

# FX3S

## MELSEC Compact PLC

The entry  
into the world of compact controller



High performance at minimal size



Maximum flexibility even in small-scale systems



Built-in USB port for communication and programming



Extra expandability due to several expansion options

# New possibilities



The FX3S is used in a wide range of applications.



The FX3S offers communication and real time control from a single unit.

Mitsubishi Electric introduces the FX3S Programmable Logic Controller – the new entry level model for the proven FX3 series. Notable attributes of the FX3S PLC are its flexibility and expandability. It allows users to choose only the functionality necessary to perform a specific application, saving on hardware costs.

The FX3S series PLC provides full function PLC control, built-in high-speed inputs and outputs, available relay outputs, and multiple, built-in communication ports. It also includes expansion options for communications, analog, and temperature control. As part of the FX3 series, the FX3S can use many of the existing programming resources that are available for other FX3 series PLCs. This greatly reduces time and costs for system set up.

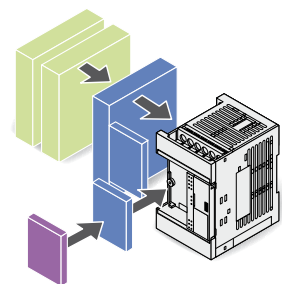
The FX3S PLC is designed to handle basic control tasks, such as simple positioning or analog, and temperature control operations. It excels in small, standalone applications that don't require complex control tasks.

The compact PLC is especially well suited for food and beverage applications, as well as material handling, and fan and pump applications for irrigation and building automation.

## Enhanced expandability

Beside the standard built-in RS422 interface port for serial communication with 115.2 kbps, the FX3S can use a large range of adapters providing RS232, RS485, RS422 and Ethernet communications options. These can be used to connect and control various third party products such as bar code readers or panel printers. In addition, compact expansion boards for additional digital inputs and outputs are available, which can be plugged directly into the controller without any additional installation space required on the right or left of the controller. A memory cassette to extend the integrated memory can additionally be connected.

On the left side of the PLC, special adapter for analog inputs, Ethernet and serial communication (compatible with MODBUS) can be easily connected. Further, a built-in USB port (MINI B) on the front panel permits convenient connection to any PC or laptop for high speed program uploads and downloads along with monitoring.



## High-speed operation

The FX3S processes basic instructions in 0.21 µs, which is faster by approximately 3 times compared with its predecessor, the FX1S. 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.

## Ample program capacity

In total, the built-in maintenance free EEPROM of the FX3S can store up to 16,000 steps. 4,000 steps are reserved for the PLC program and up to 12,000 steps can be used for comments.

The CPU of the FX3S supports in common 116 different applied instructions. Beside floating point instructions also dedicated instruction for frequency inverter communication are supported.

## Analog value processing

The FX3S is also available with 2 integrated analog inputs (FX3S-30M□-2AD). Along with an optional analog expansion module up to 6 analog values can then be measured and processed with this model.

## Built-in positioning control

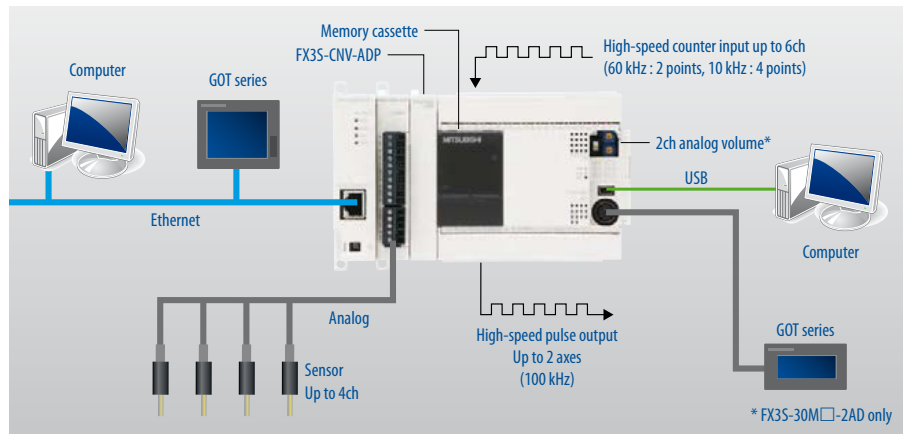
The FX3S series comes with high speed counters (up to 60 kHz) and pulse train outputs (for 2 axes and up to 100 kHz). The high speed counters can be configured in a single or two phase input.

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



Simple positioning operations in compact production cells

at a single frequency. Simple positioning solutions can be effectively managed this way without much hardware and programming effort.



System configuration example

## Programming made easy

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 FX3S.



Programming with GX Works2

For the programming of the FX3S, GX Works2 is the first choice. This powerful, intuitive, and efficient programming tool reduces program development time and has an easy to use interface.

It is part of Mitsubishi Electric's integrated engineering environment iQ Works.

## Compatibility with global standards

The FX3S conforms to the EC Directive and UL Standard, which make it to a product to trust. Even more flexibility is achieved with the choice between sink or source inputs.



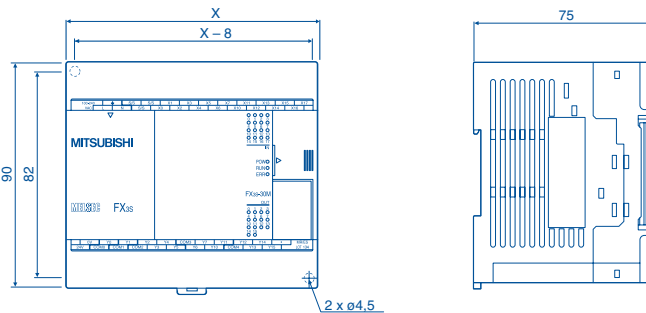
# Specifications

Specifications	FX3S-10M□	FX3S-14M□	FX3S-20M□	FX3S-30M□	FX3S-30M□-2AD	
I/O points	Max. 30					
Address range	X0–X17/Y0–Y15 (octal)					
Power supply	100–240 V AC, 50/60 Hz or 24 V DC				100–240 V AC	
Program memory	16,000 steps EEPROM (internal), exchangeable EEPROM memory cassette; program capacity is limited to 4,000 steps					
Instruction Time	0.21 µs/basic instruction					
Integrated digital inputs	Number of inputs	6	8	12	16	
	Input signal voltage	24 V DC (±10 %)				
	Input form	sink/source				
	Response time	Approx. 10 ms				
	Isolation	Photocoupler isolation				
Integrated analog inputs	Number of inputs	–			2	
	Analog input range	–			0–10 V DC	
Integrated outputs	Number of outputs	4	6	8	14	
	Switching voltage	<240 V AC, <30 V DC (relay output), 5–30 V DC (transistor output)				
	Output type/form	Relay or transistor				
	Max. load	resistive	2 A/point, max. 8 A for 4 output points/common terminal (relay), 0.5 A/point; max. 0.8 A for 4 output points/common terminal (transistor)			
		inductive	80 VA (relay), 12 W/point (at 24 V DC); max. 19.2 W for 4 output points/common terminal (transistor)			
	Response time	10 ms (relay), <5 µs (for Y000 and Y001)/0.2 ms (for all other outputs) (transistor)				
Isolation	Photocoupler isolation					
High-speed counters	21 total, with 16 1-phase (C235–C250) and 5 2-phase (C251–C255)					
Counting range	–2,147,483,648–2,147,483,647					
Service power supply	24 V DC, 400 mA					
Environment	0–55 °C ambient temperature; 5–95 % relative humidity					

# Dimensions

Type	X
FX3S-10M□	60
FX3S-14M□	60
FX3S-20M□	75
FX3S-30M□	100
FX3S-30M□-2AD	100

All dimensions in mm



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