



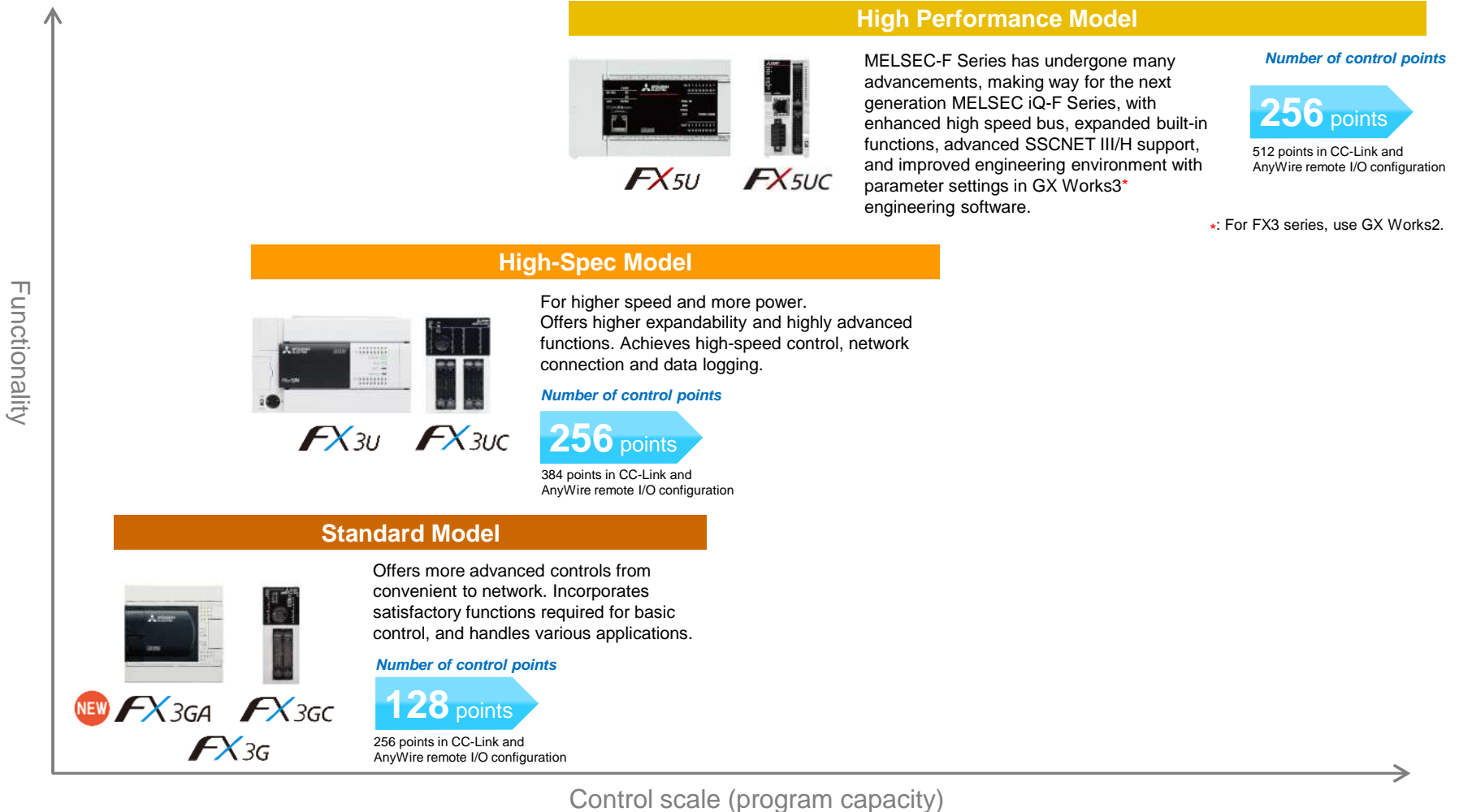
A wide range of applications from analog processing to network connection

Contents



1. FX3GA positioning
2. Lineup
3. Functions
4. Function comparison
5. System configuration
6. Software
7. Product lineup
8. Mitsubishi Electric FA solution

1. FX3GA positioning



2. Main unit lineup



FX3GA main unit

Shares many expansion options with the higher end FX3U series!
Low cost expansion possible with FX3G function expansion boards



FX3GA-24MR-CM AC D2 R
FX3GA-24MT-CM AC D2 T2

14 input points

10 output points



FX3GA-40MR-CM AC D2 R
FX3GA-40MT-CM AC D2 T2

24 input points

16 output points



FX3GA-60MR-CM AC D2 R
FX3GA-60MT-CM AC D2 T2

36 input points

24 output points

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

3-1. Functions-1



What can be achieved by the functions built in the main unit

High operability is realized in the all-in-one type main unit to offer excellent cost performance especially for small-scale control.

1 *Large-capacity memory which can store many comments!*

- The large-capacity EEPROM memory for 32,000 steps requires no maintenance.
- A memory cassette having the loader function can be also attached.

32,000 steps

2 *More than 30,000 data registers!*

- The PLC main unit incorporates 32,000 data registers.
- The EEPROM is used to back up data registers.

Extension register

24,000 points*

*: Excluding 8,000 points of data registers

3-1. Functions-1

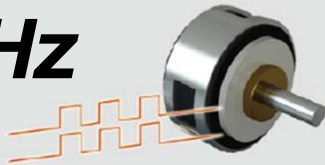


What can be achieved by the functions built in the main unit

3 *High-speed signal input at 60 kHz!*

- 2 channels at 60 kHz and 4 channels at 10 kHz can be used simultaneously.
- Many high-speed instructions are available for fast response.

60 kHz

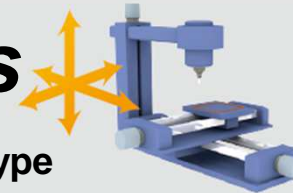


4 *3-axis positioning realized by simple programming!*

- Pulse outputs at 100 kHz maximum are available.
- GX Works2 offers simple batch setting for positioning of 3 axes.

3 axes

40/60-point type



3-1. Functions-2



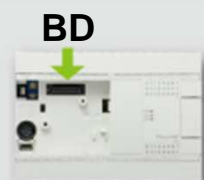
What can be achieved by the main unit and options

Flexible and abundant extension functions are available to achieve controls and applications in various fields.

1 Expansion board

- One expansion board for communication, analog input/output or various input/output can be attached.
- A memory cassette or display module can be attached in addition.

1 expansion
board
attachable



2 Up to 4 adapters connectable!

- Up to 4 adapters can be connected to the 40/60-point type main unit.
- Up to 2 adapters can be connected to the 24-point type main unit.

2 or more
adapters
connectable



3-1. Functions-2



What can be achieved by the main unit and options

3 Temperature and analog easily possible!

- Programming is not required for analog adapters.
- Up to 8 channels are available (in the 40/60-point type main unit) for analog input/output.



4 Simultaneous communication on 4 channels!

- The main unit incorporates USB and RS-422 ports. Up to 4 channels in total are available by connecting communication board/communication adapter.
- Bar code reader can be connected.



*: When special adapters are connected, expansion boards cannot be used.

4. FX3GA function comparison



Function comparison between FX3GA and FX3G

	Lineup			Terminal		Number of BD	Battery usage	High speed counter 1-phase 1-count	Non protocol communication (RS2 instruction)
	I/O points	Power type	Output type	Terminal cover	Removable				
NEW FX3GA	24/40/60	AC	Relay/ Transistor (sink)	—	24/40 points: not supported 60 points: supported	1	—	60 kHz: 2 ch 10 kHz: 4 ch	✓*
FX3G	14/24/40/60	AC/DC	Relay/ Transistor (sink)/ Transistor (source)	✓	Supported	14/24 points: 1 40/60 points: 2	✓	60 kHz: 4 ch 10 kHz: 2 ch	✓

*: Not supported on the built-in RS-422 port (ch0).

5-1. System configuration-1



Example of FX3GA system configuration

Important points required in the filling machine



- **Minimizing oxidation**

It is essential to take measures for preventing oxidation and discoloration caused by air bubbles during filling in manufacturing processed products such as foods, beverages and cosmetics.

- **Accurate filling**

It is necessary to fill the accurate quantity to prevent overfilling or underfilling.

FX_{3GA} can meet these requirements!

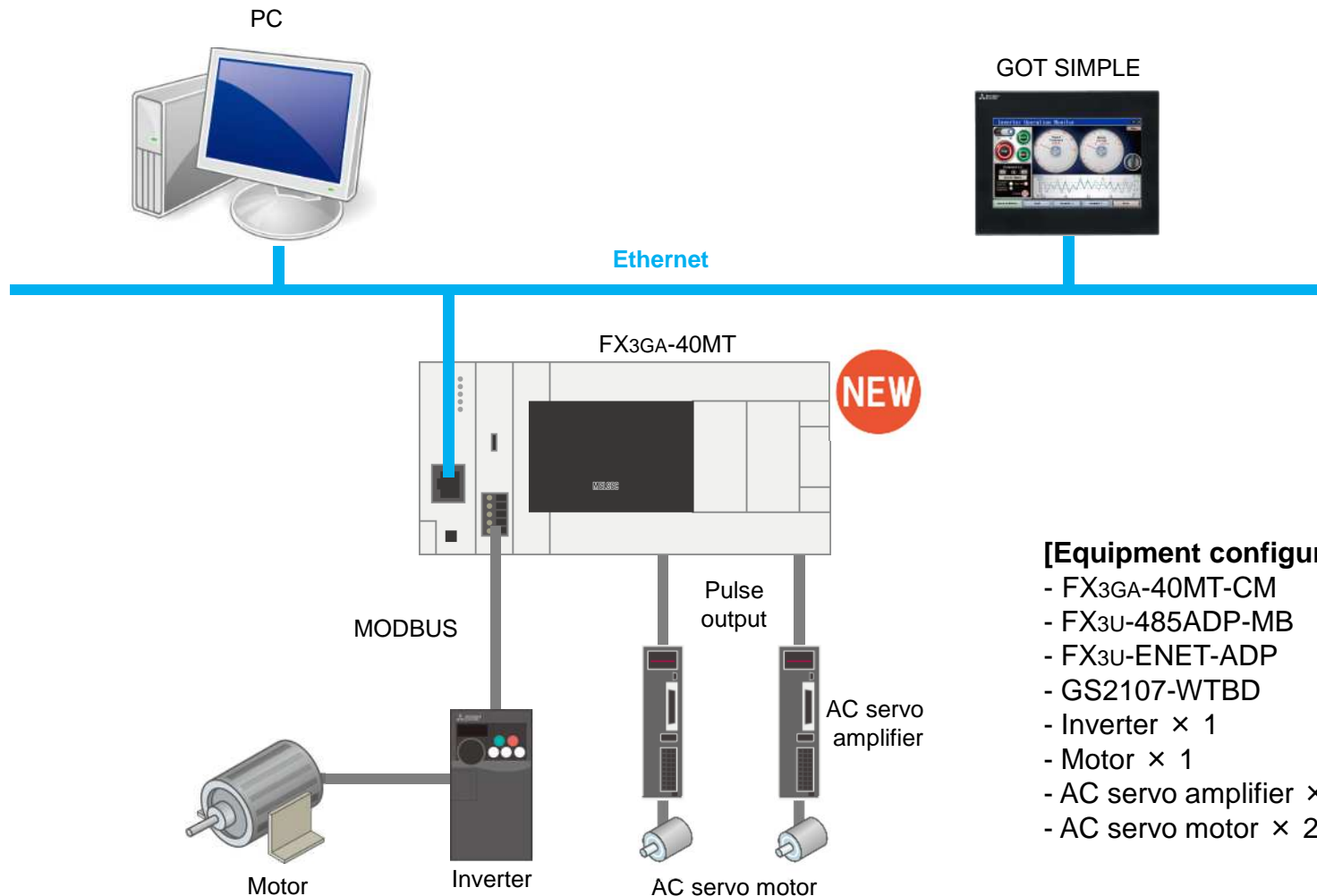
Point 1

FX_{3GA} can perform simultaneous positioning of 3 axes using the built-in function! FX_{3GA} controls the AC servo amplifier for multiple axes for accurate filling. The filling nozzle can be taken in and out without generating air bubbles to improve the product quality.

Point 2

FX_{3GA} is compatible with various networks including MODBUS[®] and Ethernet to enable system upgrade at reasonable cost.

5-2. System configuration-2



[Equipment configuration]

- FX3GA-40MT-CM
- FX3U-485ADP-MB
- FX3U-ENET-ADP
- GS2107-WTBD
- Inverter × 1
- Motor × 1
- AC servo amplifier × 2
- AC servo motor × 2

5-3. Option configuration diagram



[Special adapter]

(There is restriction in relationship with the expansion board.)

24-point type main unit: Up to 2 special adapters
(1 special adapter for analog and 1 special adapter for communication)
40/60-point type main unit: Up to 4 special adapters
(Up to 2 special adapters for analog and up to 2 special adapters for communication)

◆ **Analog**

- FX3U-4AD-ADP
- FX3U-4DA-ADP
- FX3U-3A-ADP
- FX3U-4AD-PT-ADP
- FX3U-4AD-TC-ADP
- FX3U-4AD-PTW-ADP
- FX3U-4AD-PNK-ADP

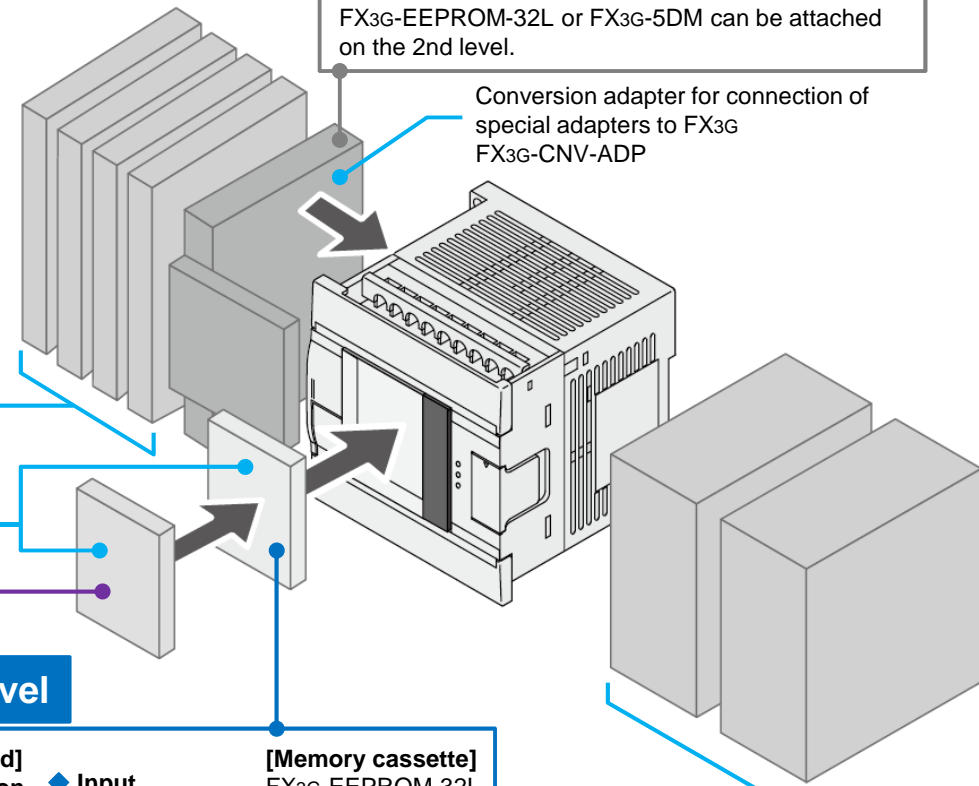
◆ **Communication**

- FX3U-232ADP-MB
- FX3U-485ADP-MB
- FX3U-ENET-ADP

Expansion board, memory cassette or display module (There is restriction in relationship with the special adapter.)

FX3G-CNV-ADP should be attached on the 1st level.
FX3G-EEPROM-32L or FX3G-5DM can be attached on the 2nd level.

Conversion adapter for connection of special adapters to FX3G
FX3G-CNV-ADP



BD 2nd level

- ◆ **Memory cassette** FX3G-EEPROM-32L
- ◆ **Display module** FX3G-5DM

Can be attached on the 2nd level when a board for communication, analog, input, output, or analog volume is attached on the 1st level.

BD 1st level

<p>[Expansion board]</p> <ul style="list-style-type: none"> ◆ Communication FX3G-232-BD FX3G-485-BD FX3G-485-BD-RJ FX3G-422-BD ◆ Analog FX3G-2AD-BD FX3G-1DA-BD 	<ul style="list-style-type: none"> ◆ Input FX3G-4EX-BD ◆ Output FX3G-2EYT-BD ◆ Analog Volume FX3G-8AV-BD 	<p>[Memory cassette]</p> <p>FX3G-EEPROM-32L</p> <p>[Display module]</p> <p>FX3G-5DM</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------

Extension units for FX3U/FX2N

6. Software

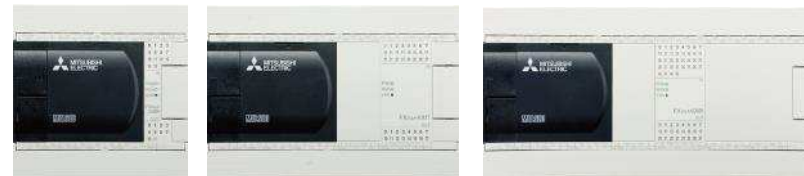


Program FX3 Series PLCs with ease using GX Works2

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



FX3GA



FX3GA are supported by GX Works2 Ver. 1.87R or later.

7. Product lineup



<p>Main units</p> <p>FX3GA FX3GA-24MR-CM FX3GA-24MT-CM FX3GA-40MR-CM FX3GA-40MT-CM FX3GA-60MR-CM FX3GA-60MT-CM</p> <p>Expansion board</p> <p>Analog input FX3G-2AD-BD</p> <p>Analog output FX3G-1DA-BD</p> <p>Analog Volume FX3G-8AV-BD</p> <p>Communication FX3G-232-BD FX3G-485-BD FX3G-485-BD-RJ FX3G-422-BD</p> <p>Input FX3G-4EX-BD</p> <p>Output FX3G-2EYT-BD</p>	<p>Connector conversion adapter</p> <p>FX3G-CNV-ADP</p> <p>Special adapters</p> <p>Analog FX3U-4AD-ADP FX3U-4DA-ADP FX3U-3A-ADP FX3U-4AD-PT-ADP FX3U-4AD-PTW-ADP FX3U-4AD-TC-ADP</p> <p>Communication FX3U-232ADP-MB FX3U-485ADP-MB FX3U-ENET-ADP</p>	<p>Input/output extension blocks</p> <p>Input FX2N-8EX-ES/UL FX2N-8EX-UA1/UL FX2N-16EX-ES/UL</p> <p>Output FX2N-8EYR-ES/UL FX2N-8EYT-ESS/UL FX2N-8EYR-S-ES/UL FX2N-16EYR-ES/UL FX2N-16EYT-ESS/UL FX2N-16EYS</p> <p>Input/Output FX2N-8ER-ES/UL</p> <p>Input/output powered extension units</p> <p>Input/Output FX2N-32ER-ES/UL FX2N-32ET-ESS/UL FX2N-48ER-ES/UL FX2N-48ET-ESS/UL FX2N-48ER-DS FX2N-48ET-DSS FX2N-48ER-UA1/UL</p>	<p>Special function blocks</p> <p>Analog input FX2N-2AD FX2N-4AD FX2N-8AD FX3U-4AD</p> <p>Analog output FX2N-2DA FX2N-4DA FX3U-4DA</p> <p>Temperature FX2N-2LC FX3U-4LC</p> <p>Network FX3U-16CCL-M FX3U-64CCL FX2N-64CL-M</p>	<p>Extension power supply unit</p> <p>FX3U-1PSU-5V</p> <p>Option</p> <p>Display module FX3G-5DM</p> <p>Memory cassette FX3G-EEPROM-32L</p> <p>Extension Cables FX0N-30EC FX0N-65EC</p> <p>PLC Bus Connector FX2N-CNV-BC</p> <p>Battery FX3U-32BL</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

8. Convenient solutions with Mitsubishi Electric FA equipment

Connecting the abundant functions incorporated in the main unit and extension units to directly connectable Mitsubishi Electric FA equipment enables high efficiency and easy operation.

Control

MELSEC iQ-F
series

From stand alone use to networked system applications, MELSEC iQ-F Series brings your business to the next level of industry.



Display

GOT SIMPLE

GOT SIMPLE not only offers ease of use with one-touch operation and functions specific to the display unit, but also enhances the connectivity with various FA equipment. GOT SIMPLE displays offer excellent functions required by the production site on a beautiful display, and enables higher productivity and efficiency.



Positioning

MITSUBISHI SERVO AMPLIFIERS & MOTORS
MELSERVO

MELSERVO contributes to improvement of the total system at manufacturing facilities and production facilities. Rotary servo motor, linear servo motor and direct drive motor are available to considerably improve the facility performance.



Drive

FREQROL-D700

FREQROL meets the various needs of our customers with the best choice. Inverters are variable frequency power supply devices which can easily and freely change the rotation speed of three-phase induction motors. Mitsubishi Electric has achieved high performance while caring for the environment and complying with global standards, and offers a wide lineup of inverters suitable for any of various applications.

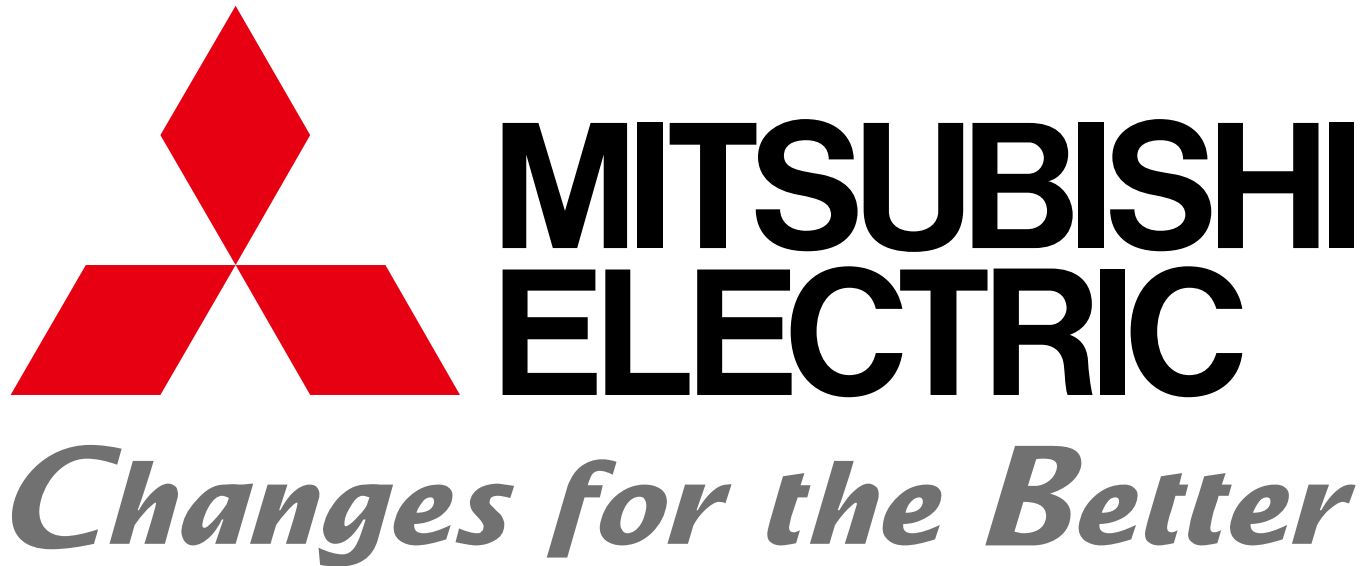


Display with control

GOC – Graphic Operation Controller

An integrated PLC & HMI. Its aim is to meet the low end automation needs of the Indian and global markets. Mitsubishi Electric India intends to increase the market share in entry level markets in different sectors like Packaging, HVAC, Textile and other applications in SPM. All in one unit: HMI + PLC + IO + Mimic + Annunciators + PB/Lamps.





Registration

- MODBUS is a registered trademark of Schneider Electric SA.
- Ethernet is a trademark of Xerox Corporation.
- Anywire and ANYWIREASLINK is a trademark of Anywire Corporation.
- All other company names and product names used in this document are trademarks or registered trademarks of their respective companies.