

MELSEC FX

The world's favorite micro PLCs



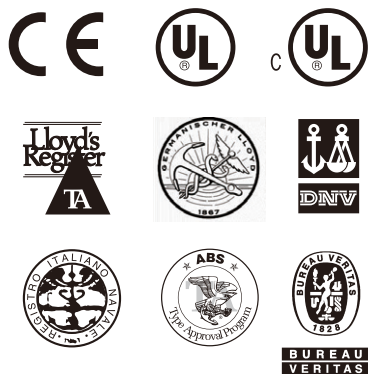
Mitsubishi Electric Corporation Himeji Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems)



Global Leader



The FX3u is the latest addition to Mitsubishi Electric's FX PLC Family. It provides increased networking and positioning control solutions.



6 Million FX

The FX Family of PLCs is the PLC of choice across the world, industries and applications.

Mitsubishi Electric has always worked closely with its customers to design the PLC that they want for their applications. The manufacturing and use of 6 million FX CPUs is a demonstration that this close working relationship has delivered quality, reliability and the product that customers want.

Number 1 in the world

Mitsubishi Electric was shown to be the largest volume producer of PLCs in the world following the 2004 Worldwide PLC survey by the respected American automation research company ARC.

Over 25 Years

The FX Family of PLCs has been an important part of control engineering for over 25 years. Throughout its history, the product has evolved from the original F Series into today's new FX3u.

The FX Family has proven to be highly reliable and it consistently improves its compatibility with previous PLC generations.

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What makes a world leading



Global use

Wide range power supply means your FX solution will work all over the world.



International acceptance

Shipping approvals such as Lloyd's, German Lloyd's, ABS, RINA, Det Norske Veritas, for example plus CE compliance for Low Voltage and EMC directives as well as manufacturing to Automotive industry quality levels, make the FX Family PLCs products to trust.

Flexible design

The FX Family is designed so that the main PLC CPU acts as a platform to which you can add and customize the special functions you need – making every FX your personal PLC.



Adapter or "ADP" units are used on the left hand side of the main PLC unit.

Memory cassette port is located under the removable front cover.



Optional communication boards are available in USB, RS232C, RS422 and RS485 formats.

The RUN/STOP switch has become a familiar feature with all FX Family PLCs.

The standard RS422 Mini-DIN programming port can also be used for HMI connection.

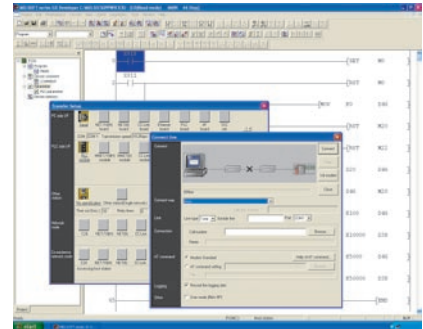


PLC range?

Main base unit where CPU, I/O and power supply are contained in a single unit.

Bright LED lamps indicate I/O and power status.

All FX PLC units can be mounted on a DIN rail or directly mounted with screw fixings.



Easy Programming

The FX Family incorporates an easy programming concept where several complex tasks can be reduced to a single instruction.



Fast and reliable

FX PLCs continually push the limits of high speed operation to process your applications more effectively and accurately.

Compatibility

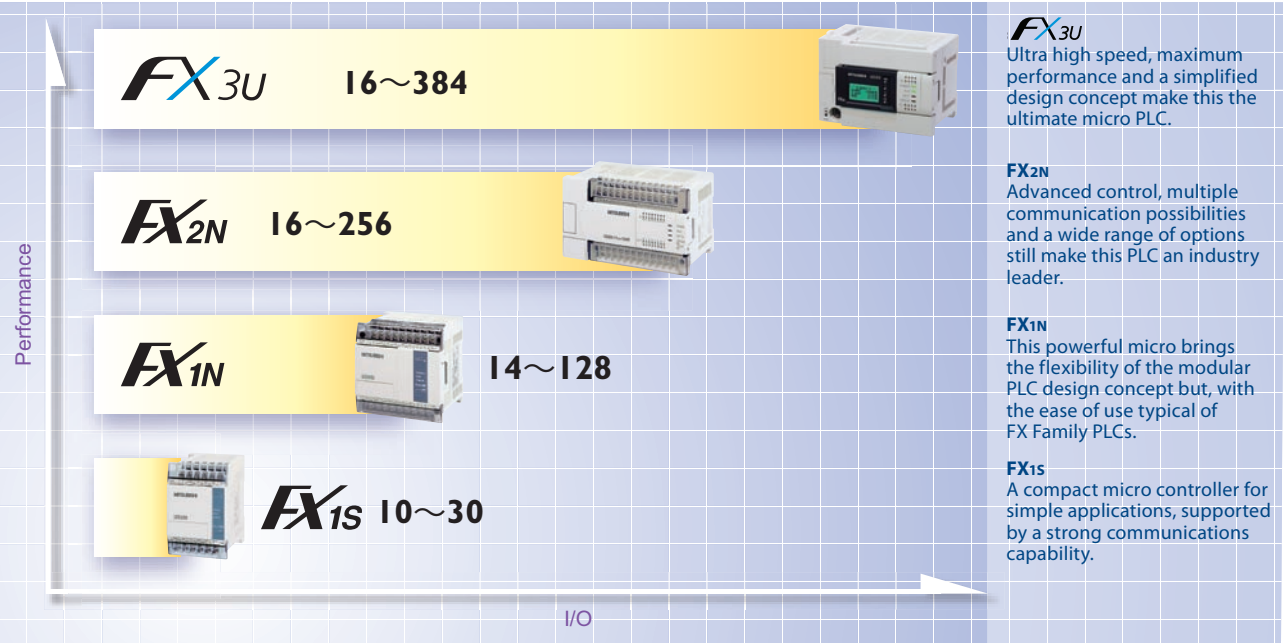
The FX Family of PLCs continues to raise the level of backward compatibility with many existing FX PLC programs being transferable. And in later models, sharing common peripherals and special function blocks means even greater protection for your investment in both FX and the machine or process being controlled.

Simple ribbon connection links each unit together.

Special function blocks can be added to the right hand communications bus of the PLC.



The power to perform



The FX Family of PLCs builds on previous performance and capability, ensuring you have a comprehensive range of control and automation options to choose from.

Model	FX1S	FX1N	FX2N	FX3U
Power supply	100-240V AC, 24V DC	100-240V AC, 12-24V DC	100-240V AC, 24V DC	100-240V AC
Maximum I/O	30	128	256	384*
Digital I/O	Relay/Transistor	Relay/Transistor	Relay/Transistor/Triac	Relay/Transistor
Cycle period/logical instruction	0.55 µs	0.55 µs	0.08 µs	0.065 µs
PLC program memory	2k steps	8 k steps	8k expandable to 16k steps	64k steps

Summary table of FX PLCs
Note *: When networked with CC-Link or AS-Interface (Discrete I/O, maximum 256)

A solution for every application

Micro PLCs have opened up a world of opportunities in Industrial Automation due to their small size and low cost. Now many applications benefit from enhanced performance, easier manufacturing, maintenance and greater reliability.

The FX Family has been a part of this revolution for over 25 years and has developed and redeveloped a range of products to suit most applications. The FX Family consists of four main ranges which are distinct and independent but compatible.

Depending on your application and control needs, you can choose from; the simple FX1S CPU, the modular FX1N range, the powerful FX2N and now the new and dynamic FX3U.

With the FX Family there really is a solution to most applications.



FX3U a new PLC concept

The new FX3U CPU brings a combination of greater flexibility and increased performance to the FX Family.

New high speed bus

The FX3U design has increased the opportunity to configure the PLC directly for your needs.

Following the standard FX Family configuration, the FX3U CPU can be expanded to the right hand side using a wide range of options. These include input and output blocks as well as special function blocks such as analog, pulse train and network communication units.



The FX3U can use new FX3U blocks as well as standard FX2N and FX0N expansion blocks..

The FX3U has an enhanced communications bus that automatically switches into high speed mode for communication with new FX3U expansion modules.

Full compatibility is still available with FX2N and FX0N expansion blocks, and when these are configured the FX3U automatically reduces the bus speed to suit.

This means greater support for existing installed systems as well as delivering high performance and greater response with new installations.

Adapters add flexibility

A major design enhancement of FX3U is the new adapter expansion bus on the left hand side of the FX3U CPU. Through this bus users can add additional analog and temperature units as well as multiple communications and positioning blocks.

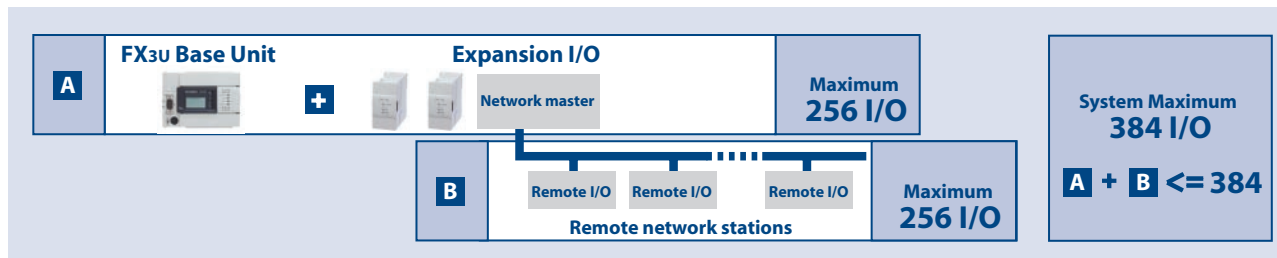


FX3U has a unique new system of directly programmable adapters.

However, the major benefit for the user is that the analog and positioning adapter units no longer require the use of the traditional To/From instruction to configure and operate.

All control is through direct access data registers and setting bits. This means quicker set-up, easier use, and above all much higher processing speeds.

FX3U. More power. More performance.



FX3U provides additional I/O and networking capacity.

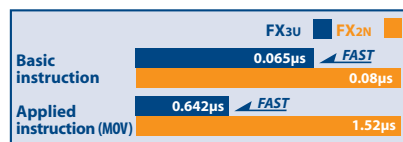
Note: PLC plus expansion I/O can be expanded to a maximum of 256 I/O, but this is independent to the network limitation

Increased I/O capacity

With enhanced networking functions, the FX3U requires an increased input/output (I/O) range. FX3U can support systems with combined local I/O and networked I/O up to a total of 384 I/O points. For users, this means increased system control and added possibilities for advanced networks.

5 times more data storage

With a larger program memory comes the need for more operational devices such as timers, state flags, auxiliary relays and data registers. The FX3U has increased capacity in all of these major areas making program construction easier. Data register capacity has increased by a factor of 5 reflecting the needs of users who have an increased requirement to log operation information against products or batches of products being manufactured.



FX3U provides increased performance in all areas.

Note: 4.5 times increase in speed is measured under the following conditions: program capacity=16k step, with an I/O usage of 144 points. Program scan time is then; FX3U: 4.6ms and FX2N: 21.0ms, an increase in processing speed of 4.56 times.

Up to 4.5 times faster

This means the PC MIX value has been greatly improved with basic instructions now being processed in 0.065µsec.

For users this means quicker program response and more accurate process performance as inputs, outputs and actions are processed and monitored more times per second.

A typical example of this can be found in the Food and Pharmaceutical industries. Here exact process data such as oven temperatures and cooking times or quantities of ingredients mixed need to be stored against production batches – all this requires increased data handling and data capacity within the PLC.

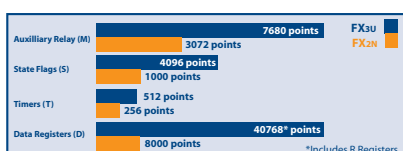
8 times more memory

FX3U comes with a standard internal memory of 64k steps, which is 8 times more memory than FX2N.

More memory means users can write larger and more complex programs, store more data in file registers, or take greater advantage of using IEC 61131-3 style programming tools.

75 new instructions

The FX3U has 75 new instructions in comparison with FX2N. This now makes available 249 instructions for program creation. All of the instructions follow the traditional FX Applied instruction concept designed to make the task of application building and program writing easier and quicker, with less chance for errors.



FX3U offers increased resources as well as increased performance.

New instructions include greater control over data processing with a range of new comparison and string manipulation commands.

LOGE (Nr. 125)

Calculates the natural logarithm in floating point

SORT2 (Nr.149)

Sort tabulated data

TBL (Nr. 152)

Batch data positioning mode

RND (Nr. 184)

Random number generator

BAND (Nr.257)

Defines a band or range of valid numbers

IVWR (Nr.273)

Write parameter to inverter

Some examples of new instructions from the FX3U.

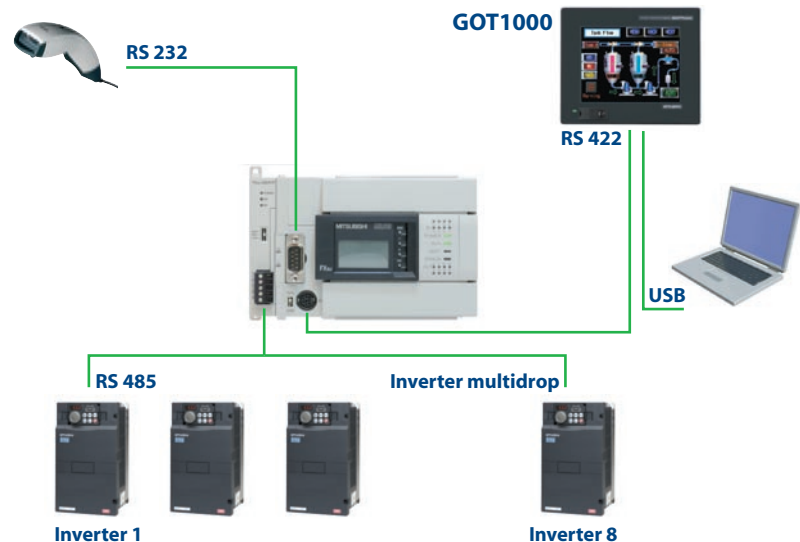
Simple high speed positioning

The FX3U has been designed with six high speed counters that can each count up to 100kHz simultaneously per channel. This, combined with three 100kHz pulse train outputs, means users can directly configure simple 3-axis positioning systems without the use of additional modules.

However, the new high speed counter ADP and Pulse train ADPs can provide the FX3U with maximum positioning performance. Each unit can process signal speeds of up to 200kHz.



Adapter modules increase positioning performance.



FX3U has a range of flexible communication options.

A great communicator

FX3U has strengthened the communications capability of the FX Family even further.

The new adapters allow up to three RS communication channels to be operated simultaneously allowing multiple HMIs to be connected to a single FX3U CPU or combinations of HMIs, third party devices and programming tools – the choice is yours.

FX3U at a glance

I/O range

16 – 384 (Discrete I/O, maximum 256)

Program memory

64k steps (standard)

Basic instruction processing

0.065µsec/logical instruction

Analog signal processing

Up to 80 analog inputs,

48 analog outputs

Analog resolution

8, 12 and 16 bits

Analog options

14 analog input, output and temperature blocks available for selection

Positioning

Internal:

6 high speed counters (100kHz)

2 high speed counters (10kHz)

3 pulse train outputs (100kHz),

transistor unit only

External:

High speed counter ADP module (200kHz)

Pulse train ADP (200kHz)

Pulse train output block (1MHz)

FX2N an industry standard



FX2N has six shipping approvals. It has been used in applications from controlling temperature in containers to managing diesel engines.



Since its launch, the FX2N has been a standard of micro PLC control.

Packed with features

The FX2N is full of advanced functions and features such as floating point math, 32 bit numerical processing, and fully configurable communication options. However, it still follows the basic FX Family principle of delivering advanced control with simple, easy to use instructions.

Part of your control network

The FX2N has a flexible range of communication options from simple, user configured RS232C/485 modules to specialist modules for connection to leading networks such as CC-Link and ASi.



Example of remote communications application

Over 30 types of special function and additional I/O modules are available to customize your FX2N to the automation task you have.

Advanced analog designs mean that in many cases the same block can be used for voltage or current operation and, in the case of the FX2N-8AD, additional temperature options as well.

FX2N at a glance

I/O range

16 – 256

Program memory

16k steps (with memory cassette)

Basic instruction processing

0.08µsec/logical instruction

Analog signal processing

Up to 64 points

Analog resolution

8, 12 and 16 bits

Analog options

10 analog input, output and temperature blocks available for selection

Positioning

Internal:

2 high speed counters 60kHz, 4 high speed counters 10kHz

2 pulse train outputs (20kHz)

External:

High speed counter block (50kHz)

Pulse train output block (1MHz)

FX1N the modular micro



FX Family PLCs are used in many applications for processing and packaging as well chilled storage and transportation of food items.

The FX1N provides a simple introduction to modular micro control offering comprehensive functionality and expansion options.

Compatibility cuts costs

The FX1N provides many user benefits including excellent compatibility with other FX Family PLCs. The FX1N is upwardly compatible to the FX2N using many of the FX2Ns I/O and special function blocks. It also shares the same programming structure as the FX1S. This means that users benefit from learning and using one PLC programming syntax; resulting in faster program development and reduced programming errors.

In addition, users benefit from a reduced stock and spare parts requirement as the FX1N uses the same expansion boards as the FX1S and the same special function and expansion I/O blocks as the FX2N.

Powerful performance

The FX1N saves space, cost and engineering time with the use of powerful, built in, positioning tools such two 100kHz pulse train outputs and up to two 60kHz high speed counters. These can be used to create simple 2-axis positioning systems, linked to servo amplifiers or stepper motor drivers without the need for additional PLC hardware saving space, cost and engineering time.

FX1N at a glance

I/O range

14 - 128

Program memory

8k steps (standard)

Basic instruction processing

0.55µsec/logical instruction

Analog signal processing

66 analog inputs

33 analog outputs

Analog resolution

8, 12 and 16 bits

Analog options

12 analog input, output and temperature blocks available for selection

Positioning

Internal:

2 high speed counters 60kHz, 4 high speed counters 10kHz

2 pulse train outputs (100kHz), transistor unit only



The FX1N offers comprehensive expansion options.

FX1s micro control



FX1s has been used in a wide range of embedded control applications.



FX1s offers communication and real time control from a single unit.

Fit and forget

Typically FX1s applications are small, embedded control functions that are hidden away or inaccessible under normal maintenance activities. This is why the FX1s has been designed to be a robust low maintenance PLC. Features such as the maintenance free, 2000 step EEPROM memory and real time clock management all help to make the FX1s a self managing system, reducing the impact on the maintenance engineer.



Example of connectivity to 3rd party products

Remote control

The FX1s has an additional range of BD expansion boards providing RS232, RS485 and RS422 communications options. These can be used to connect and control various third party products such as bar code readers or panel printers.

Simple programming

The FX Family has a simple programming structure combining Basic and Applied instructions. The Basic instructions are common to all FX Family PLCs. Applied instructions provide the specialist control options such as data comparisons, PID and communications control, all of which are available on FX1s. As each FX PLC range increases in capability (FX1s, FX1N, FX2N, FX3U) so do the number of available Applied instructions.

FX1s at a glance

I/O range

10 - 30

Program memory

2k steps (standard)

Basic instruction processing

0.55µsec/logical instruction

Analog signal processing

Up to 2 points

Analog resolution

12 bits

Analog options

2 analog input BD board

1 analog output BD board

Positioning

Internal:

2 high speed counters 60kHz, 4 high speed counters 10kHz

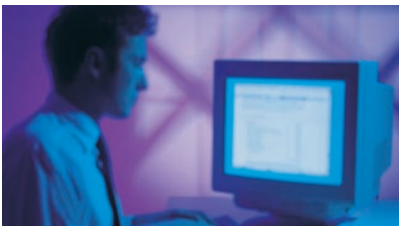
2 pulse train outputs (100kHz), transistor unit only

Progressive software concepts

The Mitsubishi FX PLC Family has a worldwide reputation for reliability, performance and ease of use. These key values have also been used to form Mitsubishi's integrated software concept, MELSOFT.

Productivity tools

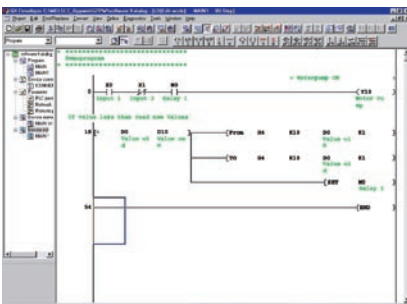
Programming software for PLCs is constantly evolving. Users are placing more focus on reusable program code and function block concepts. This helps to reduce errors, reduce programming time and to help manage the whole programming process – increasing overall productivity.



Often the biggest cost on a project is engineering time.

Simple and intuitive

The key to any good software is that it is simple to use. Mitsubishi's GX Developer PLC programming packages have achieved this by using intuitive design. They also have comprehensive help functions and an advanced communications layer, ensuring safe reliable communication to the target PLC.



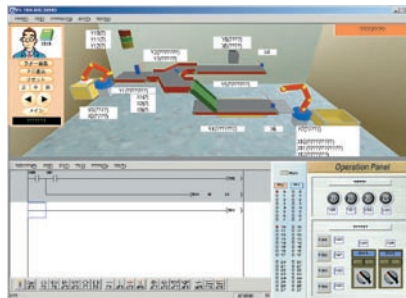
GX Developer offers ease of use for programmers of all skill levels.

Choose what you need

GX Developer offers users the chance to program all Mitsubishi MELSEC PLCs from a single package.

First time user?

For users who do not have the time to take local training, there is the option of using Mitsubishi's home study software, FX-TRN-BEG, where PLC programs can be created, simulated and debugged in the safety of a PC simulation.

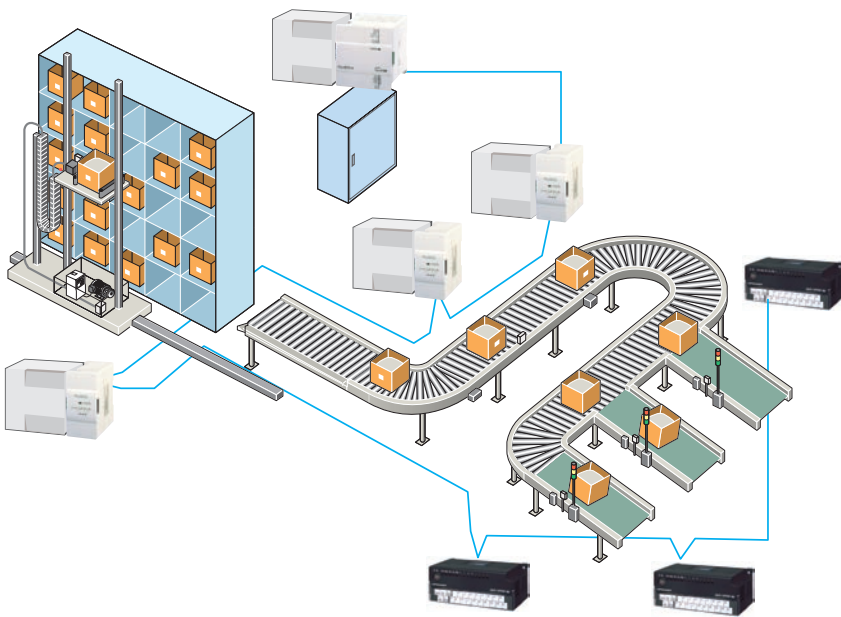


Learning to program can be achieved quickly using interactive software.



MELSOFT is a wide range of software solutions designed to optimize your plant productivity.

Networking and communication solutions



FX Family PLCs have a wide range of communications options.

Applications are often required to integrate between each other across a factory, to report production or tracking data back for office based processing and in some cases be remotely monitored and maintained when the application is in an inaccessible location. The FX Family of PLCs has evolved to match this demand at all levels.

Networks make sense

Networked solutions to complex applications often make the overall solution easier to achieve and more cost effective. For example a conveyor system integrated with a warehouse pick and place system may extend over many hundreds of meters, and by using a fieldbus, such as CC-Link, wiring, troubleshooting and maintenance can be dramatically reduced.

Remote maintenance

With communications technology it is now possible to put PLC control in the most remote locations. Using a PLC with a RS232 interface to a telemetry solution, such as a GSM modem, allows the user the ability to remotely monitor and maintain the system. It can also allow the remote system to send alarm messages, warnings or general status information back to the user's central data processing centre.



Example of remote pumping station.

Easy communications

Today's FX Family of PLCs share a basic communication concept where additional RS232, RS422 or RS485 communications boards can be added to the main base unit without increasing the required cabinet space. These can then be used for communication to various third party devices like bar code readers, printers and modems.

FX Family PLCs, such as FX1N, FX2N and FX3U, have a wider range of communications modules. These include options for connection to open and bespoke networks such as CC-Link, and ASi for example.

Analog solutions

Analog control is one of the most important areas for any automation system. Critically for users the concern is to match the performance demanded by the application to the available solutions in a cost effective way.

Where is analog used?

Analog control is widely used. In simple terms it allows a variable signal to be used to control items such as a motor's speed or to sense inputs such as fluid levels.

■ Digital to analog (D-A) control

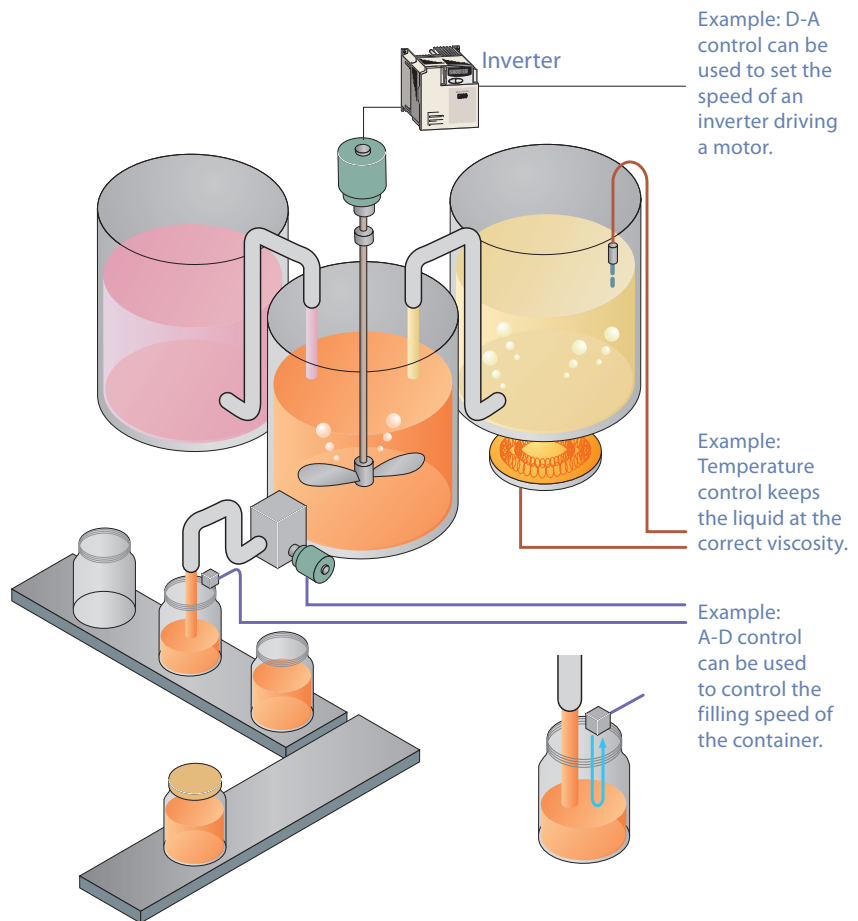
Here a digital PLC value is output as an analog signal. It can be used, for example, to send a speed command to an inverter which in turn causes the motor to increase or decrease speed.

■ Analog to digital (A-D) control

In this type of control a variable signal is sent to a PLC where it is converted in to a direct digital value. An example of this could be the measurement of the level of a liquid in a storage tank so that the exact amount of stored liquid can be controlled by the PLC.

■ Temperature control

Temperature control is the third type of analog control. An example of use could be where the temperature of a furnace is measured and compared by the PLC against a set range. Additional heating or cooling can then be applied to maintain a constant temperature.



Analog solutions are an important part of control engineering and can be used to simplify and accurately control actions happening in the production environment.

16 solutions to choose from

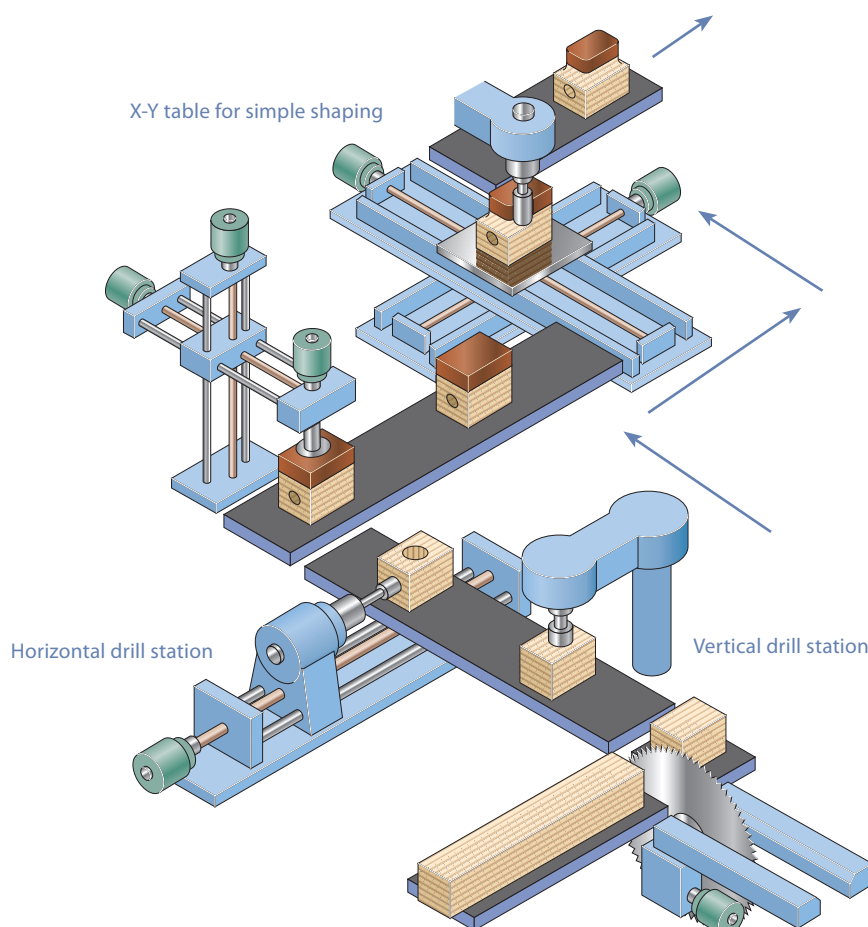
The FX Family offers a wide range of analog solutions from 1 and 2 channel BD boards for FX1s up to 8 channel input blocks like the FX2N-8AD where temperature, voltage and current input can be mixed on the same block. FX analog blocks also come in a range of resolutions from 8 bit up to 16 bit signal processing. Overall there are 16 different analog options available to users of the FX PLC Family.

With this range of choice and flexibility it is sure that there will be a solution here for most applications.



Example of temperature control.

Easy Positioning solutions



Simple positioning solutions can be effectively managed within a standard FX PLC.

Using simple positioning solutions can help increase the accuracy of the work process, reduce waste and rework as well as provide a higher quality of production.

Typical applications

Simple positioning applications typically involve independently controlled operational axis and can sometimes have many requirements. In the example of an X-Y table, a relative position is achieved by driving each axis until its target position is achieved, regardless of what happens with the other axis. There are two main elements to achieve this type of positioning control.

■ Pulse train outputs

A stream of output pulses can be used as a drive signal to a line driver, stepper motor or servo amplifier, which then causes the connected motor to perform the positioning activity.

The larger the range of output pulse frequencies available means greater speed and/or accuracy is achievable. For example, if a stepper motor with a larger number of steps is used, the travel distance per step can be reduced, resulting in an increased system accuracy.

■ High speed counter input

When a motor is being driven, its relative position can be controlled by counting the number of output pulses.

However, for a more accurate process, reading the actual position from an encoder feedback directly into a high speed counter is preferred. This helps to overcome issues of backlash and slippage as the actual position is measured and not assumed.

Positioning built in as standard

FX PLCs come with high speed counters (in some cases up to 100kHz) and pulse train outputs (also in some cases up to 100kHz) as standard. The high speed counters can be configured in single pulse train inputs. The high speed counters can be configured in a single or two phase input.

Pulse train outputs can be configured to provide continuous pulse streams at different frequencies or a set quantity of pulses at a single frequency.

There are also optional modules and adapters that can provide additional high speed counters with performance up to 200kHz. The same is true for pulse train outputs with 200kHz and 1Mpps (1MHz) output options available.



Example of conveyor belt control.

Complex Positioning solutions

The Cost Effective Solution for High Precision, High Speed Positioning



Fiber Optic Cable, Noise Reduction, Max. of 50m



SSCNET III Offers NEW Advantages

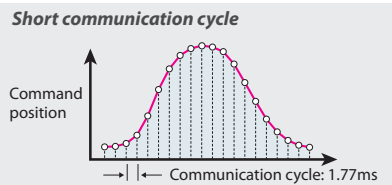
Smooth, high speed, high accuracy operations are now attainable with the new generation SSCNET III synchronous communication network.

Plug-and-Play Fiber Optic Wiring

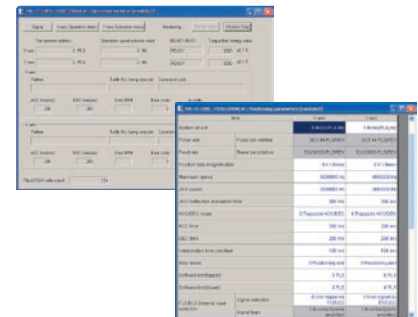
Cabling setup time is reduced with direct, Plug-and-Play connectivity to servo equipment. Absolute system control eliminates the need for re-wiring, and advanced synchronous control on SSCNET III is achievable for distances up to 50 m*. Additionally, fiber optic wiring enhances data transfer reliability, improves noise resistance and simplifies wiring diagrams.

High Speed with High Accuracy

Smooth control with high speed serial communication cycle times up to 1.7ms improve positioning accuracy. Synchronous control on high-performance devices is realized with 50 Mbps communication speeds.



FX Configurator-FP



FX Configurator-FP is beneficial for setting up table operation information, servo amplifier parameters, and positioning parameters for the FX3U-20SSC-H. Positioning operations and their associated parameters (speeds, addresses, torque limits, etc.) can be monitored and tested with the Monitor and Test functions.

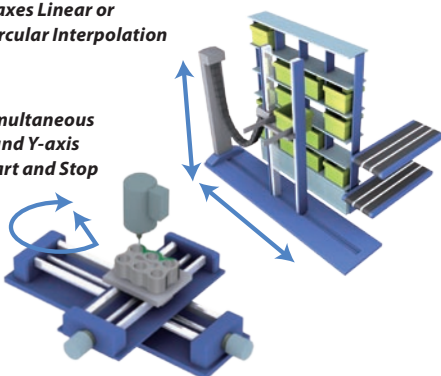
With the new Table Operation feature, program development time is reduced.

Control patterns from simple to complicated combinations of positioning commands can easily be configured with new methods.

(Communication is possible with the FX3U-20SSC-H buffer memory or with the FX Configurator-FP software.)

2 axes Linear or Circular Interpolation

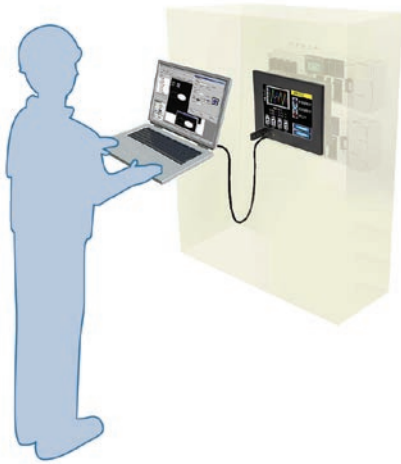
Simultaneous X and Y-axis Start and Stop



Central Networking Management

From one location, large volumes of data can be monitored and effectively managed in real-time. Positioning addresses, speeds and servo amplifier parameters are displayed for diagnostic monitoring and testing during data transfer between the controller (FX3U-20SSC-H) and servo amplifier.

Display solutions



The USB port on the front panel makes it possible to transfer project data to the terminals directly or to the connected MELSEC PLC.

An increasingly important area of any automation solution is the reporting and display of operational information. This data enables operators, maintenance teams and business managers to make informed decisions in the best interests of the business.

The right tool for the right job

For maximum efficiency, each user requires access to information at their work place in a form that highlights the important data for them first. This means a range of different tools are required. As an example, here are three possible scenarios.

■ The machine operator

Machines often have a lot of manufacturing debris around or are subject to hygienic cleaning as in the food industry. Any display located in this environment would need to have a high Ingress Protection (IP) rating, indicating a high degree of waterproofness.



In the food industry hygiene is very important.

It may also be a benefit to the operator to have a large and clear display to reduce the chances for error from misreading, due to poor light or small fonts being used. It is also recognized that the use of graphics also reduces the chances for reading errors with complex data.

■ The maintenance team

The critical information for a maintenance engineer is the error and diagnostic data within the PLC as this is used to diagnose any process problems. However, additional information regarding the operational "hours run" or cycles processed, which could be called soft information as it is calculated on operational parameters, could allow the maintenance engineer to predict possible failure and arrange preventative maintenance.

Access to this data could be through the machine operator's terminal, across a network or through a dedicated display mounted inside or on the control cabinet itself.



The FX3U-7DM can be directly mounted within the PLC (FX3U) or mounted on the front cabinet.

■ The business manager

In a production controllers office it would be better to display information through a network to their existing desktop PC. In this application a piece of software such as an OPC server/client, a Java applet, an Active X control or a SCADA system would allow lots of data from lots of sources to be displayed in a clear and concise way giving the production controller the overview of the business operation that they need.

Data the way you want it

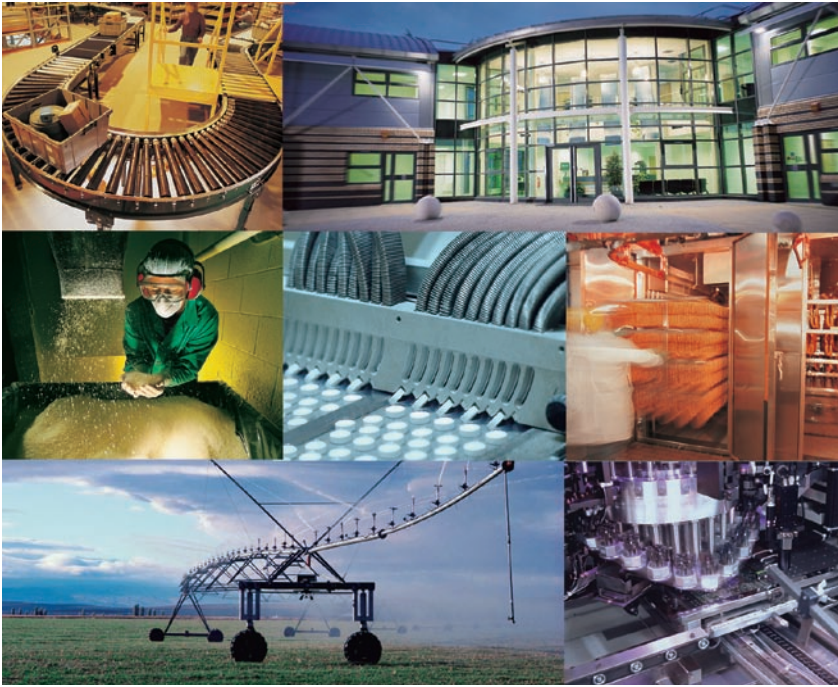
Mitsubishi Electric offers a comprehensive range of visualization solutions from simple data displays such as the FX3U-7DM, advanced Graphic Operator Terminals like the GOT1000 Series, and a wide choice of software solutions from the MELSOFT software suite.

This powerful combination of hardware and software means there is a cost effective solution for most applications.



GOT1000 - The Standard for the Next Generation of Graphical Operation Terminals.

Where have FX PLCs been used?



The FX PLCs get used in a diverse range of applications.

Customer applications with FX PLCs have been wide spread from critical applications in pharmaceutical industries to sublime applications in the leisure industry. However, the FX PLC Family still remains the PLC of choice for many machine builders as it is flexible, compact and easy to use, which is why it is so often used.

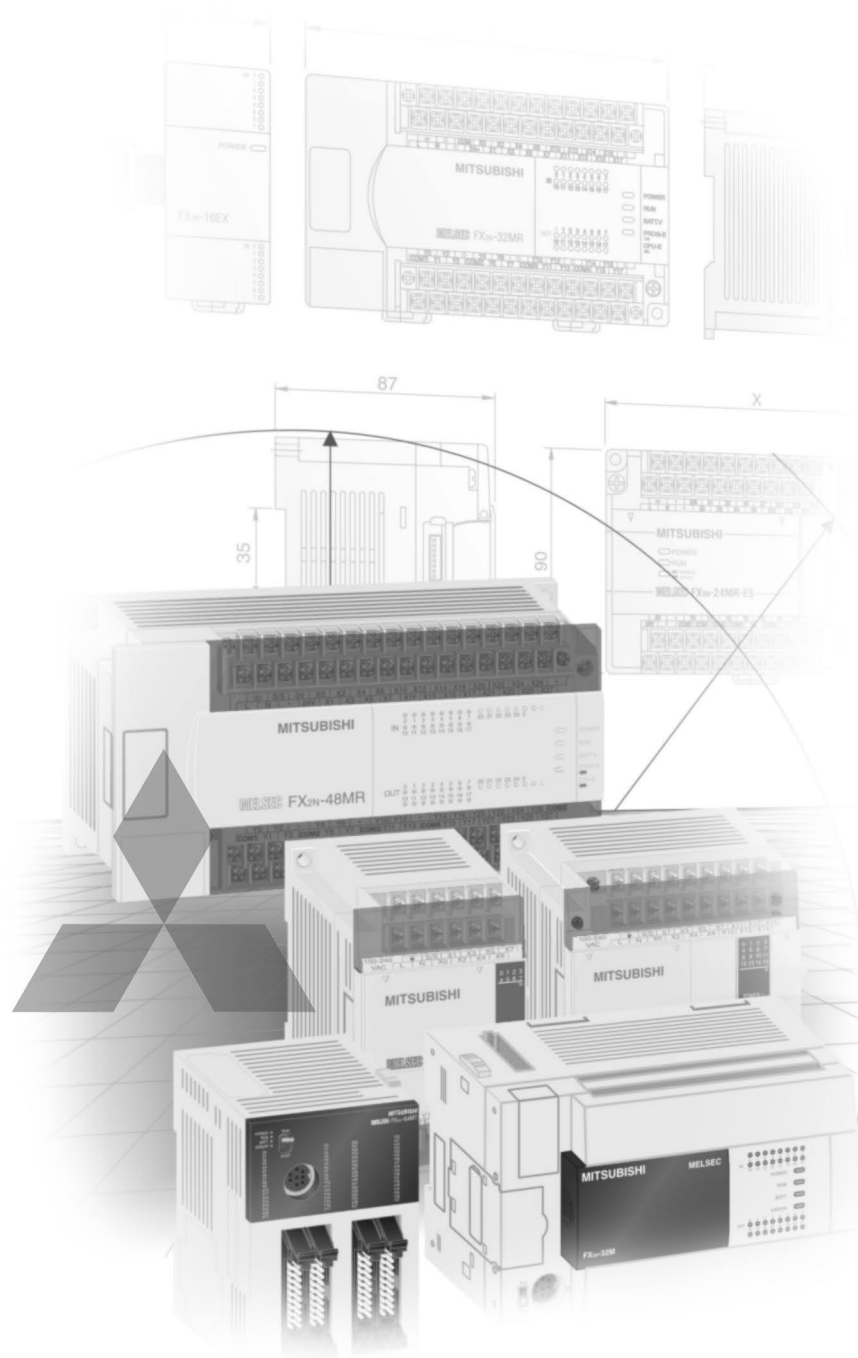
Here are just a few examples of applications that customers have completed in the past

- Agriculture
 - Plant watering systems
 - Plant handling systems
 - Saw mill (wood)
- Building management
 - Smoke detection monitoring
 - Ventilation and temperature control
 - Lift (elevator) control
 - Automated revolving doors
 - Telephone management
 - Energy management
 - Swimming pool management
- Construction
 - Steel bridge manufacturing
 - Tunnel boring systems

- Food and drink
 - Bread manufacture (mixing/baking)
 - Food processing (washing/sorting/slicing/packaging)
- Leisure
 - Multiplex cinema projection
 - Animated mechatronics (museums/theme parks)
- Medical
 - Respiration machine testing
 - Sterilization
- Pharmaceutical/chemical
 - Dosing control
 - Pollution measurement systems
 - Cryogenic freezing
 - Gas chromatography
 - Packaging
- Plastics
 - Plastic welding systems
 - Energy management systems for injection molding machines
 - Loading/unloading machines
 - Blow molding test machines
 - Injection molding machines
- Printing
- Textiles
- Transportation
 - Sanitation on passenger ships
 - Sanitation on rail rolling stock
 - Fire tender, pump management
 - Waste disposal truck management
- Utilities
 - Waste water treatment
 - Fresh water pumping



Swimming pools are managed using FX PLCs.



Technical Information Section

About this product catalogue

Due to the constantly growing product range, technical alteration, and new or changed characteristic features, this catalogue is updated frequently.

Texts, figures and diagrams shown in this product catalogue are intended exclusively for explanation and assistance in planning and ordering the programmable logic controllers of the ALPHA 2 and the MELSEC FX1s, FX1N, FX2N, FX2NC, FX3U series and the associated accessories. Only the manuals supplied with the units are relevant for installation, commissioning and handling of the units and the accessories. The information given in these documentations must be read before installation and commissioning of the units or software.

Should questions arise with regard to the planning of modules described in this product catalog, do not hesitate to contact one of Mitsubishi Electric's worldwide partners.

This catalogue confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this catalogue.

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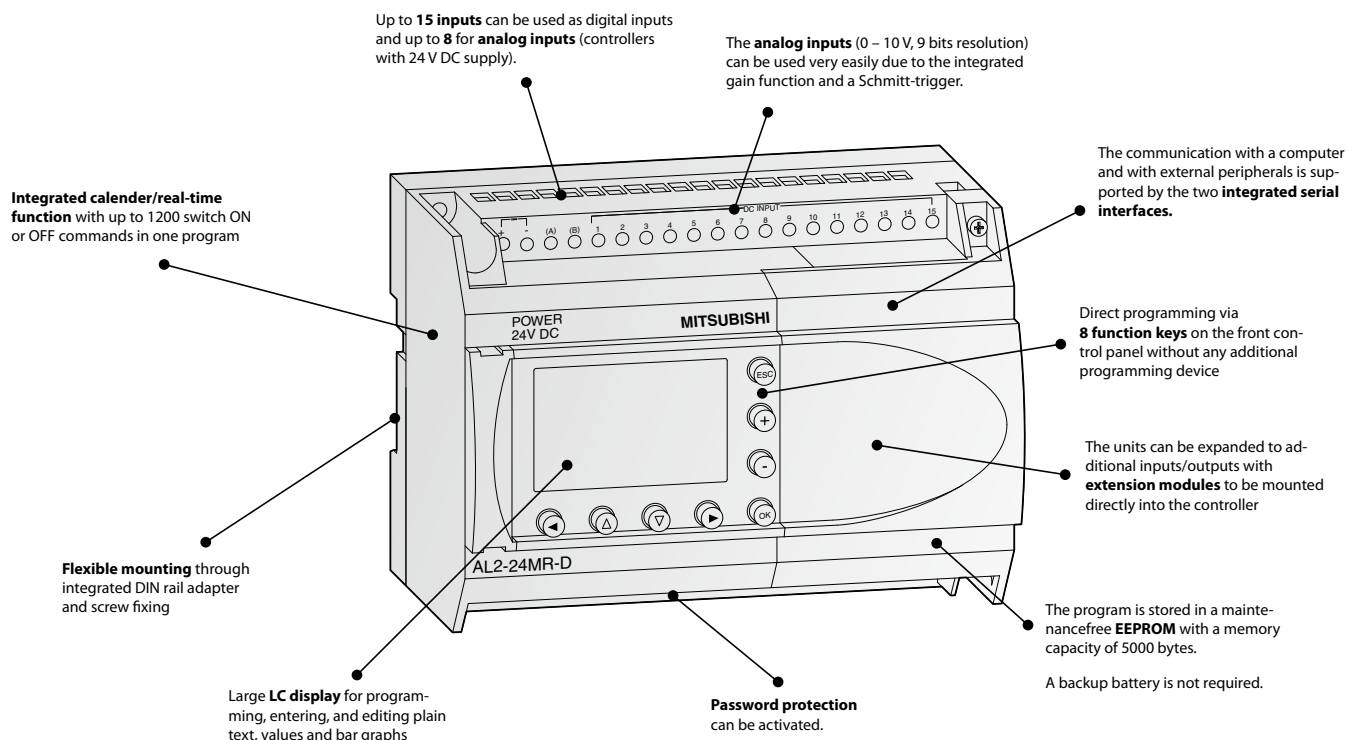
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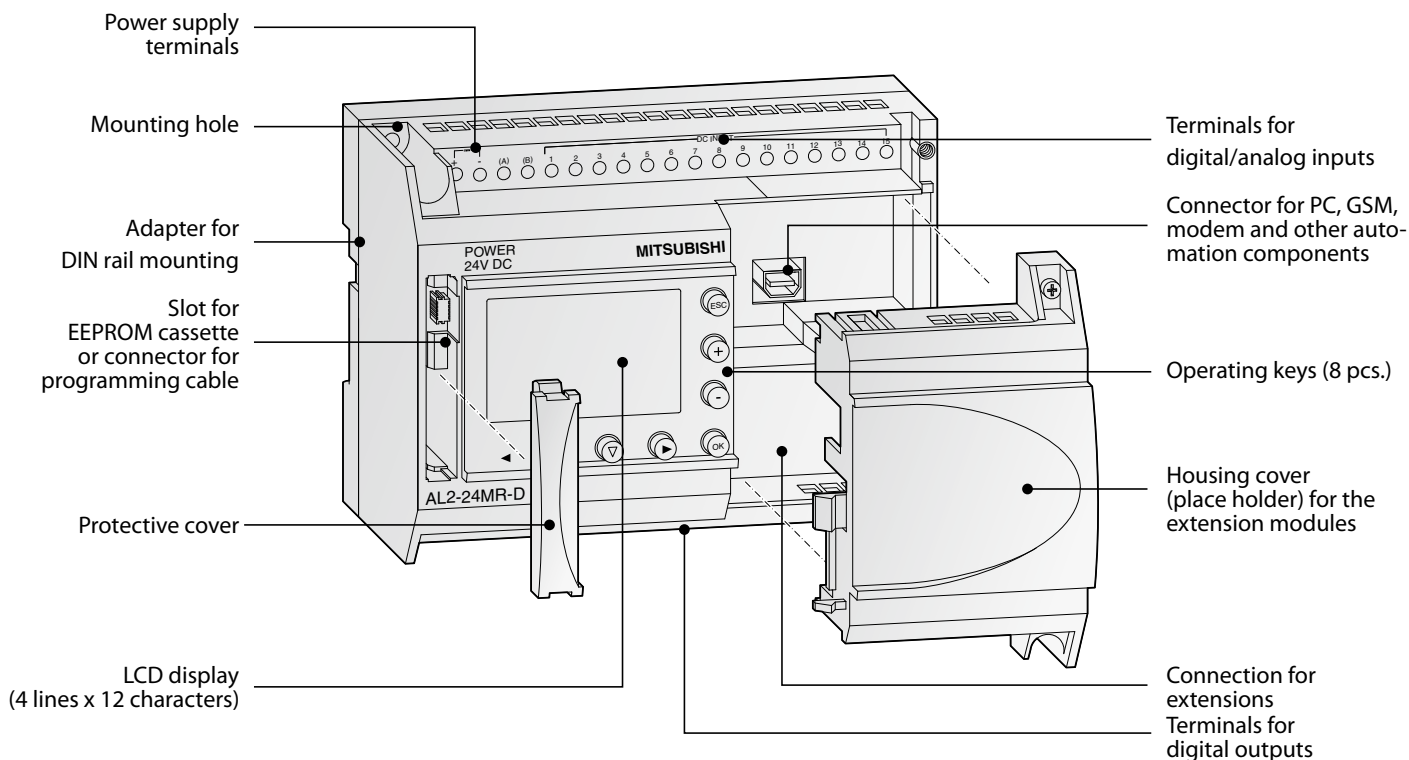
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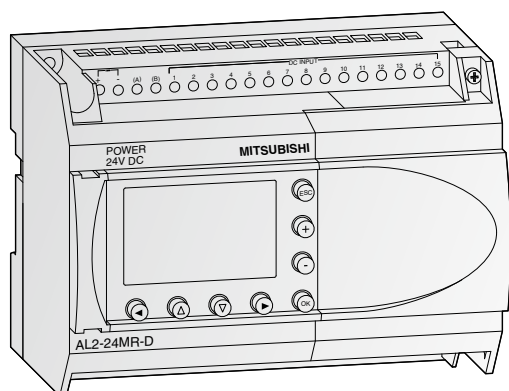
■ The ALPHA 2 Series



Description of the Unit Components



■ Specifications ALPHA 2



e.g. AL2-24M□-□

ALPHA 2 Base Units

The ALPHA 2 controllers offer simple reliable control for a range of automation applications including lighting, air conditioning, security systems, and temperature and water control.

Special Features:

- Transistor and relay output options
- Analog input/output
- High Speed counters up to 1 kHz
- GSM function for communication with mobile phones
- Language support for 8 different languages
- Display unit for messages and function block data

Base Units with 10 – 24 I/Os

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	number	6	6	8	8	15	15
Analog inputs	number	—	6	—	8	—	8
Channels	number	—	6	—	8	—	8
Integrated outputs	number	4	4	6	6	9	9
Max. power consumption	W	4.9	4.0	5.5	7.5	7.0	9.0
Typ. power consumption	All I/Os ON/OFF	3.5/1.85 240 V AC 3.0/1.55 120 V AC	2.5/0.75	4.5/2.0 240 V AC 3.5/1.5 120 V AC	4.0/1.0	5.5/2.5 240 V AC 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 55	71.2 x 90 x 55	124.6 x 90 x 52	124.6 x 90 x 52	124.6 x 90 x 52	124.6 x 90 x 52

Environmental Specifications

General Specifications		Alpha 2 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		Acc. to IEC 68-2-27: 147 m/s² acceleration, 11 ms 3 x 3 directions
Vibration resistance	direct mounting	Acc. to IEC-2-6: 19.6 m/s² acceleration, 80 min. in each direction
	DIN rail mounting	Acc. to IEC-2-6: 9.8 m/s² acceleration, 80 min. in each direction
Insulation resistance		500 V DC, 7 MΩ acc. to EN60730-1
Ambient conditions		No corrosive gases, no dust
Certifications		Please refer to page 78 in this catalogue

Electrical Specifications

Power Supply Specifications	DC Powered Modules (AL2- □MR-D)	AC Powered Modules (AL2- □MR-A)
Power supply	24 V DC	100–240 V AC (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.	
	For Sink: (AL2-10/14/24MR-D)	I01 – I08 0.13 mA / 120 V AC* 0.25 mA / 240 V AC*
	For Source: (AL2-10/14MR-D)	I09 – I15 0.15 mA / 120 V AC* 0.29 mA / 240 V AC*
	(AL2-24MR-D)	
Response time	OFF→ON	ms 10 – 20
	ON→OFF	ms 10 – 20

Analog Inputs

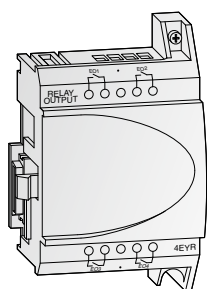
Analog input range	0–500	—
Resolution	9 bit, (10 V/500)	—
Conversion speed	ms 8	—
Voltage	0–10 V DC	—
Impedance	KΩ 142 ±5 %	—
Accuracy	±5 % (0.5 V DC)	—

* 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 Modules
Type	Relay
Switching voltage (max.)	V 250 V AC, 30 V DC
Rated current	10M, 14M: 8 A/point 24M (001-004): 8 A/point 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
Minimum load	10mA, 5 V DC
Response time	ms ≤10

Programming Specifications

System specifications	Alpha 2 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 (see page 22)
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) through integrated capacitors
Processing time	1 ms + 20 µs / log. instruction (complex commands 500 µs / instruction)
Real-time clock	Seconds, minutes, hours, day of week, month, year (4-digit); accuracy: 5 s / day; automatic summer and winter time toggling
Program protection	Program and keys (3 levels)



Digital Extension Modules

There are 4 different extension modules available for the ALPHA 2, which allow the controller to be extended through additional inputs or outputs. The modules are inserted directly into the ALPHA 2 and therefore do not take up any additional space.

The AL2-4EX has the additional feature that 2 inputs may be used as high-speed counters with a counting frequency of 1 kHz.

All modules feature photocoupler insulation for all I/Os.

Note: The digital 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	number	4	4	—	—
Input voltage		220–240 V AC	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	number	—	—	4	4
Output type		—	—	Relay	Transistor
Switched voltage (max.)	V	—	—	250 V AC, 30 V DC	5–24 V DC
Rated current	A	—	—	2 A per output	1 A per output
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: EI1 and EI2 of the AL2-4EX can be used as high-speed counter inputs. In each case the response time for the high-speed counter inputs will be 0.5ms or less.

Analog Extension Modules

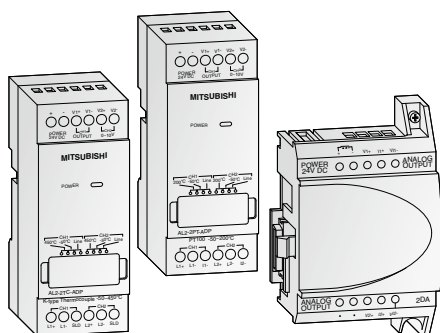
The analog extension modules significantly increase the range of applications for the ALPHA 2. With these modules it is possible to output voltage or current signals or to measure temperatures.

Three different analog extension modules are available:

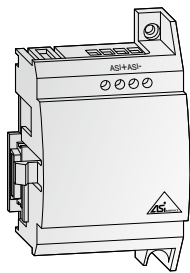
- The AL2-2DA offers two additional analog outputs for the ALPHA 2 and converts a digital input value into a voltage or a current. This module is inserted directly into the ALPHA 2.

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

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



Analog Extension Modules Specifications		AL2-2DA	AL2-2PT-ADP	AL2-2TC-ADP
Analog inputs				
Integrated inputs	number	—	2	2
Connectable temperature sensors		—	PT100 sensor Temp. coefficient 3.850 ppm/°C (IEC 751)	Thermocouple (K type), isolated typ (IEC 584-1 1977, IEC 584-2 1982)
Compensated range		—	-50 – +200 °C	-50 – +450 °C
Analog outputs				
Integrated outputs	number	2	—	—
Analog output	voltage	0 – 10 V DC (5 kΩ – 1 MΩ)	—	—
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 %), 1 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 module AL2-ASI-BD in combination with an ALPHA 2 controller facilitates the data communications via an AS interface system. The AL2-ASI-BD is attached to an ALPHA 2 series module and forms a slave unit. Up to 4 inputs and 4 outputs can be exchanged with the ASI master.

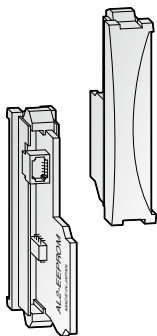
The addresses of the slave devices in the ASI interface are assigned either automatically via the master in the network or via a programming device (software).

The maximum communication distance is 100 m without a repeater. If 2 repeaters are used, the distance is extended to up to 300 m.

For the AS interface a separate power supply is required. The communication signal is superimposed on the power supply of the AS interface bus.

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	mA
Communications protocol	ASI standard
Weight	kg
Dimensions (W x H x D)	mm



Memory Cassette AL2-EEPROM-2

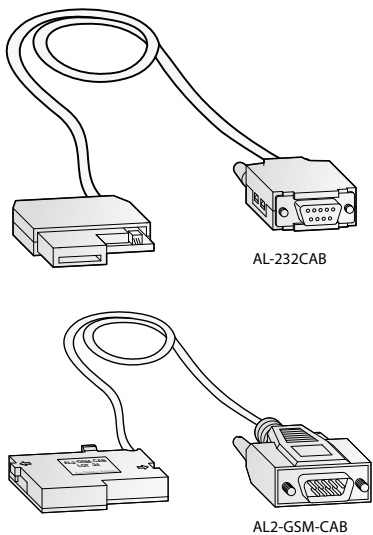
With the AL2-EEPROM-2 memory cassettes, a new program can be transferred to the ALPHA 2 controller's internal system memory from the cassette, or the program of the internal system memory can be saved to the cassette.

If the memory cassette is used, a certain program can be run temporarily by simply plugging the external memory module onto the ALPHA 2.

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

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

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



Interface Cable AL-232CAB

The AL-232CAB is an RS232C interface cable. It connects the ALPHA 2 controller to a personal computer running the programming software for the ALPHA 2 controller.

The cable ensures a galvanic isolation between the ALPHA 2 controller and the personal computer. The cable AL-232CAB can not be used for any other connection.

GSM Cable AL2-GSM-CAB

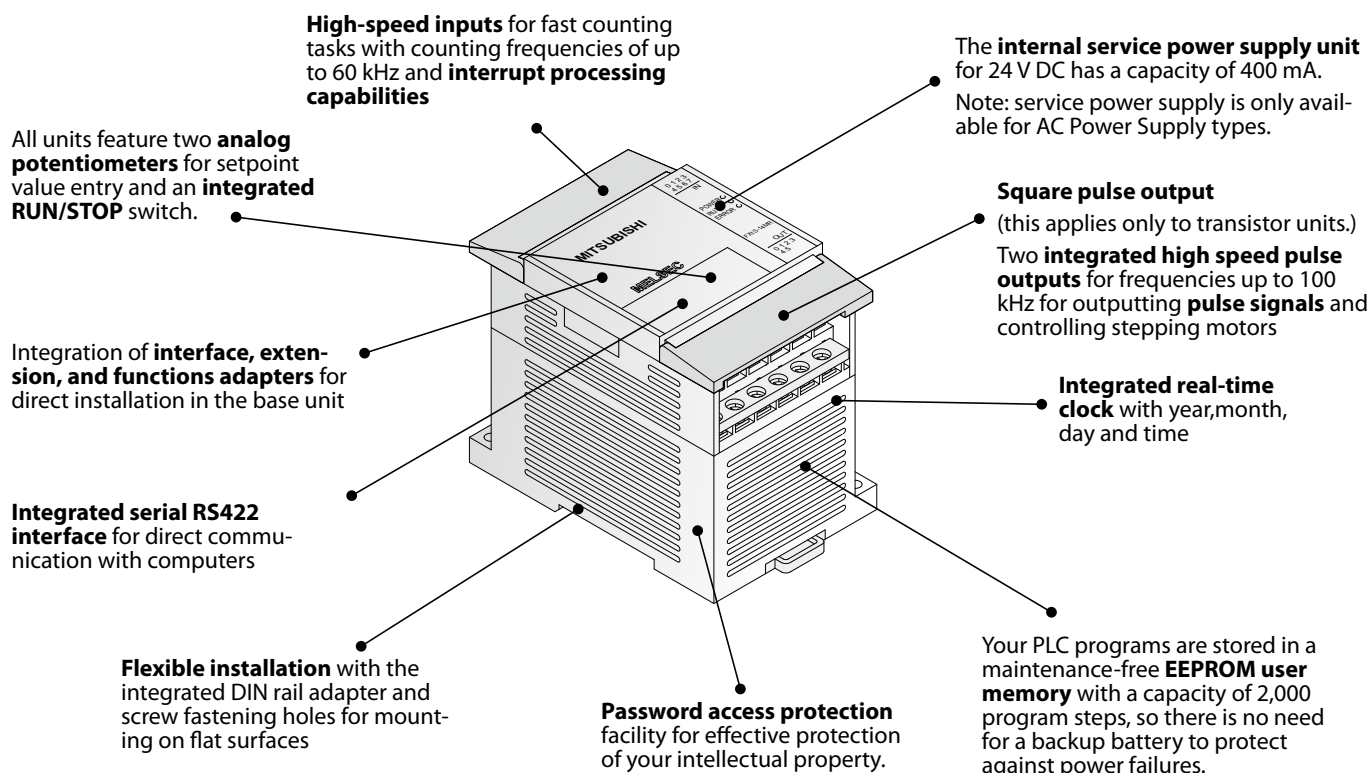
The GSM AL2-GSM-CAB is an RS232C interface cable and it is used to connect the ALPHA 2 controller to a normal or GSM modem, a personal computer or other serial devices. It can transfer SMS data to a GSM modem for onward transmission to mobile telephones or e-mail addresses.

It 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	ALPHA 2 <-> PC	ALPHA 2 <-> PC, modem
Length	m	

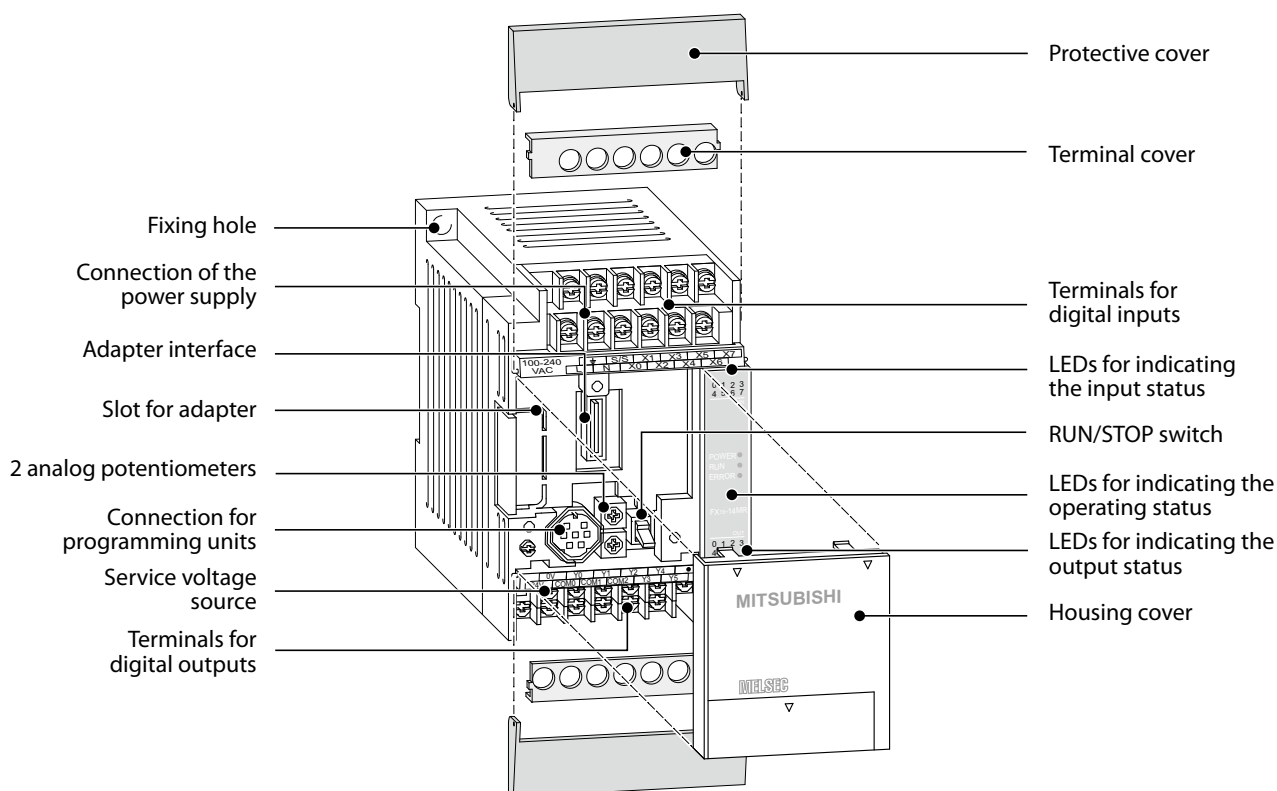
The MELSEC FX1S Series



2

FX BASE UNITS

Description of the Unit Components



Base Units

☒ FX1S
 ☐ FX1N
 ☐ FX2N
 ☐ FX2NC
 ☐ FX3U

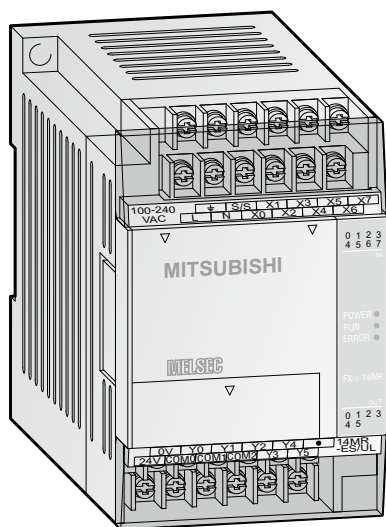
Base Units FX1S

The FX1S series base units are available with 10 to 30 input/output points.

It is possible to choose between relay and transistor output type.

Special Features:

- Integrated power supply (AC or DC powered)
- Maintenance-free EEPROM memory
- Ample memory capacity (2000 steps) and device ranges
- High-speed operations
- Incorporated positioning control
- Integrated real-time clock
- System upgrades by exchangeable interface and I/O adapter boards for direct fitting into the base unit
- LEDs for indicating the input and output status
- Standard programming unit interface
- User-friendly programming systems, including IEC 61131.3 (EN 61131.3)-compatible programming software, HMI and hand-held programming units



Base Units with 10 – 14 I/Os

Specifications	FX1S-10 MR-DS	FX1S-10 MR-ES/UL	FX1S-10 MT-DSS	FX1S-10 MT-ESS/UL	FX1S-14 MR-DS	FX1S-14 MR-ES/UL	FX1S-14 MT-DSS	FX1S-14 MT-ESS/UL
Max. number inputs/outputs	10	10	10	10	14	14	14	14
Power supply	24 V DC	100–240 V AC	24 V DC	100–240 V AC	24 V DC	100–240 V AC	24 V DC	100–240 V AC
Integrated inputs	6	6	6	6	8	8	8	8
Integrated outputs	4	4	4	4	6	6	6	6
Output type	Relay	Relay	Transistor (source)	Transistor (source)	Relay	Relay	Transistor (source)	Transistor (source)
Power consumption	W 6	19	6	19	6.5	19	6.5	19
Weight	kg 0.22	0.3	0.22	0.3	0.22	0.3	0.22	0.3
Dimensions (W x H x D)	mm 60 x 90 x 49	60 x 90 x 75	60 x 90 x 49	60 x 90 x 75	60 x 90 x 49	60 x 90 x 75	60 x 90 x 49	60 x 90 x 75

Base Units with 20 – 30 I/Os

Specifications	FX1S-20 MR-DS	FX1S-20 MR-ES/UL	FX1S-20 MT-DSS	FX1S-20 MT-ESS/UL	FX1S-30 MR-DS	FX1S-30 MR-ES/UL	FX1S-30 MT-DSS	FX1S-30 MT-ESS/UL
Max. number inputs/outputs	20	20	20	20	30	30	30	30
Power supply	24 V DC	100–240 V AC	24 V DC	100–240 V AC	24 V DC	100–240 V AC	24 V DC	100–240 V AC
Integrated inputs	12	12	12	12	16	16	16	16
Integrated outputs	8	8	8	8	14	14	14	14
Output type	Relay	Relay	Transistor (source)	Transistor (source)	Relay	Relay	Transistor (source)	Transistor (source)
Power consumption	W 7	20	7	20	8	21	8	21
Weight	kg 0.3	0.4	0.3	0.4	0.35	0.45	0.35	0.45
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 75	100 x 90 x 49	100 x 90 x 75	100 x 90 x 49	100 x 90 x 75

■ Base Units

☑ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☐ FX3U

Environmental Specifications

General Specifications	Data
Ambient temperature	0 – 55 °C (storage temperature: -20 – +70 °C)
Protection	IP 10
Noise durability	1000 Vpp with noise generator; 1 µs at 30 – 100 Hz
Dielectric withstand voltage	1,500 V AC, 1 min. (500 V AC for direct voltage modules)
Ambient relative humidity	35 – 85% (non-condensing)
Shock resistance	Acc. to IEC/EN 68-2-27: 15 G (3 times each in 3 directions for 11 ms)
Vibration resistance	Acc. to IEC/EN 68-2-6: 1 G (resistance to vibrations from 57 – 150 Hz for 80 minutes along all 3 axes); 0.5 G for DIN rail mounting
Insulation resistance	500 V DC, 5MΩ
Ground	Class D: Grounding resistance 100Ω or less
Fuse rating	AC models: 250 V 1.0 A; DC models: 0.8 A
Environment	Avoid environments containing corrosive gases, install in a dust-free location.
Certifications	Please refer to page 78 in this catalogue

Electrical Specifications

Power Supply Specifications	DC Powered Modules (FX1S-□M□-DS/-DSS)	AC Powered Modules (FX1S-□M□-ES/UL)	Output Specifications	Relay Modules	Transistor Modules
Power supply	24 V DC (+10 % / -15 %)	100–240 V AC (+10 % / -15 %), 50/60 Hz (±10 %)	Switching voltage (max.)	V <250 V AC, <30 V DC	5 – 30 V DC
Inrush current at ON	10 A / 0.1 ms (at 24 V DC)	15 A / 5 ms (at 100 V AC); 25 A / 5 ms (at 200 V AC)	Max. output current	- per output A 2 - per group* A 8	0.5 0.8
Allowable momentary power failure time	5 ms	10 ms	Max. switching current	- inductive load W 10 - lamp load W 10	12 W 1.2
Primary power supply	24 V DC, 400 mA		Response time	ms 10	0.2
External power supply (24 V DC)	—	400 mA	Life of contacts (switching times)**		3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA

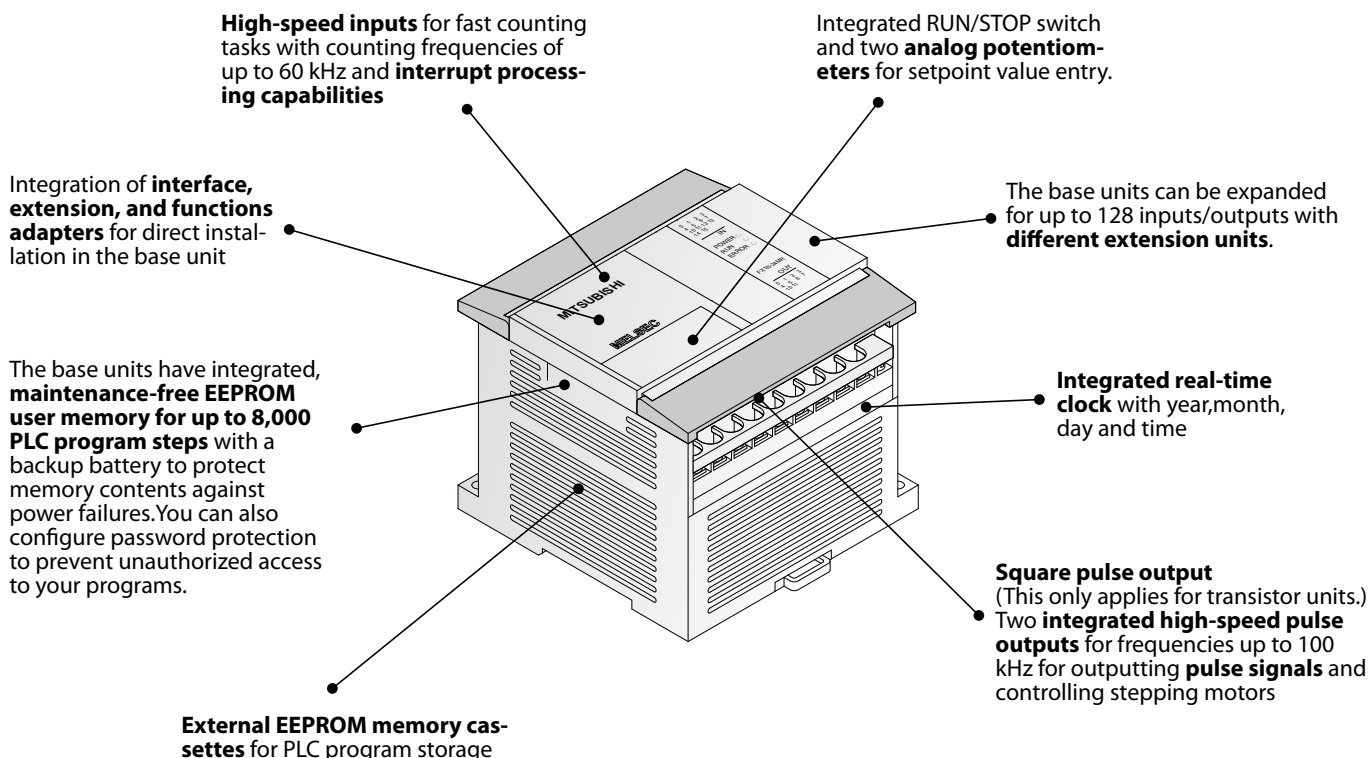
* The limitation applies only per reference terminal for each group, 1 and 4 outputs for relays and transistors. Please observe the terminal assignments for the group identification.

** Not guaranteed by Mitsubishi Electric.

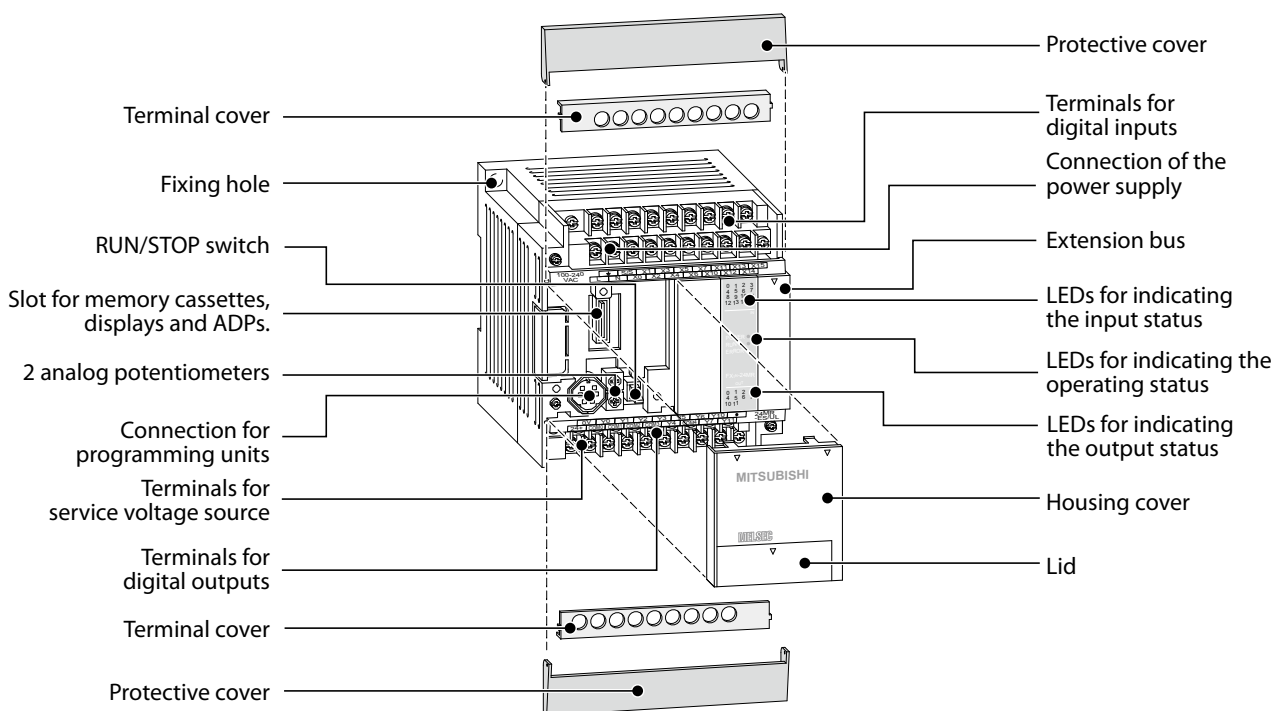
Programming Specifications

System specifications	FX1S Series
Program data	
Program memory	2,000 steps EEPROM (internal)
Program execution	Periodical execution of the stored program
Program protection	Password protection with 3 protection levels. Note: Protection levels may only be changed with FX-20P-E and FX-10P-E.
Number of instructions	27 sequence instructions, 2 step ladder instructions, 85 applied instructions
Cycle period	0.55 – 0.7 µs / logical instruction
Operands	
Internal relays	512 total, with 384 general (M0 – M383) and 128 latched (M384 – M511)
Special relays	256 (M8000 – M8255)
State relays	128
Timers	64 (max. 63 timers, partially switchable to 100 ms and 10 ms)
External setpoint entry via potentiometer	2 potentiometers
Counter	32 (16 bit), C0 – C31
High-speed counter inputs	1 phase, 6 points max: 60 kHz / 2 points, 10 kHz / 4 points; 2 phase, 2 points max: 30 kHz / 1 point, 5 kHz / 1 point
Data register	256 subtotal (128 general (D0 – D127) and 128 latched (D128 – D255))
Index register	16
Special register	256 (16 bit), D8000 – D8255
Pointer	64, P0 – P63
Nesting operands	8, N0 – N7
Interrupt inputs	6
Constants	16 bits: K: -32768 to +32767, hex: 0–FFFF 32 bits: K: -2147483648 to +2147483647, hex: 0–FFFF FFFF

The MELSEC FX1N Series

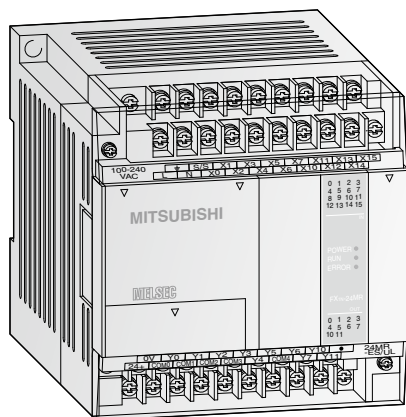


Description of the Unit Components



■ Base Units

☐ FX1S ☒ FX1N ☐ FX2N ☐ FX2NC ☐ FX3U



Base Units FX1N

The FX1N series base units are available with 14 to 60 input/output points.

It is possible to choose between relay and transistor output type.

Special Features:

- Integrated serial interface for communication between Personal computers and HMI
- Standard programming unit interface
- LEDs for indicating the input and output status
- Detachable terminal blocks for units with 14, 24, 40, and 60 I/Os.
- Slot for memory cassettes
- All DC models with variable voltage from 12 up to 24 V
- Integrated real-time clock
- Exchangeable interface and I/O adapter boards for direct fitting into the base unit

Base Units with 14 – 24 I/Os

Specifications	FX1N-14 MR-DS	FX1N-14 MR-ES/UL	FX1N-14 MT-DSS	FX1N-14 MT-ESS/UL	FX1N-24 MR-DS	FX1N-24 MR-ES/UL	FX1N-24 MT-DSS	FX1N-24 MT-ESS/UL
Integrated inputs/outputs	14	14	14	14	24	24	24	24
Power supply	12–24 V	100–240 V	12–24 V	100–240 V	12–24 V	100–240 V	12–24 V	100–240 V
Integrated inputs	8	8	8	8	14	14	14	14
Integrated outputs	6	6	6	6	10	10	10	10
Output type	Relay	Relay	Transistor (source)	Transistor (source)	Relay	Relay	Transistor (source)	Transistor (source)
Power consumption	W 13	29	13	29	15	30	15	30
Weight	kg 0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Dimensions (W x H x D)	mm 90 x 90 x 75	90 x 90 x 75	90 x 90 x 75	90 x 90 x 75	90 x 90 x 75	90 x 90 x 75	90 x 90 x 75	90 x 90 x 75

Base Units with 40 – 60 I/Os

Specifications	FX1N-40 MR-DS	FX1N-40 MR-ES/UL	FX1N-40 MT-DSS	FX1N-40 MT-ESS/UL	FX1N-60 MR-DS	FX1N-60 MR-ES/UL	FX1N-60 MT-DSS	FX1N-60 MT-ESS/UL
Integrated inputs/outputs	40	40	40	40	60	60	60	60
Power supply	12–24 V DC	100–240 V AC	12–24 V DC	100–240 V AC	12–24 V DC	100–240 V AC	12–24 V DC	100–240 V AC
Integrated inputs	24	24	24	24	36	36	36	36
Integrated outputs	16	16	16	16	24	24	24	24
Output type	Relay	Relay	Transistor (source)	Transistor (source)	Relay	Relay	Transistor (source)	Transistor (source)
Power consumption	W 18	32	18	32	20	35	20	35
Weight	kg 0.65	0.65	0.65	0.65	0.8	0.8	0.8	0.8
Dimensions (W x H x D)	mm 130 x 90 x 75	130 x 90 x 75	130 x 90 x 75	130 x 90 x 75	175 x 90 x 75	175 x 90 x 75	175 x 90 x 75	175 x 90 x 75

■ Base Units

☐ FX₁S ☒ FX₁N ☐ FX₂N ☐ FX₂NC ☐ FX₃U

Environmental Specifications

General specifications	Data
Ambient temperature	0 – 55 °C (storage temperature: -20 – +70 °C)
Protection	IP 10
Noise durability	1000 Vpp with noise generator; 1 μs at 30 – 100 Hz
Dielectric withstand voltage	1,500 V AC, 1 min. (500 V AC for direct voltage modules)
Ambient relative humidity	35 – 85% (non-condensing)
Shock resistance	Acc. to IEC 68-2-27: 15 G (3 times each in 3 directions for 11 ms)
Vibration resistance	Acc. to IEC 68-2-6: 1 G (resistance to vibrations from 57 – 150 Hz for 80 minutes along all 3 axes); 0.5 G for DIN rail mounting
Insulation resistance	500 V DC, 5MΩ
Ground	Class D: Grounding resistance 100Ω or less
Fuse rating	AC units: From FX ₁ N-14M□ to FX ₁ N-24M□: 250 V AC 1.0 A; From FX ₁ N-40M□ to FX ₁ N-60M□: 250 V AC 3.15 A / DC units: 125 V DC 3.15 A
Environment	Avoid environments containing corrosive gases, install in a dust-free location.
Certifications	Please refer to page 78 in this catalogue

Electrical Specifications

Power Supply Specifications	DC Powered Modules (FX ₁ N-□M□-DS/-DSS)	AC Powered Modules (FX ₁ N-□M□-ES/UL)
Power supply	12–24 V DC (+20 % / -15 %)	100–240 V AC (+10 % / -15 %), 50/60 Hz (±10 %)
Inrush current at ON	25 A / 1 ms (at 24 V DC); 22 A / 0.3 ms (at 12 V DC)	30 A / 5 ms (at 100 V AC); 50 A / 5 ms (at 200 V AC)
Allowable momentary power failure time	5 ms	10 ms
Primary power supply	24 V DC, 400 mA	
External power supply (24 V DC)	—	400 mA

Output Specifications	Relay Modules	Transistor Modules
Switching voltage (max.)	V <240 V AC, <30 V DC	5 – 30 V DC
Max. output current	- per output A 2 - per group A 8	0.5 0.8
Max. switching current	- inductive load 80 VA	12 W
Response time	ms 10	<0.2 (Y0,Y1<5 μs)
Life of contacts (switching times)*	3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA	

* Not guaranteed by Mitsubishi Electric.

Programming Specifications

System specifications	FX ₁ N
Program data	
I/O points (addresses)	128 (+4 optional)
Address range	Max. 128 inputs X0–X177, Max. 128 outputs Y0–Y177
Program memory	8,000 steps EEPROM (internal), exchangeable EEPROM for easy program exchange
Cycle period	0.55 – 0.7 μs /logical instruction
Number of instructions	27 sequence instructions, 2 step ladder instructions, 89 applied instructions
Programming language	Step ladder, instruction list, SFC
Program execution	Cyclical execution, refresh mode processing
Program protection	Password protection with 3 protection levels*

* Protection levels may only be changed with FX-20P-E and FX-10P-E.

System specifications	FX ₁ N
Operands	
Internal relays	1,536
Special relays	256
Step ladder	1,000
Timer	256
Ext. preset value via potentiometer	2
Counter	235
High-speed counter	1 phase, 6 points max: 60 kHz /2 points, 10 kHz /4 points; 2 phase, 2 points max: 30 kHz /1 point, 5 kHz /1 point
Real-time clock	Year, month, day, hour, minute, second, weekday
Data register	8,000
File register	Max. 7,000 (parameter editable), Total registers=8,000
Index register	16
Special register	256
Pointer	128
Nestings	8
Interrupt inputs	6
Constants	16 bits: K: -32768 to +32767, hex: 0–FFFF; 32 bits: K: 2147483648 to +2147483647, hex: 0–FFFF FFFF

The MELSEC FX2N Series

Integrated high-speed counter inputs for processing fast input signals. For example, you can configure two 60 kHz counters and four 10 kHz counters.

Interrupt processing is also handled via the inputs.

Add-in function boards can be installed in the PLC to provide a **second RS485 / RS422 / RS232 communications interface** for programming or network configurations.

An add-in function board with 8 analog potentiometers is also available.

Integrated serial interface for direct communication with computers

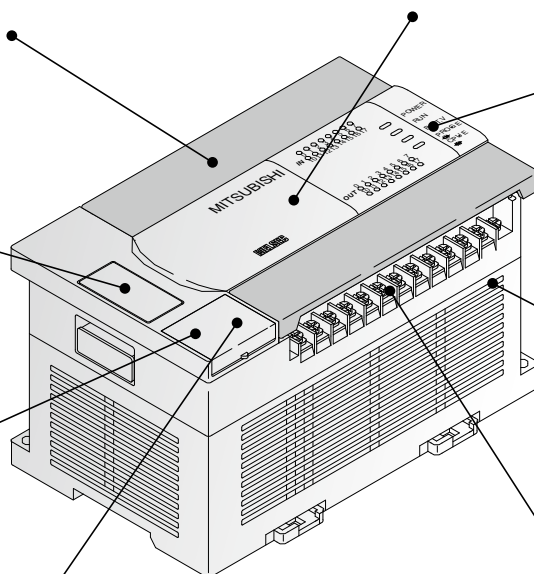
An **integrated RUN/STOP** switch is available.

RAM/EEPROM memory for up to **16,000 PLC program steps** gives you plenty of reserve, even for big, complex applications.

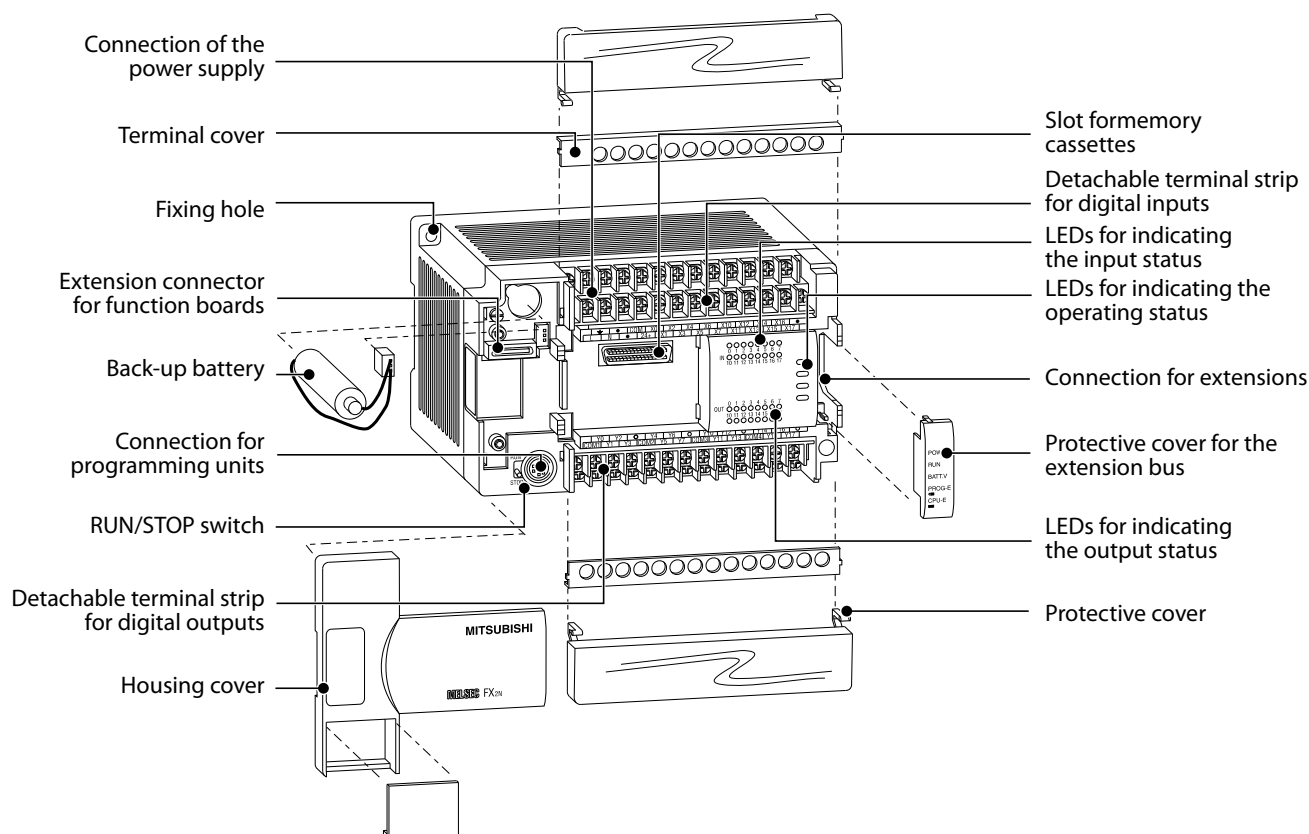
The base units can be expanded to provide configurations with up to 256 inputs and outputs with **modular and compact extension units**.

Integrated real-time clock with year, month, day and time

Two **integrated pulse outputs** for frequencies from 2 to 20,000 Hz for controlling stepping motors and outputting **pulse-width modulated signals**.



Description of the Unit Components



Base Units

☐ FX1S ☐ FX1N ☒ FX2N ☐ FX2NC ☐ FX3U

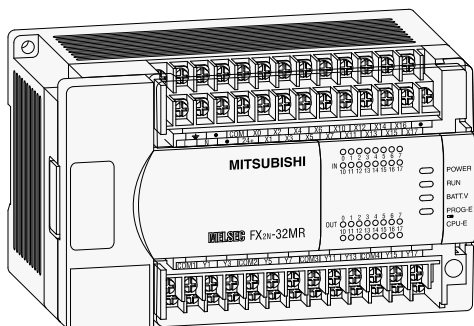
Base Units FX2N

The FX2N series base units are available with 16, 32, 48, 64, 80 or 128 input/output points.

It is possible to choose between relay and transistor output type. Triac output types for 110 V AC for sink/source are also available.

Special Features:

- Exchangeable interface modules for direct mounting into a base unit
- Standard programming unit interface
- LEDs for indicating the input and output status
- Detachable terminal blocks (except for 16 I/O base units)
- Slot for memory cassettes for up to 16 k steps PLC program
- Integrated real-time clock



Base Units with 16 I/Os

Specifications	FX2N-16 MR-DS	FX2N-16 MR-ES/UL	FX2N-16 MR-UA1/UL	FX2N-16 MT-DSS	FX2N-16 MT-ESS/UL	FX2N-16 MT-E/UL
Integrated inputs/outputs	16	16	16	16	16	16
Power supply	24 V DC	100–240 V AC	100–240 V AC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	8	8	8	8	8	8
Integrated outputs	8	8	8	8	8	8
Output type	Relay	Relay	Relay	Transistor (source type)	Transistor (source type)	Transistor (sink type)
Power consumption	20 W	30 VA	30 VA	20 W	30 VA	30 VA
Weight	kg 0.6	0.6	0.65	0.6	0.6	0.6
Dimensions (W x H x D)	mm 130 x 90 x 87	130 x 90 x 87	130 x 90 x 87	130 x 90 x 87	130 x 90 x 87	130 x 90 x 87

Base Units with 32 I/Os

Specifications	FX2N-32 MR-DS	FX2N-32 MR-ES/UL	FX2N-32 MR-UA1/UL	FX2N-32 MS-E/UL	FX2N-32 MT-DSS	FX2N-32 MT-ESS/UL	FX2N-32 MT-E/UL
Integrated inputs/outputs	32	32	32	32	32	32	32
Power supply	24 V DC	100–240 V AC	100–240 V AC	100–240 V AC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	16	16	16	16	16	16	16
Integrated outputs	16	16	16	16	16	16	16
Output type	Relay	Relay	Relay	Triac	Transistor (source type)	Transistor (source type)	Transistor (sink type)
Power consumption	25 W	40 VA	40 VA	40 VA	25 W	40 VA	40 VA
Weight	kg 0.65	0.65	0.85	0.65	0.65	0.65	0.65
Dimensions (W x H x D)	mm 150 x 90 x 87	150 x 90 x 87	182 x 90 x 87	150 x 90 x 87	150 x 90 x 87	150 x 90 x 87	150 x 90 x 87

Base Units with 48 I/Os

Specifications	FX2N-48 MR-DS	FX2N-48 MR-ES/UL	FX2N-48 MR-UA1/UL	FX2N-48 MS-E/UL	FX2N-48 MT-ESS/UL	FX2N-48 MT-DSS	FX2N-48 MT-E/UL
Integrated inputs/outputs	48	48	48	48	48	48	48
Power supply	24 V DC	100–240 V AC	100–240 V AC	100–240 V AC	100–240 V AC	24 V DC	100–240 V AC
Integrated inputs	24	24	24	24	24	24	24
Integrated outputs	24	24	24	24	24	24	24
Output type	Relay	Relay	Relay	Triac	Transistor (source type)	Transistor (source type)	Transistor (sink type)
Power consumption	30 W	50 VA	50 VA	50 VA	50 VA	30 W	50 VA
Weight	kg 0.85	0.85	1.00	0.85	0.85	0.85	0.85
Dimensions (W x H x D)	mm 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	182 x 90 x 87	182 x 90 x 87

Base Units with 64 I/Os

Specifications	FX2N-64 MR-DS	FX2N-64 MR-ES/UL	FX2N-64 MR-UA1/UL	FX2N-64 MT-ESS/UL	FX2N-64 MT-DSS
Integrated inputs/outputs	64	64	64	64	64
Power supply	24 V DC	100–240 V AC	100–240 V AC	100–240 V AC	24 V DC
Integrated inputs	32	32	32	32	32
Integrated outputs	32	32	32	32	32
Output type	Relay	Relay	Relay	Transistor (source type)	Transistor (source type)
Power consumption	35 W	60 VA	60 VA	60 VA	35 W
Weight	kg 1.0	1.0	1.20	1.0	1.0
Dimensions (W x H x D)	mm 220 x 90 x 87	220 x 90 x 87	285 x 90 x 87	220 x 90 x 87	220 x 90 x 87

Base Units with 80 – 128 I/Os

Specifications	FX2N-80 MR-DS	FX2N-80 MR-ES/UL	FX2N-80 MT-DSS	FX2N-80 MT-ESS/UL	FX2N-128 MR-ES/UL	FX2N-128 MT-ESS/UL
Integrated inputs/outputs	80	80	80	80	128	128
Power supply	24 V DC	100–240 V AC	24 V DC	100–240 V AC	100–240 V AC	100–240 V AC
Integrated inputs	40	40	40	40	64	64
Integrated outputs	40	40	40	40	64	64
Output type	Relay	Relay	Transistor (source type)	Transistor (source type)	Relay	Transistor (source type)
Power consumption	40 W	70 VA	40 W	70 VA	100 VA	100 VA
Weight	kg 1.2	1.2	1.2	1.2	1.8	1.8
Dimensions (W x H x D)	mm 285 x 90 x 87	285 x 90 x 87	285 x 90 x 87	285 x 90 x 87	350 x 90 x 87	350 x 90 x 87

Base Units

☐ FX1S ☐ FX1N ☒ FX2N ☐ FX2NC ☐ FX3U

Environmental Specifications

General specifications	Data
Ambient temperature	0 – 55 °C (storage temperature: -20 – +70 °C)
Protection	IP 10
Noise durability	1000 Vpp with noise generator; 1 µs at 30 – 100 Hz
Dielectric withstand voltage	DC PSU: 500 V AC, 1 min AC PSU: 1,500 V AC, 1 min
Ambient relative humidity	35 – 85 % (non-condensing)
Shock resistance	Acc. to IEC 68-2-27: 15 G (3 times each in 3 directions for 11 ms)
Vibration resistance	Acc. to IEC 68-2-6: 1 G (resistance to vibrations from 57 – 150 Hz for 80 minutes along all 3 axes); 0.5 G for DIN rail mounting
Insulation resistance	500 V DC, 5 MΩ
Ground	Class D: Grounding resistance 100 Ω or less
Fuse	From FX2N-16M□ to FX2N-32M□: 3.15 A; From FX2N-48M□ to FX2N-128M□: 5 A
Environment	Avoid environments containing corrosive gases, install in a dust-free location.
Certifications	Please refer to page 78 in this catalogue

Electrical Specifications

Power Supply Specifications	DC Powered Modules (FX2N-□M□-DS/-DSS)	AC Powered Modules (FX2N-□M□-ES/UL)
Power supply	24 V DC (+20 % / -30 %)	100–240 V AC (+10 % / -15 %), 50/60 Hz
Inrush current at ON	—	40 A / <5 ms (at 100 V AC); 60 A / <5 ms (at 200 V AC)
Allowable momentary power failure time	5 ms	10 ms
Primary power supply	24 V DC	—
External power supply (24 V DC)	—	FX2N-16/32M: 250 mA / FX2N-48/64/80/128M: 460 mA

Output Specifications	Relay Modules	Transistor Modules
Switching voltage (max.)	V <240 V AC, <30 V DC	5 – 30 V DC
Max. output current	- per output A 2 - per group* A 8	0.5 / 0.3 ^① 0.8 / 1.6 ^②
Max. switching current	- inductive load 80 VA	12 W / 7.2 W
Response time	ms 10	<0.2 (Y0, Y1 <30 µs)
Life of contacts (switching times) ^③	3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA	

① for Y0 and Y1=0.3 A; all others 0.5 A

② 0.8 for 4 per group and 1.6 for 8 per group

③ Not guaranteed by Mitsubishi Electric.

* This limitation applies only per reference terminal for each group, 4 and 8 outputs for relays and 2 and 4 outputs for transistors. Please observe the terminal assignments for the group identification.

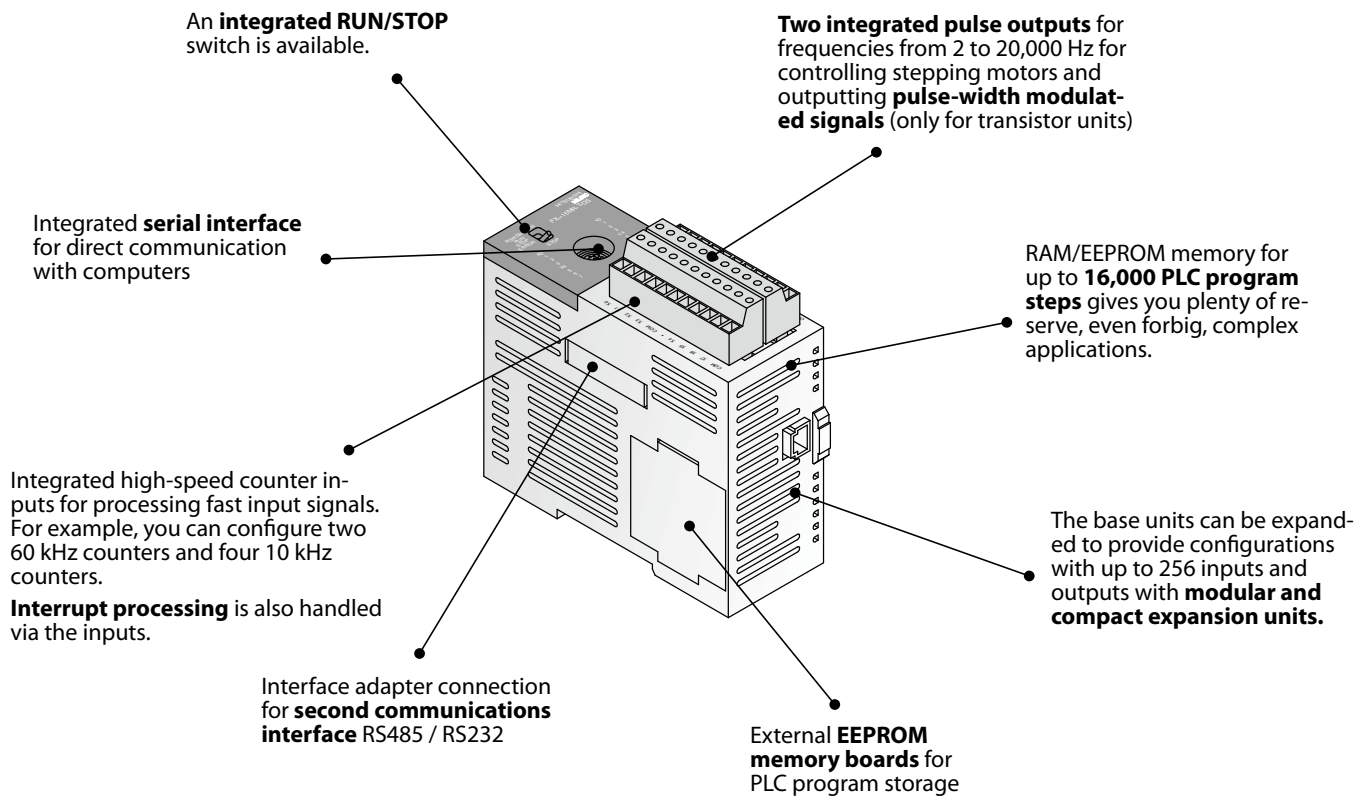
Programming Specifications

System specifications	FX2N
Program data	
I/O points (addresses)	256
Address range	Max. 184 inputs X0-X267, Max. 184 outputs Y0-Y267
Program memory	8,000 steps RAM (internal), 4,000 and 8,000 steps EEPROM cassettes (optional), 16,000 steps RAM cassettes (optional), 16,000 steps EPROM cassette (optional) 16,000 steps EEPROM cassettes (optional)
Cycle period	0.08 µs / logical instruction
Number of instructions	27 sequence instructions, 2 step ladder instructions, 132 applied instructions
Programming language	Step ladder, instruction list, SFC
Program execution	Cyclical execution, refresh mode processing
Program protection	Password protection with 3 protection levels*

* Protection levels may only be changed with FX-20P-E and FX-10P-E.

System specifications	FX2N
Operands	
Internal relays	3,072
Special relays	256
Step ladder	1,000
Timer	256
Ext. preset value via potentiometer	—
Counter	235
High-speed counter	6 single phase inputs (max. 60 kHz), 2 double phase inputs (max. 30 kHz)
Real-time clock	Year, month, day, hour, minute, second, weekday
Data register	8,000
File register	Max. 7,000 (parameter editable), Total registers=8,000
Index register	16
Special register	256
Pointer	128
Nestings	8
Interrupt inputs	6
Constants	16 bits: K: -32768 to +32767, hex: 0–FFFF 32 bits: K: 2147483648 to +2147483647, hex: 0–FFFF FFFF 32 bits floating point: 0, ±1.175 x 10 ⁻³⁸ to ±3.403 x 10 ⁻³⁸

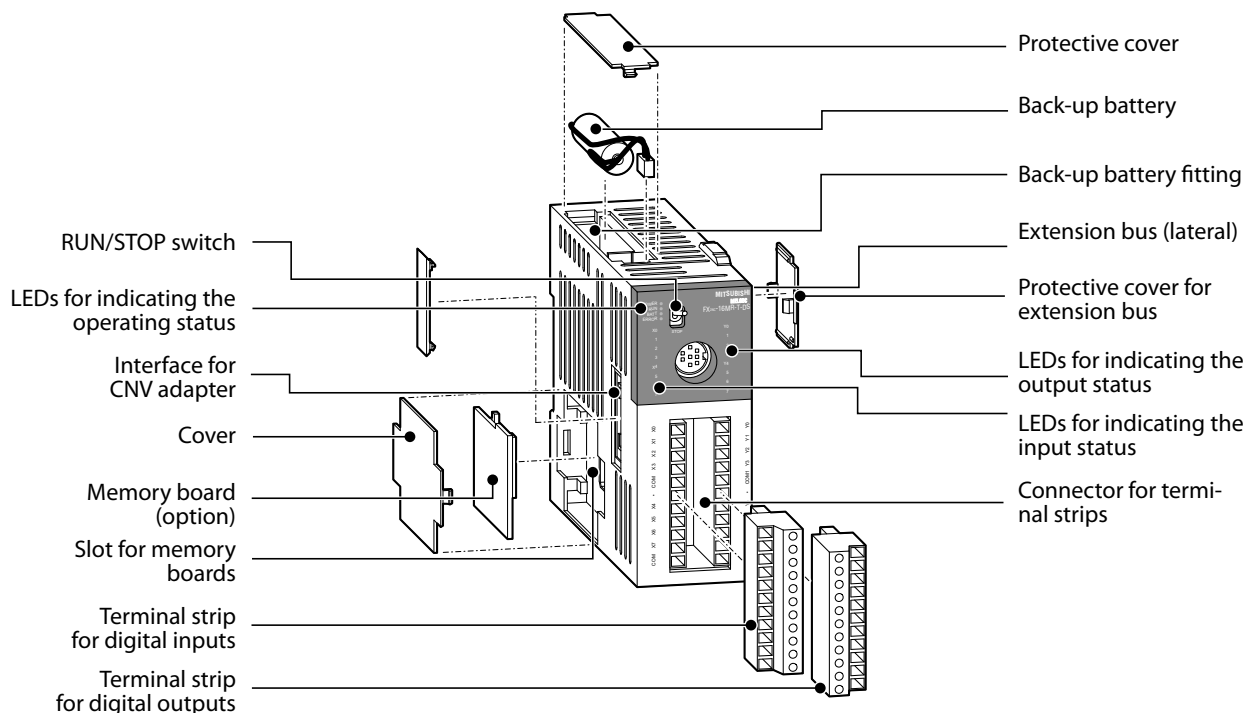
The MELSEC FX2NC Series



2

FX BASE UNITS

Description of the Unit Components



■ Base Units

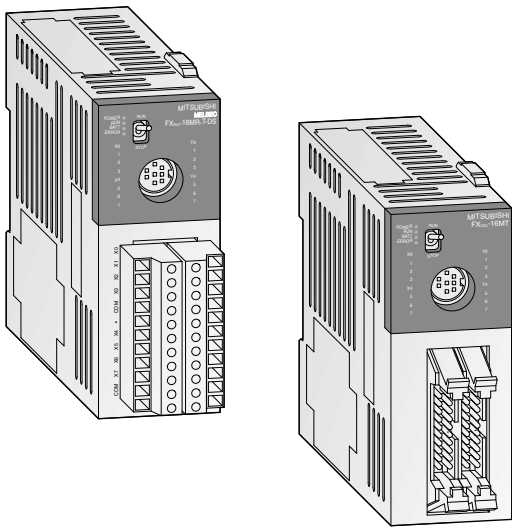
☐ FX1S ☐ FX1N ☐ FX2N ☒ FX2NC ☐ FX3U

Base Units FX2NC

The base units of the FX2NC are available in versions with 16, 32, 64 or 96 I/Os. Nine output types are available: eight different transistor output types and one relay output type.

Special Features:

- Very compact dimensions
- Standard programming unit interface
- LEDs for indicating the input and output status
- Removable terminal blocks (screw terminals for the relay output type) or ribbon cable connectors (for the transistor output types) for system cabling
- Slot for memory boards for up to 16 k steps PLC program
- Adapter modules and system cabling sets available for units with ribbon cable connectors



Base Units with 16 – 96 I/Os

Specifications	FX2NC-16 MT-DSS	FX2NC-16 MT-D/UL	FX2NC-16 MR-T-DS	FX2NC-32 MT-DSS	FX2NC-32 MT-D/UL	FX2NC-64 MT-DSS	FX2NC-64 MT-D/UL	FX2NC-96 MT-DSS	FX2NC-96 MT-D/UL
Integrated inputs/outputs	16	16	16	32	32	64	64	96	96
Integrated inputs	8	8	8	16	16	32	32	48	48
Integrated outputs	8	8	8	16	16	32	32	48	48
Output type	Transistor (source)	Transistor (sink)	Relay	Transistor (source)	Transistor (sink)	Transistor (source)	Transistor (sink)	Transistor (source)	Transistor (sink)
Power consumption	W 6	6	6	8	8	11	11	14	14
Weight	kg 0.2	0.2	0.25	0.2	0.2	0.35	0.35	0.45	0.45
Dimensions (W x H x D)	mm 35 x 90 x 87	35 x 90 x 87	35 x 90 x 89	35 x 90 x 87	35 x 90 x 87	60 x 90 x 87	60 x 90 x 87	86 x 90 x 87	86 x 90 x 87

■ Base Units

☐ FX1S ☐ FX1N ☐ FX2N ☒ FX2NC ☐ FX3U

Environmental Specifications

General Specifications	Data
Ambient temperature	0 – 55 °C (storage temperature: -20 – +70 °C)
Protection	IP 10
Noise durability	1000 Vpp with noise generator; 1 µs at 30 – 100 Hz
Dielectric withstand voltage	DC PSU: 500 V AC, 1 min AC PSU: 1,500 V AC, 1 min
Ambient relative humidity	35 – 85% (non-condensing)
Shock resistance	Acc. to IEC 68-2-27: 15 G (3 times each in 3 directions for 11 ms)
Vibration resistance	Acc. to IEC 68-2-6: 1 G (resistance to vibrations from 57 – 150 Hz for 80 minutes along all 3 axes); 0.5 G for DIN rail mounting
Insulation resistance	500 V DC, 5MΩ
Ground	Class D: Grounding resistance 100Ω or less
Fuse	FX2NC-16MR-T-DS: 2.5 A; FX2NC-□□MT-DSS: 3.15 A
Environment	Avoid environments containing corrosive gases, install in a dust-free location.
Certifications	Please refer to page 78 in this catalogue

Electrical Specifications

Power Supply Specifications	DC Powered Modules
Power supply	24 V DC (+20 % / -15 %)
Inrush current at ON	30 A, 0.5ms / 24 V DC
Allowable momentary power failure time	5 ms

Output Specifications	Relay Modules	Transistor Modules
Switching voltage (max.)	V <250 V AC, <30 V DC	5 – 30 V DC
Max. output current	- per output A 2 - per group A 4/8	0.1/0.3 ^① 0.8
Max. switching current	- inductive load 80 VA	2.4 W / 7.2 W ^②
Response time	ms 10	<0.2 OFF→ON Y000, Y001–15 ON→OFF Y000, Y001–30
Life of contacts (switching times) ^③	3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA	

^①for Y0 to Y3=0.3 A; all others 0.1 A

^②7.2 W for Y0 to Y3; all others 2.4 W

^③Not guaranteed by Mitsubishi Electric.

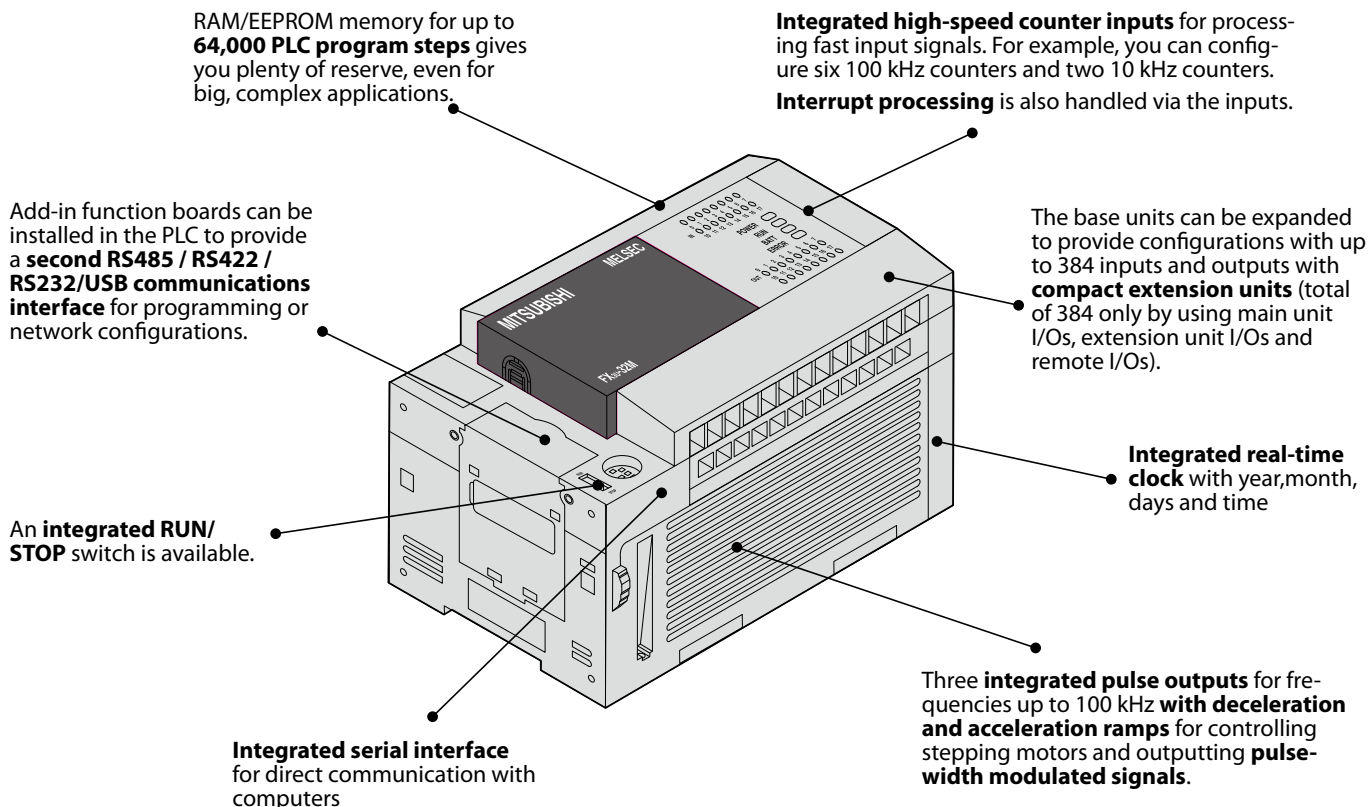
Programming Specifications

System specifications	FX2NC
Program data	
I/O points (addresses)	256
Address range	Max. 184 inputs X0-X267, Max. 184 outputs Y0-Y267
Program memory	8,000 steps RAM (internal), 16,000 steps EEPROM cassettes (optional), 4,000 steps EPROM cassettes with RTC (optional) 16,000 steps EEPROM cassettes with RTC (optional)
Cycle period	0.08 µs / logical instruction
Number of instructions	27 sequence instructions, 2 step ladder instructions, 132 applied instructions
Programming language	Step ladder, instruction list, SFC
Program execution	Cyclical execution, refresh mode processing
Program protection	Password protection with 3 protection levels*

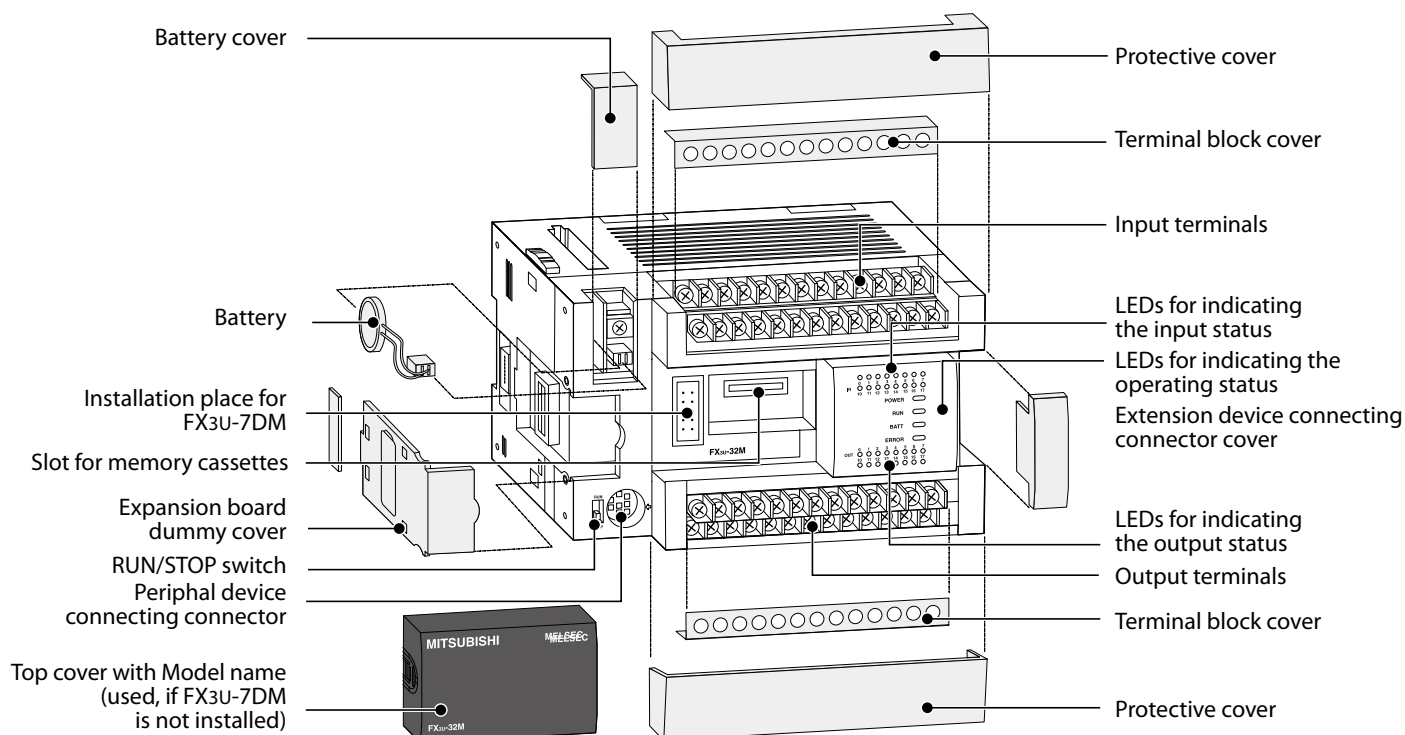
* Protection levels may only be changed with FX-20P-E and FX-10P-E.

System specifications	FX2NC
Operands	
Internal relays	3,072
Special relays	256
Step ladder	1,000
Timer	256
Ext. preset value via potentiometer	—
Counter	235
High-speed counter	6 single phase inputs (max. 60 kHz), 2 double phase inputs (max. 30 kHz)
Real-time clock	Year, month, day, hour, minute, second, weekday
Data register	8,000
File register	Max. 7,000 (parameter editable), Total registers=8,000
Index register	16
Special register	256
Pointer	128
Nestings	8
Interrupt inputs	6
Constants	16 bits: K: -32768 to +32767, hex: 0–FFFF 32 bits: K: 2147483648 to +2147483647, hex: 0–FFFF FFFF 32 bits floating point: 0, ±1.175 x 10 ⁻³⁸ to ±3.403 x 10 ⁻³⁸

The MELSEC FX3U Series

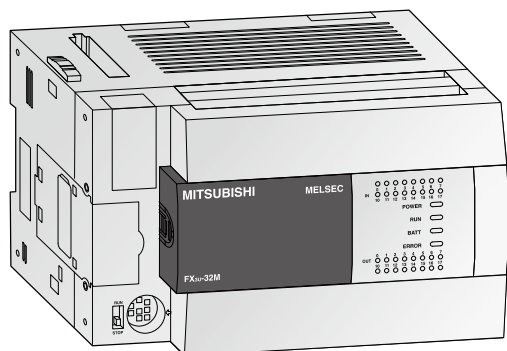


Description of the Unit Components



■ Base Units

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U



Base Units FX3U

The FX3U series base units are available with 16, 32, 48, 64, 80 or 128 input/output points.

It is possible to choose between relay and transistor type.

Special Features:

- Exchangeable interface modules for direct mounting into a base unit (USB, RS232, RS422, RS485)
- Standard programming unit interface
- Slot for memory cassettes for up to 64 k steps PLC program
- Integrated real-time clock
- Easier programming by new commands and table configuration.
- High speed processing (0.065μs perbit instruction)

Base Units with 16 I/Os

Specifications	FX3U-16MR/DS	FX3U-16MR/ES	FX3U-16MT/DSS	FX3U-16MT/DS	FX3U-16MT/ESS	FX3U-16MT/ES
Integrated inputs/outputs	16	16	16	16	16	16
Power supply	24 V DC	100–240 V AC	24 V DC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	8	8	8	8	8	8
Integrated outputs	8	8	8	8	8	8
Output type	Relay	Relay	Transistor (source type)	Transistor (sink type)	Transistor (source type)	Transistor (sink type)
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

Base Units with 32 I/Os

Specifications	FX3U-32MR/DS	FX3U-32MR/ES	FX3U-32MT/DSS	FX3U-32MT/DS	FX3U-32MT/ESS	FX3U-32MT/ES
Integrated inputs/outputs	32	32	32	32	32	32
Power supply	24 V DC	100–240 V AC	24 V DC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	16	16	16	16	16	16
Integrated outputs	16	16	16	16	16	16
Output type	Relay	Relay	Transistor (source type)	Transistor (sink type)	Transistor (source type)	Transistor (sink type)
Power consumption	W 30	35	30	30	35	35
Weight	kg 0.65	0.65	0.65	0.65	0.65	0.65
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

Base Units with 48 I/Os

Specifications	FX3U-48MR/DS	FX3U-48MR/ES	FX3U-48MT/DSS	FX3U-48MT/DS	FX3U-48MT/ESS	FX3U-48MT/ES
Integrated inputs/outputs	48	48	48	48	48	48
Power supply	24 V DC	100–240 V AC	24 V DC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	24	24	24	24	24	24
Integrated outputs	24	24	24	24	24	24
Output type	Relay	Relay	Transistor (source type)	Transistor (sink type)	Transistor (source type)	Transistor (sink type)
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

Base Units with 64 I/Os

Specifications	FX3U-64MR/DS	FX3U-64MR/ES	FX3U-64MT/DSS	FX3U-64MT/DS	FX3U-64MT/ESS	FX3U-64MT/ES
Integrated inputs/outputs	64	64	64	64	64	64
Power supply	24 V DC	100–240 V AC	24 V DC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	32	32	32	32	32	32
Integrated outputs	32	32	32	32	32	32
Output type	Relay	Relay	Transistor (source type)	Transistor (sink type)	Transistor (source type)	Transistor (sink type)
Power consumption	W 40	45	40	40	45	45
Weight	kg 1.00	1.00	1.00	1.00	1.00	1.00
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

Base Units with 80 I/Os

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
Power supply	24 V DC	100–240 V AC	24 V DC	24 V DC	100–240 V AC	100–240 V AC
Integrated inputs	40	40	40	40	40	40
Integrated outputs	40	40	40	40	40	40
Output type	Relay	Relay	Transistor (source type)	Transistor (sink type)	Transistor (source type)	Transistor (sink type)
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

Base Units with 128 I/Os

Specifications	FX3U-128MR/ES	FX3U-128MT/ESS	FX3U-128MT/ES
Integrated inputs/outputs	128	128	128
Power supply	100–240 V AC	100–240 V AC	100–240 V AC
Integrated inputs	64	64	64
Integrated outputs	64	64	64
Output type	Relay	Transistor (source type)	Transistor (sink type)
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

■ Base Units

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U

Environmental Specifications

General specifications	Data
Ambient temperature	0 – 55 °C (storage temperature: -25 – +75 °C)
Protection	IP 10
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.
Ambient relative humidity	5 – 95% (non-condensing)
Shock resistance	Acc. to IEC 68-2-27: 15 G (3 times each in 3 directions for 11 ms)
Vibration resistance	Acc. to IEC 68-2-6: 1 G (resistance to vibrations from 57 – 150 Hz for 80 minutes along all 3 axes); 0.5 G for DIN rail mounting
Insulation resistance	500 V DC, 5 MΩ
Ground	Class D: Grounding resistance 100 Ω or less
Fuse	From FX3U-16M□ to FX3U-32M□: 3.15 A; From FX3U-48M□ to FX3U-128M□: 5 A
Environment	Avoid environments containing corrosive gases, install in a dust-free location.
Certifications	Please refer to page 78 in this catalogue

Electrical Specifications

Power Supply Specifications	DC Powered Modules (FX3U-□M□/DS/DSS)	AC Powered Modules (FX3U-□M□/ES/ESS)
Power supply	24 V DC (+20% / -30 %)	100–240 V AC (+10 % / -15 %), 50/60 Hz
Inrush current at ON	35 A / <0.0.5 ms (at 24 V DC);	30 A / <5 ms (at 100 V AC); 65 A / <5 ms (at 200 V AC)
Allowable momentary power failure time	5 ms	10 ms
Primary power supply	24 V DC	—
External power supply (24 V DC)	—	FX3U-16/32MR/ES: 400 mA / FX3U-48/64/80MR/ES: 600 mA

Output Specifications	Relay Modules	Transistor Modules
Switching voltage (max.)	V <240 V AC, <30 V DC	5–30 V DC
Max. output current	- per output A 2 - per group A 8	0.5 0.8 / 1.6 ^②
Max. switching current	- inductive load VA 80	12W/DC24V
Response time	ms 10	< 0.2 (Y0–Y2 < 5 µs)
Life of contacts (switching times) ^①	3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA	—

^①Not guaranteed by Mitsubishi Electric.

^②0.8 for per group and 1.6 for 8 per group

Programming Specifications

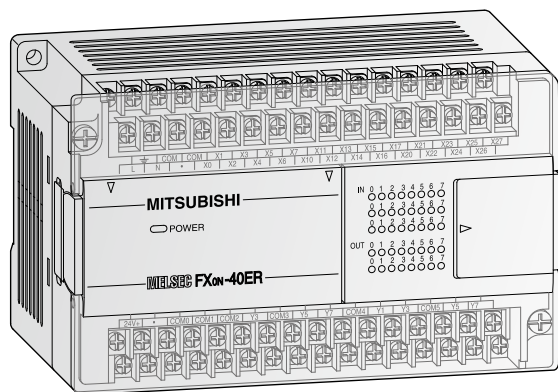
System specifications	FX3U
Program data	
I/O points (addresses)	Max. total 384 (with remote I/O)
Address range	Max. 256 direct addressing and Max. 256 network I/Os
Program memory	64,000 steps RAM (internal), exchangeable FLROM for easy program exchange
Cycle period	0.065 µs / basic instruction
Number of instructions	27 sequence instructions, 2 step ladder instructions, 209 applied instructions
Programming language	Step ladder, instruction list, SFC
Program execution	Cyclical execution, refresh mode processing
Program protection	Password protection with 3 protection levels*

* Protection levels may only be changed with FX-20P-E and FX-10P-E.

System specifications	
Operands	
Internal relays	7,680
Special relays	512
State relays	4,096
Timer	512
Counter	235
High-speed counter	16
High-speed counter speed	1 phase, 8 points max: 100 kHz / 6 points 10 kHz / 2 points 2 phase, 2 points max: 50 kHz / 2 points
Real-time clock	Year, month, day, hour, minute, second, weekday
Data register	8,000
Extension file register	32768
Index register	16
Special register	512
Pointer	4,096
Nestings	8
Interrupt inputs	6
Constants	16 bits: K: -32,768 to +32,76; hex: 0–FFFF; 32 bits: K: -2,147,483,648 to +2,147,483,647; hex: 0–FFFF FFFF

■ Powered Compact Extension Units

☐ FX1S ☒ FX1N ☐ FX2N ☐ FX2NC ☐ FX3U



Extension Units FXon

The FXon series extension units are available with 40 input/output points.

It is possible to choose between relay and transistor output type.

Special Features:

- LEDs for indicating the input and output status
- MELSEC FX1N series compatible
- Integrated service power supply with up to 200 mA capacity

Specifications		FXon-40 ER-ES/UL	FXon-40 ER-DS	FXon-40 ET-DSS
Electrical data				
Integrated inputs/outputs		40	40	40
Power supply	AC range (+10%, -15%)	100 – 240 V	—	—
	Frequency at AC Hz	50/60	—	—
	DC range (+20%, -15%)	—	24 V	24 V
Max. input apparent power		40 VA	20 W	30 W
Inrush current at ON	100 V AC	30 A / 5 ms	—	—
	200 V AC	50 A / 5 ms	—	—
	24 V DC	—	60 A / 50 μs	60 A / 50 μs
Allowable momentary power failure time	ms	10	5	5
External service power supply (24 V DC)	mA	200	—	—
Inputs				
Integrated inputs		24	24	24
Min. current for logical 1	mA	3.5	3.5	3.5
Max. current for logical 0	mA	1.5	1.5	1.5
Response time		For all base units of the MELSEC FXon series: 10 ms (at time of shipment)		
Outputs				
Integrated outputs		16	16	16
Output type		Relay	Relay	Transistor
Max. switching voltage		Generally for relay version: <240 V AC, <30 V DC; for transistor version: 5 – 30 V DC		
Max. output current	- per output	A 2	2	0.5
	- per group*	A 5	5	0.8 ^①
Max. switching power	- inductive load	VA 80	80	12
Response time		ms 10	10	<0.2
Life of contacts (switching times) ^②		For all extension units of the MELSEC FXon series: 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA (only for relay output)		
Mechanical data				
Weight	kg	0.75	0.75	0.75
Dimensions (W x H x D)	mm	150 x 90 x 87	150 x 90 x 87	150 x 90 x 87

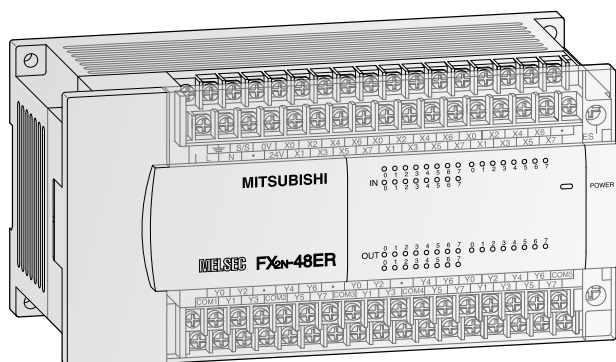
^① 0.8 for 4 per group

^② Not guaranteed by Mitsubishi Electric.

* This limitation applies only per reference terminal for each group. Please observe the terminal assignments for the group identification.

■ Powered Compact Extension Units

☐ FX1S ☒ FX1N ☒ FX2N ☐ FX2NC ☒ FX3U



Extension Units FX2N

The FX2N series extension units are available with 32 or 48 input/output points.

It is possible to choose between relay and transistor output type.

Special Features:

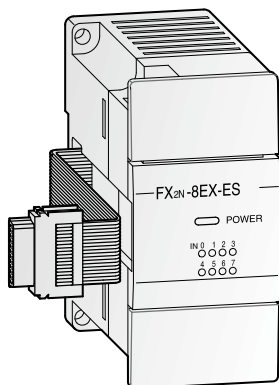
- LEDs for indicating the input and output status
- MELSEC FX1N/FX2N and FX3U series compatible
- Detachable terminal blocks
- Integrated service power supply with 250 mA or 460 mA

Specifications		FX2N-32 ER-ES/UL	FX2N-32 ET-ESS/UL	FX2N-48 ER-DS	FX2N-48 ER-ES/UL	FX2N-48 ER-UA1/UL	FX2N-48 ET-DSS	FX2N-48 ET-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		35 VA	35 VA	30 W	45 VA	45 VA	30 W	45 VA
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		For all extension units of the MELSEC FX2N series: 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.)		Generally for relay version: <264 V AC, <30 V DC; for transistor version: 5 – 30 V DC						
Max. output current	- per output	A 2	0.5	2	2	2	0.5	0.5
	- per group*	A 8	0.8 / 1.6 ^②	8	8	8	0.8 / 1.6 ^②	0.8 / 1.6 ^②
Max. switching power		W 80	12	80	80	80	12	12
Response time		ms 10	<0.2	10	10	10	<0.2	<0.2
Life of contacts (switching times) ^①		For all extension units of the MELSEC FX2N series: 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA (for relay output only)						
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

^①Not guaranteed by Mitsubishi Electric ^②0.8 for 4 per group and 1.6 for 8 per group

* This limitation applies only per reference terminal for each group. Please observe the terminal assignments for the group identification.

■ Unpowered Modular Extension Blocks

□ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U**Extension Blocks FX2N**

The FX2N series modular extension blocks are available with 8 input/output points.

It is possible to choose between relay and transistor output type.

Note: When attaching an extension block to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.

Special Features:

- LEDs for indicating the input and output status
- MELSEC FX1N/FX2N(C) and FX3U series compatible
- Vertically terminal blocks with a cable guide to the upper or lower side

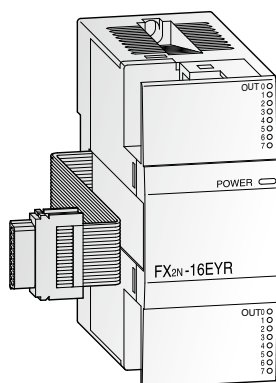
Specifications		FX2N-8 ER-ES/UL	FX2N-8 EX-ES/UL	FX2N-8 EX-UA1/UL	FX2N-8 EYR-ES/UL	FX2N-8 EYT-ESS/UL
Electrical data						
Integrated inputs/outputs		8	8	8	8	8
Power supply		All modular extension blocks are supplied by the base unit.				
Inputs						
Integrated inputs		4	8	8	—	—
Min. current for logical 1	mA	3.5	3.5	≥3.8	—	—
Max. current for logical 0	mA	1.5	1.5	≤1.7	—	—
Response time		For all extension blocks of the MELSEC FX2N series: 10 ms				
Outputs						
Integrated outputs		4	—	—	8	8
Output type		Relay	—	—	Relay	Transistor
Max. switching voltage		Generally for relay version: <240 V AC, <30 V DC; for 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	VA 80	—	—	80	12
Response time		ms 10	10	10	10	<0.2
Life of contacts (switching times) ^②		For all extension units of the MELSEC FX2N series: 3,000,000 at 20 VA; 1,000,000 at 35 VA; 200,000 at 80 VA (for relay output only)				
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 only per reference terminal for each group. Please observe the terminal assignments for the group identification.

^② Not guaranteed by Mitsubishi Electric

■ Unpowered Modular Extension Blocks

□ FX1S □ FX1N □ FX2N □ FX2NC □ FX3U



Extension Blocks FX2N

The FX2N series modular extension blocks are available with 16 input/output points.

It is possible to choose between triac, relay and transistor output type.

Note: When attaching an extension block to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.

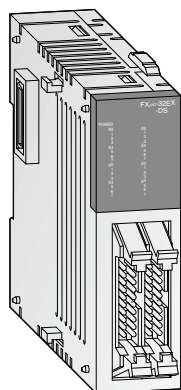
Special Features:

- LEDs for indicating the input and output status
- MELSEC FX1N/FX2N/FX2NC and FX3U series compatible
- Very compact dimensions
- Vertically mounted terminal blocks with a cable guide to the upper or lower side

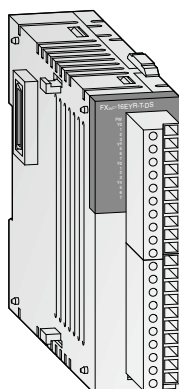
Specifications	FX2N-16 EX-ES/UL	FX2N-16 EYR-ES/UL	FX2N-16 EYT-ESS/UL	FX2N-16EYS
Electrical data				
Integrated inputs/outputs	16	16	16	16
Power supply	All modular extension blocks are supplied by the base unit.			
Inputs				
Integrated inputs	16	—	—	—
Min. current for logical 1	mA 3.5	—	—	—
Max. current for logical 0	mA 1.5	—	—	—
Response time	For all base units of the MELSEC FX2N series: 10 ms (at time of shipment)			
Outputs				
Integrated outputs	—	16	16	16
Output type	—	Relay	Transistor (source)	Triac
Switching voltage (max.)	V	Generally for relay version: <240 V AC, <30 V DC; for transistor version: 5 – 30 V DC; for triac version: 85–242 V AC		
Max. output current	A	2	0.5	0.3
	A	8	1.6	0.8
Max. switching power	VA	80	12	15 VA / AC 100 V, 30 VA / AC 200 V
	VA	80	12	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)	—	Same as base unit	—	10
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

* This limitation applies only per reference terminal for each group. Please observe the terminal assignments for the group identification.

■ Unpowered Modular Extension Blocks

☐ FX1S ☐ FX1N ☐ FX2N ☒ FX2NC ☐ FX3U


FX2NC-32EX-DS



FX2NC-16EYR-T-DS

Modular Extension Blocks FX2NC

The FX2NC series extension blocks are available with 16 or 32 input/output points.

For modules with 16 outputs it is possible to choose between relay and transistor output type.

Special Features:

- Very compact dimensions
- LEDs for indicating the input and output status
- 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-16 EX-T-DS	FX2NC-16 EYR-T-DS	FX2NC-16 EX-DS	FX2NC-16 EYT-DSS	FX2NC-16 EX-D/UL	FX2NC-16 EYT-D/UL	FX2NC-32 EX-DS	FX2NC-32 EYT-DSS	FX2NC-32 EX-D/UL	FX2NC-32 EYT-D/UL
Electrical data											
Integrated inputs/outputs		16	16	16	16	16	16	32	32	32	32
Power supply		All modular extension units are supplied by the base unit.									
Inputs											
Integrated inputs		16	—	16	—	16	—	32	—	32	—
Input current		5	—	5	—	5	—	5	—	5	—
Min. current for logical 1	mA	3.5	—	3.5	—	3.5	—	3.5	—	3.5	—
Max. current for logical 0	mA	1.5	—	1.5	—	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	—	10 ms	—	10 ms	—
Outputs											
Integrated outputs		—	16	—	16	—	16	—	32	—	32
Output type		—	Relay	—	Transistor (source)	—	Transistor (sink)	—	Transistor (source)	—	Transistor (sink)
ON voltage (max.)	V	Generally for relay version: <240 V AC, <30 V DC; for transistor version: 5 – 30 V DC									
Max. output current	- per output - per group ^①	A	—	2	—	0.1	—	0.1	—	0.1	—
		A	—	4	—	0.8	—	0.8	—	0.8	—
Max. switching power	- inductive load	VA	—	80	—	2.4	—	2.4	—	2.4	—
Response time	ms	—	10	—	<0.2	—	<0.2	—	<0.2	—	<0.2
Life of contacts (switching times) ^②		—	Same as base unit	—	—	—	—	—	—	—	—
Mechanical data											
Connection type		Removable screw terminal blocks	Removable screw terminal blocks	Ribbon cable connector	Ribbon cable connector	Ribbon cable connector	Ribbon cable connector	Ribbon cable connector	Ribbon cable connector	Ribbon cable connector	Ribbon cable connector
Weight	kg	0.15	0.15	0.15	0.15	0.15	0.15	0.2	0.2	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	14.6 x 90 x 87	14.6 x 90 x 87	26.2 x 90 x 87	26.2 x 90 x 87	26.2 x 90 x 87	26.2 x 90 x 87

^① This limitation applies only per reference terminal for each group. Please observe the terminal assignments for the group identification.

^② Not guaranteed by Mitsubishi Electric

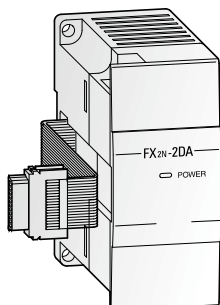
■ Analog Output Modules

☐ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX2N-2DA, FX2N-4DA, FX2NC-4DA

The analog output modules provide the user with 2 to 4 analog outputs. The modules convert digital values from the FX1N/FX2N/FX2NC/FX3U controller to the analog signals required by the process. The module can output both current and voltage signals.

Note: The FX2NC-4DA may only be used in combination with a FX2NC series base unit. When attaching a FX2N-2DA or FX2N-4DA to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.



Specifications	FX2N-2DA	FX2N-4DA	FX2NC-4DA
Power supply	5 V DC / 30 mA (from base unit); 24 V DC / 85 mA (from base unit)	5 V DC / 30 mA (from base unit); 24 V DC / 200 mA (from base unit)	5 V DC / 30 mA (from base unit); 24 V DC / 130 mA (from base unit)
Analog channels			
inputs	—	—	—
outputs	2	4	4
Analog output range	0 to 10 V DC / 0 to 5 V DC / 4 to 20 mA DC/	-10 to 10 V DC / 0 to 20 mA / 4 to 20 mA DC/	-10 to 10 V DC / 0 to 20 mA / 4 to 20 mA DC/
Resolution			
voltage	2.5 mV (12 bit)	5 mV (11 bit +sign)	5 mV (11 bit +sign)
current	4 µA (12 bit)	20 µA (10 bit +sign)	20 µA (10 bit)
Overall accuracy for fullscale	±1% ^①	±1% ^①	±0.5% ^② ±1% ^①
Related I/O points	8	8	8
Weight	kg 0.2	0.3	0.13
Dimensions (W x H x D)	mm 43 x 90 x 87	55 x 90 x 87	24.2 x 90 x 89

^① Ambient temperature 0 to 55 °C

^② Ambient temperature 25 ± 5 °C

■ Analog Input Modules

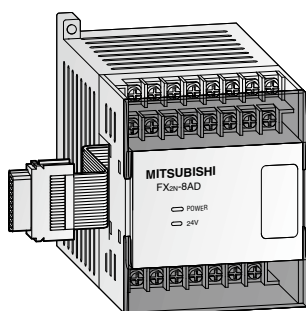
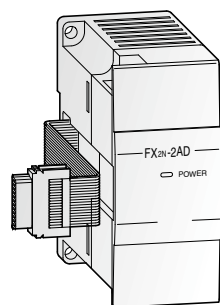
☐ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX2N-2AD, FX2N-4AD, FX2NC-4AD, FX2N-8AD

The analog input modules provide the user with 2 to 8 analog inputs. The module converts analog process signals into digital values which are further processed by the MELSEC FX1N/FX2N/FX2NC/FX3U controller.

The actual values or mean values over several measurements may be output.

Note: The FX2NC-4AD may only be used in combination with a FX2NC series base unit. When attaching a FX2N-2AD, FX2N-4AD, or FX2N-8AD to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.



Specifications	FX2N-2AD	FX2N-4AD	FX2NC-4AD	FX2N-8AD
Power supply	5 V DC/20 mA (from base unit); 24 V DC/50 mA (from base unit)	5 V DC / 30 mA (from base unit); 24 V DC / 55 mA (from base unit)	5 V DC / 50 mA (from base unit); 24 V DC / 130 mA (from base unit)	5 V DC / 50 mA (from base unit); 24 V DC / 80 mA (from base unit)
Analog channels				
inputs	2	4	4	8
outputs	—	—	—	—
Analog input range	0 to 10VDC / 0 to 5 V DC / 0/4 to 20mA DC/	-10 to 10 V DC / -20 to 20mA DC/ 4 to 20mA DC/	-10 to 10 V DC / -20 to 20mA DC/ 4 to 20mA DC/	-10 to 10 V DC / -20 to 20mA DC/ 4 to 20mA DC/
Resolution				
voltage	2.5mV (12 bit)	5mV (11 bit +sign)	0.32 mV (15 bit+sign)	0.63 mV (14 bit +sign)
current	4 µA (12 bit)	20 µA (10 bit +sign)	1.25 µA (14 bit+sign)	2.5 µA (13 bit +sign)
Overall accuracy for fullscale				
voltage	±1%	±1%	±0.3 – 0.5 %*	±0.3 – 0.5 %*
current	±1%	±1%	±0.5 – 1.0 %*	±0.3 – 0.5 %*
Related I/O points	8	8	8	8
Weight	kg 0.2	0.3	0.13	0.4
Dimensions (W x H x D)	mm 43 x 90 x 87	55 x 90 x 87	20.2 x 90 x 89	75 x 105 x 75

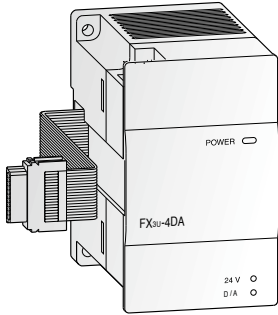
*Dependent on the ambient temperature

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 Modules

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U

FX3U-4DA



The analog output modules provide the user with 4 analog outputs. The integrated high performance CPU converts each channel in 0.5ms the digital values from the FX3U controller to the analog signals required by the process. A predetermined output pattern is set as data table, and analog signal can be output according to the data table. The module can output both current and voltage signals.

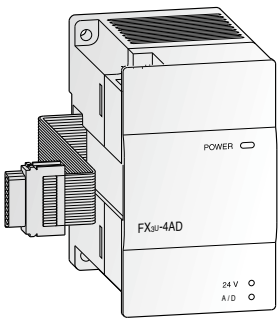
Specifications		FX3U-4DA
Power supply		5 V DC / 120 mA (from base unit); 24 V DC / 160 mA
Analog channels	inputs	—
	outputs	4
Analog output range		-10 to + 10 V DC / 0 to 20 mA, 4 to 20 mA DC
Resolution	voltage	0.32 mV (15 bit + sign)
	current	0.63 μ A (15 bit)
Overall accuracy for fullscale		$\pm 0.3 - 0.5$ % fullscale*
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

■ Analog Input Modules

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U

FX3U-4AD



The analog input modules provide the user with 4 analog inputs. The module converts analog process signals into high-resolution digital values, which are further processed by the FX3U controller. The integrated high performance CPU converts all 4 channels in 1 ms, when no digital filter is used. Set the digital filter to stably the read out A/D conversion values. For each channel, up to 1,700 A/D conversion values can be stored as the history data. The actual values or mean values over several measurements may be output.

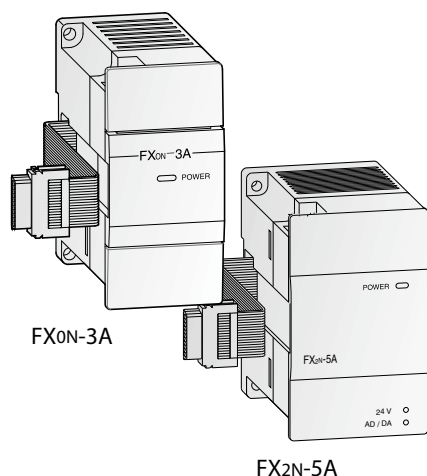
Specifications		FX3U-4AD
Power supply		5 V DC / 110 mA (from base unit); 24 V DC / 90 mA
Analog channels	inputs	4
	outputs	—
Analog output range		-10 to +10 V DC / -20 to +20 mA, 4 to 20 mA DC
Resolution	voltage	0.32 mV (15 bit + sign)
	current	1.25 μ A (14 bit + sign)
Overall accuracy for fullscale		$\pm 0.3 - 1.0$ % fullscale*
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

Combined Analog I/O Modules

☐ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX0N-3A, FX2N-5A



- The analog input/output modules are available in two different models. They provide the user with 2 or 4 analog inputs and 1 analog output. They serve for conversion of analog process signals into digital values, and vice versa.
- As of the FX2N-5A module the analog inputs can be selected between current or voltage input signals.

Note: When attaching one of these analog modules to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.

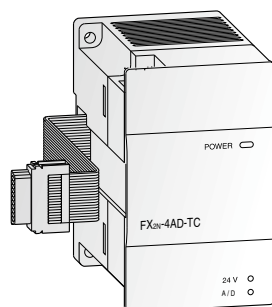
Specifications	FX0N-3A	FX2N-5A
Power supply	5 V DC / 30mA (from base unit); 24 V DC / 90 mA (from base unit)	5 V DC / 70mA (from base unit); 24 V DC / 90 mA
Analog channels		
inputs	2	4
outputs	1	1
Input range (resolution)		
voltage	0 to 10 V (8 bit), 0 to 5 V (8 bit)	-10 to 10 V (15 bit + sign), -100 to 100 mV (11 bit + sign)
current	0/4 to 20 mA (8 bit)	-20 to 20 mA (14 bit + sign), 0/4 to 20 mA (14 bit)
Output range (resolution)		
voltage	0 to 10 V (8 bit), 0 to 5 V (8 bit)	-10 to 10 V (12 bit)
current	4 to 20mA (8 bit)	0/4 to 20 mA (10 bit)
Overall accuracy for fullscale	±1%	±0.3 – 1%*
Related I/O points	8	8
Weight	kg 0.2	0.3
Dimensions (W x H x D)	mm 43 x 90 x 87	55 x 90 x 87

*Dependent on the ambient temperature

Analog Temperature Input Modules

☐ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX2N-4AD-TC, FX2N-4AD-PT, FX2N-2LC



- The analog input module for thermocouples FX2N-4AD-TC is used for processing temperatures. It has 4 independent inputs for detecting signals from thermocouples of types J and K. The type of thermocouple can be chosen independently for each point.
- The analog input module for Pt100 inputs FX2N-4AD-PT permits the connection of four Pt100 sensors to the FX1N/FX2N/FX2NC/FX3U series controller.
- The temperature control module FX2N-2LC is equipped with two temperature input points and two transistor (open collector) output points. It is used to read temperature signals from thermocouples and Pt100 sensors, and performs PID output control

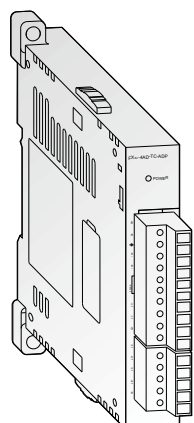
Note: The FX2N-2LC may not be used in combination with a FX1N series base unit. When attaching one of these modules to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.

Specifications	FX2N-4AD-TC	FX2N-4AD-PT	FX2N-2LC
Power supply	5 V DC / 40 mA (from base unit); 24 V DC / 60 mA	5 V DC / 30 mA (from base unit); 24 V DC / 50 mA	5 V DC / 70 mA (from base unit); 24 V DC / 55 mA
Analog inputs	4 (J or K type)	4 (Pt100 sensors)	2 points
Compensated temperature range	°C -100 to 600 (J type) / -100 to 1200 (K type)	-100 to 600	Thermocouple and Pt100 sensor
Digital outputs	-1000 to 6000 (J type) / -1000 to 12000 (K type)	-1000 to 6000	2 transistor output points
Resolution	0.3 (J type) / 0.4 (K type)	0.2 to 0.3 °C	0.1 °C or 1 °C
Overall accuracy for fullscale	± (0.5% for fullscale + 1 °C)	±1. 0% for fullscale	±0.3% (±1 digit) for fullscale ^① ±0.7% (±1 digit) for fullscale ^②
Related I/O points	8	8	8
Weight	kg 0.3	0.3	0.3
Dimensions (W x H x D)	mm 55 x 90 x 87	55 x 90 x 87	55 x 90 x 87

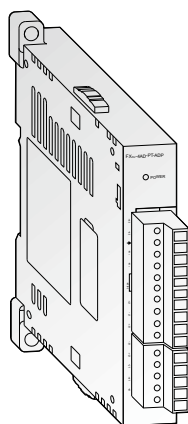
^① Ambient temperature 23 ± 5 °C

^② Ambient temperature 0 to 55 °C

■ Analog Temperature Input Adapters

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U


FX3U-4AD-TC-ADP



FX3U-4AD-PT-ADP

FX3U-4AD-TC-ADP, FX3U-4AD-PT-ADP

- The analog input adapter for thermocouples FX3U-4AD-TC-ADP is used for processing temperatures. It has 4 independent inputs for detecting signals from thermocouples of types J and K.
- The analog input adapter module for Pt100 inputs FX3U-4AD-PT-ADP permits the connection of four Pt100 sensors to the FX3U series controller.

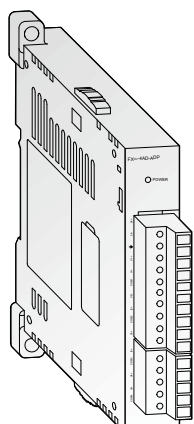
Note: These adapters can only be used with the FX3U and they require a function extension board.

Specifications	FX3U-4AD-TC-ADP	FX3U-4AD-PT-ADP
Power supply	5 V DC / 15 mA (from base unit); 24 V DC / 45 mA	5 V DC / 15 mA (from base unit); 24 V DC / 50 mA
Analog inputs	4 (J or K type)	4 (Pt100 sensors)
Compensated temperature range	°C -100 to 600 (J type) / -100 to 1000 (K type)	-50 to 250
Digital outputs	-1000 to 6000 (J type) / -1000 to 10000 (K type)	-500 to 2500
Resolution	0.3 (J type) / 0.4 (K type)	0.1
Overall accuracy for fullscale	± (0.5% for fullscale + 1 °C)	±0.5% ^① ±1% ^②
Related I/O points	0	0
Weight	kg 0.1	0.1
Dimensions (W x H x D)	mm 17.6 x 90 (106) x 89.5	17.6 x 90 (106) x 89.5

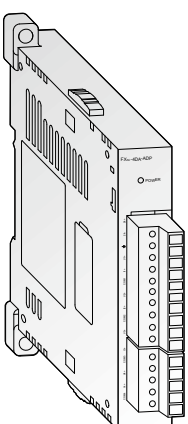
^① Ambient temperature 25 ± 5 °C

^② Ambient temperature 0 to 55 °C

■ Analog I/O Adapters

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U


FX3U-4AD-ADP



FX3U-4DA-ADP

FX3U-4AD-ADP, FX3U-4DA-ADP

- The FX3U-4AD-ADP adapter module for analog input is a special function adapter to add four analog input points to the FX3U PLC system.
- The FX3U-4DA-ADP adapter module for analog output is a special function adapter to add four analog output points to the FX3U PLC system.

Note: These adapters can only be used with the FX3U and they require a function extension board.

Specifications	FX3U-4AD-ADP	FX3U-4DA-ADP
Power supply	5 V DC / 15 mA (from base unit); 24 V DC / 40 mA	5 V DC / 15 mA (from base unit); 24 V DC / 150 mA
Analog channels	inputs 4 outputs —	— 4
Analog range	0 to 10 V DC, 4 – +20 mA	0 to 10 V DC, 4 – +20 mA
Resolution	voltage 2.5 mV (12 bit) current 10 µA (11 bit)	2.5 mV (12 bit) 4 µA (12 bit)
Overall accuracy for fullscale	±0.5 %* / ±1%	±0.5 %* / ±1%
Related I/O points	0	0
Weight	kg 0.1	0.1
Dimensions (W x H x D)	mm 17.6 x 90 (106) x 89.5	17.6 x 90 (106) x 89.5

*Dependent on the ambient temperature and signal quality

High-Speed Counter Modules

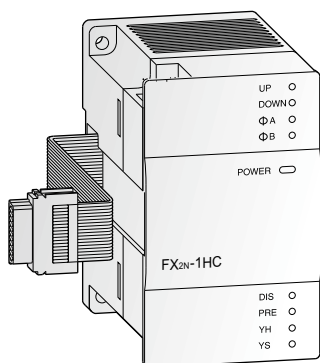
☐ FX1S ☐ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX2N-1HC

In addition to the internal high-speed MELSEC FX counters, the high-speed counter module FX2N-1HC provides the user with an external counter. It counts 1- or 2-phase pulses up to a frequency of 50 kHz. The counting range covers either 16 or 32 bit.

The two integrated transistor outputs can be switched independently of one another by means of internal comparison functions. Hence, simple positioning tasks can also be realized economically. In addition, the FX2N-1HC can be used as a ring counter.

Note: When attaching the module to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.



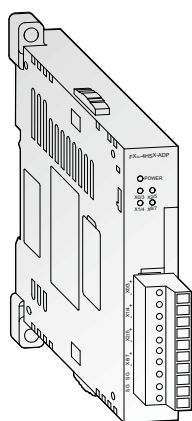
Specifications	FX2N-1HC
Signal level	5, 12, 24 V DC / 7 mA
Power supply	5 V DC / 90 mA (from base unit)
Counter inputs	2 (1 phase) or 1 (2 phase)
Max. counting frequency	kHz 50
Input format	bit 16, 32
Type of counter	Up/down counter, ring counter
Counting range	16 bit 0 – 65535
	32 bit -2147483648 – +2147483647
Output type	2 x transistor (5 – 24 V DC; 0.5 A)
Related I/O points	8
Weight	kg 0.3
Dimensions (W x H x D)	mm 55 x 90 x 87

High-Speed Counter Adapters

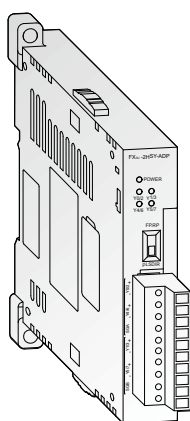
☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U

FX3U-4HSX-ADP, FX3U-2HSY-ADP

These adapter modules allow direct processing of positioning application data. The FX3U-4HSX-ADP provides high speed counter input up to 200 kHz while the FX3U-2HSY-ADP delivers 2 channels of pulse train outputs up to 200 kHz.



FX3U-4HSX-ADP



FX3U-2HSY-ADP

Specifications	FX3U-4HSX-ADP	FX3U-2HSY-ADP
Power supply	5 V DC / 30 mA (from base unit); 24 V DC / 30 mA (from base unit)	5 V DC / 30 mA (from base unit); 24 V DC / 60 mA (from base unit)
Maximum connectivity	2	2
Related I/O points	0	0
Counter	inputs 4	—
	outputs —	2
Max. counting frequency	inputs kHz 1 ch 1 input or 1 ch 2 inputs: 200 2 ch 2 inputs: 100	—
	outputs kHz —	200
Input format	Differential line receiver (AM26C32 is suitable) Photocoupler isolation on inputs	—
Output format	—	Differential line driver (AM26C31 is suitable) Normal rotation pulse train, reverse pulse train or pulse train + one
Maximum cable length	m 10	10
Input potential	5 V DC	—
Output load	—	less than 25 mA
Weight	kg 0.08	0.08
Dimensions (W x H x D)	mm 17.6 x 90 (106) x 89.5	17.6 x 90 (106) x 89.5

☐ FX1S ☐ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

A very wide range of manual and automatic functions are available to the user.

Specifications	FX2N-1PG-E	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 / 55 mA (from base unit)	5 V DC / 120 mA (from base unit)
Accessible axes	1	1
Output frequency pulse/s	10 – 100000	1 – 1000000
Related I/O points	8	8
Weight kg	0.3	0.2
Dimensions (W x H x D) mm	43 x 90 x 87	43 x 90 x 87

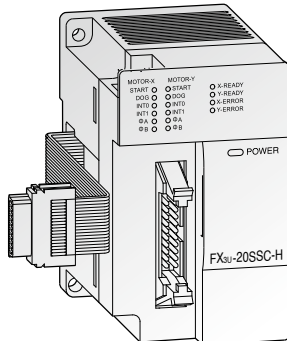
Specifications		FX2N-10GM	FX2N-20GM
Number of controllable axes		1 axis	2 axes (independently or simultaneously)
Program memory		3.8 K steps with EEPROM	7.8 K steps with built-in RAM (battery backup); EEPROM optionally
Positioning	method	Absolute data or incremental	Absolute data or incremental
	units	mm, inch, degree and pulse	mm, inch, degree and pulse
	counting resolution	31 bits + sign, -2147483648 to 2147483647	31 bits + sign, -2147483648 to 2147483647
	max. counting 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		W 5	10
Weight		kg 0.3	0.4
Dimensions (W x H x D)		mm 60 x 90 x 87	86 x 90 x 87

■ Positioning Modules

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U

FX3U-20SSC-H

The FX3U-20SSC-H module is a high performance 2 axis-positioning module. By the use of SSCNETIII networks up to 100m can be set up with out any magnetic disturbance. Up/Download of servo parameter are supported as well as speed and target position changing during the positioning process. The programming with FX Configurator FP reduces set-up time and allows an easy overview of all parameter.



- One 20SSC-H controls 2 axes.
- Linear and circular interpolation (Center / Radius designation)
- Start up time 1.6ms or less
- 1-speed positioning and interrupt 1-speed constant quantity feed operations for constant quantity feed control, and also the linear interpolation and circular interpolation operations.

Specifications		FX3U-20SSC-H
Number of controllable axes		2 axes
No. of occupied I/O points		8
Connectable servoamplifier		MELSERVO MR-J3-B Maximum 2 amplifiers can be connected Standard cord length :Station to station maximum 20m Long distance cord length:Station to station maximum 50m
Servo bus		SSCNET III
Scan cycle		1.77 ms
Positioning	Method	Increment/Absolute
	Unit	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 command	Hz, cm/min, 10deg/min, inch/min
	Acceleration/deceleration process	Trapezoidal acceleration/deceleration, S-pattern acceleration / deceleration: 1 to 5000ms Only trapezoidal acceleration/deceleration is available for interpolation
	Starting time	1.6ms or less
Interpolation function		2-axes linear interpolation, 2-axes circular interpolation
Power supply		24 V DC +20% -15% Ripple (p-p) within 5%
Power consumption		W 5
Weight		kg 0.3
Dimensions (W x H x D)		mm 55 x 90 x 87

■ Positioning Modules

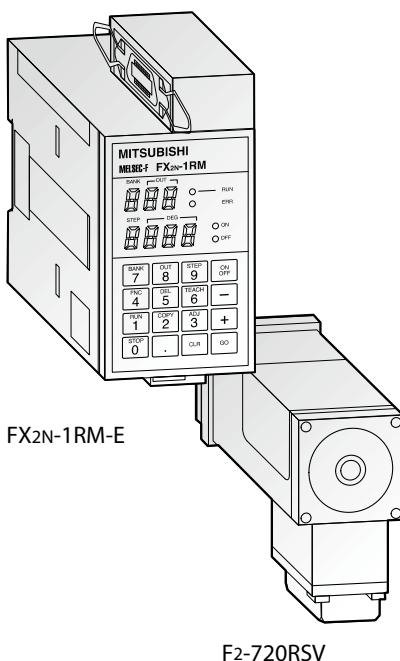
☐ FX1S ☐ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX2N-1RM-E-SET

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

The FX2N-1RM-E-SET uses 48 outputs with a maximum of 8 outputs per electronic CAM profile.

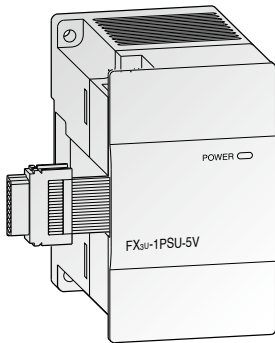
Note: When attaching the module to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.



Specifications		FX2N-1RM-E-SET
Number of controllable axes		1 using resolver F2-720RSV
Number of CAM output I/Os		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

■ Power Distribution Modules

☐ FX1S ☐ FX1N ☐ FX2N ☐ FX2NC ☒ FX3U



Power Supply Unit FX3U-1PSU-5V

The FX3U-1PSU-5V provides additional power for the 5V system bus and 24V for In/Outputs extension blocks and special function blocks when power from a powered extension unit or FX3U base unit is not sufficient.

- Two modules can be used in one system
- Up to 1A power supply for the 5V system bus
- Up to 0,3A power supply for 24V
- Module don't occupy I/O points

*Note: The FX3U-1PSU-5V can't be used with a 24V base unit!
When connecting an input extension block (including FX2N-8ER-ES/UL, FX2N-8ER) to the FX3U-1PSU-5V, supply the power for it from the 24V DC service power supply of the connected main unit or powered extension unit on the upstream side!
Grounding and power cables should be positioned to exit the unit from above!*

Specifications		FX3U-1PSU-5V
Applicable for		Base units FX3U
Input voltage		100 – 240 V AC
Input frequency		50 / 60 Hz
Rush current		30 A Max. 5 ms or less / 100 V AC 65 A Max. 5 ms or less / 200 V AC
Power consumption		20 W Max.
Output current (Internal for supply)	24 V DC	0.3 A (Derates at the ambient temperature over 40 °C)
	5 V DC	1 A (Derates at the ambient temperature over 40 °C)
Holding time		10 ms / 100 V AC
Weight	kg	0.3
Dimensions (W x H x D)	mm	55 x 90 x 87

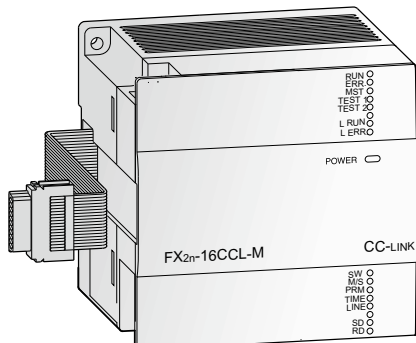
■ Network Modules for CC-Link

☐ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

CC-Link Master Module FX2N-16CCL-M

The CC-Link master module FX2N-16CCL-M is a special extension block which assigns an FX series PLC as the master station of the CC-Link system.

Note: When attaching this module to a FX2NC base unit, the interface adapter FX2N-CNV-IF is required. Refer to the Mitsubishi Electric CC-Link, CC-Link/LT product catalog for I/O blocks and power supply units.



CC-Link Communication Module FX2N-32CCL

The CC-Link communication module FX2N-32CCL enables the user to connect to the CC-Link network with a superior PLC system as the master station. This gives the user access to the network of MELSEC PLC systems and additional products from other suppliers.

Note: When attaching this module to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required. Refer to the Mitsubishi Electric CC-Link, CC-Link/LT product catalog for I/O blocks and power supply units.

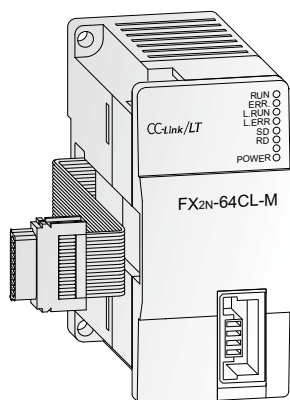
Specifications	FX2N-16CCL-M	FX2N-32CCL
Module type	Master station	Remote station
Link points per station	I/O points	32
	register	8
Max. number of I/O points	128 (with FX1N PLC), 256 (with FX2N, FX2NC PLC), 384 (with FX3U PLC)*	—
Number of connectable modules	Max. 15	—
Related I/O points	8	8
Power supply	24 V DC / 150 mA	5 V DC / max. 130 mA (from base unit); 24 V DC / 50 mA
Weight	0.4	0.3
Dimensions (W x H x D)	85 x 90 x 87	43 x 90 x 87

*Including I/O points in PLC and network.

CC-Link/LT Master Block FX2N-64CL-M

The CC-Link/LT master block FX2N-64CL-M is a special extension block which assigns an FX series PLC as the master station of the CC-Link/LT system.

Note: When attaching this module to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required. Refer to the Mitsubishi Electric CC-Link, CC-Link/LT product catalog for I/O blocks and power supply units.



Specifications		FX2N-64CL-M
Module type		Master station
Applicable point mode		4-point and 16-point (selectable by DIP switch)
Max. number of I/O points		128 (with FX1N PLC); 256 (with FX2N/FX2NC/FX3u PLC)*
Link points per station	4-point mode	4 (8 when composite module is used)
	16-point mode	16 (32 when composite module is used)
Link addresses/station		64 I/O points
Related I/O points		8
Power supply		5 V DC / max. 190 mA (from base unit), 24 V DC / 25 mA
Weight		kg 0.15
Dimensions (W x H x D)		mm 43 x 90 x 87

*Including I/O points in PLC and network.

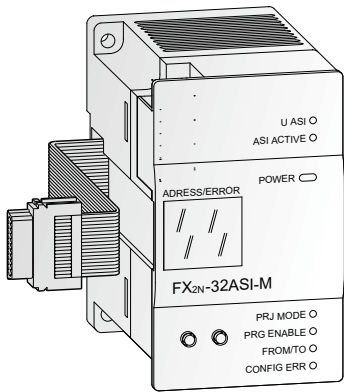
■
 Network Module for AS-Interface

☐ FX1S
 ☒ FX1N
 ☒ FX2N
 ☒ FX2NC
 ☒ FX3U

AS-Interface Module FX2N-32ASI-M

The FX2N-32ASI-M serves as master module for the connection of the FX1N/FX2N/FX2NC and FX3U PLC to the AS-interface system. Up to 31 slave units with up to 4 inputs and 4 outputs can be controlled.

Note: When attaching this module to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.



Specifications	FX2N-32ASI-M
Module type	Master module
Max. number of I/O points	128 (with FX1N PLC); 256 (with FX2N/FX2NC/FX3U PLC)*
Power supply	5 V DC / 150 mA (from base unit), 24 V DC / 70 mA external
Communication protocoll	AS-interface standard
Communication speed	167 kbps
Method	APM method (Alternating Pulse Modulation)
Communication cable	AS-interface standard cable
Total extension distance	100 m (up to 2 repeaters can be used on the system. The total extension distance may be extended by 100 m for each repeater.)
Max. number of controllable units	Up to 31 slave modules (up to 4 inputs / 4 outputs per slave)
I/O refresh time	Max. 5 ms
Network setup	2 key network setup
Display	7-segment display for status and diagnosis messages
Related I/O points	8
Weight	0.2 kg
Dimensions (W x H x D)	50 x 90 x 87 mm

*Including I/O points in PLC and network.

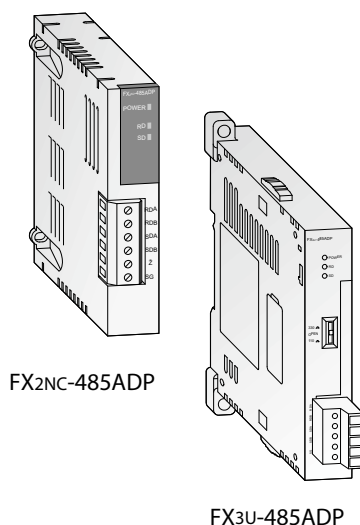
■ Communications Modules

☑ FX1S ☑ FX1N ☑ FX2N ☑ FX2NC ☑ FX3U

Communications Modules FX2NC-485ADP, FX3U-485ADP

The communication modules FX2NC-485ADP and FX3U-485ADP enable the configuration of 1:n multidrop, parallel link or peer-to-peer networks using the RS485 interface.

Note: the FX2NC-485ADP can only be used in combination with the FX2NC base units. FX3U-485ADP can only be used with the FX3U.



Specifications	FX2NC-485ADP	FX3U-485ADP
Power supply	5 V DC / max. 150 mA (from base unit)	5 V DC / 20 mA (from base unit)
Interface	RS485	RS485
Communication speed*	kbps 0.3 – 19.2	0.3 – 115.2
Communication distance	m 500	500
Related I/O points	0	0
Weight	kg 0.1	0.08
Dimensions (W x H x D)	mm 19.1 x 90 x 78	17.6 x 90 (106) x 89.5

* Speed depends on communication method (Parallel link, N:N Network, No protocol, Dedicated protocol)

■ Interface Modules

☑ FX1S ☑ FX1N ☑ FX2N ☑ FX2NC ☑ FX3U

Active Data Interface Modules FX2NC-232ADP, FX3U-232ADP

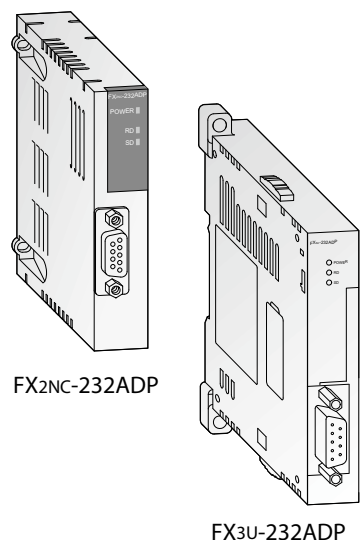
The additional active data interface modules permit active communication between the PLC and surrounding RS232C peripherals. All device information can be sent or received via these interfaces.

The module is suitable for the connection of printers, bar code readers, PCs and other PLC systems. The communication is handled by the PLC program using the RS instruction.

The connection is to the communications bus on the left side of the controller.

The internal serial RS422 interface is also fully available.

Note: The FX2NC-232ADP requires a FX2N-CNV-BD or FX1N-CNV-BD interface adapter when connecting to a FX1S, FX1N/ or FX2N base unit. The FX3U-232ADP can only be used with the FX3U and requires a function extension board.



Specifications	FX2NC-232ADP	FX3U-232ADP
Interface	RS232C with 9 pin D-SUB compact plug (photocoupler isolation)	
Power supply	5 V DC / 100 mA (from base unit)	5 V DC / 30 mA (from base unit)
Communication speed*	kbps 0.3 – 19.2	0.3 – 115.2
Communication distance	m Max. 15	Max. 15
Communication cable	Shielded cable	Shielded cable
Communication mode	Half duplex / Full Duplex	Half duplex / Full Duplex
Protocols	Computer link (dedicated protocol: format1, format4), no protocol, optional programming port	
Format	7 or 8 bits, parity: none/even/odd, stop bits: 1 or 2	7 or 8 bits, parity: none/even/odd, stop bits: 1 or 2
Related I/O points	0	0
Weight	kg 0.1	0.08
Dimensions (W x H x D)	mm 19.1 x 90 x 83	17.6 x 90 (106) x 81.5

* Speed depends on communication method (No protocol, Dedicated protocol, Protocol for programming tool)

Interface Modules

☐ FX1S ☐ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

Interface Module FX2N-232IF

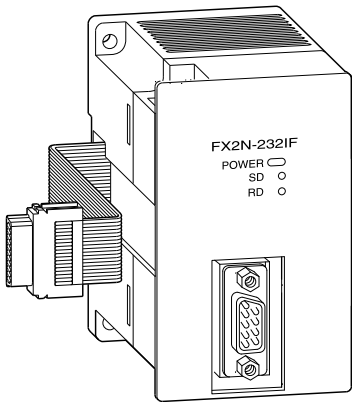
The interface module FX2N-232IF provides an RS232C interface for serial data communications with the MELSEC FX2N, FX2NC and FX3U.

Communication with PCs, printers, modems, barcode readers etc. is handled by the PLC program.

The send and receive data are stored in the FX2N-232IF's own buffer memory.

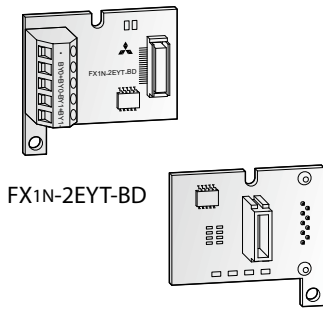
Changes at the user program are not possible via this interface module.

Note: When attaching this module to a FX2NC base unit, the interface adapter FX2NC-CNV-IF is required.



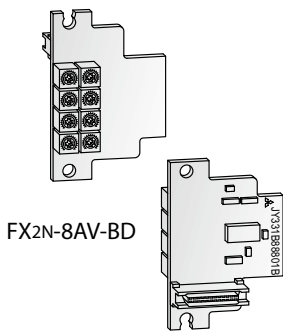
Specifications	FX2N-232IF
Interface	RS232C with 9 pole D-SUB connector (photocoupler isolation)
Power supply	5 V DC / 40 mA (from base unit); 24 V DC / 80mA
Communication speed	kbps 0.3 – 19.2
Communication distance	m Max. 15
Communication cable	Shielded cable
Communication mode	Full duplex
Protocols	Non protocol mode/start stop synchronisation
Send and receive buffer	512 byte each
Format	7 or 8 bits, parity none/even/odd, stop bits: 1 or 2
Related I/O points	8
Weight	kg 0.3
Dimensions (W x H x D)	mm 55 x 90 x 87

■ Adapter Boards



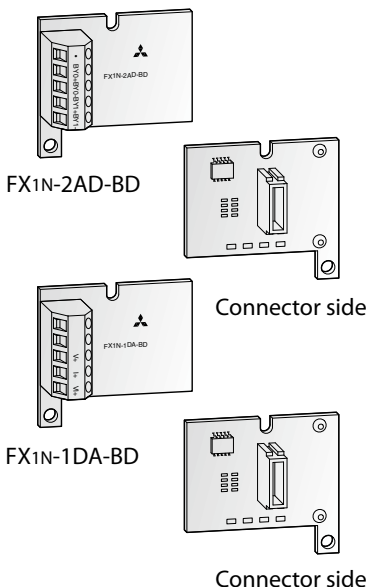
FX1N-2EYT-BD

Connector side



FX2N-8AV-BD

Connector side



FX1N-2AD-BD

Connector side

FX1N-1DA-BD

Connector side

Extension Adapters FX1N-4EX-BD, FX1N-2EYT-BD

The extension adapters for the FX1N series are available with 4 inputs or 2 outputs. They are installed directly in the controller of the FX1S or FX1N series and therefore do not require any additional installation space.

These adapters are especially advantageous when only few additional I/Os are required and there is not enough room for an adjacent module to be installed.

Specifications	FX1N-4EX-BD	FX1N-2EYT-BD
Applicable for	Base units FX1S/FX1N	Base units FX1S/FX1N
Integrated inputs/outputs	4	2
Power supply	From base unit	From base unit
Integrated inputs	4	—
Input level	voltage current	—
	24 V DC (+20% / -15%) 5 mA (24 V DC)	—
Integrated outputs	—	2
Output type	—	Transistor
Max. switching voltage	V —	5 – 30 V DC
Weight	kg 0.02	0.02
Dimensions (W x H x D)	mm 43 x 38.5 x 22	43 x 38.5 x 22

Analog Setpoint Adapters FX1N-8AV-BD and FX2N-8AV-BD

The FX□N-8AV-BD analog setpoint adapters enable the user to set 8 analog setpoint values. The analog values of the potentiometers are read into the controller and used as default setpoint values for timers, counters and data registers by the user's PLC programs.

Setpoint value polling and the definition of the potentiometer scales are performed in the PLC program using the dedicated instructions VRRD/VRSC (FNC85/86).

The FX□N-8AV-BD analog setpoint adapters are installed in the expansion slot of the FX1S/ FX1N/ FX2N CPU. No additional power supply is required for operation.

Specifications	FX1N-8AV-BD	FX2N-8AV-BD
Applicable for	Base units FX1S/FX1N	Base units FX2N
Power supply	From base unit	From base unit
Adjusting range	8 bit	8 bit
Related I/O points	0	0
Potentiometer evaluation	Via application instruction from the PLC CPU (FNC 85/86)	
Weight	kg 0.02	0.08
Dimensions (W x H x D)	mm 43 x 38.5 x 22	52 x 35 x 22

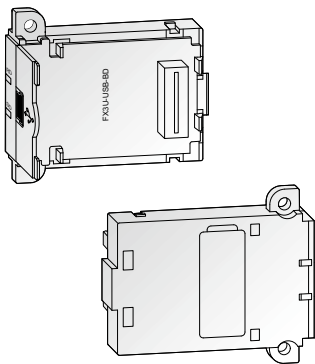
Analog Adapter Boards FX1N-2AD-BD, FX1N-1DA-BD

The analog input adapter board FX1N-2AD-BD provides the user with 2 analog inputs. The board converts analog process signals into digital values which are further processed by the MELSEC FX1S/FX1N controller.

The analog adapter FX1N-1DA-BD provides the user with 1 analog output. The module converts digital values from the FX1S/FX1N controller to the analog signals required by the process.

Specifications	FX1N-2AD-BD	FX1N-1DA-BD
Applicable for	Base units FX1S/FX1N	Base units FX1S/FX1N
Power supply	From base unit	From base unit
Analog channels	inputs outputs	— 1
Analog input range	0 to 10 V DC / 4 to 20 mA	0 to 10 V DC / 4 to 20 mA
Resolution	2.5 mV (12 bits) / 8 μ A (11 bits)	2.5 mV (12 bits) / 8 μ A (11 bits)
Overall accuracy for fullscale	$\pm$ 1%	$\pm$ 1%
Related I/O points	0	0
Weight	kg 0.02	0.02
Dimensions (W x H x D)	mm 43 x 38.5 x 22	43 x 38.5 x 22

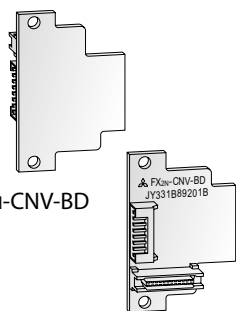
Adapter Boards



Adapter Board FX3U-USB-BD

This adapter board allows direct USB 2.0 connection to the front of the FX3U PLC for program maintenance.

Specifications	FX3U-USB-BD
Applicable for	Base units FX3U
Power supply	5 V DC (from base unit)
Weight	kg 0.02
Dimensions (W x H x D)	mm 19.6 x 46.1 x 53.5



FX2N-CNV-BD

Connector side

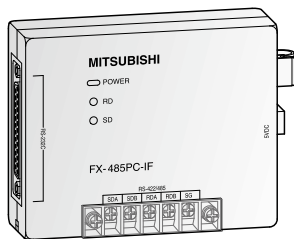
Communications Adapters FX1N-CNV-BD, FX2N-CNV-BD, FX3U-CNV-BD

The FX□N-CNV-BD adapters enable connection of the FX□□-□□□ADP special function modules to the left-hand side of the FX□□ base units.

Specifications	FX1N-CNV-BD	FX2N-CNV-BD	FX3U-CNV-BD
Applicable for	Base units FX1S/FX1N	Base units FX2N	Base units FX3U
Weight	kg 0.01	0.01	0.01
Dimensions (W x H)	mm 43 x 38 x (D) 14	54 x 35	19.6 x 46.1 x 53.5

Interface Unit

✓ FX1S ✓ FX1N ✓ FX2N ✓ FX2NC ✓ FX3U

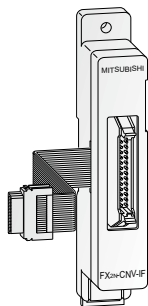


Interface Unit for RS485 1:n Multidrop Network FX-485PC-IF

The interface unit FX-485PC-IF is used for converting interface signals. The interface unit has an RS232C interface for connection to a PC and RS485 ports for connection to the 1:n multidrop network.

Specifications	FX-485PC-IF
Current consumption	mA 260
Power supply	5 V DC ±5%
Interface	RS232 / RS485
Weight	kg 0.4
Dimensions (W x H x D)	mm 100 x 80 x 30

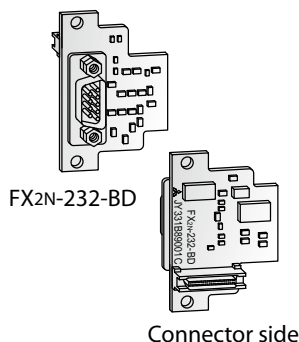
Interface Adapters



Interface Adapters FX2N-CNV-IF, FX2NC-CNV-IF

The FX2N-CNV-IF interface allows standard FX expansion blocks and special function modules to be connected to an FX2N PLC and the FX2NC-CNV-IF interface allows standard FX2N expansion blocks and special function modules to be connected to an FX2NC PLC.

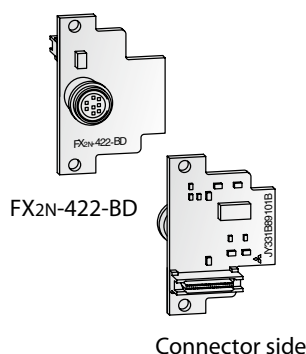
Specifications	FX2N-CNV-IF	FX2NC-CNV-IF
Applicable for	Base units FX2N	Base units FX2NC
Bus connection	FX2N bus to FX bus	FX2NC bus to FX2N bus
Weight	kg 0.3	0.3
Dimensions (W x H)	mm 140 x 25 x 45	90 x 14.6 x 74



Interface Adapters FX1N-232-BD, FX2N-232-BD, FX3U-232-BD

The FX□□-232-BD interface adapters provide an RS232C interface for serial data communications with the MELSEC FX1S/FX1N/FX2N/FX3U.

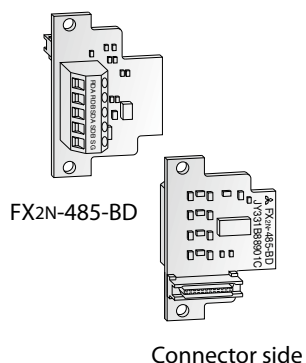
Specifications	FX1N-232-BD	FX2N-232-BD	FX3U-232-BD
Applicable for	Base units FX1S/FX1N	Base units FX2N	Base units FX3U
Interface	RS232C with 9 pole D-SUB connector		
Power supply	5 V DC / 20 mA (from base unit)		5 V DC / 20 mA (from base unit)
Related I/O points	—	—	—
Weight	kg 0.02	0.02	0.02
Dimensions (W x H x D)	mm 43 x 38.5 x 22	35 x 54 x 22	19.3 x 46.1 x 62.7



Interface Adapters FX1N-422-BD, FX2N-422-BD, FX3U-422-BD

The FX□□-422-BD interface adapters provide a second RS422 interface for connection of an additional device to the controller (programming unit or operator terminal).

Specifications	FX1N-422-BD	FX2N-422-BD	FX3U-422-BD
Applicable for	Base units FX1S/FX1N	Base units FX2N	Base units FX3U
Interface	RS422 with 8 pole mini DIN connector		
Power supply	5 V DC / 60 mA (from base unit)		5 V DC / 20 mA (from base unit)
Related I/O points	—	—	—
Weight	kg 0.01	0.02	0.02
Dimensions (W x H x D)	mm 43 x 38.5 x 20	35 x 54 x 22	19.6 x 46.1 x 53.5

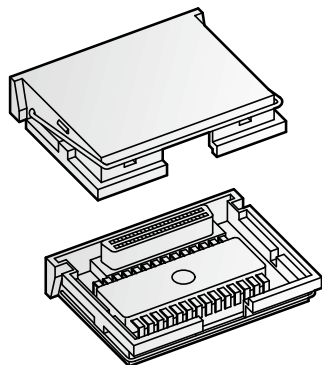


Interface Adapters FX1N-485-BD, FX2N-485-BD, FX3U-485-BD

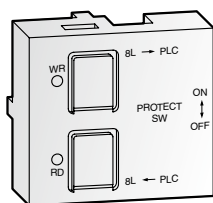
The interface adapters FX□□-485-BD provide the controller with an additional RS485 interface. The adapter, which is simply inserted into the base unit's expansion slot, enables the configuration of RS485 1:n multidrop, parallel link or peer-to-peer networks with FX1S/FX1N/FX2N/FX3U systems.

Specifications	FX1N-485-BD	FX2N-485-BD	FX3U-485-BD
Applicable for	Base units FX1S/FX1N	Base units FX2N	Base units FX3U
Interface	RS485 / RS422		
Power supply	5 V DC / 60 mA (from base unit)		5 V DC / 40 mA (from base unit)
Related I/O points	—	—	—
Weight	kg 0.02	0.02	0.02
Dimensions (W x H x D)	mm 43 x 38.5 x 22	35 x 54 x 22	19.6 x 46.1 x 69

Memory Media



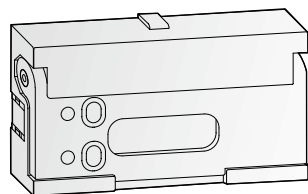
FX-EPROM-8



FX1N-EEPROM-8L



FX2NC-EEPROM-16



FX3U-FLROM-64L

Memory Cassettes

All FX1S, FX1N and FX2N base units are equipped with a slot for the optional, robust FX memory cassettes.

By connection of these memory cassettes, the internal memory of the controller is switched off and only the program specified in the respective memory cassette is run.

The memory size can be extended for all FX2N controllers up to 16,000 steps with the memory cassette FX-RAM-8.

The FX2N-ROM-E1 memory module simplifies the direct communication between the FX2N and the Mitsubishi Electric frequency inverters of the series FR-S500, FR-E500 and FR-A500.

The FX2N-ROM-E1 technically corresponds to the FX-EEPROM-16.

Specifications	FX-RAM-8	FX-EPROM-8	FX-EEPROM-4
Applicable for	Base units FX2N	Base units FX2N	Base units FX2N
Memory type	RAM	EPROM	EEPROM
Size	8,000/16,000 steps	8,000/16,000 steps	4,000 steps
Protect switch	Not provided	Not provided	Provided

Specifications	FX-EEPROM-8	FX1N-EEPROM-8L	FX-EEPROM-16	FX2N-ROM-E1
Applicable for	Base units FX2N	Base units FX1S/FX1N	Base units FX2N	Base units FX2N
Memory type	EEPROM	EEPROM	EEPROM	EPROM
Size	8,000 steps	2,000/8,000 steps	16,000 steps	16,000 steps
Protect switch	Provided	Provided	Provided	Provided
Data transfer buttons	Not provided	Provided	Not provided	Not provided

Memory and Real-time Clock Cassette

All the FX2NC base units have a slot for adding a memory and real-time clock cassettes. The FX2NC-ROM-CE1 module contains both EEPROM memory and a real-time clock. The FX2NC-EEPROM-16 provides only memory, without the clock feature, while the FX2NC-RTC is a real-time clock cassette for the FX2NC PLCs without any additional memory.

Specifications	FX2NC-ROM-CE1	FX2NC-EEPROM-16	FX2NC-EEPROM-16C	FX2NC-EEPROM-4C	FX2NC-RTC
Applicable for	Base units FX2NC	Base units FX2NC	Base units FX2NC	Base units FX2NC	Base units FX2NC
Memory type	EEPROM + RTC	EEPROM	EEPROM + RTC	EEPROM + RTC	RTC (real time clock)
Size	16,000 steps	16,000 steps	16,000 steps	4,000 steps	—
Protect switch	Provided	Provided	Provided	Provided	Not provided

FX3U-FLROM-16, FX3U-FLROM-64, FX3U-FLROM-64L

The memory cassette can be installed at the main unit, and when installed, the memory cassette's internal program is used in place of the internal RAM memory.

The FX3U-FLROM-64L features additional data transfer buttons.

Specifications	FX3U-FLROM-16	FX3U-FLROM-64	FX3U-FLROM-64L
Applicable for	Base units FX3U	Base units FX3U	Base units FX3U
Module type	Memory cassette	Memory cassette	Memory cassette
Number of steps	16,000	64,000	64,000
Memory type	Flash memory	Flash memory	Flash memory
Protect switch	Provided	Provided	Provided
Data transfer buttons	Not provided	Not provided	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

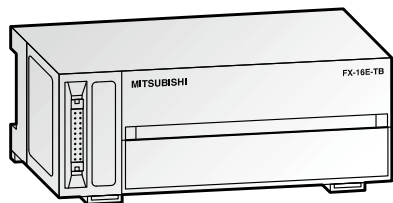
■ Terminal Blocks

☐ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

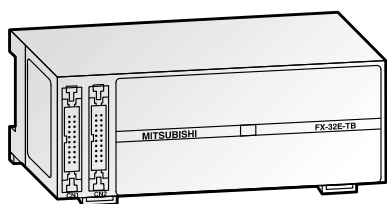
Remote Terminal Blocks

Remote terminal blocks allow users to place I/O modules at the point control. The blocks can be used with FX2NC and FX-GM controllers when appropriate inter connecting cable is used.

Note: These below listed products are not authorized by CE.



FX-16E-TB



FX-32E-TB

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 16 inputs or 16 outputs	up to 32 inputs or 32 outputs	up to 32 inputs or 32 outputs
Application	Connects directly to PLC input/output terminals.			
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
Weight	kg 0.3	0.3	0.3	0.3

Specifications	FX-16EX-A1-TB/UL	FX-16EX-A1-TB	FX-16EYR-ES-TB/UL	FX-16EYR-TB
Number of inputs	16	16	—	—
Number of outputs	—	—	16	16
Application	AC 100 – 120 V input type	AC 100 – 120 V input type for use with japanese spec. PLC	Relay output type	Relay output type for use with japanese spec. PLC
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
Weight	kg 0.3	0.3	0.3	0.3

Specifications	FX-16EYS-ES-TB/UL	FX-16EYT-ESS-TB/UL	FX-16EYT-ES-TB/UL	FX-16EYT-TB
Number of inputs	—	—	—	—
Number of outputs	16	16	16	16
Application	Triac output type	Source transistor output type	Sink transistor output type	Sink transistor output type for use with japanese spec. PLC
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
Weight	kg 0.3	0.3	0.3	0.3

■ Backup Batteries

☐ FX1S ☐ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

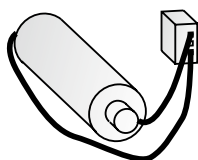
Batteries

The battery buffers the internal RAM of the MELSEC PLC in the event of a voltage failure.

The battery F2-40BL can be used for all base units of the MELSEC FX2N series.

The battery FX2NC-32BL is suitable for all base units of the MELSEC FX2NC series and for the positioning modules FX2N-20GM.

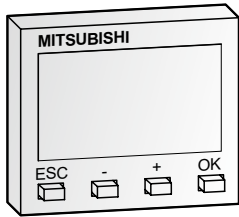
The battery FX3U-32BL can be used for all base units of the MELSEC FX3U series.



F2-40BL

Specifications	F2-40BL	FX2NC-32BL	FX3U-32BL
Applicable for	Base units FX2N	Base units FX2NC and FX2N-20GM module	Base unit FX3U

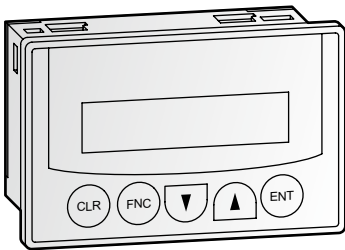
■ Display Modules



Display Module FX1N-5DM

The display module is inserted directly into the FX1S and FX1N series controllers and enables monitoring and editing of the data stored in the PLC.

Specifications	FX1N-5DM
Applicable for	Base units FX1S/FX1N
Display	LCD (with backlight)
Power supply	5 V DC $\pm 5\%$ (from base unit)
Current consumption	mA 110
Weight	kg 0.02
Dimensions (W x H x D)	mm 40 x 32 x 17

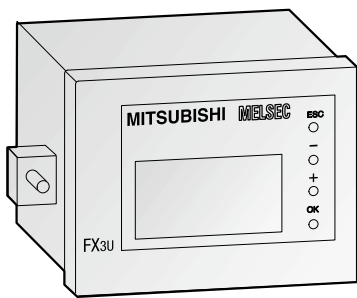


Control and Display Panel FX-10DM-E

The control and display panel FX-10-DM-E provides a key-oriented user-interface and enables you to monitor and edit process data in the PLC.

The display is arranged in 2 rows of 16 characters each. Functions can be invoked and values can be edited using the panel keys.

Specifications	FX-10DM-E
Applicable for	All base units FX1S/FX1N/FX2N/FX3U
Display	LCD (with backlight)
Resolution	2 x 16 signs (80 x 16 pixels)
Power supply	5 V DC $\pm 5\%$ (from base unit)
Current consumption	mA 220
Weight	kg 0.02
Dimensions (W x H x D)	mm 96 x 62 x 32



Panel FX3U-7DM with built-in holder FX3U-7DM-HLD

Control and Display Panel FX3U-7DM, Holder FX3U-7DM-HLD

The FX3U-7DM display module can be incorporated in the main unit, or can be installed in the enclosure using the FX3U-7DM-HLD display module holder.

Specifications	FX3U-7DM	FX3U-7DM-HLD
Applicable for	Base units FX3U	Base units FX3U
Display	16 letters x 4 lines	—
Resolution	—	—
Power supply	5 V DC (from base unit)	—
Current consumption	mA 20	—
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

■ Cables

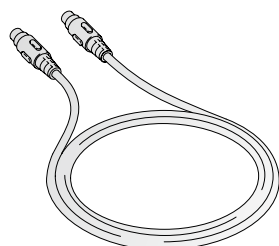
☒ FX1S ☒ FX1N ☒ FX2N ☒ FX2NC ☒ FX3U

FX Series Connection cables

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

Connection cable for peripherals

Specifications	F2-RS-5CAB	F2-232CAB-1	FX-232CAB-1	FX-422CAB0	FX-422CAB	FX-422CAB-150
Application	FX2N-1RM to resolver	PC to FX-232AWC-H	PC to GOT	FX-232AWC-H to FX□ PLC	FX-232AWC-H to FX PLC	FX-232AWC-H to FX PLC
Length	m 5.0	3.0	3.0	1.5	0.3	1.5



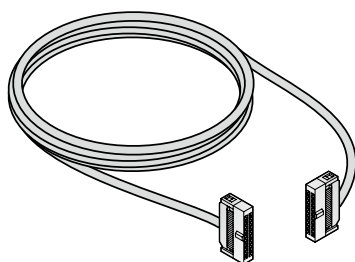
FX-20P-CAB0

Connection cable for programming unit

Specifications	FX-20P-CAB0	FX-20P-CAB	FX-20P-CADP
Application	FX-20P-G to FX□ PLC	FX-20P-E to FX PLC	FX-20P-CAB to FX□ PLC
Length	m 1.5	1.5	0.3

Connection cable for FX2NC 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	FX2NC to remote FX terminal block						
Length	m 5.0	1.5	3.0	5.0	1.5	3.0	5.0



FX-16E-500CAB

Connection cable for remote connection

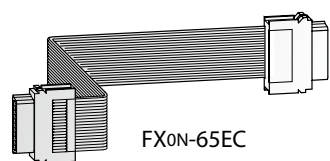
Specifications	FX-A32E-150CAB	FX-A32E-300CAB	FX-A32E-500CAB	E-GMH-200CAB	E-GMJ-200CAB	E-GMJ2-200CAB1A	E-GMC-200CAB	E-GM-200CAB
Application	FX2NC to remote A series			FX-GM controller to remote terminal block				
Length	m 1.5	3.0	5.0	2.0	2.0	2.0	2.0	2.0

Connection cable 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

Connection cable for FX2NC main units

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



FX0N-65EC

Interface converter

Specifications	FX-USB-AW	FX-232AWC-H
Application	USB to RS422 converter	RS422 to RS232C converter
Dimensions (W x H x D in mm)	m 0.063+3.0	25 x 80 x 60

■ Communications Adapter

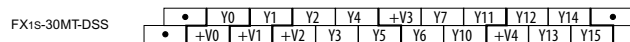
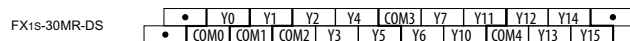
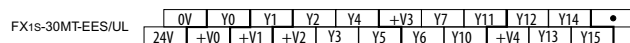
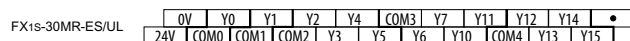
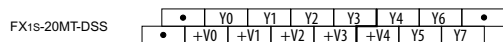
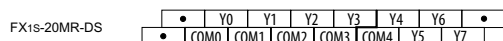
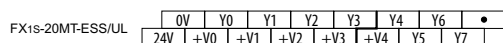
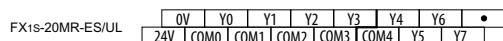
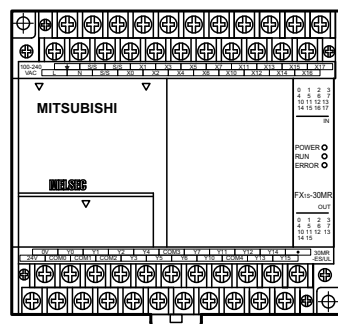
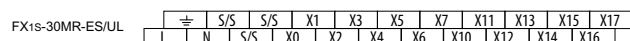
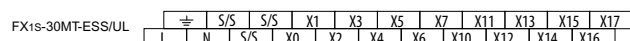
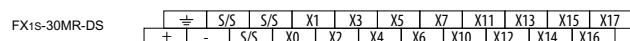
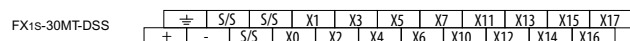
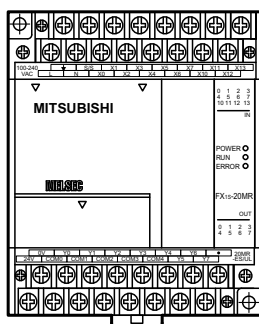
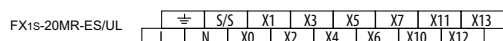
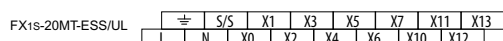
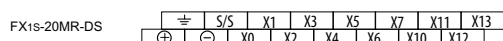
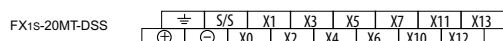
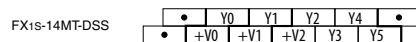
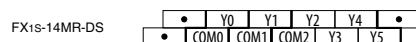
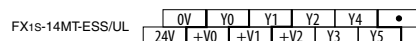
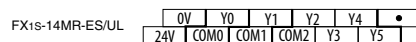
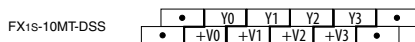
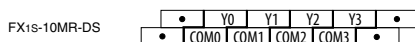
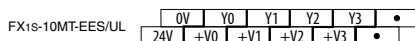
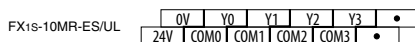
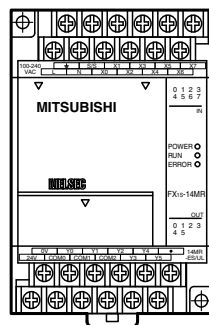
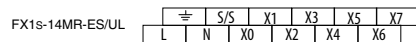
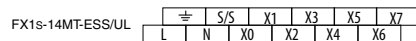
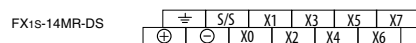
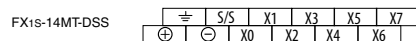
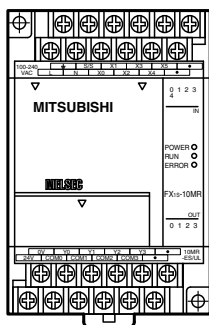
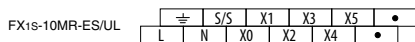
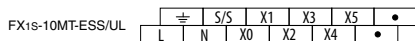
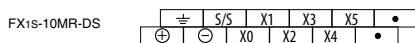
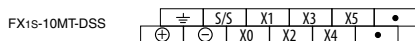
☐ FX1S ☐ FX1N ☒ FX2N ☐ FX2NC ☐ FX3U

Communication Adapter FX2N-CNV-BC

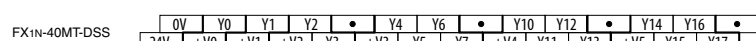
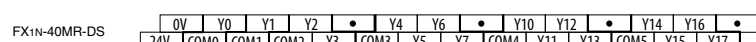
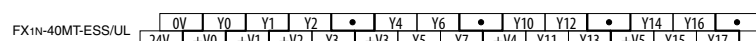
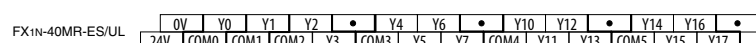
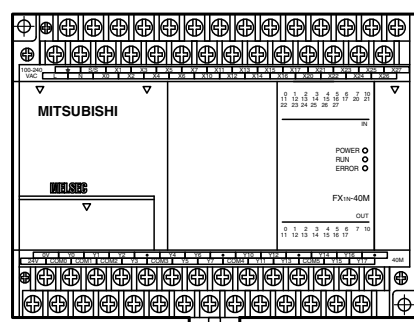
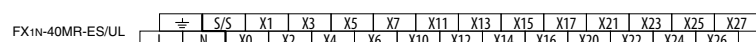
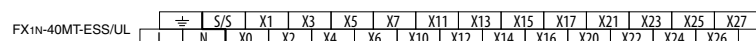
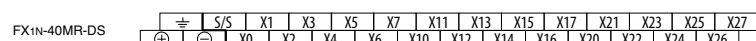
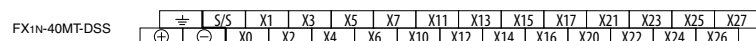
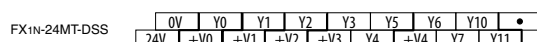
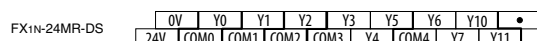
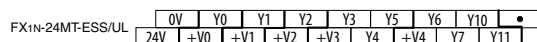
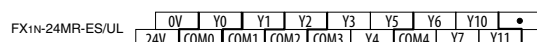
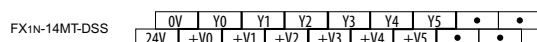
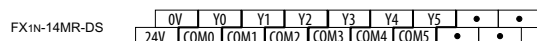
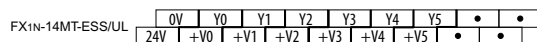
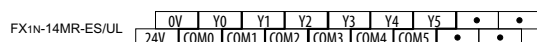
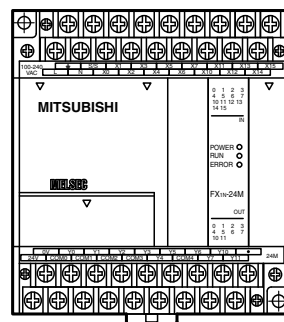
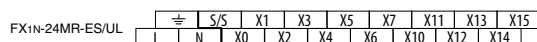
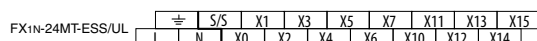
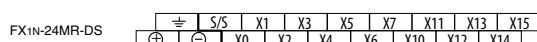
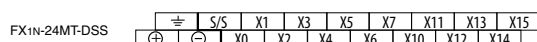
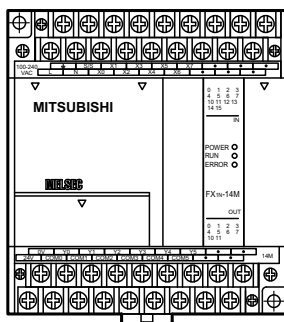
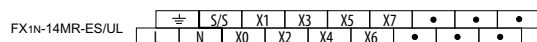
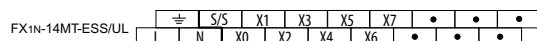
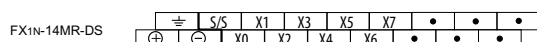
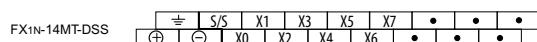
The communication adapter enables remote placing of expansion blocks from the PLC CPU. It connects two FX0N-□□ cables.

Specifications	FX2N-CNV-BC
Application	Base units FX2N
Weight	kg 0.04
Dimensions (W x H x D)	mm 40 x 60.5 x 16.5

Base Units MELSEC FX1s

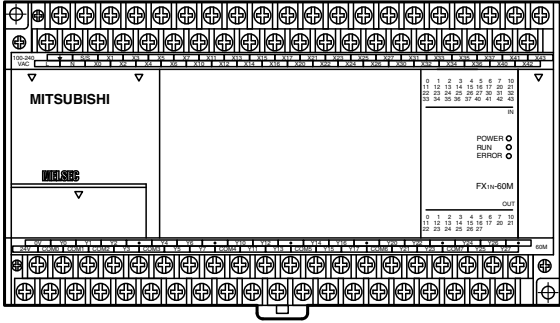


■ Base Units MELSEC FX1N



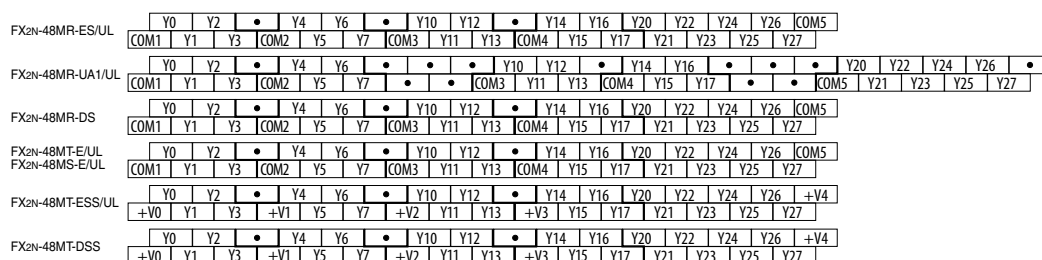
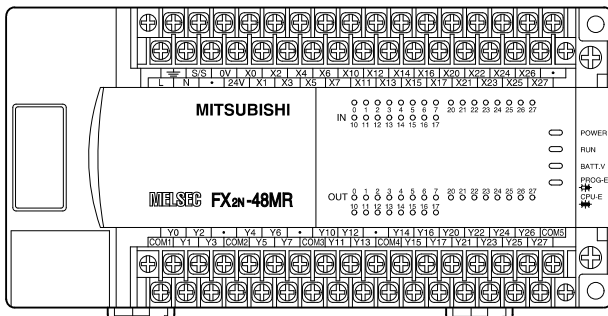
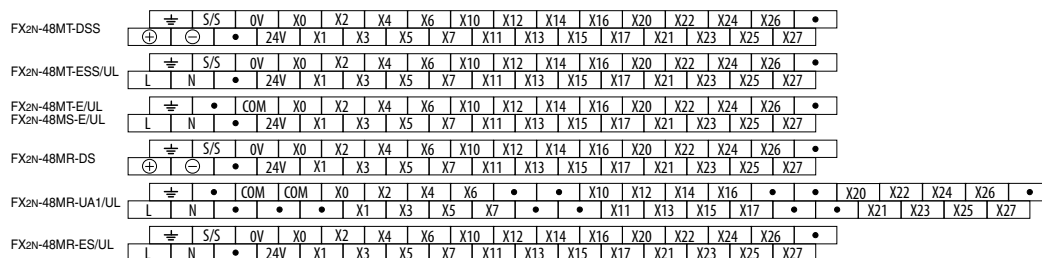
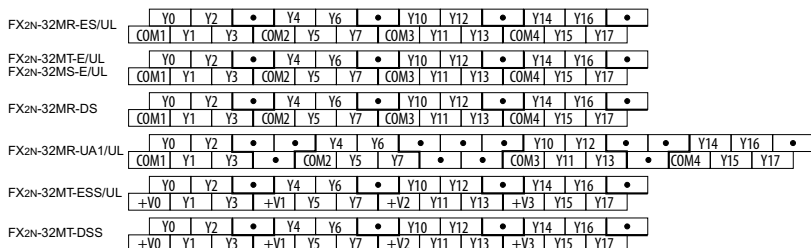
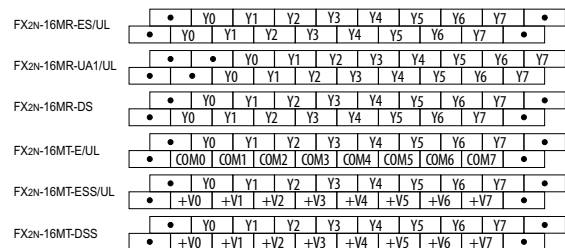
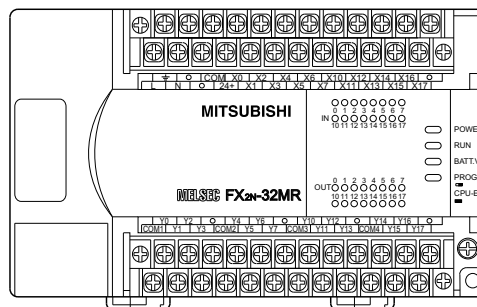
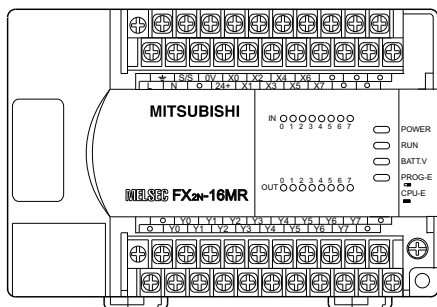
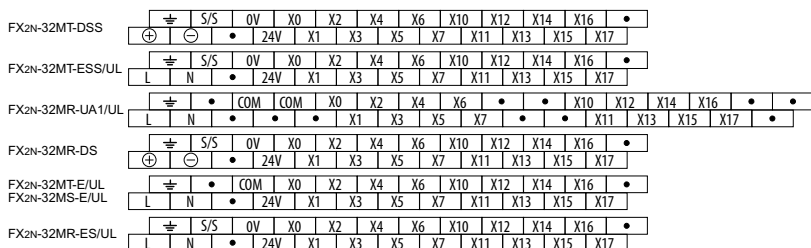
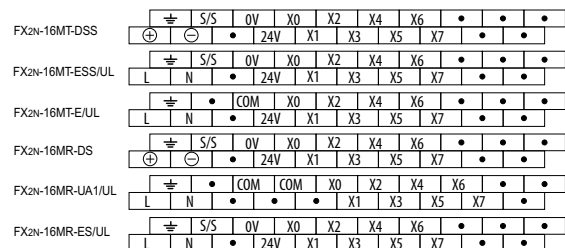
■ Base Units MELSEC FX1N

FX1N-60MT-DSS	≡ ⊕ S/S ⊖ X1 X3 X5 X7 X11 X13 X15 X17 X21 X23 X25 X27 X31 X33 X35 X37 X41 X43 X0 X2 X4 X6 X10 X12 X14 X16 X20 X22 X24 X26 X30 X32 X34 X36 X40 X42
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FX1N-60MR-ES/UL	0V Y0 Y1 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 • Y24 Y26 • 24V COM0 COM1 COM2 Y3 COM3 Y5 Y7 COM4 Y11 Y13 COM5 Y15 Y17 COM6 Y21 Y23 COM7 Y25 Y27
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■ Base Units MELSEC FX2N



■ Base Units MELSEC FX2N

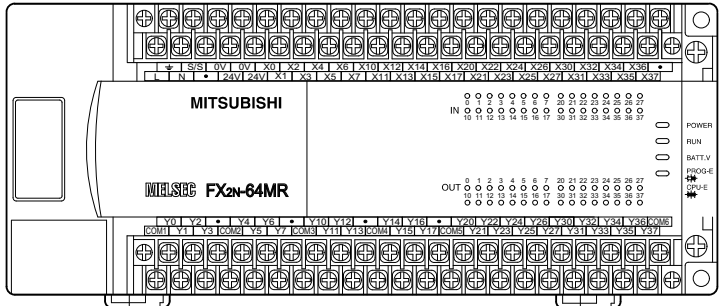
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	⊕	⊖	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	

FX2N-64MT-ESS/UL		S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37

FX2N-64MR-UA1/UL		•	•	COM	COM	X0	X2	X4	X6	•	X10	X12	X14	X16	•	•	•	X20	X22	X24	X26	•	•	•	X30	X32	X34	X36	•
	L	N	•	•	•	•	X1	X3	X5	X7	•	X11	X13	X15	X17	•	•	•	X21	X23	X25	X27	•	•	•	X31	X33	X35	X37

FX2N-64MR-DS		S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
			•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37

FX2N-64MR-ES/UL		S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37



FX2N-64MR-ES/UL	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	COM6
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX2N-64MR-DS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	COM6
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX2N-64MR-UA1/UL	Y0	Y2	•	Y4	Y6	•	•	•	Y10	Y12	•	Y14	Y16	•	•	Y20	Y22	Y24	Y26	•	•	•	•	•	•	•	Y30	Y32	Y34	Y36	•
	COM1	Y1	Y3	COM2	Y5	Y7	•	•	COM3	Y11	Y13	COM4	Y15	Y17	•	COM5	Y21	Y23	Y25	Y27	•	•	•	•	•	COM6	Y31	Y33	Y35	Y37	

FX2N-64MT-ESS/UL	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	+V5
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	+V4	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

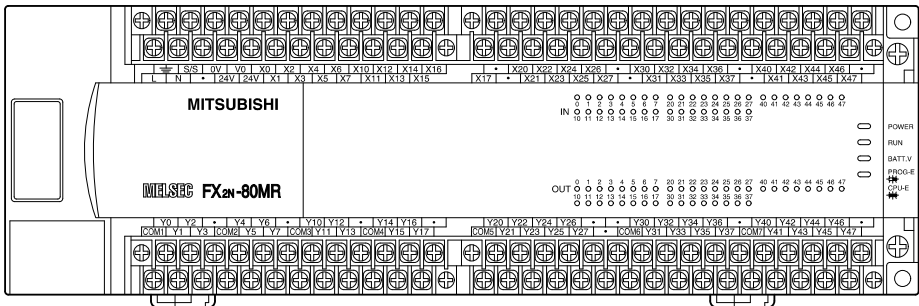
FX2N-64MT-DSS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	+V5
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	+V4	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX2N-80MT-DSS		S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	•	X20	X22	X24	X26	•	X30	X32	X34	X36	•	X40	X42	X44	X46	•
	⊕	⊖	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	•	X21	X23	X25	X27	•	X31	X33	X35	X37	•	X41	X43	X45	X47

FX2N-80MT-ESS/UL		S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	•	X20	X22	X24	X26	•	X30	X32	X34	X36	•	X40	X42	X44	X46	•
	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	•	X21	X23	X25	X27	•	X31	X33	X35	X37	•	X41	X43	X45	X47

FX2N-80MR-DS	⏏	S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	•	X20	X22	X24	X26	•	X30	X32	X34	X36	•	X40	X42	X44	X46	•
	⊕	⊖	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	•	X21	X23	X25	X27	•	X31	X33	X35	X37	•	X41	X43	X45	X47

FX2N-80MR-ES/UL		S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	•	X20	X22	X24	X26	•	X30	X32	X34	X36	•	X40	X42	X44	X46	•
	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	•	X21	X23	X25	X27	•	X31	X33	X35	X37	•	X41	X43	X45	X47



FX2N-80MR-ES/UL	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	•	•	Y30	Y32	Y34	Y36	•	Y40	Y42	Y44	Y46	•
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	•	COM6	Y31	Y33	Y35	Y37	COM7	Y41	Y43	Y45	Y47

FX2N-80MR-DS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	•	•	Y30	Y32	Y34	Y36	•	Y40	Y42	Y44	Y46	•
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	•	COM6	Y31	Y33	Y35	Y37	COM7	Y41	Y43	Y45	Y47

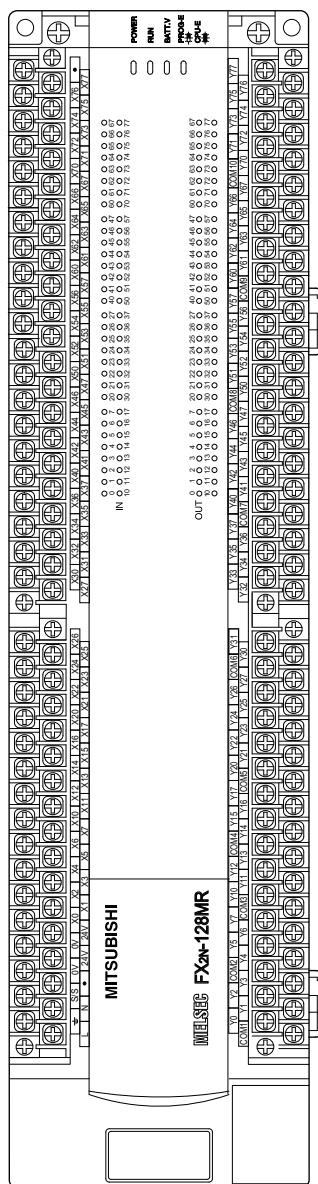
FX2N-80MT-ESS/UL	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	•	•	Y30	Y32	Y34	Y36	•	Y40	Y42	Y44	Y46	•
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	+V4	Y21	Y23	Y25	Y27	•	+V5	Y31	Y33	Y35	Y37	+V6	Y41	Y43	Y45	Y47

FX2N-80MT-DSS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	•	•	Y30	Y32	Y34	Y36	•	Y40	Y42	Y44	Y46	•
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	+V4	Y21	Y23	Y25	Y27	•	+V5	Y31	Y33	Y35	Y37	+V6	Y41	Y43	Y45	Y47

■ Base Units MELSEC FX2N

FX2N-128MT-ESS/UL																																					
≡	S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	X40	X42	X44	X46	X50	X52	X54	X56	X60	X62	X64	X66	X70	X72	X74	X76	•	
L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	X41	X43	X45	X47	X51	X53	X55	X57	X61	X63	X65	X67	X71	X73	X75	X77	

FX2N-128MR-ES/UL																																					
≡	S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	X40	X42	X44	X46	X50	X52	X54	X56	X60	X62	X64	X66	X70	X72	X74	X76	•	
L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	X41	X43	X45	X47	X51	X53	X55	X57	X61	X63	X65	X67	X71	X73	X75	X77	

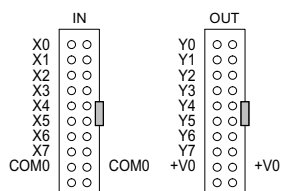
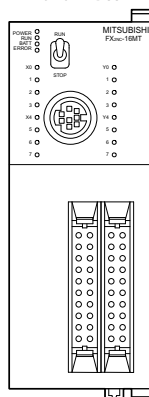


FX2N-128MR-ES/UL		COM1	Y1	Y3	Y4	Y6	COM3	Y11	Y13	Y14	Y16	COM5	Y21	Y23	Y25	Y27	Y30	Y32	Y34	Y36	COM7	Y41	Y43	Y45	Y47	Y50	Y52	Y54	Y56	COM9	Y61	Y63	Y65	Y67	COM10	Y71	Y73	Y75	Y77
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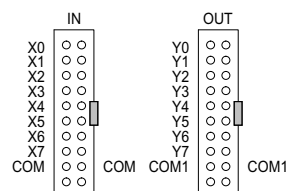
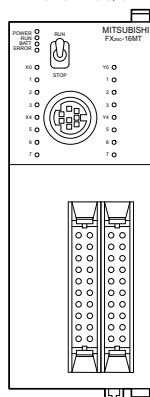
FX2N-128MT-ESS/UL		COM1	Y1	Y3	Y4	Y6	COM3	Y11	Y13	Y14	Y16	COM5	Y21	Y23	Y25	Y27	Y30	Y32	Y34	Y36	COM7	Y41	Y43	Y45	Y47	Y50	Y52	Y54	Y56	COM9	Y61	Y63	Y65	Y67	COM10	Y71	Y73	Y75	Y77
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■ Base Units MELSEC FX2NC

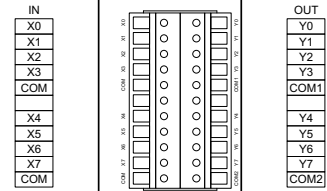
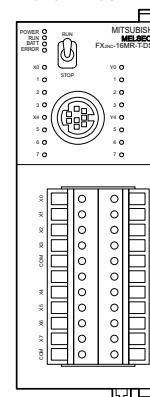
FX2NC-16MT-DSS



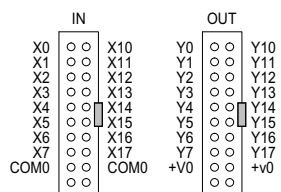
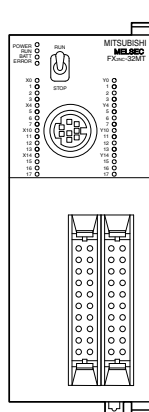
FX2NC-16MT-DS/UL



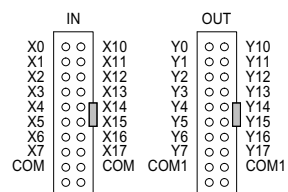
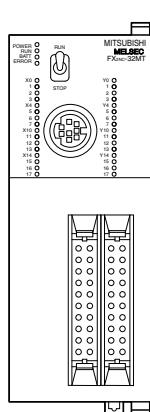
FX2NC-16MR-T-DS



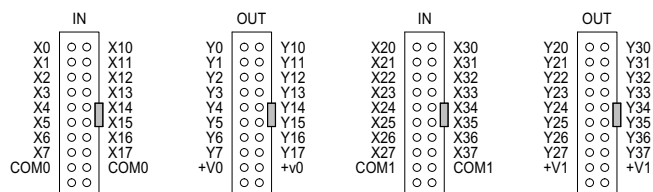
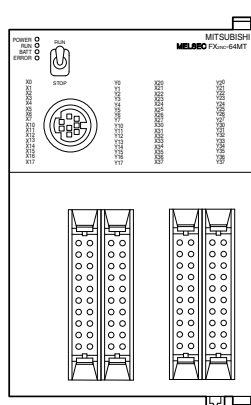
FX2NC-32MT-DSS



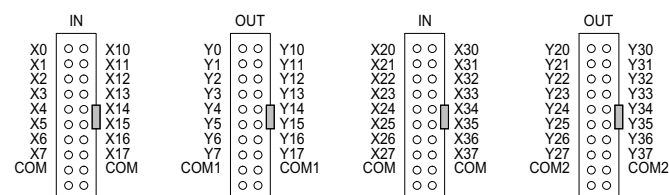
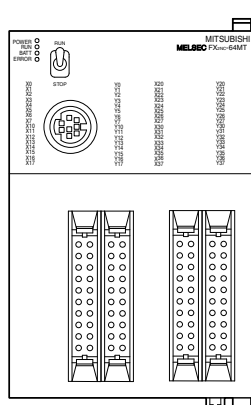
FX2NC-32MT-D/UL



FX2NC-64MT-DSS

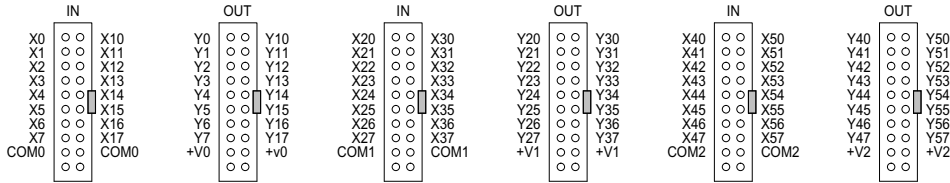
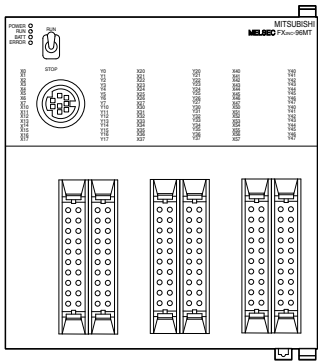


FX2NC-64MT-D/UL

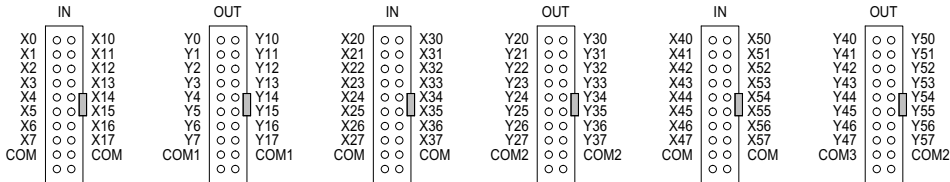
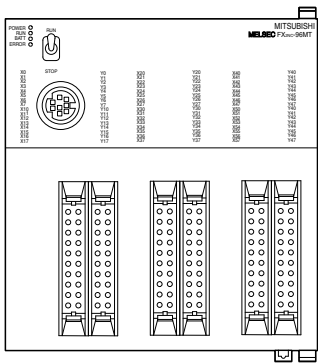


■ Base Units MELSEC FX2NC

FX2NC-96MT-DSS



FX2NC-96MT-D/UL



■ Base Units MELSEC FX3U

FX3U-16MT/DSS	$\frac{\square}{\square}$	S/S	(0V)	X0	X2	X4	X6	•	•	•
	(+)	(-)	•	(24V)	X1	X3	X5	X7	•	•

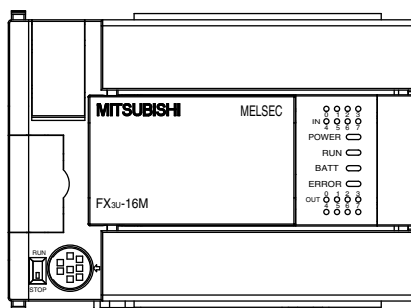
FX3U-16MT/DS	$\frac{1}{3}$	S/S(0V)	X0	X2	X4	X6	•	•	•
	(+)	(-)	• (24V)	X1	X3	X5	X7	•	•

FX3U-16MT/ESS	$\perp$	S/S	0V	X0	X2	X4	X6	.	.	.
	L	N	.	24V	X1	X3	X5	X7	.	.

FX3U-16MT/ES	$\perp$	S/S	0V	X0	X2	X4	X6	.	.	.
	L	N	.	24V	X1	X3	X5	X7	.	.

FX3U-16MR/DS	$\frac{1}{\equiv}$	S/S	(0V)	X0	X2	X4	X6	•	•	•
	$\oplus$	$\ominus$	•	(24V)	X1	X3	X5	X7	•	•

FX3U-16MR/ES		S/S	0V	X0	X2	X4	X6	•	•	•
	L	N	•	24V	X1	X3	X5	X7	•	•



FX3U-16MR/ES	•	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	•
	•	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	•

FX3U-16MR/DS

FX3U-16MT/ES	•	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	•
	•	COM0	COM1	COM2	COM3	COM4	COM5	COM6	COM7	•

FX3U-16MT/ESS	•	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	•
	•	+V0	+V1	+V2	+V3	+V4	+V5	+V6	+V7	•

FX3U-16MT/DS

•	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	•
•	COM0	COM1	COM2	COM3	COM4	COM5	COM6	COM7	•

FX3U-16MT/DSS	•	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	•
	•	+V0	+V1	+V2	+V3	+V4	+V5	+V6	+V7	•

FX3U-32MT/DSS	$\frac{\perp}{\perp}$	S/S(0V)	X0	X2	X4	X6	X10	X12	X14	X16	•
	(+)	(-)	•	(24V)	X1	X3	X5	X7	X11	X13	X15

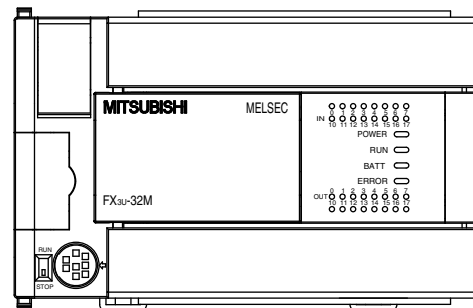
FX3U-32MT/DS	$\frac{1}{2}$	S/S (0V)	X0	X2	X4	X6	X10	X12	X14	X16	•
	⊕	⊖	•	(24V)	X1	X3	X5	X7	X11	X13	X15

FX3U-32MT/ESS	$\perp$	S/S	0V	X0	X2	X4	X6	X10	X12	X14	X16	•
	L	N	•	24V	X1	X3	X5	X7	X11	X13	X15	X17

FX3U-32MT/ES	$\perp$	S/S	0V	X0	X2	X4	X6	X10	X12	X14	X16	•
	L	N	•	24V	X1	X3	X5	X7	X11	X13	X15	X17

FX3U-32MR/DS	$\perp$	S/S (0V)	X0	X2	X4	X6	X10	X12	X14	X16	•
	(+)	(-)	• (24V)	X1	X3	X5	X7	X11	X13	X15	X17

FX3U-32MR/ES	$\frac{1}{\equiv}$	S/S	0V	X0	X2	X4	X6	X10	X12	X14	X16	•
	L	N	•	24V	X1	X3	X5	X7	X11	X13	X15	X17



FX3U-32MR/ES	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17

FX3U-32MR/DS

	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
FX3U-32MT/ES	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17

FX3U-32MT/ESS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17

FX3U-32MT/DS

FX3U-32MT/DSS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17

■ Base Units MELSEC FX3U

FX3U-48MT/DSS	$\frac{\perp}{\oplus}$ S/S(0V)		X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•
	$\ominus$ (24V)		X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	

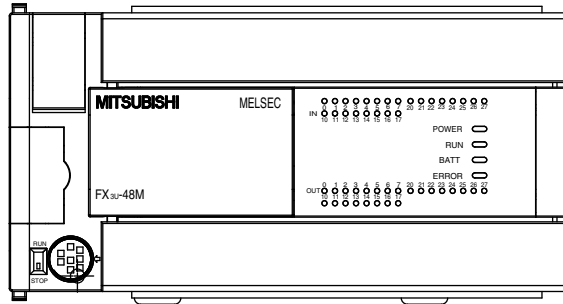
FX3U-48MT/DS	$\frac{\perp}{\oplus}$ S/S(0V)		X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•
	$\ominus$ (24V)		X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	

FX3U-48MT/ESS	$\frac{\perp}{\oplus}$	S/S	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•
	L	N	•	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27

FX3U-48MT/ES	$\frac{\perp}{\equiv}$	S/S	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•
	L	N	•	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27

FX3U-48MR/DS	$\frac{\perp}{\oplus}$ S/S(0V)		X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•
	$\ominus$ (24V)		X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	

FX3U-48MR/ES		S/S	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•
	L	N	•	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27



FX3U-48MR/ES	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	Y20	Y22	Y24	Y26	COM5
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	Y21	Y23	Y25	Y27

FX3U-48MR/DS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	Y20	Y22	Y24	Y26	COM5
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	Y21	Y23	Y25	Y27

FX3U-48MT/ES	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	Y20	Y22	Y24	Y26	COM5
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	Y21	Y23	Y25	Y27

FX3U-48MT/ESS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	Y20	Y22	Y24	Y26	+V4
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	Y21	Y23	Y25	Y27

FX3U-48MT/DS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	Y20	Y22	Y24	Y26	COM5
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	Y21	Y23	Y25	Y27

FX3U-48MT/DSS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	Y20	Y22	Y24	Y26	+V4
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	Y21	Y23	Y25	Y27

Base Units MELSEC FX3U

FX3U-64MT/DSS	$\frac{\pm}{\oplus}$	S/S	(0V)	(0V)	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
	$\frac{\pm}{\ominus}$	•	(24V)	(24V)	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	

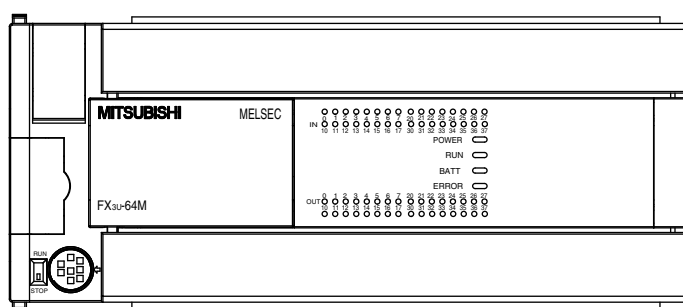
FX3U-64MT/DS	$\frac{\pm}{\oplus}$	S/S	(0V)	(0V)	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
	$\frac{\pm}{\ominus}$	•	(24V)	(24V)	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	

	$\frac{\pm}{\oplus}$	S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
FX3U-64MT/ESS	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37

	$\frac{\pm}{\oplus}$	S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
FX3U-64MT/ES	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37

FX3U-64MR/DS	$\frac{\pm}{\oplus}$	S/S	(0V)	(0V)	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
	$\frac{\pm}{\ominus}$	•	(24V)	(24V)	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	

	$\frac{\pm}{\oplus}$	S/S	0V	0V	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	•
FX3U-64MR/ES	L	N	•	24V	24V	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37



FX3U-64MR/ES	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	COM6
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX3U-64MR/DS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	COM6
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX3U-64MT/ES	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	COM6
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

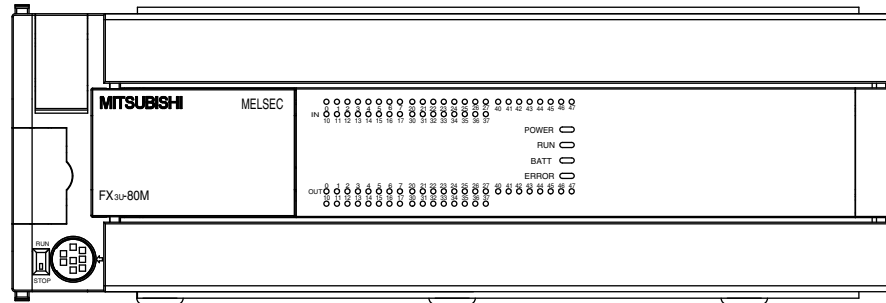
FX3U-64MT/ESS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	+V5
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	+V4	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX3U-64MT/DS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	COM6
	COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y11	Y13	COM4	Y15	Y17	COM5	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

FX3U-64MT/DSS	Y0	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	+V5
	+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y11	Y13	+V3	Y15	Y17	+V4	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37

■ Base Units MELSEC FX3U

FX3U-80MT/DSS	$\frac{\perp}{\oplus} \frac{\perp}{\ominus}$ S/S (0V) (0V) X0 X2 X4 X6 X10 X12 X14 X16 • X20 X22 X24 X26 • X30 X32 X34 X36 • X40 X42 X44 X46 •
	(24V) (24V) X1 X3 X5 X7 X11 X13 X15 X17 • X21 X23 X25 X27 • X31 X33 X35 X37 • X41 X43 X45 X47
FX3U-80MT/DS	$\frac{\perp}{\oplus} \frac{\perp}{\ominus}$ S/S (0V) (0V) X0 X2 X4 X6 X10 X12 X14 X16 • X20 X22 X24 X26 • X30 X32 X34 X36 • X40 X42 X44 X46 •
	(24V) (24V) X1 X3 X5 X7 X11 X13 X15 X17 • X21 X23 X25 X27 • X31 X33 X35 X37 • X41 X43 X45 X47
FX3U-80MT/ESS	$\frac{\perp}{\oplus} \frac{\perp}{\ominus}$ S/S 0V 0V X0 X2 X4 X6 X10 X12 X14 X16 • X20 X22 X24 X26 • X30 X32 X34 X36 • X40 X42 X44 X46 •
	L N • 24V 24V X1 X3 X5 X7 X11 X13 X15 X17 • X21 X23 X25 X27 • X31 X33 X35 X37 • X41 X43 X45 X47
FX3U-80MT/ES	$\frac{\perp}{\oplus} \frac{\perp}{\ominus}$ S/S 0V 0V X0 X2 X4 X6 X10 X12 X14 X16 • X20 X22 X24 X26 • X30 X32 X34 X36 • X40 X42 X44 X46 •
	L N • 24V 24V X1 X3 X5 X7 X11 X13 X15 X17 • X21 X23 X25 X27 • X31 X33 X35 X37 • X41 X43 X45 X47
FX3U-80MR/DS	$\frac{\perp}{\oplus} \frac{\perp}{\ominus}$ S/S (0V) (0V) X0 X2 X4 X6 X10 X12 X14 X16 • X20 X22 X24 X26 • X30 X32 X34 X36 • X40 X42 X44 X46 •
	(24V) (24V) X1 X3 X5 X7 X11 X13 X15 X17 • X21 X23 X25 X27 • X31 X33 X35 X37 • X41 X43 X45 X47
FX3U-80MR/ES	$\frac{\perp}{\oplus} \frac{\perp}{\ominus}$ S/S 0V 0V X0 X2 X4 X6 X10 X12 X14 X16 • X20 X22 X24 X26 • X30 X32 X34 X36 • X40 X42 X44 X46 •
	L N • 24V 24V X1 X3 X5 X7 X11 X13 X15 X17 • X21 X23 X25 X27 • X31 X33 X35 X37 • X41 X43 X45 X47



FX3U-80MR/ES	Y0 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 Y24 Y26 • • Y30 Y32 Y34 Y36 • Y40 Y42 Y44 Y46 •
	COM1 Y1 Y3 COM2 Y5 Y7 COM3 Y11 Y13 COM4 Y15 Y17 COM5 Y21 Y23 Y25 Y27 • COM6 Y31 Y33 Y35 Y37 COM7 Y41 Y43 Y45 Y47
FX3U-80MR/DS	Y0 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 Y24 Y26 • • Y30 Y32 Y34 Y36 • Y40 Y42 Y44 Y46 •
	COM1 Y1 Y3 COM2 Y5 Y7 COM3 Y11 Y13 COM4 Y15 Y17 COM5 Y21 Y23 Y25 Y27 • COM6 Y31 Y33 Y35 Y37 COM7 Y41 Y43 Y45 Y47
FX3U-80MT/ES	Y0 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 Y24 Y26 • • Y30 Y32 Y34 Y36 • Y40 Y42 Y44 Y46 •
	COM1 Y1 Y3 COM2 Y5 Y7 COM3 Y11 Y13 COM4 Y15 Y17 COM5 Y21 Y23 Y25 Y27 • COM6 Y31 Y33 Y35 Y37 COM7 Y41 Y43 Y45 Y47
FX3U-80MT/ESS	Y0 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 Y24 Y26 • • Y30 Y32 Y34 Y36 • Y40 Y42 Y44 Y46 •
	+V0 Y1 Y3 +V1 Y5 Y7 +V2 Y11 Y13 +V3 Y15 Y17 +V4 Y21 Y23 Y25 Y27 • +V5 Y31 Y33 Y35 Y37 +V6 Y41 Y43 Y45 Y47
FX3U-80MT/DS	Y0 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 Y24 Y26 • • Y30 Y32 Y34 Y36 • Y40 Y42 Y44 Y46 •
	COM1 Y1 Y3 COM2 Y5 Y7 COM3 Y11 Y13 COM4 Y15 Y17 COM5 Y21 Y23 Y25 Y27 • COM6 Y31 Y33 Y35 Y37 COM7 Y41 Y43 Y45 Y47
FX3U-80MT/DSS	Y0 Y2 • Y4 Y6 • Y10 Y12 • Y14 Y16 • Y20 Y22 Y24 Y26 • • Y30 Y32 Y34 Y36 • Y40 Y42 Y44 Y46 •
	+V0 Y1 Y3 +V1 Y5 Y7 +V2 Y11 Y13 +V3 Y15 Y17 +V4 Y21 Y23 Y25 Y27 • +V5 Y31 Y33 Y35 Y37 +V6 Y41 Y43 Y45 Y47

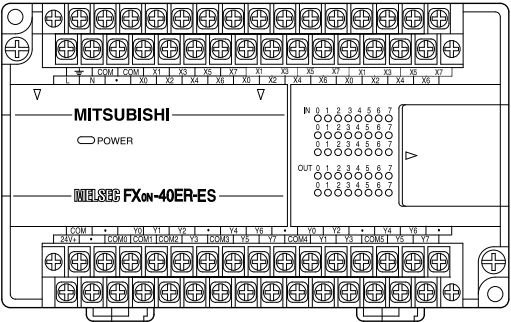
Y0	Y2	+V1	Y5	Y7	Y10	Y12	+V3	Y15	Y17	Y20	Y22	Y24	Y26	+V5	Y31	Y33	Y35	Y37	Y40	Y42	Y44	Y46	+V7	Y51	Y53	Y55	Y57	Y60	Y62	Y64	Y66	+V9	Y71	Y73	Y75	Y77
+V0	Y1	Y3	Y4	Y6	+V2	Y11	Y13	Y14	Y16	+V4	Y21	Y23	Y25	Y27	Y30	Y32	Y34	Y36	+V6	Y41	Y43	Y45	Y47	Y50	Y52	Y54	Y56	+V8	Y61	Y63	Y65	Y67	Y70	Y72	Y74	Y76

■ Compact Extension Units MELSEC FX0N

FX0N-40ET-DSS	≡	S/S	S/S	X1	X3	X5	X7	X1	X3	X5	X7	X1	X3	X5	X7
	⊕	⊖	•	X0	X2	X4	X6	X0	X2	X4	X6	X0	X2	X4	X6

FX0N-40ER-DS	≡	S/S	S/S	X1	X3	X5	X7	X1	X3	X5	X7	X1	X3	X5	X7
	⊕	⊖	•	X0	X2	X4	X6	X0	X2	X4	X6	X0	X2	X4	X6

FX0N-40ER-ES/UL	≡	S/S	S/S	X1	X3	X5	X7	X1	X3	X5	X7	X1	X3	X5	X7
	L	N	•	X0	X2	X4	X6	X0	X2	X4	X6	X0	X2	X4	X6



FX0N-40ER-ES/UL	0V	•	Y0	Y1	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	•
	24V	•	COM0	COM1	COM2	Y3	COM3	Y5	Y7	COM4	Y1	Y3	COM5	Y5	Y7

FX0N-40ER-DS	0V	•	Y0	Y1	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	•
	24V	•	COM0	COM1	COM2	Y3	COM3	Y5	Y7	COM4	Y1	Y3	COM5	Y5	Y7

FX0N-40ET-DSS	0V	•	Y0	Y1	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	•
	24V	•	+V0	+V1	+V2	Y3	+V3	Y5	Y7	+V4	Y1	Y3	+V5	Y5	Y7

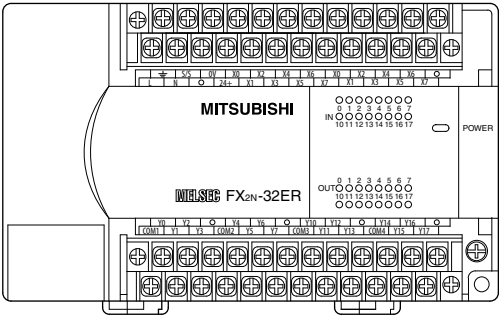
■ Powered Compact Extension Units MELSEC FX2N

FX2N-32ET-ESS/UL

≡	S/S	0V	X0	X2	X4	X6	X0	X2	X4	X6	•
L	N	•	24V	X1	X3	X5	X7	X1	X3	X5	X7

FX2N-32ER-ES/UL

≡	S/S	0V	X0	X2	X4	X6	X0	X2	X4	X6	•
L	N	•	24V	X1	X3	X5	X7	X1	X3	X5	X7



FX2N-32ER-ES/UL

Y0	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	•
COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y1	Y3	COM4	Y5	Y7

FX2N-32ET-ESS/UL

Y0	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	•
+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y1	Y3	+V3	Y5	Y7

FX2N-48ET-DSS

≡	S/S	0V	X0	X2	X4	X6	X0	X2	X4	X6	•
⊕	⊖	•	24V	X1	X3	X5	X7	X1	X3	X5	X7

FX2N-48ET-ESS/UL

≡	S/S	0V	X0	X2	X4	X6	X0	X2	X4	X6	•
L	N	•	24V	X1	X3	X5	X7	X1	X3	X5	X7

FX2N-48ER-UA1/UL

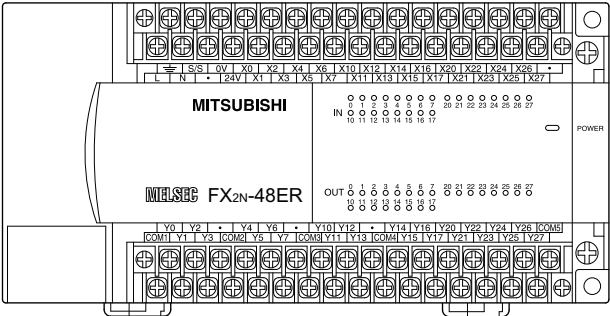
≡	•	COM	COM	X0	X2	X4	X6	•	•	X0	X2	X4	X6	•
L	N	•	•	X1	X3	X5	X7	•	•	X1	X3	X5	X7	•

FX2N-48ER-DS

≡	S/S	0V	X0	X2	X4	X6	X0	X2	X4	X6	•
⊕	⊖	•	24V	X1	X3	X5	X7	X1	X3	X5	X7

FX2N-48ER-ES/UL

≡	S/S	0V	X0	X2	X4	X6	X0	X2	X4	X6	•
L	N	•	24V	X1	X3	X5	X7	X1	X3	X5	X7



FX2N-48ER-ES/UL

Y0	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	Y0	Y2	Y4	Y6	+V4
+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y1	Y3	+V3	Y5	Y7	Y1	Y3	Y5	Y7

FX2N-48ER-DS

Y0	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	Y0	Y2	Y4	Y6	COM5
COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y1	Y3	COM4	Y5	Y7	Y1	Y3	Y5	Y7

FX2N-48ER-UA1/UL

Y0	Y2	•	Y4	Y6	•	•	•	Y0	Y3	•	Y4	Y6	•	•	•	Y0	Y2	Y4	Y6	•
COM1	Y1	Y3	COM2	Y5	Y7	•	•	COM3	Y1	Y2	COM4	Y5	Y7	•	•	COM5	Y1	Y3	Y5	Y7

FX2N-48ET-ESS/UL

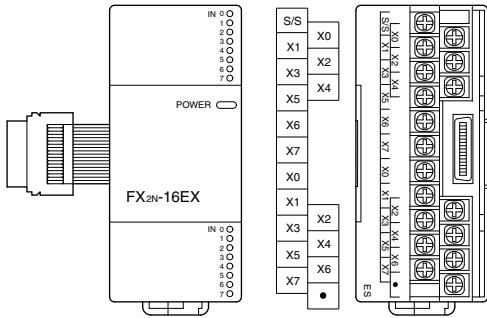
Y0	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	Y0	Y2	Y4	Y6	+V4
+V0	Y1	Y3	+V1	Y5	Y7	+V2	Y1	Y3	+V3	Y5	Y7	Y1	Y3	Y5	Y7

FX2N-48ET-DSS

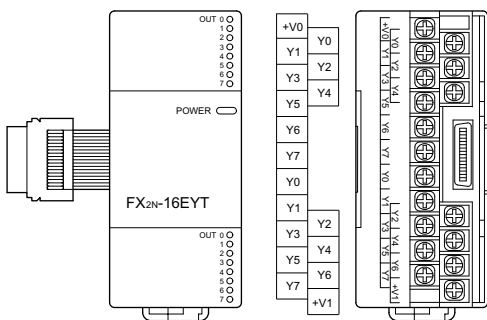
Y0	Y2	•	Y4	Y6	•	Y0	Y2	•	Y4	Y6	Y0	Y2	Y4	Y6	COM5
COM1	Y1	Y3	COM2	Y5	Y7	COM3	Y1	Y3	COM4	Y5	Y7	Y1	Y3	Y5	Y7

■ Modular Extension Units MELSEC FX2N

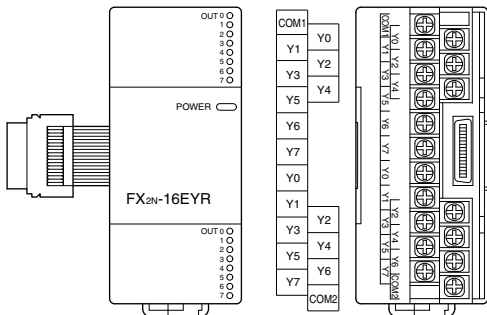
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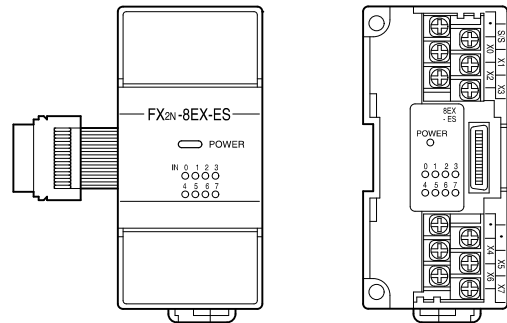
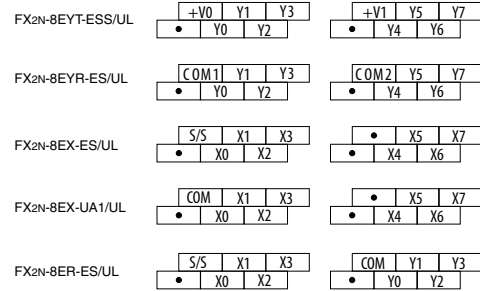
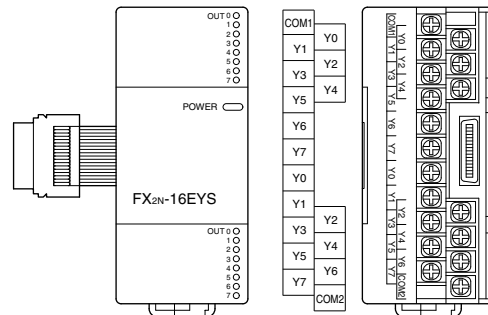
FX2N-16EYT-ESS/UL



FX2N-16EYR-ES/UL

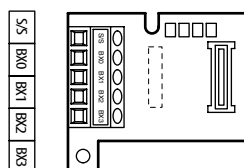


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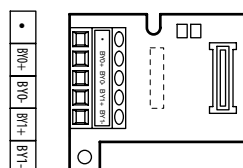


■ Extension Adapter Boards MELSEC FX1N

FX1N-4EX-BD

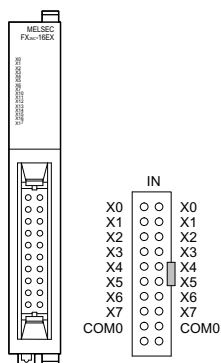


FX1N-2EYT-BD

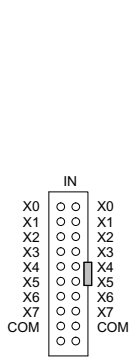


Extension Units MELSEC FX2NC

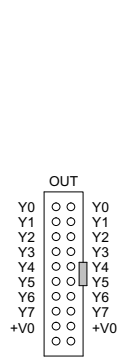
FX2NC-16EX-D/S



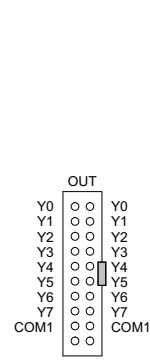
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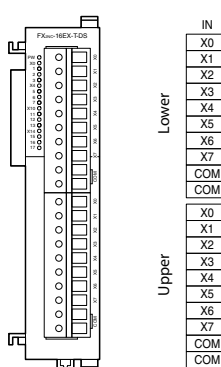
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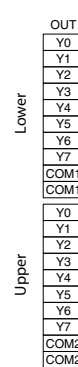
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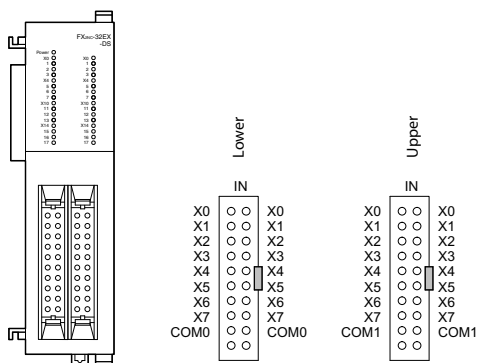
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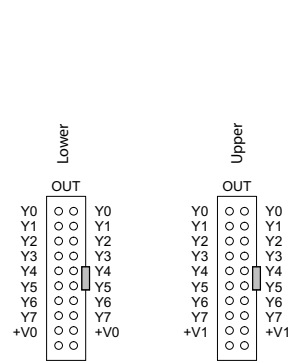
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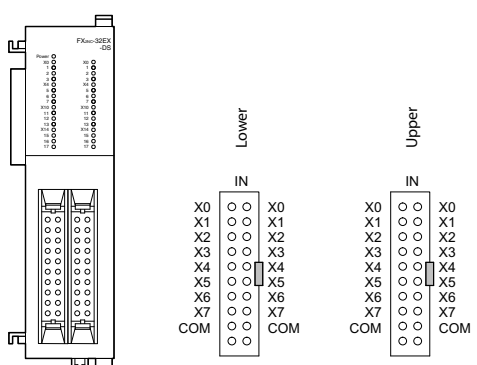
FX2NC-32EX-D/S



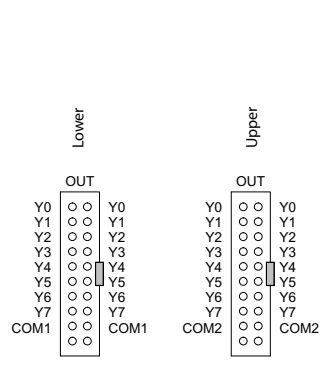
FX2NC-32EYT-D/S



FX2NC-32EX-D/UL

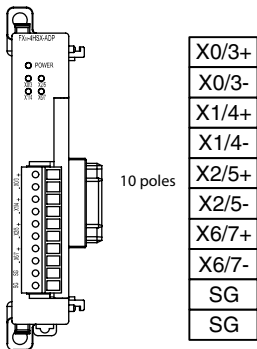


FX2NC-32EYT-D/UL

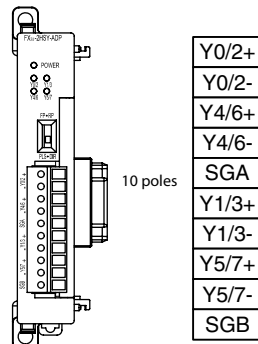


■ Special Adapters MELSEC FX3U

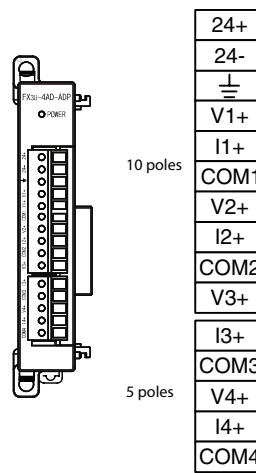
FX3U-4HSX-ADP



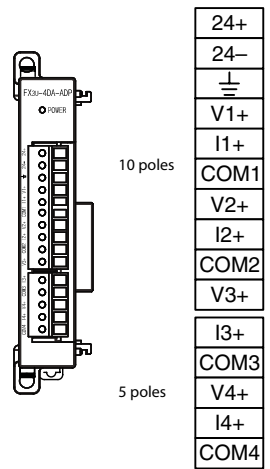
FX3U-2HSY-ADP



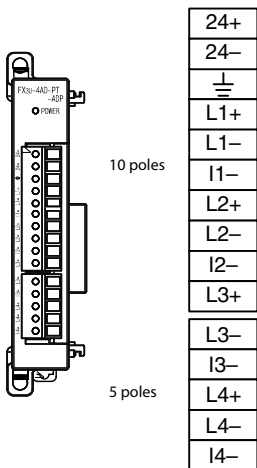
FX3U-4AD-ADP



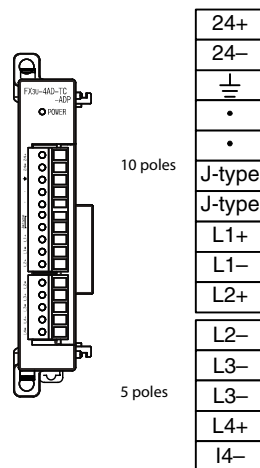
FX3U-4DA-ADP



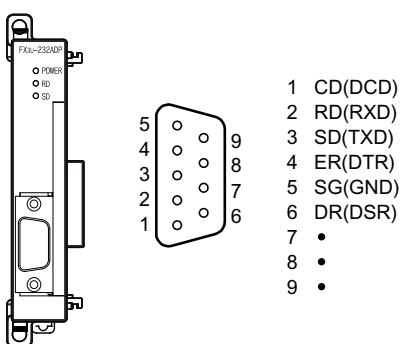
FX3U-4AD-PT-ADP



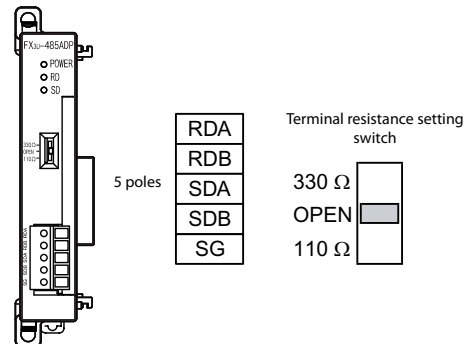
FX3U-4AD-TC-ADP



FX3U-232-ADP

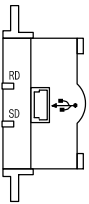


FX3U-485-ADP

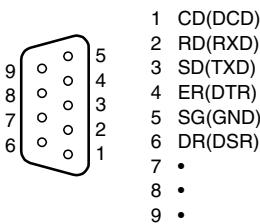
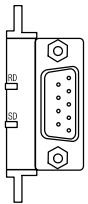


Expansion Boards MELSEC FX3U

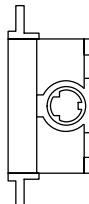
FX3U-USB-BD



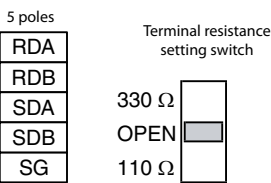
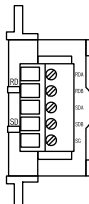
FX3U-232-BD



FX3U-422-BD

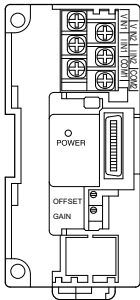
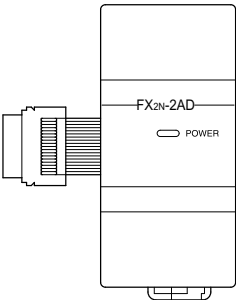
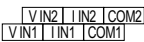


FX3U-485-BD

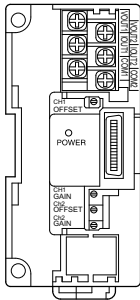
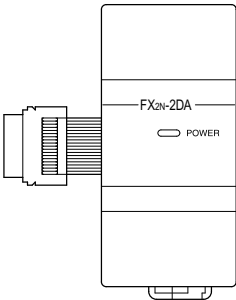
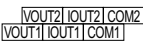


Analog Modules MELSEC FX2N

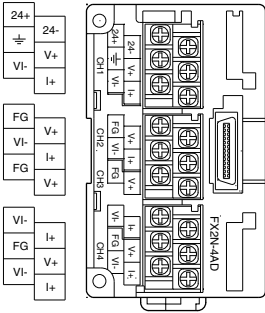
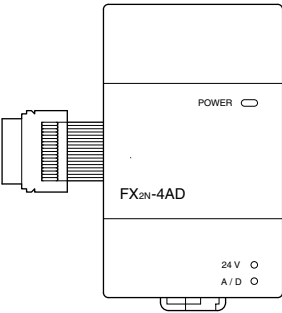
FX2N-2AD



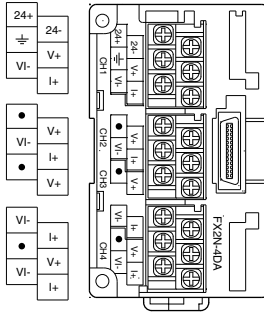
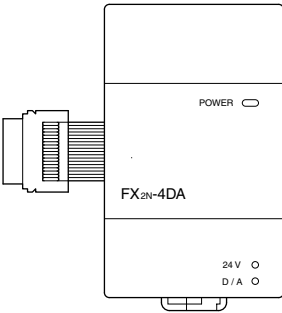
FX2N-2DA



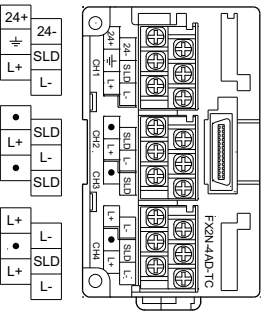
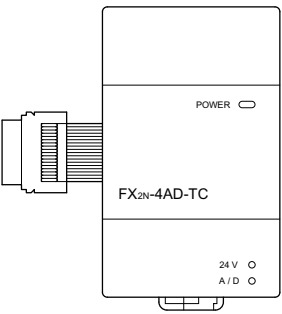
FX2N-4AD



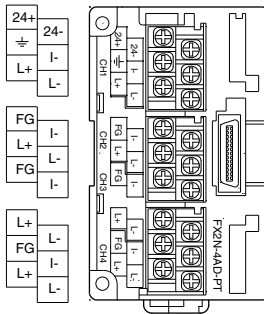
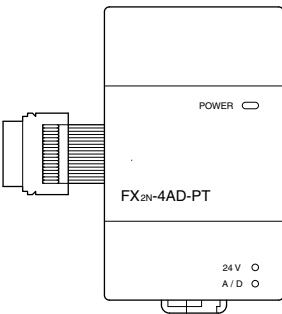
FX2N-4DA



FX2N-4AD-TC

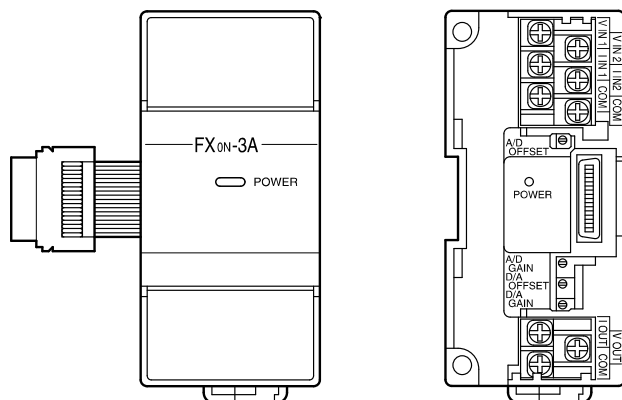
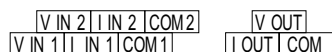


FX2N-4AD-PT

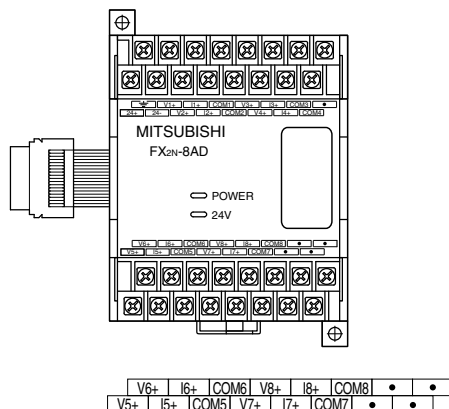
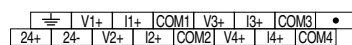


■ Analog Modules MELSEC FX0N / FX2N

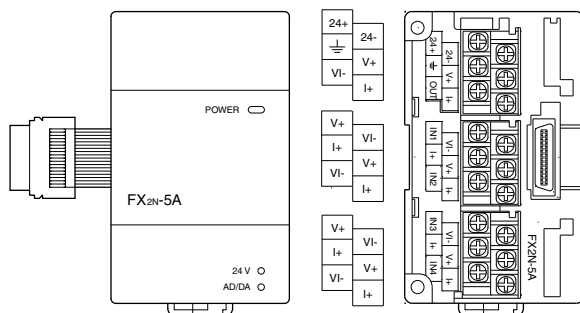
FX0N-3A



FX2N-8AD

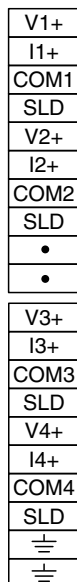
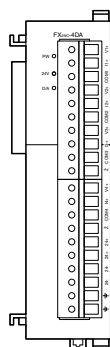


FX2N-5A

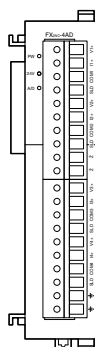


■ Analog Modules MELSEC FX2NC

FX2NC-4DA

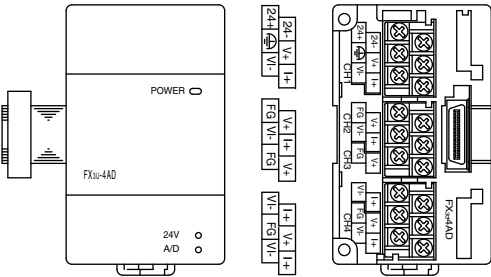


FX2NC-4AD

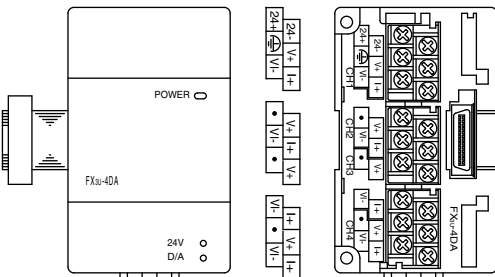


Analog Modules MELSEC FX3U

FX3U-4AD

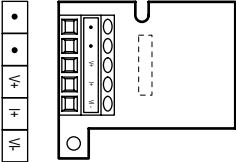


FX3U-4DA

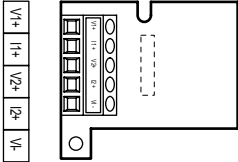


Analog Adapter Boards MELSEC FX1N

FX1N-1DA-BD

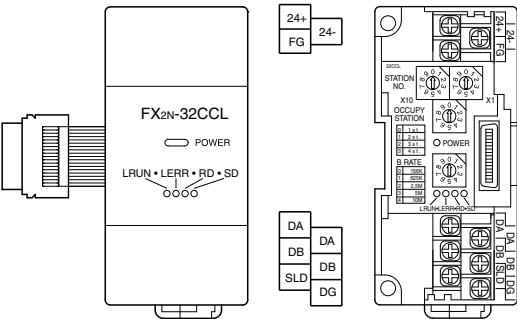


FX1N-2AD-BD

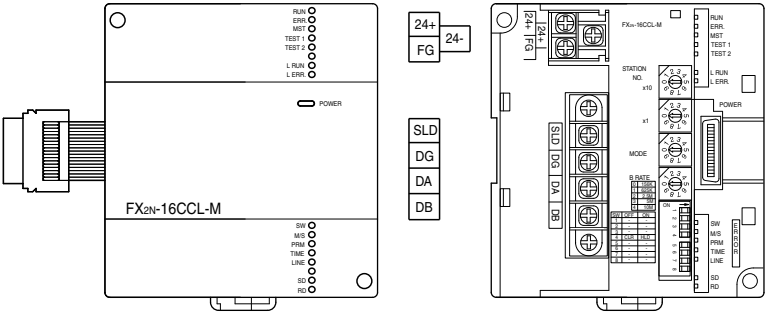


Network Modules MELSEC FX2N

FX2N-32CCL

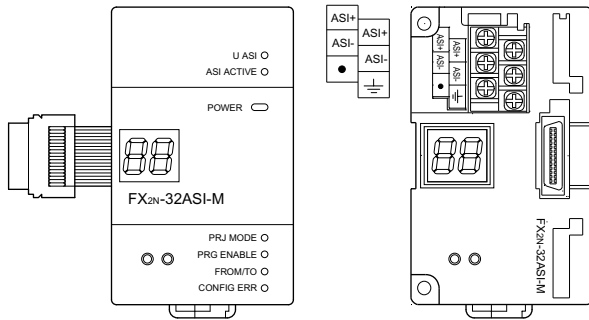


FX2N-16CCL-M

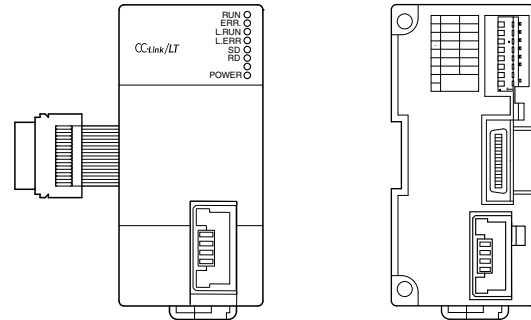


■ Network Modules MELSEC FX2N

FX2N-32ASI-M

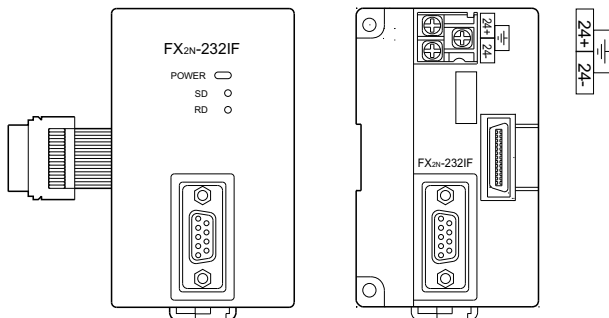


FX2N-64CL-M



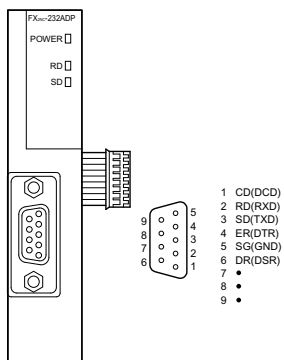
■ Communications Module MELSEC FX2N

FX2N-232IF

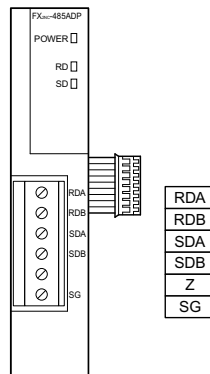


■ Interface Module MELSEC FX2NC

FX2NC-232ADP

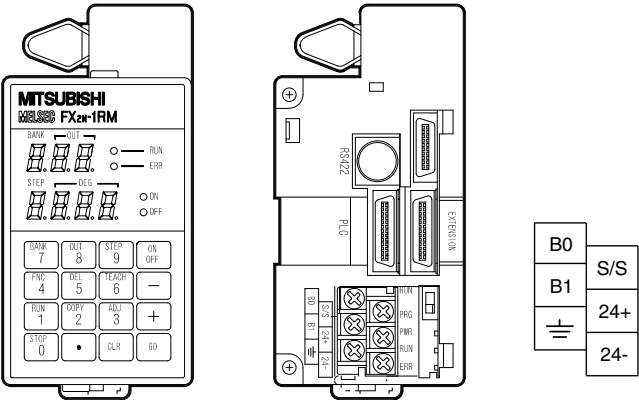


FX2NC-485ADP

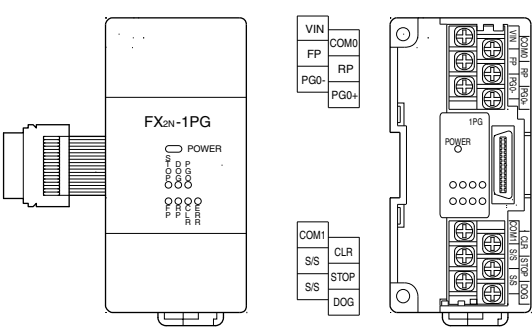


■ High Speed Counter and Positioning Modules MELSEC FX0N / FX1N / FX2N / FX3U

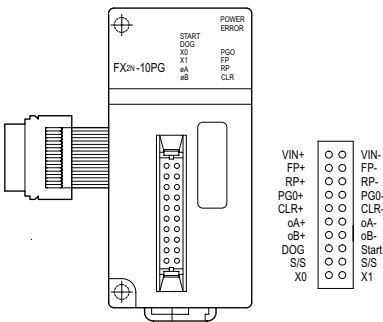
FX2N-1RM



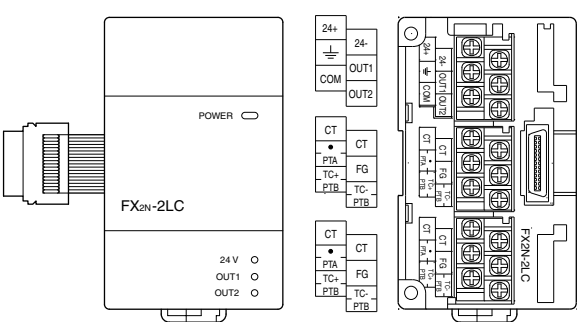
FX2N-1PG-E



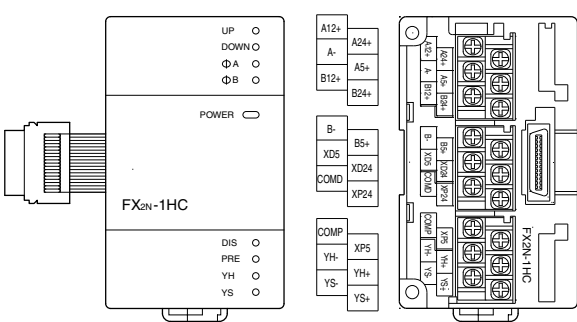
FX2N-10PG



FX2N-2LC

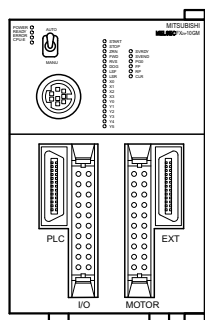


FX2N-1HC

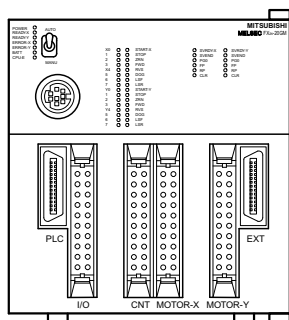


■ High Speed Counter and Positioning Modules MELSEC FX0N / FX1N / FX2N / FX3U

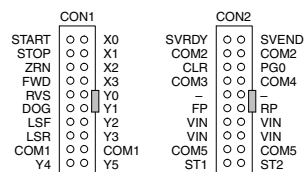
FX2N-10GM



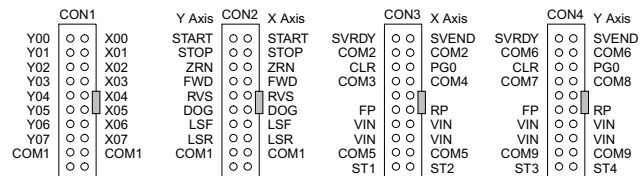
FX2N-20GM



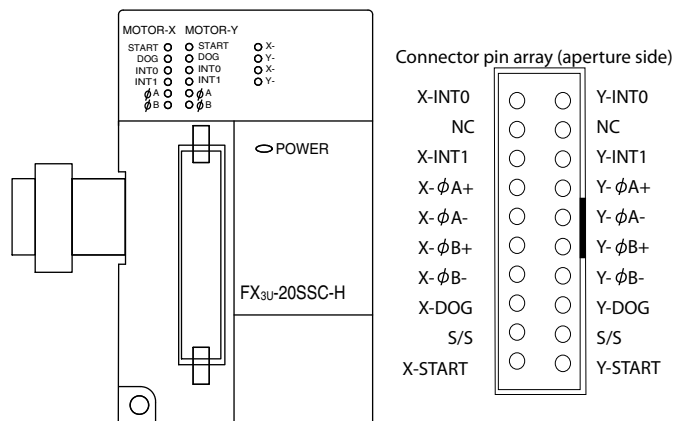
FX2N-10GM



FX2N-20GM

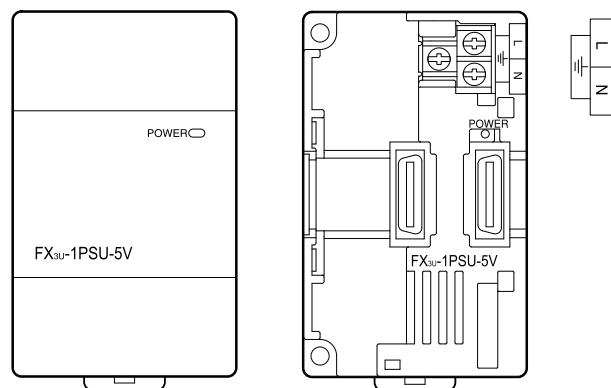


FX3U-20SSC-H



■ Power Distribution Modules

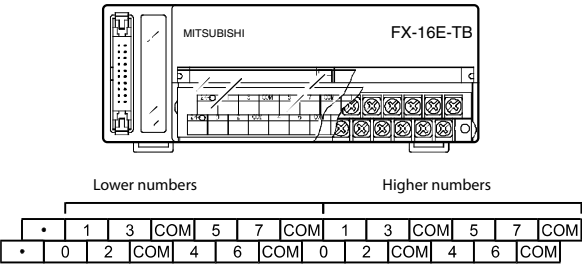
FX3U-1PSU-5V



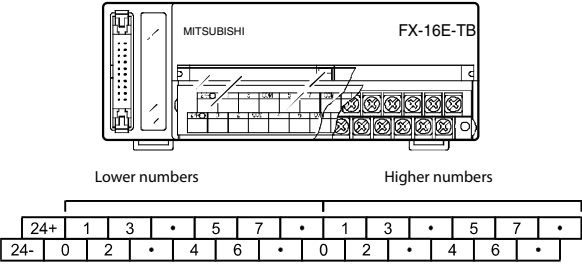
■ Terminal Blocks

FX-16E-TB

When connected to the FX2N-16EYT-C

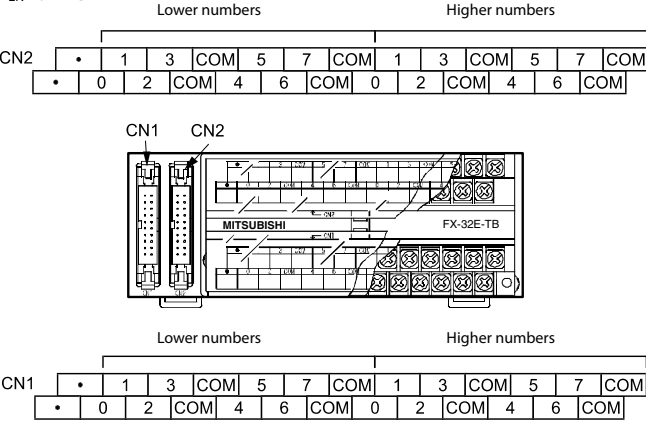


When connected to the FX2N-16EX-C

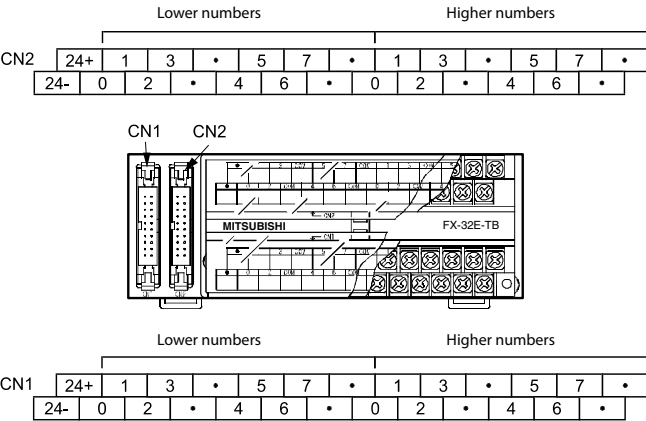


FX-32E-TB

When connected to the FX2N-16EYT-C

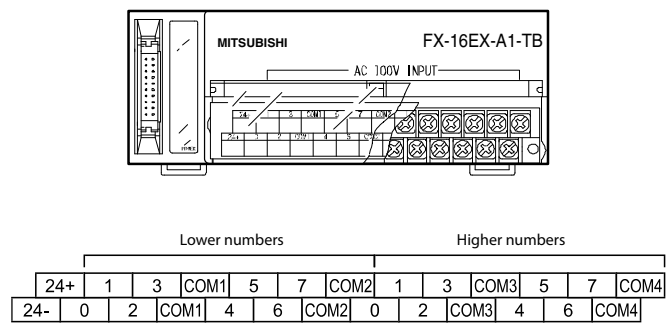


When connected to the FX2N-16EX-C

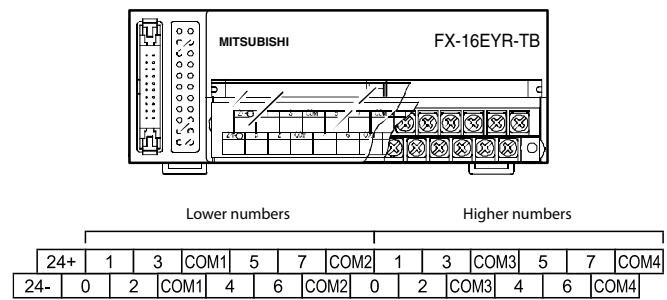


■ **Terminal Blocks**

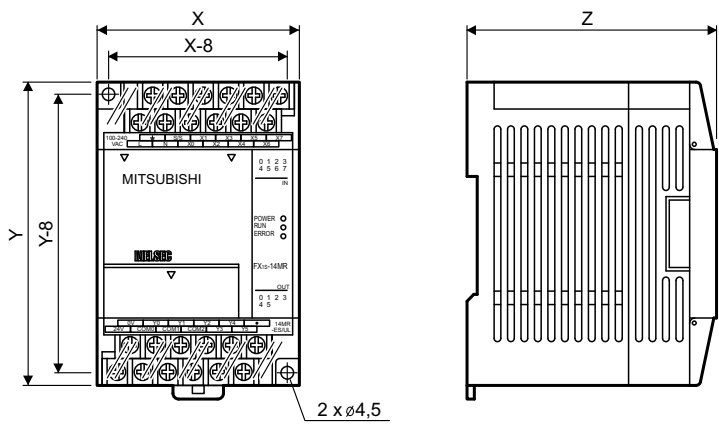
FX-16EX-A1-TB



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

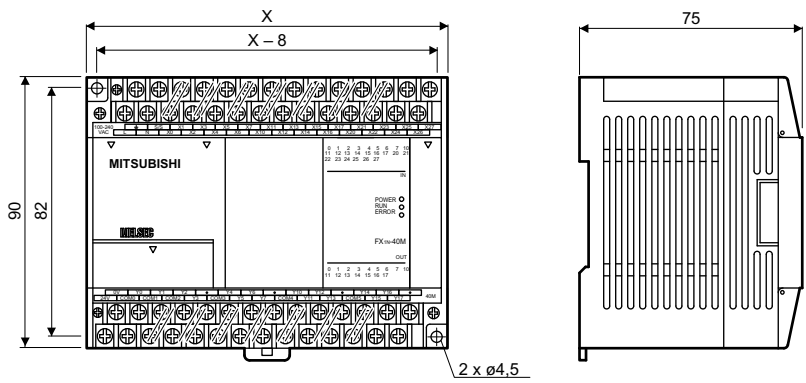


Dimensions of Base Units FX1S



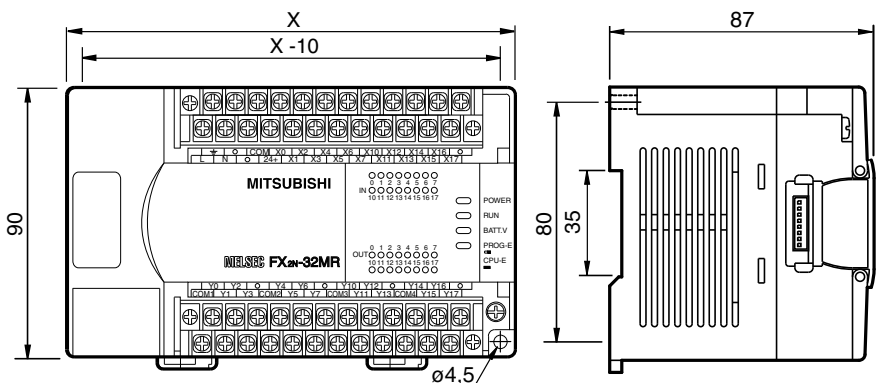
Base unit	X	Y	Z
FX1S-10MR-DS	60	90	49
FX1S-10MR-ES/UL	60	90	75
FX1S-10MT-DSS	60	90	49
FX1S-14MR-DS	60	90	49
FX1S-14MR-ES/UL	60	90	75
FX1S-14MT-DSS	60	90	49
FX1S-20MR-DS	75	90	49
FX1S-20MR-ES/UL	75	90	75
FX1S-20MT-DSS	75	90	49
FX1S-30MR-DS	100	90	49
FX1S-30MR-ES/UL	100	90	75
FX1S-30MT-DSS	100	90	49

Dimensions of Base Units FX1N



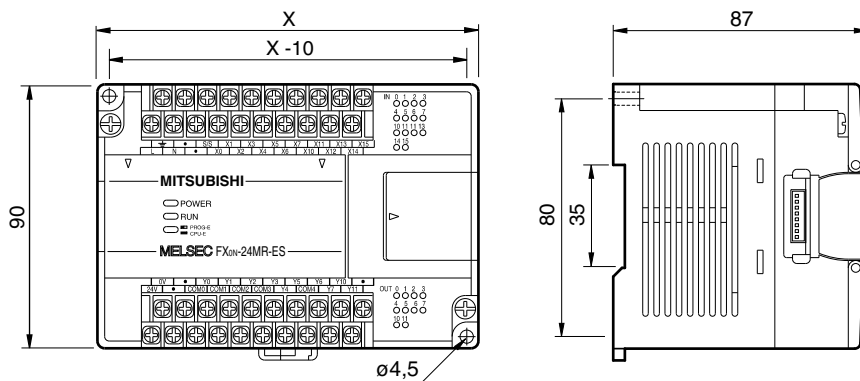
Type	X (in mm)
FX1N-14MR□□□	90
FX1N-14MT□□□	90
FX1N-24MR□□□	90
FX1N-24MT□□□	90
FX1N-40MR□□□	130
FX1N-40MT□□□	130
FX1N-60MR□□□	175
FX1N-60MT□□□	175

Dimensions of Base Units MELSEC FX2N



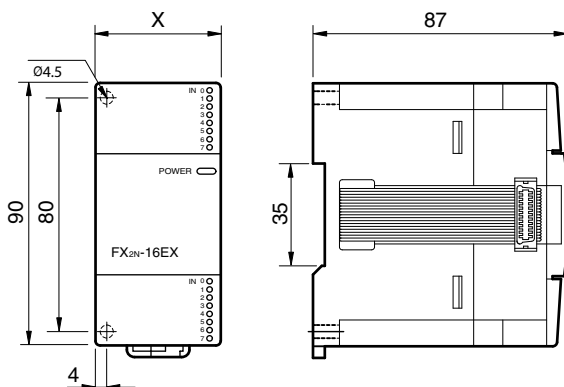
Base Units	
Type	X (in mm)
FX2N-16M□□□	130
FX2N-32M□□□	150
FX2N-48M□□□	182
FX2N-64M□□□	220
FX2N-80M□□□	285
FX2N-128M□□□	350

Dimensions of Compact Extension Units FX0N



Type	X (in mm)
FX0N-40ER-DS	150
FX0N-40ER-ES/UL	150
FX0N-40ET-DSS	150

Dimensions of Compact Extension Units and Modular Extension Blocks MELSEC FX2N



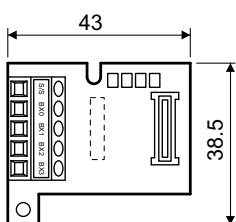
Compact Extension Units

Type	X (in mm)
FX2N-32E□□□	150
FX2N-48E□□□	182
FX2N-48ER-UA1/UL	220

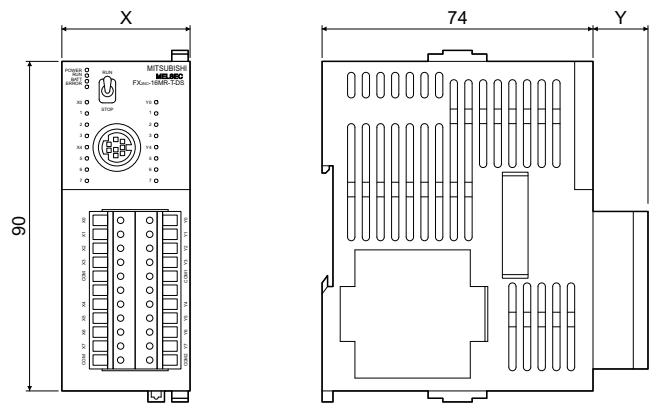
Modular Extension Blocks

Type	X (in mm)
FX2N-8E□□□	43
FX2N-16E□□□	40

Dimensions of Extension Adapter Boards FX1N



Dimensions of Base Units FX2NC



Base Units

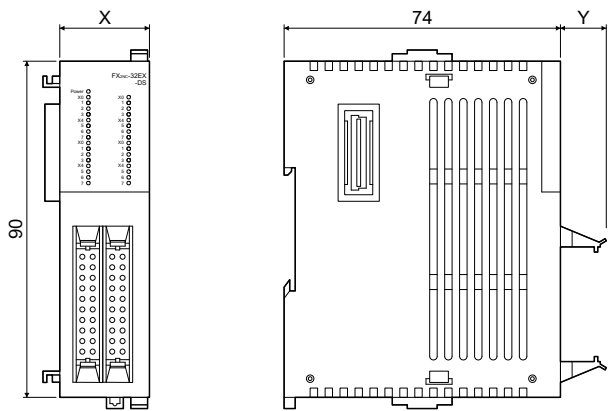
Type	X	Y
FX2NC-16MT-DSS	35	13
FX2NC-32MT-DSS	35	13
FX2NC-64MT-DSS	60	13
FX2NC-96MT-DSS	86	13

Type	X	Y
FX2NC-16MR-T-DS*	35	15

* with connector like Extension units

All dimensions in mm

Dimensions of Modular Extension Units FX2NC



Extension Units

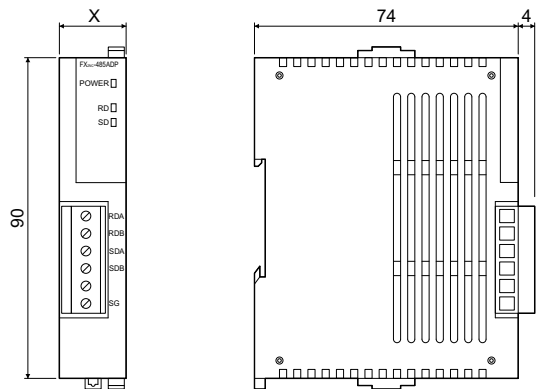
Type	X	Y
FX2NC-16EX-DS	14.6	13
FX2NC-16EYT-DSS	14.6	13
FX2NC-16EX-D/UL	14.6	13
FX2NC-16EYT-D/UL	14.6	13
FX2NC-32EX-DS	26.2	13
FX2NC-32EYT-DSS	26.2	13
FX2NC-32EX-D/UL	26.2	13
FX2NC-32EYT-D/UL	26.2	13

Type	X	Y
FX2NC-16EX-T-DS*	20.2	15
FX2NC-16EYT-T-DSS*	24.2	15

* with connector like base units

All dimensions in mm

Dimensions of Special Function Modules FX2NC

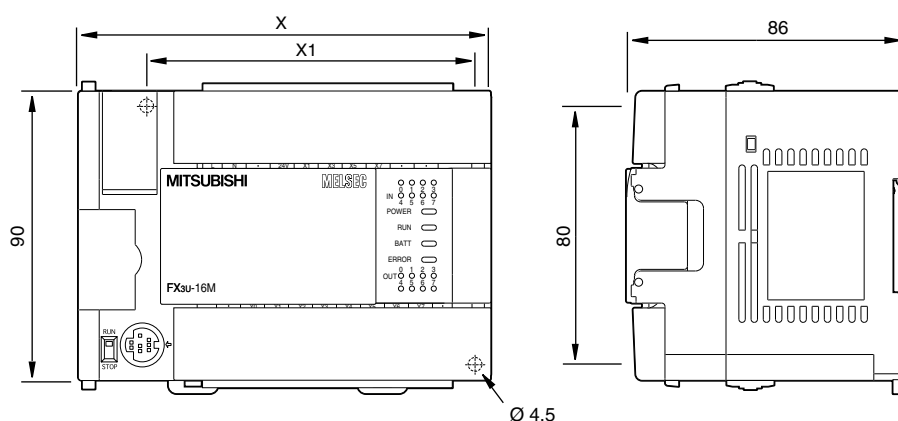


Special Function Modules

Type	X
FX2NC-4AD	20.2
FX2NC-4DA	24.2
FX2NC-232ADP	19.1
FX2NC-48SADP	19.1
FX2NC-CNV-IF	14.6

All dimensions in mm

Dimensions of Base Units FX3U

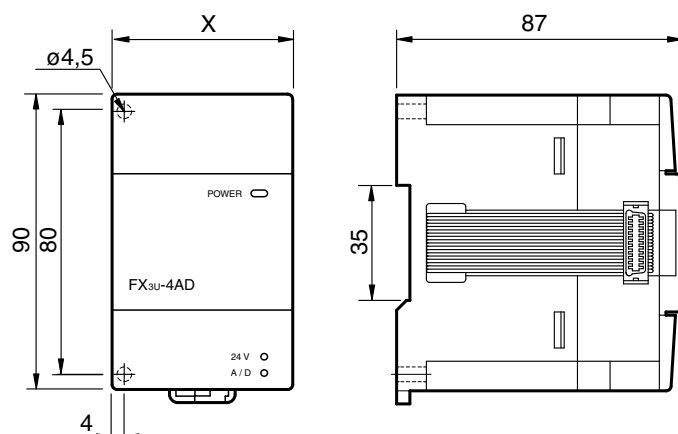


Base Units

Type	X (in mm)	X1 (in mm)
FX3U-16M□□□	130	103
FX3U-32M□□□	150	123
FX3U-48M□□□	182	155
FX3U-64M□□□	220	193
FX3U-80M□□□	285	258
FX3U-128M□□□	350	323

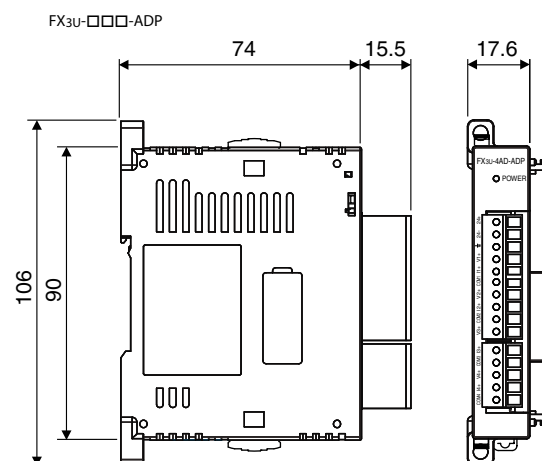
All dimensions in mm

Dimensions of Special Function Modules FX3U



Special Function Modules FX3U

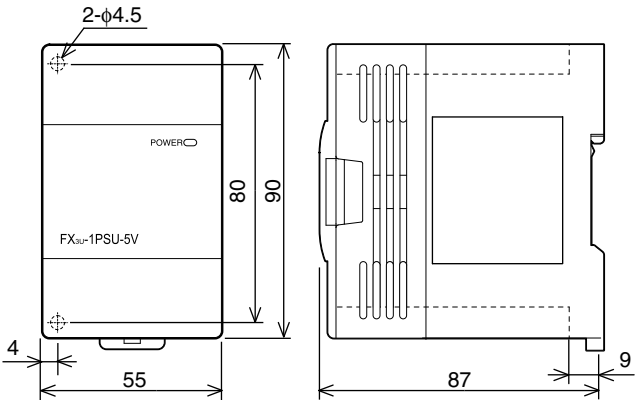
Type	X
FX3U-4AD	55
FX3U-4DA	55
FX3U-20SSC-H	55
FX3U-1PSU-5V	55



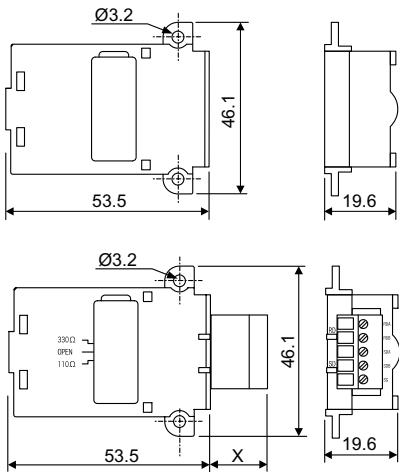
All dimensions in mm

Dimensions of Power Distribution Modules FX3U

FX3U-1PSU-5V



Dimensions of Expansion Boards FX3U

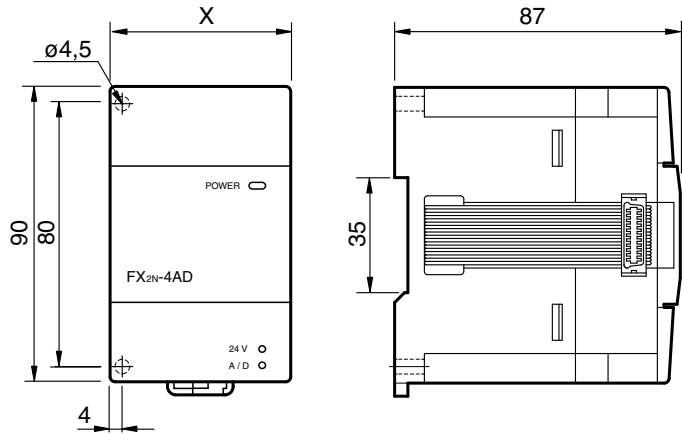


Expansion Boards

Type	X (in mm)
FX3U-CNV	—
FX3U-USB	—
FX3U-485	15.5
FX3U-422	—
FX3U-232	9.2

All dimensions in mm

Dimensions of Special Function Modules MELSEC FX2N

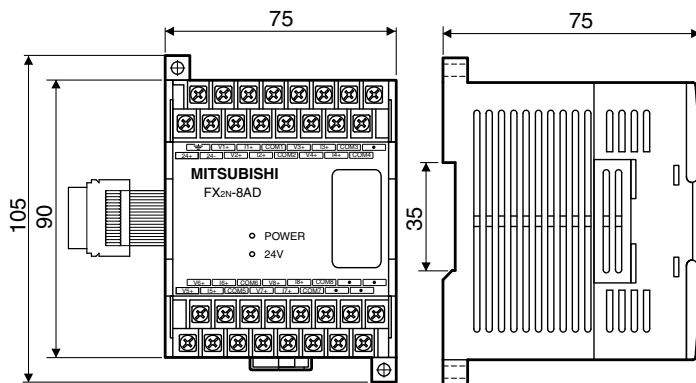


Special Function Modules FX0N/FX2N

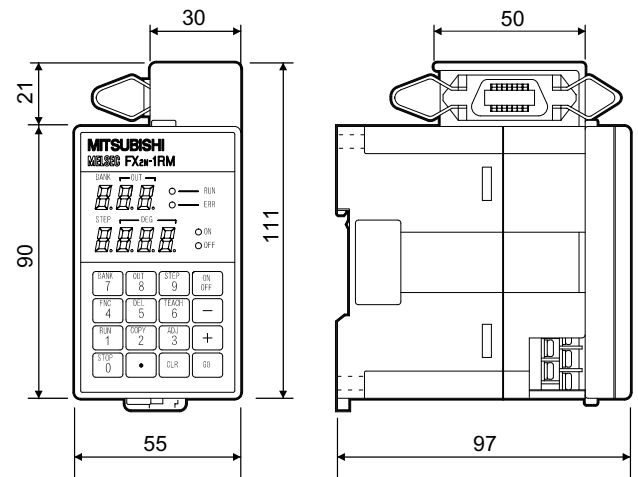
Type	X (in mm)
FX0N-3A	43
FX2N-2DA	43
FX2N-2AD	43
FX2N-4DA	55
FX2N-4AD	55
FX2N-4AD-TC	55
FX2N-4AD-PT	55
FX2N-1HC	55
FX2N-1PG-E	43
FX2N-10PG	43
FX2N-2LC	55
FX2N-5A	55
FX2N-232-IF	55
FX2N-32ASI-M	55
FX2N-16CCL-M	85
FX2N-32CCL	43
FX2N-64CL-M	43

Dimensions of Special Function Modules MELSEC FX2N

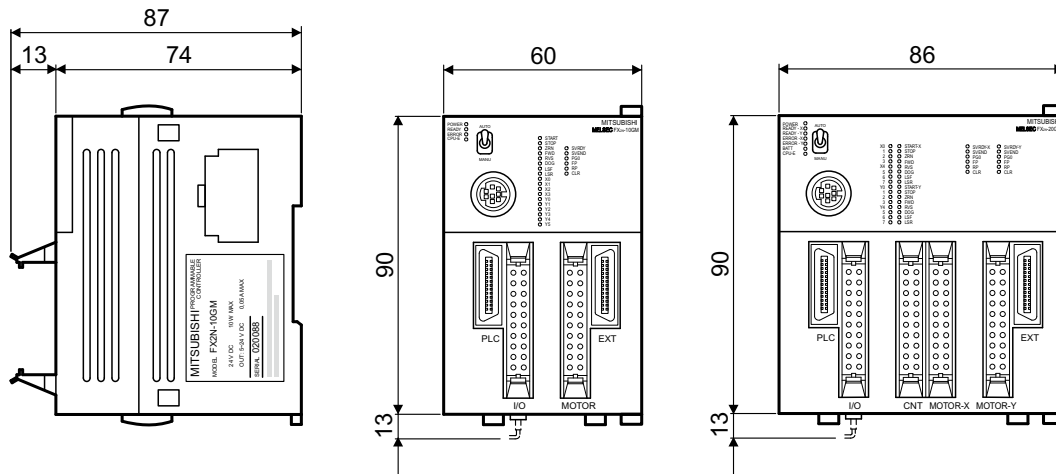
FX2N-8AD



FX2N-1RM

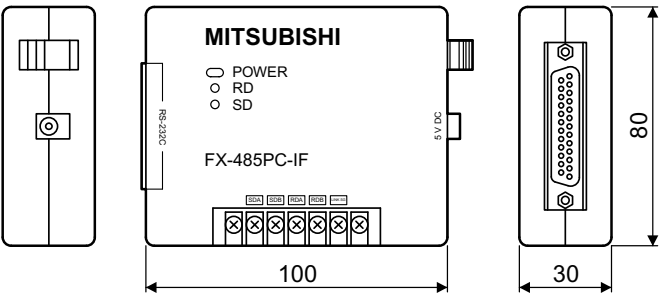


FX2N-10GM/-20GM

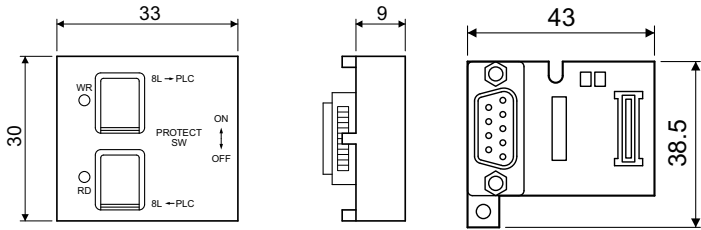


Dimensions for Accessories

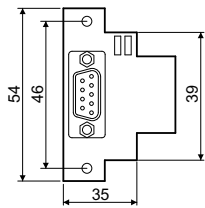
FX-485PC-IF



FX1N-EEPROM-8L

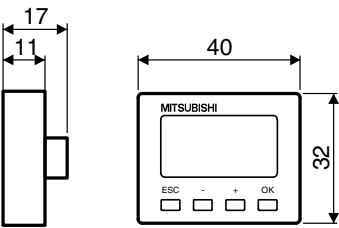


Communication adapter FX2N

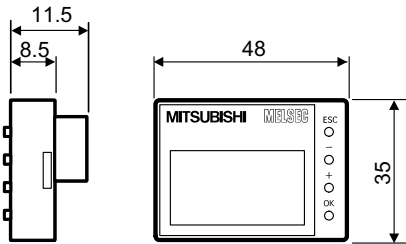


Dimensions for Display Panels

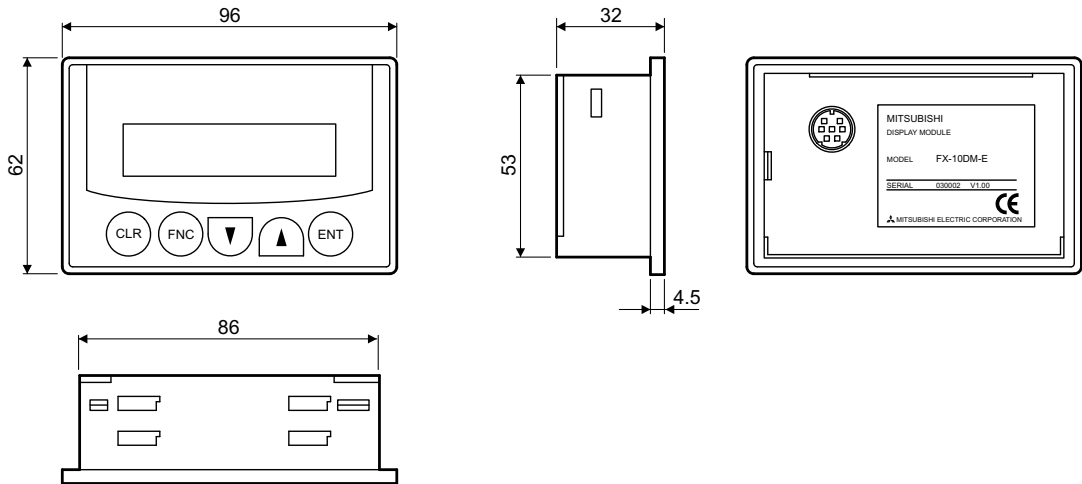
FX1N-5DM



FX3U-7DM



FX-10DM-E



MELSOFT – Programming and Documentation Software for Standard Personal Computers



With the MELSOFT software family Mitsubishi Electric offers efficient software packages helping to reduce programming and setup times to a high degree. The MELSOFT software family provides instant access, direct communications, compatibility, and open exchange of variables.

The MELSOFT family comprises:

- Programming packages AL-PCS/WIN and GX Developer
- Various development software for operator terminals (please refer to the GOT Technical Catalogue)
- Software for a dynamic data exchange like MX Change

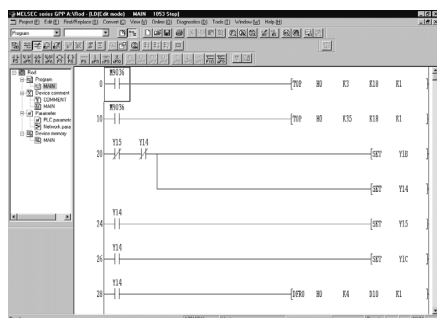
AL-PCS/WIN is recommended as a cost-effective beginners package for the ALPHA and FX family. This package offers a quick and easy introduction to programming.

GX Developer is the right decision for a universal programming package.

In addition, GX Developer is fully compatible with all MELSEC PLCs, including A and Q series controllers.

For detailed information please order our separate MELSOFT brochure.

■ GX Developer Programming Software



GX Developer Programming Software

GX Developer is the standard programming software for all MELSEC PLC series and combines all functions of MELSEC MEDOC with the user guidance of Microsoft Windows.

With this software you can comfortably create PLC programs alternatively in the form of Ladder Diagrams or Instruction Lists. Both forms of representation can be toggled easily during operation.

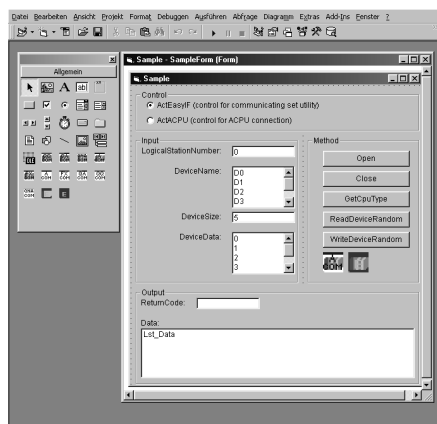
Besides efficient monitoring and diagnostics functions GX Developer features an offline simulation of any PLC type.

With GX Developer all MELSEC PLCs from the FX1S to the Q25PH (Q series) are supported.

This software provides all the Windows-specific advantages and is especially suited to all MELSEC PLCs.

Software	GX Developer
Series	All MELSEC PLCs
Language	English
Applicable for	Windows 95/98/ME/NT/2000/XP

■ Data Link Software

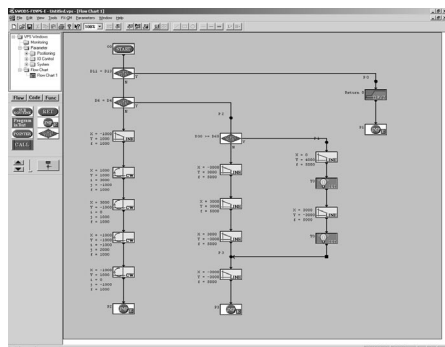


MX Data Link Software

MELSOFT MX Series Data Link Software provides several middleware applications for improving the development and efficiency in a large system project. Data settings in local PLC sites can be accessed from non-programming software like Excel and monitored by setting screen parameters.

Software	MX Series Data Link Description	Model
MX Component	Active X library for communication	SW*DSC-ACT-E
MX Sheet	Excel communication tool	SW*DSC-SHEET-E
MX Works	Combination of MX Component and MX Sheet	SW*DSC-SHEETSET-E

■ FX-PCS-VPS/WIN-E



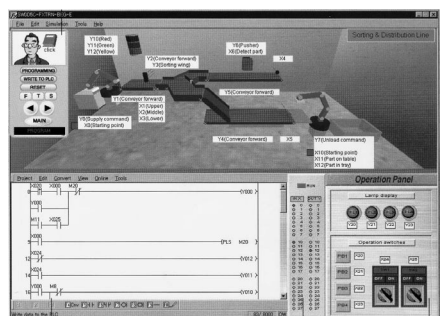
FX-PCS-VPS/WIN-E Positioning Programming Software

FX-PCS-VPS/WIN-E is the standard programming software for the FX2N and GM positioning modules. It offers a convenient and easy to use programming environment for creating Flow Charts, Function Blocks, or Traditional Code.

With the Monitoring Window, a user can display data values, locus, and operation processes. The software uses an RS-232C Serial Interface (COM1 to COM4), which can be ordered separately.

Software	FX-VPS-WIN-E
Series	FX2N-10GM/FX2N-20GM/FX-10GM/FX-20GM
Language	English
Applicable for	Windows 95/98/ME/NT/2000/XP

■ PLC Training Software

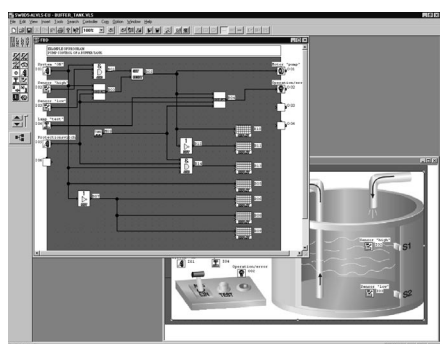


FX-TRN-BEG-E Training Software

The FX-TRN-BEG-E training software package is designed to help beginners get started with the programming of PLC systems. It combines a simulated PLC environment with expert tutorials. A real-time module simulates the operation of the PLC program. Simulation speed is adjustable and you can also access system elements and display program status while the process is running.

Software	FX-TRN-BEG-E
Series	Whole FX family
Language	English
Applicable for	Windows 95/98/ME/NT/2000/XP

■ ALPHA Programming Software



AL-PCS/WIN Programming Software

All controllers of the ALPHA series can be programmed with the MS Windows software AL-PCS/WIN. Programming the ALPHA with this software is very easy and is done by placing the different program elements on a graphical programming environment. The connections (wiring) between the inputs, function blocks, and outputs are drawn graphically by mouse click to build the logic. By this, programs with up to 200 function blocks can be created, where each single function in a program can be used as many times as desired.

A complete documentation of the program can be created directly from AL-PCS/WIN.

Software	AL-PCS/WIN
Series	Alpha series
Language	7 languages (English/German/French/Italian/Spanish/Swedish/Russian)
Applicable for	Windows 95/98/ME/NT/2000/XP

■ Configuration Software

Software	Configuration Software Description	Model
FX Configurator-EN	FX3U-ENET configuration tool	SW1D5C-FXENET-E
FX Configurator-FP	FX3U-20SSC-H configuration tool	SW-FXSSC-O-E
GX Configurator-DP	FX3U-64DP-M configuration tool	SW7D5C-PROFID-E

■ Hand-Held Programming Unit

Hand-Held Programming Unit FX-20P-E-SET0



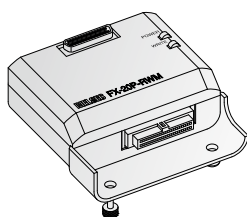
This small hand-held programming unit designed for industry has a user-friendly keyboard and a clearly laid out, back-lit LC display. On this programming unit, the MELSEC FX family PLCs can be programmed via Instruction List programming.

The FX-20P-E-SET0 has an integrated CMOS-RAM with capacitor buffering. This ensures storage of the PLC program and its duplication, for example for series machines.

Specifications	FX-20P-E-SET0
Applicable for	Base units FX1S, FX1N, FX2N, FX2NC, FX3U*
Ambient temperature	0 – 40 °C
Ambient relative humidity (non-condensing)	35 – 85%
Power supply	DC 5 ±5% via PLC
Current consumption	mA 150
Display	LCD (with backlight)
Character display	16 x 4
Keyboard	35
Memory	8,000 steps PLC-program
Data security	Data is safed up to 3 days by capacitor.
Cable	FX-20P-CAB0
Weight	kg 0.4
Dimensions (W x H x D)	mm 90 x 170 x 30

*When used with an FX3U, the programming unit's functionality is limited to the range and functions of the FX2N PLCs.

■ EPROM Writer FX-20P-RWM



FX-20P-RWM

The EPROM writer FX-20P-RWM is plugged directly into the hand-held programming unit FX-20P-E-SET0. It is used for transferring the PLC programs of the MELSEC FX controller to the EPROM memory cassette FX-EPROM-8.

Conversely, existing programs can be read from the FX-EPROM-8 memory cassette into the CMOS-RAM of the MELSEC FX controller and program comparisons carried out.

■ Programming Accessory Kits for Hand-Held Programming Unit

FX-20P-ADP-KIT

This adapter kit allows the FX-20P-E programming unit to be used without connection to a PLC.

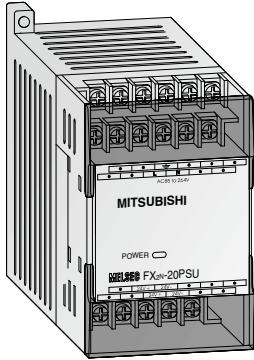
FX-20P-E-FKIT

This adapter kit allows the FX-20P-E to program legacy FX series PLCs such as F1 and F2.

FX-20P-MFXD-E

This upgrade module allows an existing FX-20P-E to be upgraded for use with the latest FX2N PLC models and instructions.

■ Power Supply



Power Supply Unit FX2N-20PSU

The FX2N-20PSU has the standard FX series size and can be mounted on a DIN rail. The DC power supply unit is available as the following applications:

- Power supply of 24 V DC power type PLC
- Power supply of special extension block to PLC
- Power supply of sensor connected to input of PLC
- Power supply of DC load connected to output of PLC
- Power supply of display unit such as graphic operation terminal (GOT)

Specifications	FX2N-20PSU
Applicable for	Base units FX1S, FX1N, FX2N, FX2NC, FX3U
Ambient temperature	0 – 55 °C (-20 – 70 °C storage temperature)
Ambient relative humidity (non-condensing)	35 – 85% (35 – 90% storage humidity)
Input voltage	100 – 240 V AC
Input frequency	50 / 60 Hz
Fuse rating	3.15 A (built in)
Rush current	60 A / 200 V AC max.
Output power	24 DC $\pm$ 10% / 2 A maximum; 0.2 A minimum
Ripple noise	500 mVp-p or less
Holding time	10 ms / 100 V AC
Protection against overcurrent	Actuated when current becomes 110 – 160 % or more, voltage drop occurs automatic recovery
Protection against overvoltage	Actuated when current becomes 110 – 140 % or more, output shutdown, no automatic recovery (diode clamp)
Weight	kg 0.3
Dimensions (W x H x D)	mm 60 x 98 x 75

Module type	CE		uL cUL	Ship approvals					
	EMC	LVD		ABS	DNV	LR	GL	BV	RINA
ALPHA 2 Base Units									
AL2-10MR-A	●	●	●	—	—	—	—	—	—
AL2-10MR-D	●	●	●	—	—	—	—	—	—
AL2-14MR-A	●	●	●	—	●	—	—	—	—
AL2-14MR-D	●	●	●	—	●	—	—	—	—
AL2-24MR-A	●	●	●	—	●	—	—	—	—
AL2-24MR-D	●	●	●	—	●	—	—	—	—
ALPHA Extension Modules									
AL2-4EX-A2	●	●	●	—	●	—	—	—	—
AL2-4EX	●	●	uL	—	●	—	—	—	—
AL2-4EYR	●	●	●	—	●	—	—	—	—
AL2-4EYT	●	●	●	—	●	—	—	—	—
AL2-2DA	●	●	●	—	—	—	—	—	—
AL2-2PT-ADP	●	●	●	—	—	—	—	—	—
AL2-2TC-ADP	●	●	●	—	—	—	—	—	—
AL2-ASI-BD	●	●	●	—	●	—	—	—	—
FX1s Base Units									
FX1s-10MR-DS	●	●	●	●	—	●	●	●	●
FX1s-10MR-ES/UL	●	●	●	●	—	●	●	●	●
FX1s-10MT-DSS	●	○	●	●	—	●	●	●	●
FX1s-10MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX1s-14MR-DS	●	●	●	●	—	●	●	●	●
FX1s-14MR-ES/UL	●	●	●	●	—	●	●	●	●
FX1s-14MT-DSS	●	○	●	●	—	●	●	●	●
FX1s-14MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX1s-20MR-DS	●	●	●	●	—	●	●	●	●
FX1s-20MR-ES/UL	●	●	●	●	—	●	●	●	●
FX1s-20MT-DSS	●	○	uL	●	●	●	●	●	●
FX1s-20MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX1s-30MR-DS	●	●	●	●	—	●	●	●	●
FX1s-30MR-ES/UL	●	●	●	●	●	●	●	●	●
FX1s-30MT-DSS	●	○	●	●	—	●	●	●	●
FX1s-30MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX1N Base Units									
FX1N-14MR-DS	●	●	●	●	●	—	●	●	●
FX1N-14MR-ES/UL	●	●	●	●	—	—	●	●	●
FX1N-14MT-DSS	●	○	●	●	—	—	●	●	●
FX1N-14MT-ESS/UL	●	●	●	●	—	—	●	●	●
FX1N-24MR-DS	●	●	●	●	—	●	●	●	●
FX1N-24MR-ES/UL	●	●	●	●	—	●	●	●	●
FX1N-24MT-DSS	●	○	●	●	—	●	●	●	●
FX1N-24MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX1N-40MR-DS	●	●	●	●	—	●	●	●	●
FX1N-40MR-ES/UL	●	●	●	●	—	●	●	●	●
FX1N-40MT-DSS	●	○	●	●	●	●	●	●	●
FX1N-40MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX1N-60MR-DS	●	●	●	●	—	●	●	●	●
FX1N-60MR-ES/UL	●	●	●	●	●	●	●	●	●
FX1N-60MT-DSS	●	○	●	●	—	●	●	●	●
FX1N-60MT-ESS/UL	●	●	●	●	—	●	●	●	●
FX2N Base Units									
FX2N-16MR-DS	●	●	●	●	●	—	●	—	—
FX2N-16MR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-16MR-UA1/UL	●	●	●	●	●	—	—	—	—
FX2N-16MT-DSS	●	○	●	●	●	—	●	—	—
FX2N-16MT-ESS/UL	●	●	●	●	●	●	●	●	●
FX2N-16MT-E/UL	—	—	●	—	—	—	—	—	—
FX2N-32MR-DS	●	●	●	●	●	—	●	—	—
FX2N-32MR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-32MR-UA1/UL	●	●	●	●	●	—	—	—	—
FX2N-32MS-E/UL	—	—	●	—	—	—	—	—	—
FX2N-32MT-DSS	●	○	●	●	●	—	●	—	—
FX2N-32MT-ESS/UL	●	●	●	●	●	●	●	●	●

Module type	CE		uL cUL	Ship approvals					
	EMC	LVD		ABS	DNV	LR	GL	BV	RINA
FX2N-32MT-E/UL	—	—	●	—	—	—	—	—	—
FX2N-48MR-DS	●	●	●	●	●	—	●	—	—
FX2N-48MR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-48MR-UA1/UL	●	●	●	●	●	—	—	—	—
FX2N-48MS-E/UL	—	—	●	—	—	—	—	—	—
FX2N-48MT-ESS/UL	●	●	●	●	●	●	●	●	●
FX2N-48MT-DSS	●	○	●	●	●	—	●	—	—
FX2N-48MT-E/UL	—	—	●	—	—	—	—	—	—
FX2N-64MR-DS	●	●	●	●	●	—	●	—	—
FX2N-64MR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-64MR-UA1/UL	●	●	●	●	●	—	—	—	—
FX2N-64MT-ESS/UL	●	●	●	●	●	●	●	●	●
FX2N-64MT-DSS	●	○	●	●	●	—	●	—	—
FX2N-80MR-DS	●	●	●	●	●	—	●	—	—
FX2N-80MR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-80MT-DSS	●	○	●	●	●	—	●	—	—
FX2N-80MT-ESS/UL	●	●	●	●	●	●	●	●	●
FX2N-128MR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-128MT-ESS/UL	●	●	●	●	●	●	●	●	●
FX2NC Base Units									
FX2NC-16MT-DSS	●	○	●	—	●	—	—	—	—
FX2NC-16MT-D/UL	—	—	●	—	—	—	—	—	—
FX2NC-16MR-T-DS	●	●	●	—	●	—	—	—	—
FX2NC-32MT-DSS	●	○	●	—	●	—	—	—	—
FX2NC-32MT-D/UL	—	—	●	—	—	—	—	—	—
FX2NC-64MT-DSS	●	○	●	—	●	—	—	—	—
FX2NC-64MT-D/UL	—	—	●	—	—	—	—	—	—
FX2NC-96MT-DSS	●	○	●	—	●	—	—	—	—
FX2NC-96MT-D/UL	—	—	●	—	—	—	—	—	—
FX3U Base Units									
FX3U-16MR/DS	●	●	●	—	—	—	—	—	—
FX3U-16MR/ES	●	●	●	—	—	—	—	—	—
FX3U-16MT/DSS	●	○	●	—	—	—	—	—	—
FX3U-16MT/DS	●	○	●	—	—	—	—	—	—
FX3U-16MT/ES	●	●	●	—	—	—	—	—	—
FX3U-16MT/ESS	●	●	●	—	—	—	—	—	—
FX3U-32MR/DS	●	●	●	—	—	—	—	—	—
FX3U-32MR/ES	●	●	●	—	—	—	—	—	—
FX3U-32MT/DSS	●	○	●	—	—	—	—	—	—
FX3U-32MT/DS	●	○	●	—	—	—	—	—	—
FX3U-32MT/ES	●	●	●	—	—	—	—	—	—
FX3U-32MT/ESS	●	●	●	—	—	—	—	—	—
FX3U-48MR/DS	●	●	●	—	—	—	—	—	—
FX3U-48MR/ES	●	●	●	—	—	—	—	—	—
FX3U-48MT/DSS	●	○	●	—	—	—	—	—	—
FX3U-48MT/DS	●	○	●	—	—	—	—	—	—
FX3U-48MT/ES	●	●	●	—	—	—	—	—	—
FX3U-48MT/ESS	●	●	●	—	—	—	—	—	—
FX3U-64MR/DS	●	●	●	—	—	—	—	—	—
FX3U-64MR/ES	●	●	●	—	—	—	—	—	—
FX3U-64MT/DSS	●	○	●	—	—	—	—	—	—
FX3U-64MT/DS	●	○	●	—	—	—	—	—	—
FX3U-64MT/ES	●	●	●	—	—	—	—	—	—
FX3U-64MT/ESS	●	●	●	—	—	—	—	—	—
FX3U-80MR/DS	●	●	●	—	—	—	—	—	—
FX3U-80MR/ES	●	●	●	—	—	—	—	—	—
FX3U-80MT/DSS	●	○	●	—	—	—	—	—	—
FX3U-80MT/DS	●	○	●	—	—	—	—	—	—
FX3U-80MT/ES	●	●	●	—	—	—	—	—	—
FX3U-80MT/ESS	●	●	●	—	—	—	—	—	—
FX3U-128MR/ES	●	●	●	—	—	—	—	—	—
FX3U-128MT/ES	●	●	●	—	—	—	—	—	—
FX3U-128MT/ESS	●	●	●	—	—	—	—	—	—

● = comply, ○ = no need to comply

Module type	CE		uL cUL	Ship approvals					
	EMC	LVD		ABS	DNV	LR	GL	BV	RINA
FX0N/FX2N Extension Units									
FX0N-40ER-ES/UL	●	●	●	—	●	—	—	—	—
FX0N-40ER-DS	●	●	—	—	●	—	—	—	—
FX0N-40ET-DSS	●	○	—	—	●	—	—	—	—
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	●	●	●	●	●	—	—	—	—
FX2N-8EYT-ESS/UL	●	○	●	●	●	—	—	—	—
FX2N-16EX-ES/UL	●	○	●	●	●	●	●	●	●
FX2N-16EYR-ES/UL	●	●	●	●	●	●	●	●	●
FX2N-16EYT-ESS/UL	●	○	●	●	●	●	●	●	●
FX2N-16EYS	—	—	●	—	—	—	—	—	—
FX2NC Extension Blocks									
FX2NC-16EX-T-DS	●	●	●	—	●	—	—	—	—
FX2NC-16EYR-T-DS	●	●	●	—	●	—	—	—	—
FX2NC-16EX-DS	●	●	●	—	●	—	—	—	—
FX2NC-16EYT-DSS	●	●	●	—	●	—	—	—	—
FX2NC-16EX-D/UL	—	—	●	—	—	—	—	—	—
FX2NC-16EYT-D/UL	—	—	●	—	—	—	—	—	—
FX2NC-32EX-DS	●	●	●	—	●	—	—	—	—
FX2NC-32EYT-DSS	●	●	●	—	●	—	—	—	—
FX2NC-32EX-D/UL	—	—	●	—	—	—	—	—	—
FX2NC-32EYT-D/UL	—	—	●	—	—	—	—	—	—
FX1N/FX2N Special Function Modules									
FX0N-3A	●	○	—	—	—	—	—	—	—
FX2N-1HC	●	●	●	●	●	●	●	●	●
FX2N-1PG-E	●	●	●	●	●	●	●	●	●
FX2N-1RM-E-SET	●	●	—	●	—	—	—	—	—
FX2N-2AD	●	○	●	●	—	—	—	—	—
FX2N-2DA	●	○	●	●	—	—	—	—	—
FX2N-2LC	●	○	●	—	—	—	—	—	—
FX2N-4AD	●	○	●	●	●	●	●	●	●
FX2N-4AD-TC	●	○	●	●	●	●	●	●	●
FX2N-4AD-PT	●	○	●	●	●	●	●	●	●
FX2N-4DA	●	○	●	●	●	●	●	●	●
FX2N-5A	●	○	●	—	—	—	●	●	●
FX2N-8AD	●	○	●	—	—	—	●	●	●
FX2N-10GM	●	●	●	—	—	—	—	—	—
FX2N-10PG	●	○	●	—	—	—	—	—	—
FX2N-16CCL-M	●	○	—	—	—	—	—	—	—
FX2N-20GM	●	●	●	—	—	—	—	—	—
FX2N-32ASI-M	●	●	—	—	—	—	—	—	—
FX2N-32CCL	●	○	—	—	—	—	—	—	—
FX2N-64CL-M	●	○	●	—	—	—	—	—	—
FX2N-232IF	●	○	—	●	●	●	●	●	●
FX2NC Special Function Modules									
FX2NC-4DA	●	○	●	—	●	—	—	—	—
FX2NC-4AD	●	○	●	—	●	—	—	—	—
FX2NC-485ADP	●	—	—	—	●	—	—	—	—
FX2NC-232ADP	●	—	—	—	●	—	—	—	—

Module type	CE		uL cUL	Ship approvals					
	EMC	LVD		ABS	DNV	LR	GL	BV	RINA
FX3U Special Function Modules									
FX3U-4AD	●	○	●	—	—	—	—	—	—
FX3U-4DA	●	○	●	—	—	—	—	—	—
FX3U-4AD-TC-ADP	●	○	●	—	—	—	—	—	—
FX3U-4AD-PT-ADP	●	○	●	—	—	—	—	—	—
FX3U-4AD-ADP	●	○	●	—	—	—	—	—	—
FX3U-4DA-ADP	●	○	●	—	—	—	—	—	—
FX3U-4HSX-ADP	●	○	●	—	—	—	—	—	—
FX3U-2HSY-ADP	●	○	●	—	—	—	—	—	—
FX3U-485ADP	●	○	●	—	—	—	—	—	—
FX3U-232ADP	●	○	●	—	—	—	—	—	—
FX3U-20SSC-H	●	○	●	—	—	—	—	—	—
FX3U-1PSU-5V	●	●	●	—	—	—	—	—	—
Adapter Boards									
FX1N-1DA-BD	●	○	—	●	—	●	●	●	●
FX1N-2AD-BD	●	○	—	●	—	●	●	●	●
FX1N-2EYT-BD	●	○	—	●	—	●	●	●	●
FX1N-4EX-BD	●	○	—	●	—	●	●	●	●
FX1N-8AV-BD	●	○	—	●	—	●	●	●	●
FX1N-232-BD	●	○	—	●	—	●	●	●	●
FX1N-422-BD	●	○	—	●	—	●	●	●	●
FX1N-485-BD	●	○	—	●	—	●	●	●	●
FX1N-CNV-BD	●	○	—	●	—	●	—	—	—
FX2N-8AV-BD	●	○	—	●	—	—	●	—	—
FX2N-232-BD	●	○	—	●	—	—	●	—	—
FX2N-422-BD	●	○	—	●	—	—	●	—	—
FX2N-485-BD	●	○	—	●	—	—	●	—	—
FX2N-CNV-BD	●	○	—	—	—	—	—	—	—
FX3U-232-BD	●	○	—	—	—	—	—	—	—
FX3U-422-BD	●	○	—	—	—	—	—	—	—
FX3U-485-BD	●	○	—	—	—	—	—	—	—
FX3U-CNV-BD	●	○	—	—	—	—	—	—	—
FX3U-USB-BD	●	○	—	—	—	—	—	—	—
Terminal Blocks									
FX-16E-TB	—	○	●	—	—	—	—	—	—
FX-16E-TB/UL	—	○	●	—	—	—	—	—	—
FX-32E-TB	—	○	●	—	—	—	—	—	—
FX-32E-TB/UL	—	○	●	—	—	—	—	—	—
FX-16EX-A1-TB/UL	—	—	●	—	—	—	—	—	—
FX-16EX-A1-TB	—	—	●	—	—	—	—	—	—
FX-16EYR-ES-TB/UL	—	—	●	—	—	—	—	—	—
FX-16EYR-TB	—	—	●	—	—	—	—	—	—
FX-16EYS-ES-TB/UL	—	—	●	—	—	—	—	—	—
FX-16EYT-ESS-TB/UL	—	○	●	—	—	—	—	—	—
FX-16EYT-ES-TB/UL	—	○	●	—	—	—	—	—	—
FX-16EYT-TB	—	○	●	—	—	—	—	—	—
Accessories									
FX1N-5DM	●	○	—	●	—	●	●	●	●
FX-10DM-E	●	○	—	—	—	—	—	—	—
FX-20 P-E-SET0	●	○	—	—	—	—	—	—	—
FX-USB-AW	●	○	—	—	—	—	—	—	—
FX-232AWC-H	●	○	—	—	—	—	—	—	—
FX-485PC-IF	●	—	—	—	—	—	—	—	—
FX2N-CNV-IF	●	○	—	●	—	—	—	—	—
FX2N-CNV-BC	●	○	—	—	—	—	—	—	—
FX2N-20PSU	●	●	●	—	—	—	—	—	—
FX3U-7DM	●	○	—	—	—	—	—	—	—
FX3U-7DM-HLD	●	—	—	—	—	—	—	—	—

● = comply, ○ = no need to comply

Accessories.....		FX1N-14MT-ESS/UL.....	13	FX2N-2DA.....	31	FX2NC-EEPROM-16.....	46
Batteries.....	47	FX1N-1DA-BD.....	43	FX2N-2LC.....	33	FX2NC-EEPROM16C.....	46
Cables.....	49	FX1N-232-BD.....	45	FX2N-23ASI-M.....	40	FX2NC-EEPROM-4C.....	46
Display modules.....	48	FX1N-24MR-DS.....	13	FX2N-32CCL.....	39	FX2N-CNV-BC.....	49
EPROM Writer.....	85	FX1N-24MR-ES/UL.....	13	FX2N-32ER-ES/UL.....	27	FX2N-CNV-BD.....	44
Hand-held programming unit.....	85	FX1N-24MT-DSS.....	13	FX2N-32ET-ESS/UL.....	27	FX2N-CNV-IF.....	45
Interface cables.....	8	FX1N-24MT-ESS/UL.....	13	FX2N-32MR-DS.....	16	FX2NC-ROM-CE1.....	46
Memory media.....		FX1N-2AD-BD.....	43	FX2N-32MR-ES/UL.....	16	FX2NC-RTC.....	46
ALPHA 2 series.....	8	FX1N-2EYT-BD.....	43	FX2N-32MR-UA1/UL.....	16	FX2N-GM-SEC.....	49
FX series.....	46	FX1N-40MR-DS.....	13	FX2N-32MS-E/UL.....	16	FX2N-GM-65EC.....	49
Programming Accessory Kits.....	85	FX1N-40MR-ES/UL.....	13	FX2N-32MT-DSS.....	16	FX2N-ROM-E1.....	46
Remote terminal blocks.....	47	FX1N-40MT-DSS.....	13	FX2N-32MT-E/UL.....	16	FX-32E-TB.....	47
Adapter boards.....	43	FX1N-40MT-ESS/UL.....	13	FX2N-32MT-ESS/UL.....	16	FX-32E-TB/UL.....	47
AL2-10MR-A.....	5	FX1N-422-BD.....	45	FX2N-422-BD.....	45	FX3U series.....	
AL2-10MR-D.....	5	FX1N-485-BD.....	45	FX2N-48ER-UA1/UL.....	27	Base units.....	23
AL2-14MR-A.....	5	FX1N-4EX-BD.....	43	FX2N-485-BD.....	45	Specifications.....	25
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AL2-24MR-D.....	5	FX1N-60MR-ES/UL.....	13	FX2N-48ET-DSS.....	27	FX3U-20SSC-H.....	37
AL2-2DA.....	7	FX1N-60MT-DSS.....	13	FX2N-48ET-ESS/UL.....	27	FX3U-16MR/DS.....	23
AL2-2PT-ADP.....	7	FX1N-60MT-ESS/UL.....	13	FX2N-48MR-DS.....	17	FX3U-16MR/ES.....	23
AL2-2TC-ADP.....	7	FX1N-8AV-BD.....	43	FX2N-48MR-ES/UL.....	17	FX3U-16MT/DSS.....	23
AL-232CAB.....	8	FX1N-CNV-BD.....	44	FX2N-48MR-UA1/UL.....	17	FX3U-16MT/DS.....	23
AL2-4EX.....	7	FX1N-EEPROM-8L.....	46	FX2N-48MS-E/UL.....	17	FX3U-16MT/ESS.....	23
AL2-4EX-A2.....	7	FX1S series.....		FX2N-48MT-DSS.....	17	FX3U-16MT/ES.....	23
AL2-4EYR.....	7	Base units.....	10	FX2N-48MT-E/UL.....	17	FX3U-232ADP.....	41
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AL2-EEPROM-2.....	8	FX1S-10MR-DS.....	10	FX2N-4AD-PT.....	33	FX3U-32BL.....	47
AL2-GSM-CAB.....	8	FX1S-10MR-ES/UL.....	10	FX2N-4AD-TC.....	33	FX3U-32MR/DS.....	23
ALPHA 2 series.....		FX1S-10MT-DSS.....	10	FX2N-4DA.....	31	FX3U-32MR/ES.....	23
Accessories.....	8	FX1S-10MT-ESS/UL.....	10	FX2N-5A.....	33	FX3U-32MT/DSS.....	23
Base units.....	5	FX1S-14MR-DS.....	10	FX2N-64CL-M.....	39	FX3U-32MT/DS.....	23
Extension modules.....	7	FX1S-14MR-ES/UL.....	10	FX2N-64MR-DS.....	17	FX3U-32MT/ESS.....	23
Specifications.....	6	FX1S-14MT-DSS.....	10	FX2N-64MR-ES/UL.....	17	FX3U-32MT/ES.....	23
Analog modules FX series.....	31	FX1S-14MT-ESS/UL.....	10	FX2N-64MR-UA1/UL.....	17	FX3U-422-BD.....	45
Cables.....	49	FX1S-20MR-DS.....	10	FX2N-64MT-DSS.....	17	FX3U-485ADP.....	41
Dimensions.....	76	FX1S-20MR-ES/UL.....	10	FX2N-64MT-ESS/UL.....	17	FX3U-485-BD.....	45
Display modules.....	48	FX1S-20MT-DSS.....	10	FX2N-8EX-UA1/UL.....	28	FX3U-48MR/DS.....	23
E-GM-200CAB.....	49	FX1S-20MT-ESS/UL.....	10	FX2N-80MR-DS.....	17	FX3U-48MR/ES.....	23
E-GMC-200CAB.....	49	FX1S-30MR-DS.....	10	FX2N-80MR-ES/UL.....	17	FX3U-48MT/DSS.....	23
E-GMH200CAB.....	49	FX1S-30MR-ES/UL.....	10	FX2N-80MT-DSS.....	17	FX3U-48MT/DS.....	23
E-GMJ-200CAB.....	49	FX1S-30MT-DSS.....	10	FX2N-80MT-ESS/UL.....	17	FX3U-48MT/ESS.....	23
E-GMJ2-200CAB1A.....	49	FX1S-30MT-ESS/UL.....	10	FX2N-8AD.....	31	FX3U-48MT/ES.....	23
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FX0N/FX2N series.....	26	FX-20 P-ADP-KIT.....	85	FX2N-8EX-ES/UL.....	28	FX3U-4AD-PT-ADP.....	34
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F2-40BL.....	47	FX-20 P-CAB0.....	49	FX2N-8EYT-ESS/UL.....	28	FX3U-4DA.....	32
F2-RS-5CAB.....	49	FX-20 P-CADP.....	49	FX2NC series.....		FX3U-4DA-ADP.....	34
FX0N-30EC.....	49	FX-20 P-E-FKIT.....	85	Base units.....	20	FX3U-4HSX-ADP.....	35
FX0N-3A.....	33	FX-20 P-MFXD-E.....	85	Specifications.....	21	FX3U-64MR/DS.....	24
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FX0N-40ER-ES/UL.....	26	FX-232CAB-1.....	49	FX2NC-100BPCB.....	49	FX3U-64MT/DSS.....	24
FX0N-40ET-DSS.....	26	FX2N series.....		FX2NC-100MPCB.....	49	FX3U-64MT/DS.....	24
FX0N-65EC.....	49	Base units.....	16	FX2NC-10BPCB1.....	49	FX3U-64MT/ESS.....	24
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FX-16E-300CAB-R.....	49	FX2N-128MR-ES/UL.....	17	FX2NC-16EYT-D/UL.....	30	FX3U-80MR/ES.....	24
FX-16E-500CAB.....	49	FX2N-128MT-ESS/UL.....	17	FX2NC-16EYT-DSS.....	30	FX3U-80MT/DSS.....	24
FX-16E-500CAB-R.....	49	FX2N-16CCL-M.....	39	FX2NC-16MR-T-DS.....	20	FX3U-80MT/DS.....	24
FX-16E-500CAB-S.....	49	FX2N-16EX-ES/UL.....	29	FX2NC-16MT-D/UL.....	20	FX3U-80MT/ESS.....	24
FX-16E-TB.....	47	FX2N-16EYR-ES/UL.....	29	FX2NC-16MT-DSS.....	20	FX3U-80MT/ES.....	24
FX-16E-TB/UL.....	47	FX2N-16EYS.....	29	FX2NC-232ADP.....	41	FX3U-128MR/ES.....	24
FX-16EX-A1-TB.....	47	FX2N-16EYT-ESS/UL.....	29	FX2NC-32BL.....	47	FX3U-128MT/ESS.....	24
FX-16EX-A1-TB/UL.....	47	FX2N-16MR-DS.....	16	FX2NC-32EX-D/UL.....	30	FX3U-128MT/ES.....	24
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FX-16EYT-ESS-TB/UL.....	47	FX2N-16MT-E/UL.....	16	FX2NC-32MT-D/UL.....	20	FX3U-FLROM-64L.....	46
FX-16EYT-ES-TB/UL.....	47	FX2N-16MT-ESS/UL.....	16	FX2NC-32MT-DSS.....	20	FX3U-USB-BD.....	44
FX-16EYT-TB.....	47	FX2N-1HC.....	35	FX2NC-485ADP.....	41	FX-422CAB.....	49
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FX1N-14MT-DSS.....	13	FX2N-2AD.....	31	FX2NC-CNV-IF.....	45	FX-EEPROM-16.....	46
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Brazil	MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda. Rua Correia Dias, 184, Edificio Paraiso Trade Center-8 ander Paraiso, Sao Paulo, SP Brasil +55-11-5908-8331	Ireland	Mitsubishi Electric Europe B.V. Irish Branch Westgate Business Park, Ballymount IRL-Dublin 24 Tel: + 353 1 / 4198800	Spain	Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80, E-08190 Sant Cugat del Valles, Barcelona, Spain +34-93-565-3131
China	Mitsubishi Electric Automation (Shanghai) Ltd. 4/F Zhi Fu Plaza, No.80 Xin Chang Road, Shanghai 200003, China +86-21-6120-0808	Italy	Mitsubishi Electric Europe B.V. Italian Branch Centro Dir. Colleoni, Pal. Perseo-Ingr.2 Via Paracelso 12, I-20041 Agrate Brianza Milano, Italy +39-039-60531	Taiwan	Setsuyo Enterprise Co., Ltd. 6F No.105 Wu Kung 3rd RD, Wu-Ku Hsiang, Taipei Hsien, Taiwan +886-2-2299-2499
France	Mitsubishi Electric Europe B.V. French Branch 25, Boulevard des Bouvets, F-92741 Nanterre Cedex, France +33-1-55685568	Korea	Mitsubishi Electric Automation Korea Co., Ltd. 1480-6, Gayang-dong, Gangseo-ku Seoul 157-200, Korea +82-2-3660-9552	Thailand	Mitsubishi Electric Automation (Thailand) Co., Ltd. Bang-Chan Industrial Estate No.111 Moo 4, Serithai Rd, T.Kannayao, A.Kannayao, Bangkok 10230 Thailand +66-2-517-1326
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Hong Kong	Mitsubishi Electric Automation (Hong Kong) Ltd. 10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong +852-2887-8870	Singapore	Mitsubishi Electric Asia Pte, Ltd. 307 Alexandra Road #05-01/02 Mitsubishi Electric Building, Singapore 159943 +65-6470-2460	U.S.A.	Mitsubishi Electric Automation, Inc. 500 Corporate Woods Parkway, Vernon Hills, IL60061, U.S.A. +1-847-478-2100
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