL2-2DA cannot be used with the AL2-10MR-series.*

- The AL2-2PT-ADP connects to external PT100 sensors and converts temperature readings into analog signals (0–10 V).
- The AL2-2TC-ADP connects to external thermocouple sensors (K type) and converts temperature readings into analog signals (0–10 V).

| Analog Module Specifications | AL2-2DA | AL2-2PT-ADP | AL2-2TC-ADP |
|---|---|---|---|
| **Analog inputs** | | | |
| Integrated inputs | — | 2 | 2 |
| Connectable temperature sensors | — | PT100 sensor Temp. coefficient 3.850 ppm/°C (IEC 751) | Thermocouple (K type), isolated type (IEC 584-1 1977, IEC 584-2 1982) |
| Compensated range | — | -50 – +200 °C | -50 – +450 °C |
| **Analog outputs** | | | |
| Integrated outputs | 2 | — | — |
| Analog output range voltage | 0 – 10 V DC (5 kΩ –1 MΩ) | — | — |
| Analog output range current | 4 – 20 mA (Max. 500Ω) | — | — |
| **Electrical specifications** | | | |
| Number of channels | 2 | 2 | 2 |
| Power Supply | 24 V DC (-15 – +10 %), 70 mA | 24 V DC (-15 – +20 %), 1 W | 24 V DC (-15 – +20 %), 0.5 W |
| **Mechanical specifications** | | | |
| Weight kg | 0.05 | 0.07 | 0.07 |
| Dimensions (W x H x D) mm | 53.1 x 90 x 24.5 | 35.5 x 90 x 32.5 | 35.5 x 90 x 32.5 |

## ■ AS-Interface Module



### AL2-ASI-BD

The Actuator Sensor Interface (AS-i) slave module AL2-ASI-BD is inserted directly into the α2 controller and enables data communications via an AS-i system. Up to 4 inputs and 4 outputs can be exchanged with the AS-i master.

Slave device addressing can be assigned either automatically by the master, or with programming software.

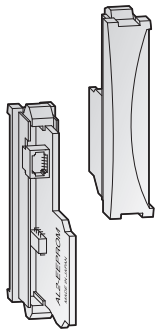
The maximum communication distance is 100 m without a repeater. Up to 2 repeaters can be used, making the maximum extension distance 300m.

Since the communication signal is superimposed on the power supply bus, this module requires a designated external AS-i power supply.

*Note: The AL2-ASI-BD cannot be used with the AL2-10MR-series.*

| Specifications | | AL2-ASI-BD |
|---|---|---|
| Module type | | Slave module |
| Number of I/O points | | 4 inputs, 4 outputs |
| External power supply | | 30.5 V DC (AS-Interface power supply) |
| External current consumption | | Max. 40 mA |
| Communications protocol | | AS-i standard |
| Weight | kg | 0.05 |
| Dimensions (W x H x D) | mm | 53.1 x 90 x 24.5 |

## ■ Memory Cassette



### AL2-EEPROM-2

With the AL2-EEPROM-2 memory cassette, programs can be transferred to the α2 controller's internal system memory from the cassette, or the program of the internal system memory can be saved to the cassette.

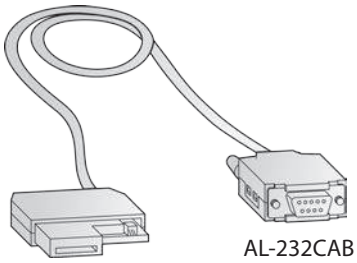
When a memory cassette is plugged into the α2, the program stored in the memory cassette is run instead of the program stored in the main unit without overwriting it.

After removing the memory cassette, the program stored in the internal memory becomes active again.

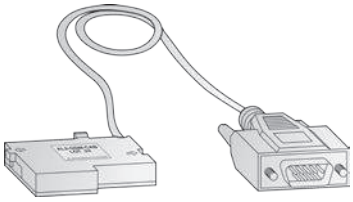
The AL2-EEPROM-2 memory cassette is not a memory expansion device, but a medium for data exchange.

| Specifications | | AL2-EEPROM-2 |
|---|---|---|
| Memory type | | EEPROM |
| Application | | α2 |
| Memory capacity | | 5,000 bytes |
| Function blocks | | Max. 200 |
| Dimensions (W x H x D) | mm | 10 x 45 x 25 |

## ■ Cables



AL-232CAB



AL2-GSM-CAB

### AL-232CAB Interface Cable

The AL-232CAB is an RS-232C interface cable that connects the α2 controller to a personal computer running the α2 controller programming software.

The dedicated cable ensures galvanic isolation between the α2 controller and the personal computer.

### AL2-GSM-CAB GSM Cable

The GSM AL2-GSM-CAB is an RS-232C interface cable which is used to connect the α2 controller to a standard or GSM modem, a personal computer or other serial device.

It can transfer SMS data to a GSM modem for transmission to mobile telephones or e-mail addresses and also permits remote monitoring and remote maintenance.

*Note: The above cables cannot be used with the AL2-10MR-series.*

| Specifications | | AL-232CAB | AL2-GSM-CAB |
|---|---|---|---|
| Connector | | 9-pin D-SUB female connector | 9-pin D-SUB male connector |
| Application | | α2 ↔ PC | α2 ↔ PC, modem |
| Length | m | 2.5 | 1.5 |

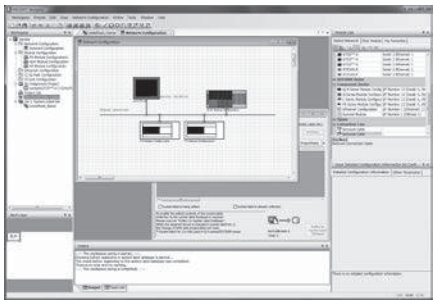
## MELSOFT – Integrated FA Software

The MELSOFT software family offers efficient software packages designed to reduce programming and setup time. All MELSOFT software provides instant access, direct communication, complete compatibility, and open exchange of data with MELSEC products.

MELSOFT software:

- System management software MELSOFT Navigator for all MELSOFT software
- Configuration software packages for module and network setup such as FX Configurator-FP and FX Configurator-EN
- GT Works3 for operator terminal programming (refer to the GOT2000 catalog)
- Data access and PC-to-PLC communication setup software MX Component and MX Sheet

### ■ System Management Software

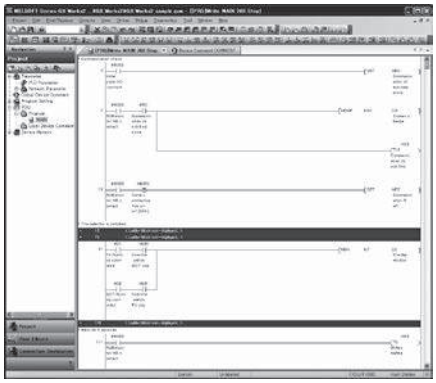


#### MELSOFT Navigator

MELSOFT Navigator, along with GX Works2 and other MELSOFT software, facilitates system level design and acts as the interface between each software. Useful functions include design of system configuration, parameter batch setting, system labels, and batch read.

| Software | MELSOFT Navigator |
|---|---|
| Series | All FX series |
| Language | English |
| Applicable for | Microsoft® Windows® XP/Vista/7/8/8.1/10 |

### ■ PLC Programming Software



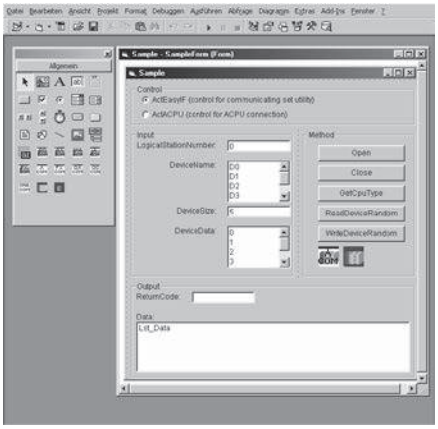
#### GX Works2

GX Works2 is the standard programming suite for MELSEC PLCs and incorporates the straightforward ladder programming style from GX Developer, as well as the global engineering standard IEC 61131-3.

GX Works2 supports all new functions and modules of MELSEC PLCs while remaining backward compatible to GX Developer, protecting customer assets and programs. The easy to use interface and freedom to choose programming style improves design and debugging efficiency. GX Works2 is part of the iQ Works engineering environment, promoting sharing of information such as system designs and labels between different programming environments for GOTs, motion products and robots.

| Software | GX Works2 |
|---|---|
| Series | All MELSEC PLCs |
| Language | English |
| Applicable for | Microsoft® Windows® XP/Vista/7/8/8.1/10 |

### ■ Data Access and Communication Setup Software



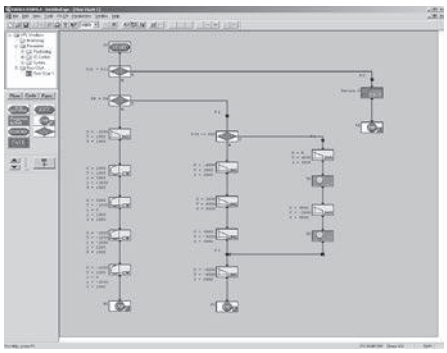
#### MX Component, MX Sheet

MELSOFT MX Series software provides several middleware applications for PC-to-PLC communication setup and data acquisition and adjustment through dedicated communication channels. With helpful software tools like MX Sheet, third party software packages like Microsoft® Excel® can be used for data monitoring and logging.

| Software | MX Series Data Link Description | Model |
|---|---|---|
| MX Component | ActiveX® library for communication | SW[]D5C-ACT-E |
| MX Sheet | Microsoft® Excel® communication support tool | SW[]D5C-SHEET-E |
| Applicable for | Microsoft® Windows® XP/Vista/7/8/8.1/10 | |

## Software and unit for programming and configuration

### ■ Positioning Programming Software

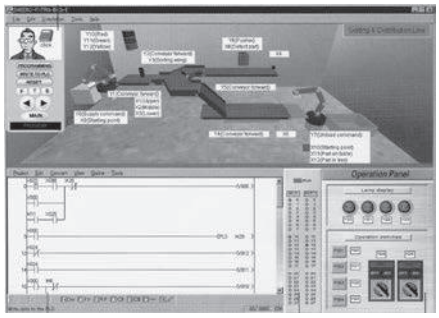


**FX-PCS-VPS/WIN-E**

FX-PCS-VPS/WIN-E is the standard programming software for the GM positioning units. It offers a convenient and easy to use programming environment for creating flow chart style positioning operations. With the Monitoring Window, a user can display data values, locus, and operation processes.

| Software | FX-PCS-VPS/WIN-E |
|---|---|
| Series | FX2N-10GM/FX2N-20GM |
| Language | English |
| Applicable for | Microsoft® Windows® 95/98/Me/NT/2000/XP/Vista/7/8/8.1/10 |

### ■ PLC Training Software

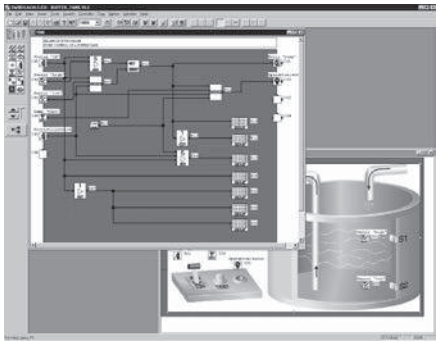


**FX-TRN-BEG-E**

The FX-TRN-BEG-E training software package is designed to help beginners get started with programming PLC systems. It combines a simulated PLC environment with simulated real-world applications. A software PLC simulates the operation of the PLC program and simulated machine interface items like buttons and switches are provided for user interaction while the process is running.

| Software | FX-TRN-BEG-E |
|---|---|
| Series | All MELSEC PLCs |
| Language | English |
| Applicable for | Microsoft® Windows® 98/Me/NT/2000/XP |

### ■ α Programming Software



**AL-PCS/WIN-E**

AL-PCS/WIN is the standard programming and documentation software for all α series controllers and provides an easy to use graphical programming environment. Program elements are placed on the function block diagram with visible wires to connect them and the I/O terminals. Monitoring functions with optional pictures of the user's application in the background are also available.

| Software | AL-PCS/WIN-E |
|---|---|
| Series | α series |
| Language | English |
| Applicable for | Microsoft® Windows® 95/98/Me/NT/2000/XP/Vista/7/8/8.1/10 |

### ■ Configuration Software

| Software | Configuration Software Description | Model |
|---|---|---|
| FX Configurator-EN | FX3U-ENET configuration tool | SW1D5C-FXENET-E |
| FX Configurator-EN-L | FX3U-ENET-L configuration tool | SW1D5C-FXENETL-E |
| FX Configurator-FP | FX3U-20SSC-H configuration tool | SW1D5C-FXSSC-E |
| Applicable for | Microsoft® Windows® 95/98/Me/NT/2000/XP/Vista/7/8/8.1/10 | |

## ■ Hand-Held Programming Unit

### FX-30P

The FX-30P is a small, industrial programming and maintenance tool for the FX series. This unit can perform program uploads/downloads and store up to 15 programs in its internal memory. Keywords can be registered, deleted or canceled in applicable PLCs. Program monitoring and data device adjustment functionality is also available. To stay up to date the latest firmware can be downloaded on a PC then installed via the USB port. PLC programs on the PC can also be transferred via USB, eliminating the need for peripheral devices.

*Note: FX-30P firmware and program downloads from a PC via the embedded USB port available in firmware versions 1.10 or later.*

| Specifications | | FX-30P |
|---|---|---|
| Applicable main units | | FX3S/FX3G/FX3GC/FX3U/FX3UC |
| Ambient temperature | | 0 – 40 °C |
| Ambient relative humidity (non-condensing) | | 5 – 95% |
| Power supply | | 5 V DC ±5% / 155 mA (from main unit) |
| Display | | LCD (with backlight) |
| Character display | | 21 x 8 |
| Keys | | 35 |
| Memory | Program capacity | Built-in RAM: 64 K steps for program monitoring and modification RAM retention (for about five years, ambient temperature 25 °C (77 °F)) by battery. |
| | | Built-in flash memory ROM: Up to 15 programs can be stored in the built-in flash memory ROM. Allowable number of writes: 100,000 times |
| | HPP held data | Display language setting (Japanese, English or Chinese), contrast, buzzer sound volume, brightness adjustment, screen saver and HPP protect key (saved in the built-in flash memory) |
| Cable | | FX-20P-CAB0 |
| Weight | kg | 0.3 |
| Dimensions (W x H x D) | mm | 87 x 170 x 30 |

## MEMO

# CERTIFICATIONS

| Model Name | CE | | UL cUL | KC | Ship approvals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | EMC | LVD | | | ABS | DNV GL | LR | BV | RINA | NK | KR |
| **CA2 Main Units** | | | | | | | | | | | |
| AL2-10MR-A | ● | ● | ● | — | — | — | — | — | — | — | — |
| AL2-10MR-D | ● | ● | ● | — | — | — | — | — | — | — | — |
| AL2-14MR-A | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-14MR-D | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-24MR-A | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-24MR-D | ● | ● | ● | — | — | ● | — | — | — | — | — |
| **CA Extension Modules** | | | | | | | | | | | |
| AL2-2DA | ● | ● | ● | — | — | — | — | — | — | — | — |
| AL2-2PT-ADP | ● | — | ● | — | — | — | — | — | — | — | — |
| AL2-2TC-ADP | ● | — | ● | — | — | — | — | — | — | — | — |
| AL2-4EX-A2 | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-4EX | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-4EYR | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-4EYT | ● | ● | ● | — | — | ● | — | — | — | — | — |
| AL2-ASI-BD | ● | ● | ● | — | — | ● | — | — | — | — | — |
| **FX3S Main Units** | | | | | | | | | | | |
| FX3S-10MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-10MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-10MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-10MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-10MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-10MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-14MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-14MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-14MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-14MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-14MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-14MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-20MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-20MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-20MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-20MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-20MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-20MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MR/ES-2AD | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MT/ES-2AD | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3S-30MT/ESS-2AD | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **FX3G Main Units** | | | | | | | | | | | |
| FX3G-14MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-14MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-14MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-14MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-14MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-14MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-24MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-24MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-24MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-24MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-24MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-24MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-40MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-40MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-40MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-40MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-40MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-40MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-60MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-60MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-60MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-60MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-60MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3G-60MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

| Model Name | CE | | UL cUL | KC | Ship approvals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | EMC | LVD | | | ABS | DNV GL | LR | BV | RINA | NK | KR |
| **FX3GE Main Units** | | | | | | | | | | | |
| FX3GE-24MR/DS | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-24MR/ES | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-24MT/DS | ● | ○ | ● | — | — | — | — | — | — | — | — |
| FX3GE-24MT/DSS | ● | ○ | ● | — | — | — | — | — | — | — | — |
| FX3GE-24MT/ES | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-24MT/ESS | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-24MR/DS | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-40MR/ES | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-40MT/DS | ● | ○ | ● | — | — | — | — | — | — | — | — |
| FX3GE-40MT/DSS | ● | ○ | ● | — | — | — | — | — | — | — | — |
| FX3GE-40MT/ES | ● | ● | ● | — | — | — | — | — | — | — | — |
| FX3GE-40MT/ESS | ● | ● | ● | — | — | — | — | — | — | — | — |
| **FX3GC Main Units** | | | | | | | | | | | |
| FX3GC-32MT/D | ● | ○ | ● | ● | — | — | — | — | — | — | — |
| FX3GC-32MT/DSS | ● | ○ | ● | ● | — | — | — | — | — | — | — |
| **FX3U Main Units** | | | | | | | | | | | |
| FX3U-16MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-16MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-16MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-16MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-16MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-16MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-32MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-32MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-32MR/UA1 | ● | ● | ● | ● | — | — | — | — | — | — | — |
| FX3U-32MS/ES | ● | ● | ● | ● | — | — | — | — | — | — | — |
| FX3U-32MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-32MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-32MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-32MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-48MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-48MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-48MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-48MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-48MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-48MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-64MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-64MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-64MR/UA1 | ● | ● | ● | ● | — | — | — | — | — | — | — |
| FX3U-64MS/ES | ● | ● | ● | ● | — | — | — | — | — | — | — |
| FX3U-64MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-64MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-64MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-64MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-80MR/DS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-80MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-80MT/DS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-80MT/DSS | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-80MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-80MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-128MR/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-128MT/ES | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-128MT/ESS | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **FX3UC Main Units** | | | | | | | | | | | |
| 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 | ● | ○ | ● | ● | ● | ● | ● | ● | ● | — | — |

● = comply, ○ = no need to comply

| Model Name | CE | | UL cUL | KC | Ship approvals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | EMC | LVD | | | ABS | DNV GL | LR | BV | RINA | NK | KR |
| **FX2N Extension Units** | | | | | | | | | | | |
| FX2N-32ER-ES/UL | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | ● |
| FX2N-32ET-ESS/UL | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | ● |
| FX2N-48ER-DS | ● | ● | ● | ● | ● | ● | — | — | — | — | ● |
| FX2N-48ER-ES/UL | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | ● |
| FX2N-48ER-UA1/UL | ● | ● | ● | — | ● | — | — | — | — | — | ● |
| FX2N-48ET-DSS | ● | ○ | ● | ● | ● | ● | — | — | — | — | ● |
| FX2N-48ET-ESS/UL | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | ● |
| **FX2N Extension Blocks** | | | | | | | | | | | |
| FX2N-8ER-ES/UL | ● | ● | ● | ○ | — | ● | — | — | — | — | — |
| FX2N-8EX-ES/UL | ● | ○ | ● | ○ | — | ● | — | — | — | — | — |
| FX2N-8EX-UA1/UL | — | — | ● | ○ | — | — | — | — | — | — | — |
| FX2N-8EYR-ES/UL | ● | ● | ● | ○ | — | ● | — | — | — | — | — |
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| Model Name | CE | | UL cUL | KC | Ship approvals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | EMC | LVD | | | ABS | DNV GL | LR | BV | RINA | NK | KR |
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| FX3U-232ADP-MB | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| FX3U-485ADP-MB | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● |
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∗1: Production will be discontinued in March 2018.
∗2: Zone A
∗3: Production will be discontinued in September 2017.
● = comply, ○ = no need to comply

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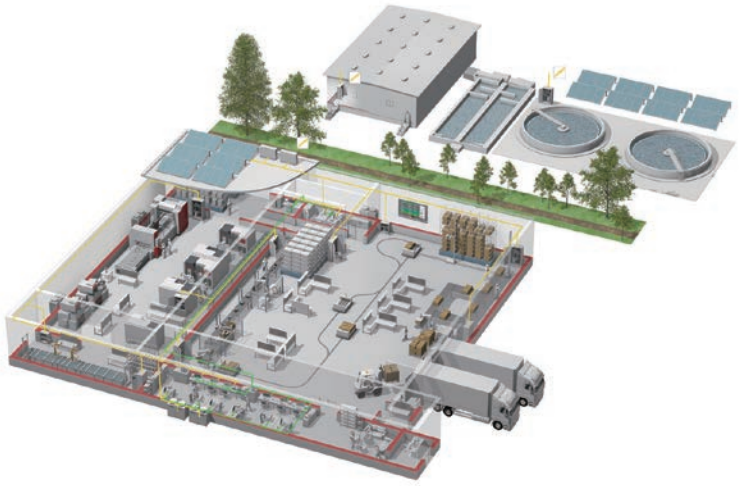

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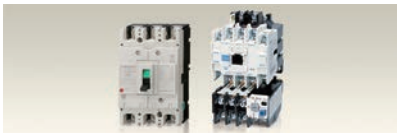

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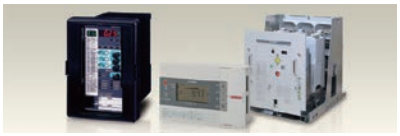

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L(NA)08490ENG-A 1707(MEE)

Printed July 2017



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