FX3 series lineup complete!

With the launch of FX3S, Mitsubishi's FX3 series line of microcontrollers is finally completed.
Whatever your requirements may be, you will be sure to find just the right PLC you need.
Push the limits of control with FX3 series PLCs.

Functionality

High-end

FX3U   FX3UC

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

NEW

Standard

FX3G   FX3GE (NEW)   FX3GC

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

NEW

Entry level

FX3S (NEW)

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

Control size

FX3 series overview

		FX3S (NEW)	FX3G	FX3GE (NEW)	FX3U
Hardware	Main unit I/O Control size	10/14/20/30 I/O Max. 30	14/24/40/60 I/O Max. 128 (Max.256 with CC-Link)	24/40 I/O Max. 128 (Max.256 with CC-Link)	16/32/48/64/80/128 I/O Max. 256 (Max.384 with CC-Link)
	Terminal	Screw	Screw	Screw	Screw
	Power supply	AC	AC/DC	AC	AC/DC
	24V DC input	Sink/Source	Sink/Source	Sink/Source	Sink/Source
	Output	Relay/Transistor	Relay/Transistor	Relay	Relay/Transistor
	Shipping approvals	—	—	—	✓
Features	Internal memory	16k steps EEPROM program memory : 4k steps	32k steps EEPROM	32k steps EEPROM	64k steps RAM
	RTC	Built-in	Built-in	Built-in	Built-in
	Battery	—	Option	Option	Built-in
	Communication ports	USB, RS-422	USB, RS-422	USB, RS-422, Ethernet	RS-422 (USB option)
	High speed counters	1 phase 60kHz : 2 10kHz : 4	1 phase 60kHz : 4 10kHz : 2	1 phase 60kHz : 4 10kHz : 2	1 phase 100kHz : 6 10kHz : 2
	Positioning	2 axes 100kHz	14/24 I/O : 2 axes 40/60 I/O : 3 axes 100kHz	24 I/O : 2 axes 40 I/O : 3 axes 100kHz	3 axes 100kHz
	Analog I/O	—	—	Input : 2 Output : 1	—
	Analog volume	2	2	2	—
Options	Expansion boards	1	14/24 I/O : 1 40/60 I/O : 2	1	1
	Special adapters	2	14/24 I/O : 2 40/60 I/O : 4	2	10
	Memory cassette	✓	✓	✓	✓
	Display module	—	✓	✓	✓
	CC-Link V2	—	✓	✓	✓
	MODBUS®	✓	✓	✓	✓
	Ethernet	✓	✓	—	✓
	SSCNET III	—	—	—	✓

✓ : Extension is possible.

PROGRAMMABLE CONTROLLERS
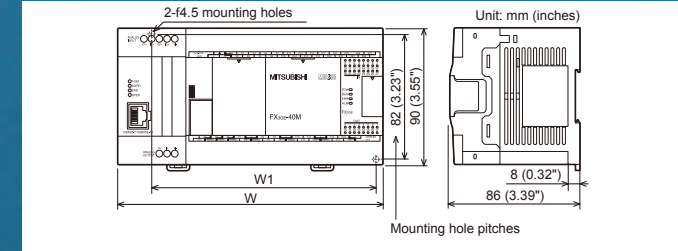
General specifications

Item	Specifications
Ambient temperature	0 to 55°C (32 to 131°F) when operating and -25 to 75°C (-13 to 167°F) when stored
Ambient humidity	5 to 95%RH (no condensation) when operating
Vibration resistance*	(see table below)
Shock resistance*	147m/s² Acceleration, Action time: 11ms, 3 times by half-sine pulse in each direction X, Y, and Z
Noise durability	By noise simulator at noise voltage of 1,000Vp-p, noise width of 1ms, rise time of 1ns and period of 30 to 100Hz
Dielectric withstand voltage	1.5kV AC for one minute, 500VAC for one minute
Insulation resistance	5MΩ or more by 500V DC megger
Grounding	Class D: Grounding resistance 100Ω or less
Working atmosphere	Free from corrosive or flammable gas and excessive conductive dusts
Working altitude	<2000m

Vibration resistance*:

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

* The criterion is shown in IEC61131-2.

Specifications

Item	FX3GE-24MR/ES	FX3GE-40MR/ES
I/O points	256 total (combined local and CC-Link remote I/O)	
Address range	Max. 128 direct addressing and Max. 128 remote I/O	
Program memory	32,000 steps EEPROM (internal),exchangeable EEPROM memory cassette	
Instruction Time	0.21μs or 0.42μs / contact instruction	
Number of instructions	29 sequence instructions, 2 step ladder instructions, 124 applied instructions	
Programming language	Step ladder, instruction list, SFC Step ladder	
Program execution	Cyclical execution, refresh mode processing	
Program protection	2 different keywords, Max password length 16 characters	
Inputs — Number of input points	14	24
Inputs — Input signal voltage / form	24V DC +10%, -10%, Sink / Source	
Inputs — Input signal current/ impedance	X000 to X007 : 7mA/24V DC, 3.3kΩ / X010 or more : 5mA/24V DC, 4.3kΩ	
Outputs — Number of output points	10 points (16 points)*1	16
Outputs — Output type	Relay	Relay
Outputs — External power supply	30V DC or less, 240V AC or less*2	
Outputs — Max. Resistance load	2A : 1point common, 8A : 4points common	
Analog inputs — Input range	Voltage input : 0V to 10V DC, 198.7kΩ(Max. -0.5V, +15V) Current input : 4mA to 20mA DC, 250Ω(Max. -2mA, +30mA)	
Analog inputs — Resolution	Voltage input : 2.5mV (10V/4000), Current input : 5μA (16mA/3200)	
Analog outputs — Output range	Voltage output : 0V to 10V DC (External load: 2k to 1MΩ) Current output : 4mA to 20mA DC (External load: 500Ω or less)	
Analog outputs — Resolution	Voltage output : 2.5mV(10V/4000), Current output : 4μA(16mA/4000)	
Ethernet — Data transmission speed	100Mbps / 10Mbps	
Ethernet — Communication method	Full-duplex / Half-duplex	
Ethernet — Transmission method	Base band	
Ethernet — Maximum segment length	100m (328'1)	

*1: Each value inside ( ) indicates the number of occupied points.
*2: Between 250V and 240V CE are not compliant.

Power Supply Specifications

Item	Specifications
Power Supply	100–240V AC (+10% / -15%), 50/60Hz
Allowable instantaneous power failure time	10ms or less.
Power fuse	250V 1A(24MR), 250V 3.15A(40MR)
Rush current	30A max. 5ms or less/100V AC 50A max. 5ms or less/200V AC
Power consumption	32W(24MR), 37W(40MR)
24V DC service power supply	400mA

External dimensions

2-ϕ4.5 mounting holes   Unit: mm (inches)

Mounting hole pitches

Model name	W : mm(inches)	W1 : mm(inches) Direct mounting hole pitches	MASS(Weight) : kg(lbs)
FX3GE-24MR/ES	130(5.12")	105(4.13")	0.60(1.32lbs)
FX3GE-40MR/ES	175(6.89")	150(5.90")	0.80(1.76lbs)

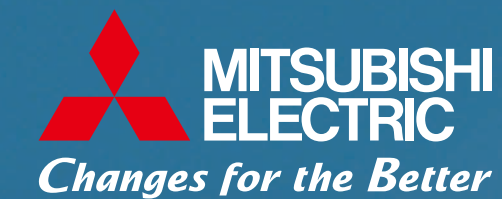* 35-mm-wide DIN rail or Direct (screw) mounting (M4)

Item	Specifications
Auxiliary relays	7,680 total, with 384 general (M0 - M383), 1152 EEPROM latched (M384 - M1535), and 6,144 general/optional latched(M1536 - M7679)
Special auxiliary relays	512 (M8000 - M8511)
State relays	4,096 total, with 1,000 EEPROM latched (S0 - S999) and 3,096 general/optional latched (S1000 - S4095)
Timers	320 total, with 206 100ms (T0 - T199 and T250 - T255), 46 10ms (T200 - T245), and 68 1ms (T246 - T249 and T256 - T319)
External setpoint entry via potentiometer	2
Counters	235 total (16 bit and 32 bit), with 36 general (C0 - C15 and C200 - C219) and 199 EEPROM latched (C16 - C199 and C220 - C234)
High-speed counters	21 total, with 16 1-phase (C235 - C250) and 5 2-phase (C251 - C255)
High-speed counter speed	1-phase, 6points max: 60 kHz / 4points, 10kHz / 2points 2-phase, 3points max: 30 kHz / 2points, 5kHz /1point
Real-time clock	Year, month, day, hour, minute, second, day of the week
Data registers	8,000 total, with 128 general (D0 - D127), 972 EEPROM latched (D128 - D1099), and 6,900 general/optional latched (D1100 - D7999)
Extension registers	24,000(R0 - R23999)
Extension file registers	24,000(ER0 - R23999) internal/optional memory
Index registers	16
Special data registers	512 (D8000 - D8511)
Pointers	2,048
Nestings	8
Interrupt inputs	6
Constants	16 bit: K: -32,768 to +32,767; H: 0 to FFFF; 32 bit: K: -2,147,483,648 to +2,147,483,647; H: 0 to FFFF FFFF

MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow — ecoChanges

All-in-one standard
including analog and network features

MELSEC-F

FX3GE
Debut!

Empowering Industries

All-in-one standard! FX3GE including analog and network features

What`s in the New FX3GE PLC !

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

Built-in analog input

2ch built in
- Voltage input
  0-10V DC (Resolution 2.5mV (10V/4000))
  or
- Current input
  4-20mA (Resolution 5µA (16mA/3200))

NEW **FX3GE-40MR/ES**

MITSUBISHI
FX3GE-40M

Built-in analog output

1ch built in
- Voltage output
  0-10V DC (Resolution 2.5mV (10V/4000))
  or
- Current output
  4-20mA (Resolution 4µA (16mA/4000))

FX3GE-24MR/ES *NEW*

MITSUBISHI
FX3GE-24M

Built-in Ethernet port

Supports remote monitoring and maintenance on
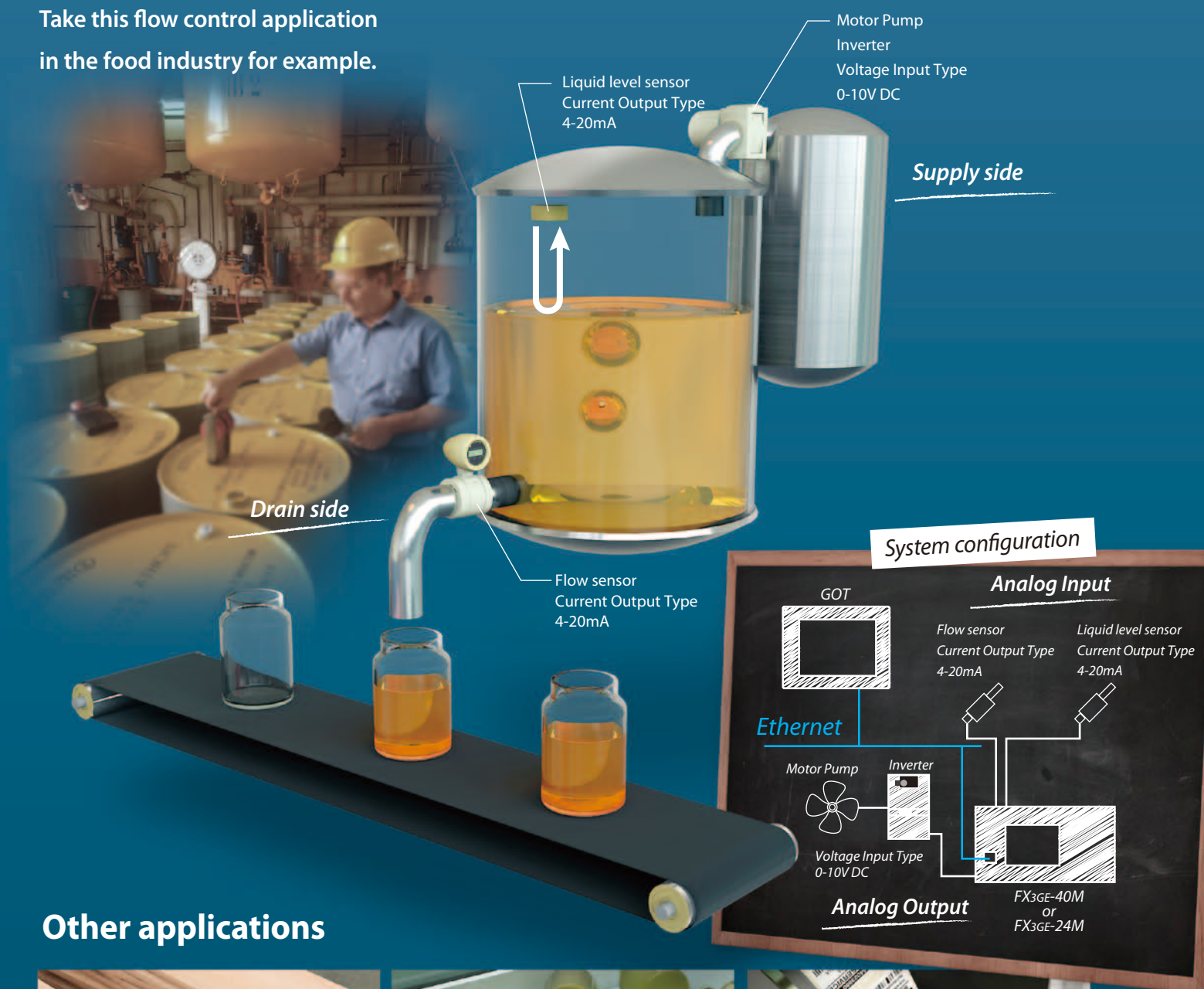high speed 10BASE-T/100BASE-TX communication

Web based Data Monitoring

Read PLC information from any networked device with a standard web browser.
For security, optional PLC keyword protections prohibit unauthorized access.

Where can the new FX3GE PLC be used?

Take this flow control application
in the food industry for example.

Motor Pump
Inverter
Voltage Input Type
0-10V DC

Liquid level sensor
Current Output Type
4-20mA

Supply side

Drain side

Flow sensor
Current Output Type
4-20mA

System configuration

GOT

Analog Input

Flow sensor
Current Output Type
4-20mA

Liquid level sensor
Current Output Type
4-20mA

Ethernet

Motor Pump   Inverter

Voltage Input Type
0-10V DC

Analog Output

FX3GE-40M
or
FX3GE-24M

Other applications

Smooth production control
required for wood cutting machines

Analog data management for
injection molding machines

Label printing machines with network
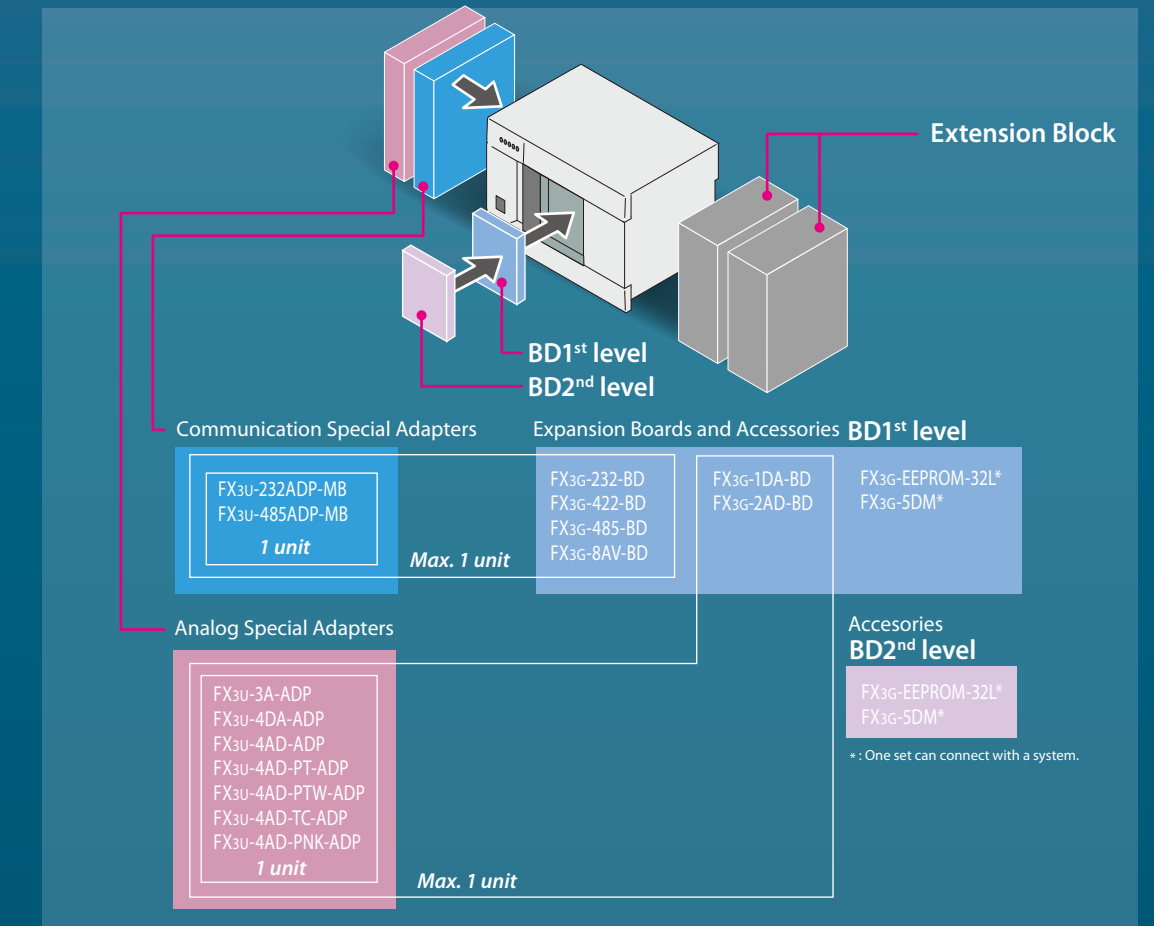functionality

Flexible Expandability

In addition to its built-in features, FX3GE also has a wealth of expansion options.
Choose from the same options for FX3G/FX3U.

Expansion boards and Special adapters

1st level : expansion board
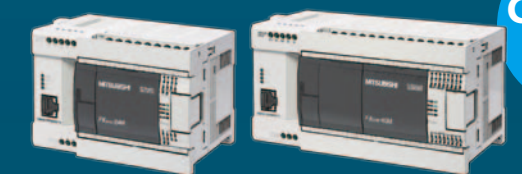2nd level : memory cassette or display module

Communication and analog special adapters

One communication and one analog special adapter can
be connected. However, special adapters and expansion
boards cannot be used together.

Extension Block

BD1st level
BD2nd level

Communication Special Adapters   Expansion Boards and Accessories BD1st level

FX3U-232ADP-MB
FX3U-485ADP-MB
1 unit

FX3G-232-BD
FX3G-422-BD
FX3G-485-BD
FX3G-8AV-BD
Max. 1 unit

FX3G-1DA-BD
FX3G-2AD-BD

FX3G-EEPROM-32L*
FX3G-5DM*

Accesories
BD2nd level

FX3G-EEPROM-32L*
FX3G-5DM*

Analog Special Adapters

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

Max. 1 unit

* : One set can connect with a system.

More FX3GE series

Look forward to transistor
output models coming soon!

Coming soon!

FX3GE Main units AC supply Transistor Output models

FX3GE-24MT/ES   FX3GE-40MT/ES
FX3GE-24MT/ESS   FX3GE-40MT/ESS