

The MELSEC FX3G 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.

RAM/EEPROM memory for up to **32,000 PLC program steps** gives you plenty of reserve, even for big, complex applications.

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

Analog function boards for input and output and a function board with 8 analog potentiometers are also available as add-in.

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

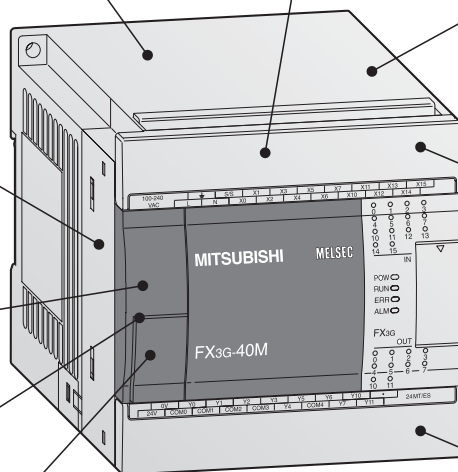
Connection possibility for special function adapter modules

Two integrated serial interfaces for direct communication with computers.

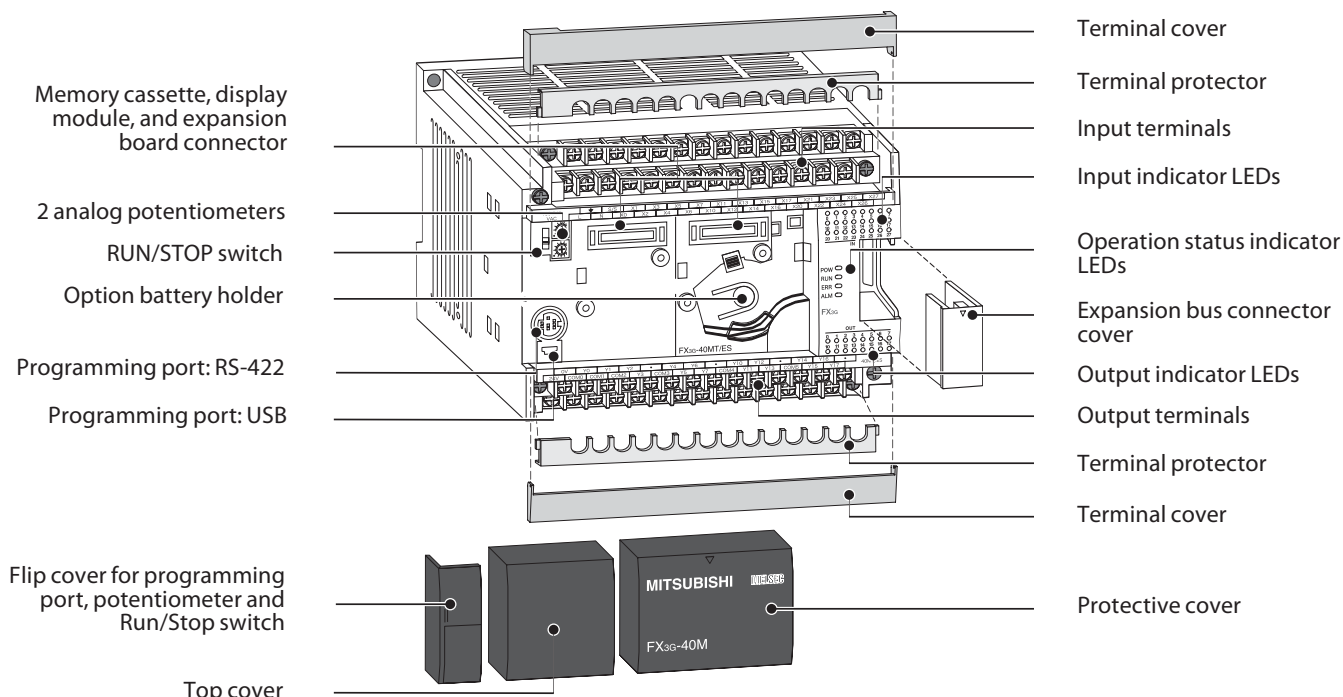
The base units can be expanded to provide configurations with up to 256 inputs and outputs with **modular and compact extension units**.

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

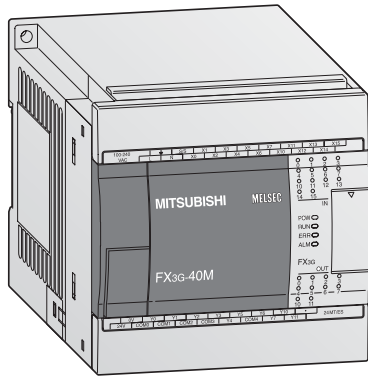
Two **integrated pulse outputs** for frequencies from 2 to 100,000 Hz for controlling stepping motors and outputting **pulse-width modulated signals**.



Description of the Unit Components



■ Base Units FX1S FX1N FX3G FX3U FX3UC



Base Units FX3G

The FX3G series base units are available with 14 to 60 input/output points.

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

Special features:

- Integrated USB interface for communication between PLCs and PC
- Integrated serial interface for communication between PCs and HMI
- LEDs for indicating the input and output status
- Detachable terminal blocks for all units
- Slot for memory cassettes
- Integrated real-time clock
- Integrated positioning control
- Exchangeable interface and extension adapters for direct mounting into a base unit
- Expandable with digital I/O modules, special function modules and ADP modules
- User-friendly programming systems, including IEC 1131.3 (EN 61131.3) compatible programming software, HMIs and hand-held programming units

Base Units with 14–24 I/Os

Specifications	FX3G-14 MR/ES	FX3G-14 MT/ESS	FX3G-14 MR/DS	FX3G-14 MT/DSS	FX3G-24 MR/ES	FX3G-24 MT/ESS	FX3G-24 MR/DS	FX3G-24 MT/DSS
Integrated inputs/outputs	14	14	14	14	24	24	24	24
Power supply	100–240 V	100–240 V	12–24 V	12–24 V	100–240 V	100–240 V	12–24 V	12–24 V
Integrated inputs	8	8	8	8	14	14	14	14
Integrated outputs	6	6	6	6	10	10	10	10
Output type	Relay	Transistor (source)*	Relay	Transistor (source)*	Relay	Transistor (source)*	Relay	Transistor (source)*
Power consumption	W	31	31	19	19	32	32	21
Weight	kg	0.50	0.50	0,50	0,50	0.55	0.55	0,55
Dimensions (WxHxD)	mm	90x90x86	90x90x86	90x90x86	90x90x86	90x90x86	90x90x86	90x90x86
Order information	Art. no.	231466	231470	231474	231478	231467	231471	231475

* Sink type transistor output units on request.

Base Units with 40–60 I/Os

Specifications	FX3G-40 MR/ES	FX3G-40 MT/ESS	FX3G-40 MR/DS	FX3G-40 MT/DSS	FX3G-60 MR/ES	FX3G-60 MT/ESS	FX3G-60 MR/DS	FX3G-60 MT/DSS
Integrated inputs/outputs	40	40	40	40	60	60	60	60
Power supply	100–240 V	100–240 V	12–24 V	12–24 V	100–240 V	100–240 V	12–24 V	12–24 V
Integrated inputs	24	24	24	24	36	36	36	36
Integrated outputs	16	16	16	16	24	24	24	24
Output type	Relay	Transistor (source)*	Relay	Transistor (source)*	Relay	Transistor (source)*	Relay	Transistor (source)*
Power consumption	W	37	37	25	25	40	40	29
Weight	kg	0.70	0.70	0,70	0,70	0.85	0.85	0,85
Dimensions (WxHxD)	mm	130x90x86	130x90x86	130x90x86	130x90x86	175x90x86	175x90x86	175x90x86
Order information	Art. no.	231468	231472	231476	231480	231469	231473	231477

* Sink type transistor output units on request.

■ Base Units

FX1S FX1N FX3G FX3U FX3UC

Environmental Specifications

General specifications	Data
Ambient temperature	0–55 °C (storage temperature: -25–+75 °C)
Protection	IP10
Noise durability	1000 Vpp with noise generator; 1 μs at 30–100 Hz
Dielectric withstand voltage	1500 V AC, 1 min.
Ambient relative humidity	5–95 % (non-condensing)
Shock resistance	147m/s ² Acceleration, Action time: 11ms, 3 times by half-sine pulse in each direction X, Y, and Z
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	For FX3G-14M□ and FX3G-24M□: 250 V 1 A; For FX3G-40M□ and FX3G-60M□: 250 V 3.15 A
Environment	Avoid environments containing corrosive gases, install in a dust-free location.
Certifications	Please refer to pages 66–67 in this catalogue

Electrical Specifications

Power supply specifications	AC powered modules (FX-3G-□M□/ES/ESS)
Power supply	100–240 V AC (+10 %/-15 %), 50/60 Hz
Inrush current at ON	30 A/<5 ms (at 100 V AC); 50 A/<5 ms (at 200 V AC)
Allowable momentary power failure time	10 ms
Primary power supply	—
External power supply (24 V DC)	400 mA

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

① The 40 and 60 I/O points main units supports 5 μs for Y2. ② 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	FX3G
Program data	
I/O points (addresses)	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
Cycle period	0.21 μs or 0.42 μs/contact instruction
Number of instructions	29 sequence instructions, 2 step ladder instructions, 123 applied instructions
Programming language	Step ladder, instruction list, SFC
Program execution	Cyclical execution, refresh mode processing
Program protection	2 different keywords, maximum password length 16 characters

System specifications	FX3G
Operands	
Internal relays	7680
Special relays	512
Step ladder	4096
Timer	320
Ext. preset value via potentiometer	2
Counter	235
High-speed counter	6 single phase inputs (max. 60 kHz), 3 double phase inputs (max. 30 kHz)
Real-time clock	Year, month, day, hour, minute, second, weekday
Data register	8,000
File register	24,000 (ER0~R23999) internal/optional memory
Index register	16
Special register	512 (D8000-D8511)
Pointer	2,048
Nestings	8
Interrupt inputs	6
Constants	16 bits: K: -32,768 to +32,767; hex: 0–FFFF 32 bits: K: 2,147,483,648 to +2,147,483,647; hex: 0–FFFF FFFF