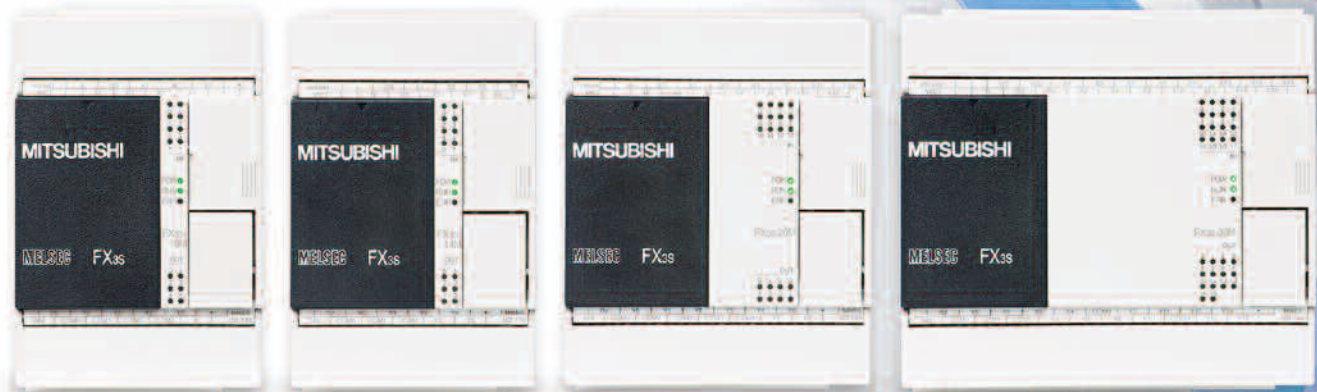


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New possibilities

- Introducing an entry level model for the FX3 series -



FX3S

FX3S

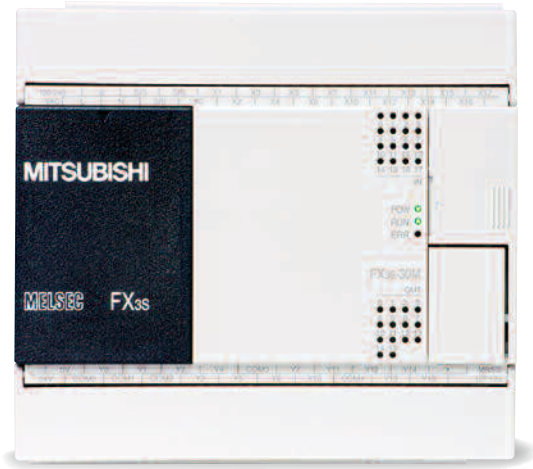
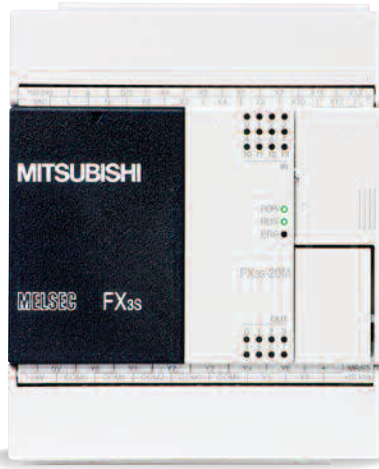
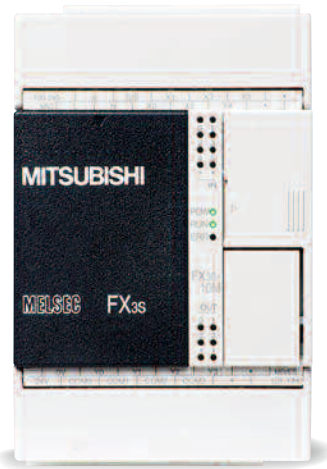
NEW

The newly released FX3s adds extra expandability to the high cost performance of the venerable entry-level FX1s.

FX3s makes it possible to utilize analog, Ethernet and MODBUS[®] functions even in small-scale systems.

New possibilities

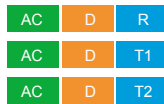
Main unit lineup



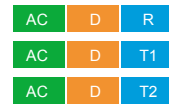
FX3s-10MR/ES
 FX3s-10MT/ES
 FX3s-10MT/ESS
 6 inputs 4 outputs



FX3s-20MR/ES
 FX3s-20MT/ES
 FX3s-20MT/ESS
 12 inputs 8 outputs



FX3s-30MR/ES
 FX3s-30MT/ES
 FX3s-30MT/ESS
 16 inputs 14 outputs

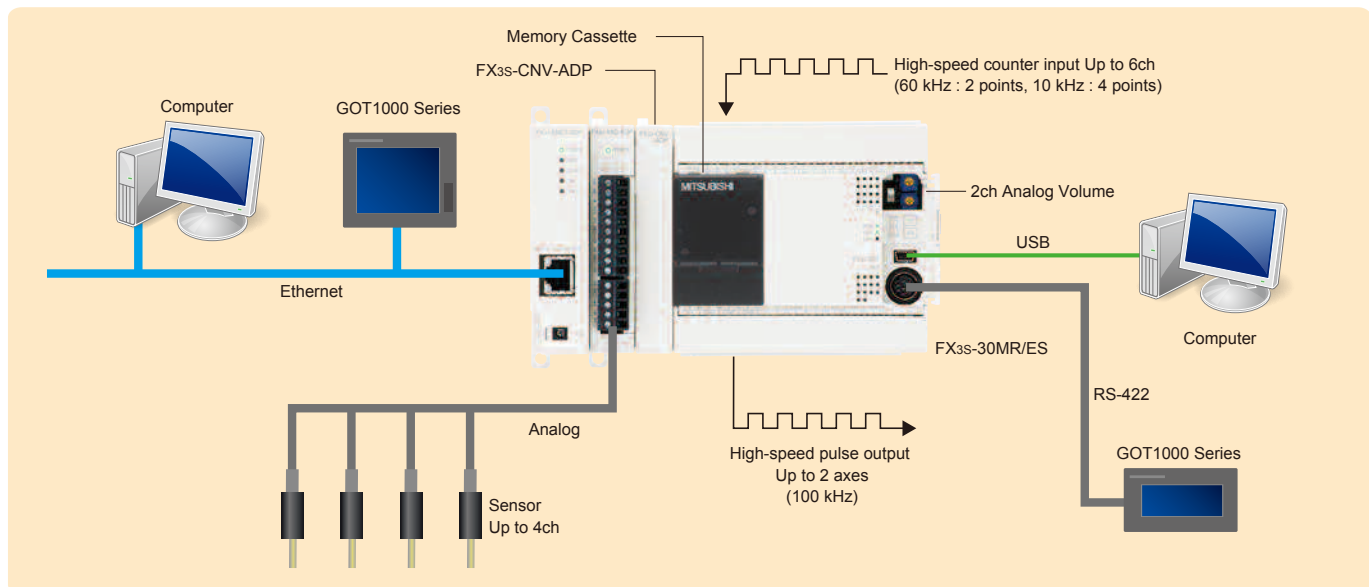


FX3s-14MR/ES
 FX3s-14MT/ES
 FX3s-14MT/ESS
 8 inputs 6 outputs



AC AC power supply D DC input (sink/source)
 R Relay output T1 Transistor output (sink) T2 Transistor output (source)

System configuration example



All-inclusive **FX3** series

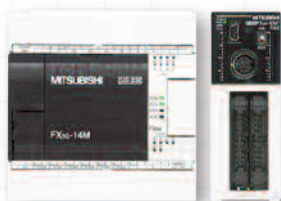
Function and performance



High-end Model

FX3U FX3UC

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



Standard Model

FX3G FX3GC

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



Entry level Model

FX3S

NEW

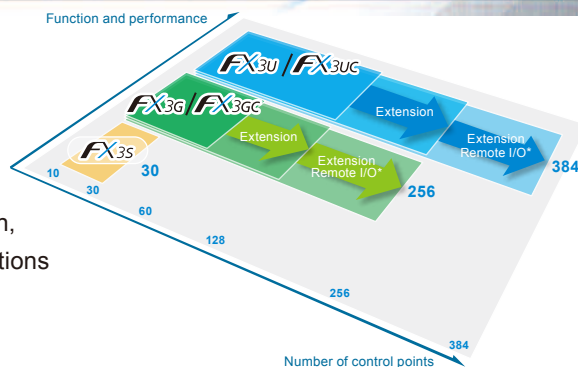
Simple and cost effective. Basic model that supports analog and communication expansion. Perfect for simple automation tasks.

Number of control points

FX3 series is the 3rd generation of micro programmable controllers.

High speed, large capacity, and enhanced performance and functions are assured.

Equipped with excellent expandability for analog, communication, Ethernet, and positioning functions, a whole world of FX applications awaits.



FX3 series feature comparison

		FX3S NEW	FX3G	FX3U
Hardware	Main unit I/O Control size	10/14/20/30 points Max. 30 points	14/24/40/60 points Max. 128 points (Max. 256 with remote I/O*)	16/32/48/64/80/128 points Max. 256 points (Max. 384 with remote I/O*)
	Power supply	AC	AC, DC	AC, DC
	24 V DC input	Sink/Source	Sink/Source	Sink/Source
	Output	Relay Type Transistor Type	Relay Type Transistor Type	Relay Type Transistor Type
Built-in features	Internal memory	16,000 steps EEPROM (program capacity is limited to 4,000 steps.)	32,000 steps EEPROM	64,000 steps RAM (Battery backed)
	Communication port	USB/RS-422	USB/RS-422	RS-422 (USB option)
	High-speed counter	1-phase 60 kHz : 2 points 10 kHz : 4 points	1-phase 60 kHz : 4 points 10 kHz : 2 points	1-phase 100 kHz : 6 points 10 kHz : 2 points
	Positioning control (transistor output type)	2 axes 100 kHz	14/24 Point type : 2 axes 40/60 Point type : 3 axes 100 kHz	3 axes 100 kHz
	Variable analog potentiometer	2 points	2 points	—

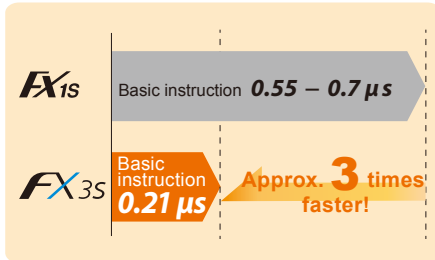
* : Remote I/O is CC-Link I/O.

Excellent cost performance!

Equipped with the performance of FX3 series while maintaining backwards compatibility with FX1s.

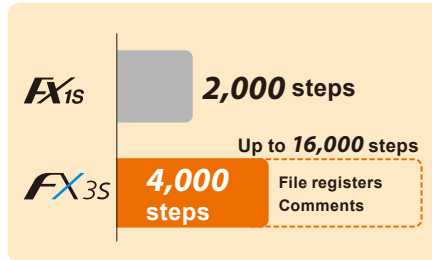
• High-speed operation

- FX3s processes basic instructions in 0.21 μ s, which is faster by approximately 3 times compared with FX1s.



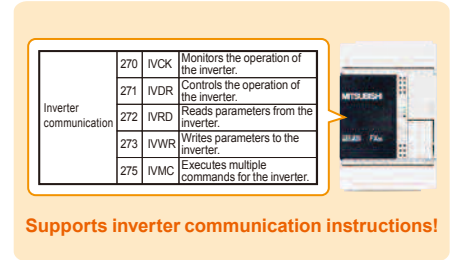
• Increased program capacity

- Up to 4,000 steps program capacity.
 - 2,000 steps file register capacity.
 - Up to 12,000 steps for comments.
- In total, the built-in EEPROM of the FX3s can store up to 16,000 steps.



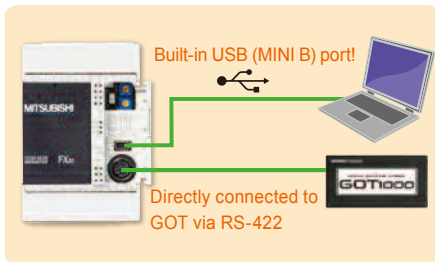
• More instructions

- Supports inverter communication instructions.
- Supports floating point instructions.
- Supports 116 applied instructions (31 more instructions than FX1s).



• Enhanced communication functions

- Built-in USB (MINI B) port and RS-422 port.
- 115.2 kbps serial communication.
- USB port supports 12 Mbps communication speed.



• Enhanced analog expandability

- Analog expansion board can be connected.
- Special analog adapter can be connected.
- Analog input adapter for temperature sensor can be connected.



• Compatibility with global standards

- Conforms to the EC Directive and UL Standard.
- Conforms to the Radio Law in South Korea.
- Select between sink and source inputs.

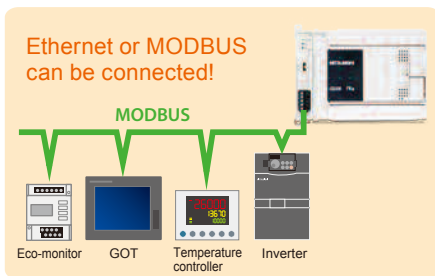


Unprecedented expandability with optional products!

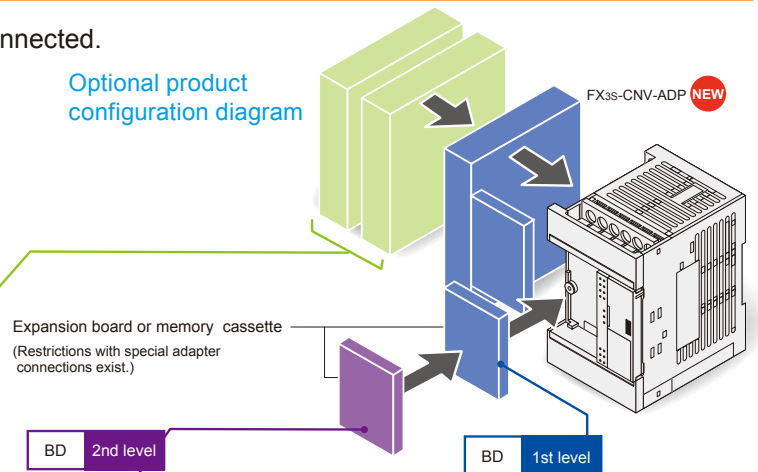
Analog, Ethernet and MODBUS products can be connected.

• Enhanced expandability

- Special adapter for Ethernet can be connected.
- Special adapter for serial communication (compatible with MODBUS) can be connected.



Optional product configuration diagram



Max. 1 unit + Max. 1 unit

Analog special adapters

- FX3u-4AD-ADP
- FX3u-4DA-ADP
- FX3u-3A-ADP
- FX3u-4AD-PT-ADP
- FX3u-4AD-PTW-ADP
- FX3u-4AD-PNK-ADP
- FX3u-4AD-TC-ADP

Communication special adapters

- FX3u-232ADP-MB
- FX3u-485ADP-MB
- FX3u-ENET-ADP*

Memory cassette

FX3G-EEPROM-32L

FX3G-EEPROM-32L can be connected to the second BD level when a communication board, analog expansion board or FX3s-CNV-ADP is connected on the first level.

Max. 1 unit

Connector conversion adapter

FX3s-CNV-ADP NEW

Memory cassette

FX3G-EEPROM-32L

Communication expansion boards

- FX3G-232-BD
- FX3G-422-BD
- FX3G-485-BD

Analog expansion boards

- FX3G-2AD-BD
- FX3G-1DA-BD
- FX3G-8AV-BD

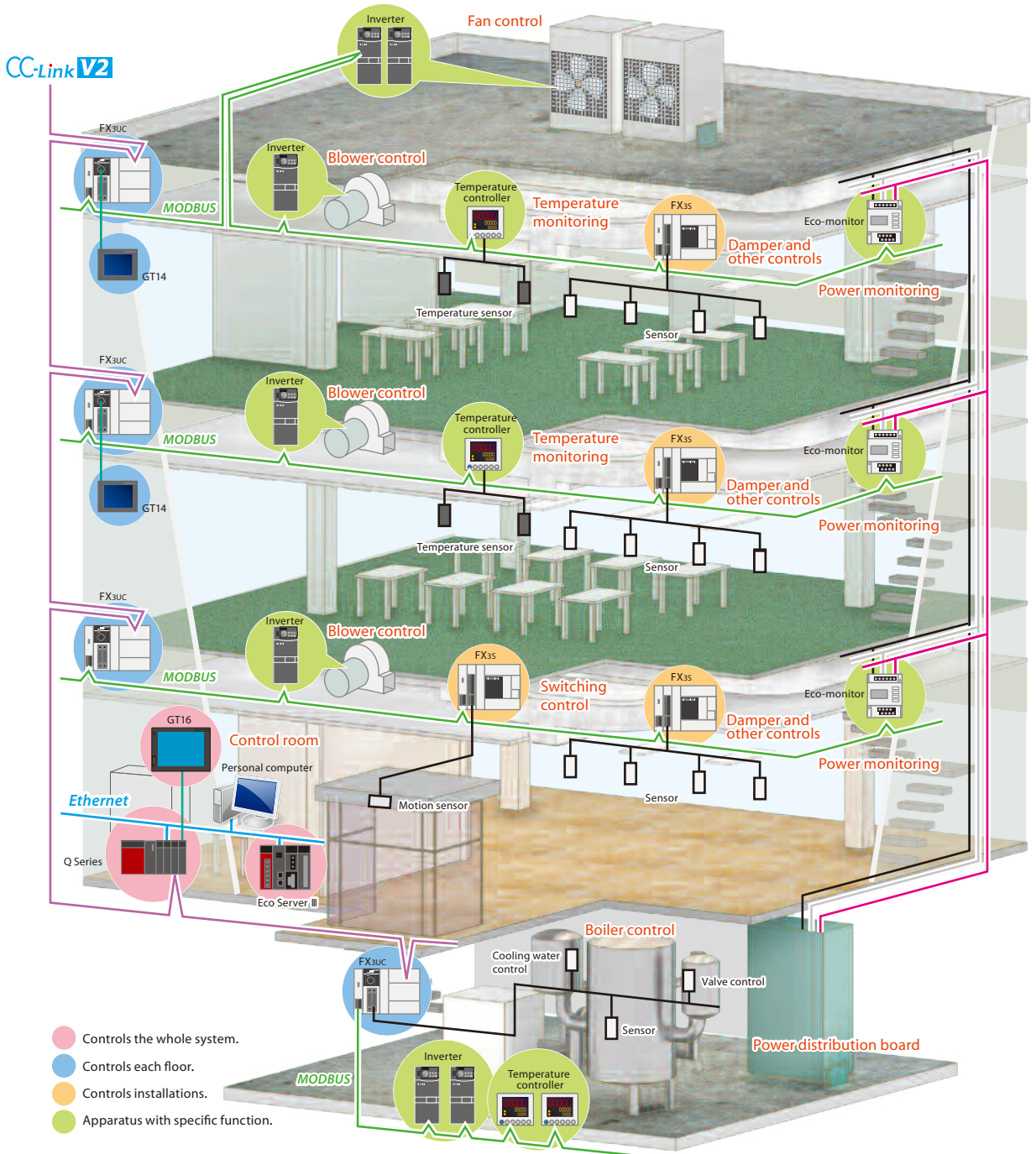
Up to two special adapters (up to one analog adapter and up to one communication adapter) can be connected. (Restrictions with expansion board connections exist.)

* : When using FX3u-ENET-ADP, connect it at the last stage (left end) of adapters.

New possibilities using FX3s

Achieve extensive cost reductions by flexibly combining FX3s with other PLCs.

For example, by properly distributing PLCs in a network in accordance with the desired application, you can reduce loads on each CPU and costs of the entire system. In addition, you can construct an energy-saving system by combining with power monitoring functions.



Straightforward programming with GX Works2

Powerful, intuitive, and efficient. GX Works2 reduces program development time with an easy to use interface.

Use GX Works2 also for setting up Ethernet.

FX3U-ENET-ADP



PLC engineering software

GX Works2

PROGRAMMABLE CONTROLLERS

Power Supply Specifications

Item	Specification			
	FX3s-10M□/E□	FX3s-14M□/E□	FX3s-20M□/E□	FX3s-30M□/E□
Supply voltage	100 to 240 V AC			
Allowable supply voltage range	85 to 264 V AC			
Rated frequency	50/60 Hz			
Allowable instantaneous power failure time	Operation can be continued upon occurrence of instantaneous power failure for 10 ms or less.			
Power fuse	250 V 1 A			
Rush current	15 A max. 5 ms or less/100 V AC, 28 A max. 5 ms or less/200 V AC			
Power consumption*1	19 W	19 W	20 W	21 W
24 V DC service power supply	400 mA			

*1: This item shows values when all 24 V DC service power supplies are used in the maximum configuration connectable to the main unit, and includes the input current (5 or 7 mA per point).

24 V DC Input (sink/source) specifications

(Please see the manual for input circuit configuration.)

Item	Specification			
	FX3s-10M□	FX3s-14M□	FX3s-20M□	FX3s-30M□
Number of input points	6 points	8 points	12 points	16 points
Input connecting type	Fixed terminal block (M3 screw)			
Input form	Sink/Source			
Input signal voltage	24 V DC +10%, -10%			
Input impedance	X000 to X007	3.3 kΩ		
	X010 to X017	4.3 kΩ		
Input signal current	X000 to X007	7 mA/24 V DC		
	X010 to X017	5 mA/24 V DC		
ON input sensitivity current	X000 to X007	4.5 mA or more		
	X010 to X017	3.5 mA or more		
OFF input sensitivity current	1.5 mA or less			
Input response time	Approx. 10 ms			
Input signal form	Sink input	No-voltage contact input NPN open collector transistor		
	Source input	No-voltage contact input PNP open collector transistor		
Input circuit insulation	Photocoupler insulation			
Input operation display	LED on panel lights when photocoupler is driven.			

Relay output specifications

(Please see the manual for output circuit configuration.)

Item	Relay output specification			
	FX3s-10MR/ES	FX3s-14MR/ES	FX3s-20MR/ES	FX3s-30MR/ES
Number of output points	4 points	6 points	8 points	14 points
Output connecting type	Fixed terminal block (M3 screw)			
Output form	Relay			
External power supply	30 V DC or less, 240 V AC or less (250 V AC or less when the unit does not comply with CE, UL or cUL standards.)			
	Resistance load	2 A/point The total load current of resistance loads per common terminal should be the following value. • 1 output point/common terminal: 2 A or less • 4 output points/common terminal: 8 A or less		
Inductive load	80 VA (UL and cUL standards approved at 120 and 240 V AC.)			
	5 V DC, 2 mA (reference value)			
Open circuit leakage current	—			
Response time	OFF→ON	Approx. 10 ms		
	ON→OFF	—		
Output circuit insulation	Mechanical insulation			
Output operation display	LED on panel lights when power is applied to relay coil.			

Transistor output specifications

(Please see the manual for output circuit configuration.)

Item	Transistor output specification			
	FX3s-10MT□	FX3s-14MT□	FX3s-20MT□	FX3s-30MT□
Number of output points	4 points	6 points	8 points	14 points
Output connecting type	Fixed terminal block (M3 screw)			
Output form	Transistor/sink output (FX3s=MT/ES) Transistor/source output (FX3s=MT/ESS)			
External power supply	5 to 30 V DC			
Max. load	Resistance load	0.5 A/point The total load current of resistance loads per common terminal should be the following value. • 1 output point/common terminal: 0.5 A or less • 4 output points/common terminal: 0.8 A or less		
	Inductive load	12 W/24 V DC The total of inductive loads per common terminal should be the following value. • 1 output point/common terminal: 12 W or less/24 V DC • 4 output points/common terminal: 19.2 W or less/24 V DC		
Open circuit leakage current	0.1 mA or less/30 V DC			
ON voltage	1.5 V or less			
Response time	OFF→ON	Y000, Y001: 5 μs or less/10 mA or more (5 to 24 V DC)		
	ON→OFF	Y002 to Y015: 0.2 ms or less/200 mA or more (at 24 V DC)		
Output circuit insulation	Photocoupler insulation			
Output operation display	LED on panel lights when photocoupler is driven.			

Performance specifications

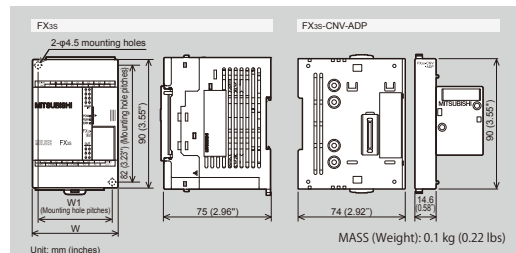
(General specification is the same as that of FX3u series. Please see the "MELSEC FX-FAMILY" catalog.)

Item	Performance		
Operation control system	Stored program repetitive operation system with interruption function		
Input/output control system	Batch processing system (when END instruction is executed) Input/output refresh instruction and pulse catch function are provided.		
Programming language	Relay symbol system + step-ladder system (SFC notation possible)		
Program memory	Built-in memory capacity/type	32,000 steps/EEPROM memory (Program capacity is 4000 steps.) Max. allowable write: 20,000 times	
	Memory cassette (Option)	32,000 steps/EEPROM memory (with loader function) The FX3s series PLC is available only to 16,000 steps. (Program capacity is 4000 steps.) Max. allowable write: 10,000 times	
	Writing function during running	Provided (Program can be modified while the PLC is running.)	
Real-time clock	Keyword function	With keyword/Custom keyword function	
	Clock function*2	Built-in 1980 to 2079 (with correction for leap year) 2- or 4-digit year, accuracy within 45 seconds/month at 25 °C	
Kinds of instructions	Basic instructions	Sequence instructions: 29 Step-ladder instructions: 2	
	Applied instructions	116 kinds	
Processing speed	Basic instructions	0.21 μs/instruction	
	Applied instructions	0.5 μs to several hundred μs/instruction	
Number of input/output points	Input points	16 points or less (Extension is impossible.)	
	Output points	14 points or less (Extension is impossible.)	
Input/output relay	Input relay	X000 to X017	
	Output relay	Y000 to Y015	
Auxiliary relay	For general	M0 to M383	
	EEPROM keep	M384 to M511	
	For general	M512 to M1535	
	For special	M8000 to M8511	
State	For initial state (EEPROM keep)	S0 to S9	
	EEPROM keep	S10 to S127	
	For general	S128 to S255	
Timer (on-delay timer)	100 ms	T0 to T31	
	100 ms/10 ms	T32 to T62	
	1 ms	T63 to T127	
Variable analog potentiometers	Available as analog timers	VR1: D8030 VR2: D8031	
	Counter	16 bits up (For general)	C0 to C15
	16 bits up (EEPROM keep)	C16 to C31	16 points
High-speed counter	1-phase 1-count input in both directions (32 bits up/down) (EEPROM keep)	C235 to C245	Counting from 0 to 32,767
	1-phase 2-count input in both directions (32 bits up/down) (EEPROM keep)	C246 to C250	Counting from 0 to 32,767
	2-phase 2-count input in both directions (32 bits up/down) (EEPROM keep)	C251 to C255	Counting from 0 to 32,767
Data register (32 bits when paired)	For general (16 bits)	D0 to D127	128 points
	For EEPROM keep (16 bits)	D128 to D255	128 points
	For general (16 bits)	D256 to D2999	2744 points
Pointer	For branching of JUMP and CALL	P0 to P255	256 points
	Input interruption	I0□ to I5□	6 points
	Timer interruption	I6□ to I8□	3 points
Nesting Constant	For master control	N0 to N7	8 points
	Decimal number (K)	16 bits	0 to 9999
	Hexadecimal number (H)	16 bits	0 to FFFF
Software/peripheral equipment	GX Works2	Version 1.492N or later*3	
	FX-30P	Version 1.50 or later	

*2: The current time of the clock is backed up by the capacitor built-in the PLC. Supply the power to the PLC for 30 minutes or more to completely charge this large-capacity capacitor.
(The capacitor works for 10 days [atmosphere: 25 °C])

*3: To program FX3s in GX Developer, select FX3G as the PLC type. Please read the FX3s series user's manual about limitations.

External Dimensions



Accessories: Dust proof protection sheet
Manual supplied with product
Installation: 35 mm (1.38") wide DIN rail or Direct installation (with M4 screws)

Series	W: mm (inches)	W1: mm (inches)	MASS (Weight): kg (lbs)
FX3s-10M	60(2.37")	52(2.05")	0.30(0.66 lbs)
FX3s-14M	60(2.37")	52(2.05")	0.30(0.66 lbs)
FX3s-20M	75(2.96")	67(2.64")	0.40(0.88 lbs)
FX3s-30M	100(3.94")	92(3.63")	0.45(0.99 lbs)

Product specification

Series	Model name	Power Supply	Input Specifications		Output Specifications	
			Number of points	Input type	Number of points	Output type
Main Units	FX3s-10MR/ES	100 to 240 V AC	6	24 V DC (Sink/Source)	4	Relay
	FX3s-10MT/ES		6		4	Transistor (Sink)
	FX3s-10MT/ESS		6		4	Transistor (Source)
	FX3s-14MR/ES		8		6	Relay
	FX3s-14MT/ES		8		6	Transistor (Sink)
	FX3s-14MT/ESS		8		6	Transistor (Source)
	FX3s-20MR/ES		12		8	Relay
	FX3s-20MT/ES		12		8	Transistor (Sink)
	FX3s-20MT/ESS		12		8	Transistor (Source)
	FX3s-30MR/ES		16		14	Relay
Connector conversion adapter	FX3s-CNV-ADP	Special adapter connection conversion adapter	16	14	Transistor (Sink)	
	FX3s-30MT/ESS	16	14	Transistor (Source)		
	FX3s-30MR/ES	16	14	Relay		
	FX3s-30MT/ESS	16	14	Transistor (Sink)		
	FX3s-30MT/ESS	16	14	Transistor (Source)		
	Special adapters	FX3s-232ADP-MB	For RS-232C(MODBUS)communication	16	14	Relay
		FX3s-485ADP-MB	For RS-485(MODBUS)communication	16	14	Transistor (Sink)
		FX3s-ENET-ADP*4	For Ethernet communication	16	14	Transistor (Source)
		FX3s-4AD-ADP	4-ch voltage/current input	16	14	Relay
		FX3s-4DA-ADP	4-ch voltage/current output	16	14	Transistor (Sink)
FX3s-3A-ADP		2-ch voltage/current input 1-ch voltage/current output	16	14	Transistor (Source)	
FX3s-4AD-PT-ADP		4-ch platinum resistance thermometer sensor input (-50 to +250 °C)	16	14	Relay	
FX3s-4AD-PTW-ADP		4-ch platinum resistance thermometer sensor input (-100 to +600 °C)	16	14	Transistor (Sink)	
FX3s-4AD-PNK-ADP		4-ch Pt1000/Ni1000 resistance thermometer sensor input	16	14	Transistor (Source)	
FX3s-4AD-TC-ADP		4-ch thermocouple (K, J type) temperature sensor input	16	14	Relay	
Expansion boards	FX3s-232-BD	For RS-232C communication	16	14	Relay	
	FX3s-422-BD	For RS-422 communication	16	14	Transistor (Sink)	
	FX3s-485-BD	For RS-485 communication	16	14	Transistor (Source)	
	FX3s-8AV-BD	For 8-ch Analog volume	16	14	Relay	
	FX3s-2AD-BD	2-ch voltage/current input	16	14	Transistor (Sink)	
FX3s-1DA-BD	1-ch voltage/current output	16	14	Transistor (Source)		
Memory cassette	FX3s-EEPROM-32L	32,000 steps EEPROM memory (with transfer switch)*5	16	14	Relay	

*4: FX3s-ENET-ADP Ver. 1.20 or later is applicable to the FX3s series PLC.

*5: FX3s series PLC can hold 16,000 steps of memory, but user program capacity is limited to 4000 steps.

Safety Warning

To ensure proper use of the products in this document, please be sure to read the instruction manual prior to use.

Registration

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

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