MITSUBISHI
ELECTRIC
Changes for the Better

FX3S

MELSEC Compact PLC

The entry
into the world of compact controller

IMPROVED PRODUCTIVITY — High performance at minimal size

MORE FLEXIBILITY — Maximum flexibility even in small-scale systems

USB ⟷ PC COMMUNICATION — Built-in USB port for communication and programming

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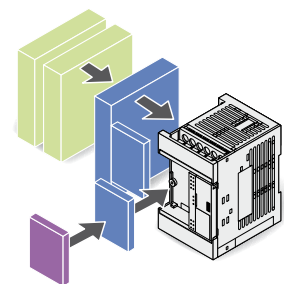
The FX3S PLC is designed to handle basic control tasks, such as simple positioning or analog, and temperature control operations. It excels in small, standalone applications that don't require complex control tasks.

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.

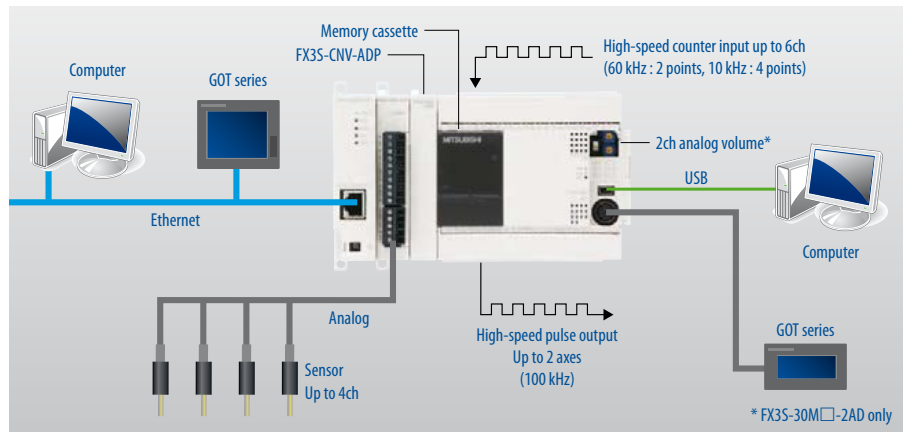## Built-in positioning control

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.
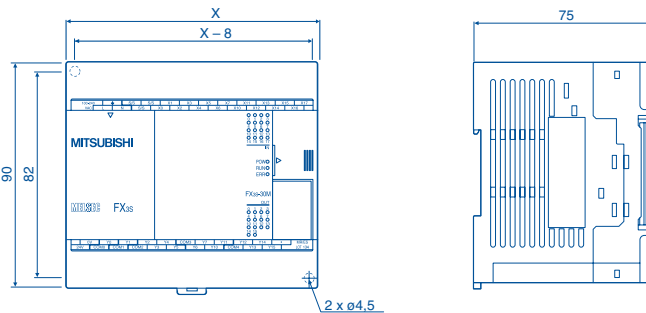
FX3S – the maintenance-free PLC solution

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

European Offices

Mitsubishi Electric Europe B.V. **Germany**
Gothaer Straße 8
D-40880 Ratingen
Phone: +49 (0)2102 / 486-0

Mitsubishi Electric Europe B.V. **Czech Rep.**
Radlická 751/113e Avenir Business Park
CZ-158 00 Praha 5
Phone: +420 251 551 470

Mitsubishi Electric Europe B.V. **France**
25, Boulevard des Bouvets
F-92741 Nanterre Cedex
Phone: +33 (0)1 / 55 68 55 68

Mitsubishi Electric Europe B.V. **Italy**
Viale Colleoni 7 Palazzo Sirio
I-20864 Agrate Brianza (MB)
Phone: +39 039 / 60 53 1

Mitsubishi Electric Europe B.V. **Ireland**
Westgate Business Park, Ballymount
IRL-Dublin 24
Phone: +353 (0)1 4198800

Mitsubishi Electric Europe B.V. **Poland**
ul. Krakowska 50
PL-32-083 Balice
Phone: +48 (0) 12 630 47 00

Mitsubishi Electric Europe B.V. **Russia**
52, bld. 3 Kosmodamianskaya nab 8 floor
RU-115054 Moscow
Phone: +7 495 / 721 2070

Mitsubishi Electric Europe B.V. **Spain**
Carretera de Rubí 76-80 Apdo. 420
E-08190 Sant Cugat del Vallés (Barcelona)
Phone: +34 (0) 93 / 5653131

Mitsubishi Electric Europe B.V. (Scandinavia) **Sweden**
Fjelievägen 8
SE-22736 Lund
Phone: +46 (0) 8 625 10 00

Mitsubishi Electric Turkey Elektrik Ürünleri A.Ş. **Turkey**
Şerifali Mahallesi Nutuk Sokak No:5
TR-34775 Ümraniye-İSTANBUL
Phone: +90 (0)216 / 526 39 90

Mitsubishi Electric Europe B.V. **UK**
Travellers Lane
UK-Hatfield, Herts. AL10 8XB
Phone: +44 (0)1707 / 28 87 80

Mitsubishi Electric Europe B.V. **UAE**
Dubai Silicon Oasis
United Arab Emirates - Dubai
Phone: +971 4 3724716

Representatives

GEVA **Austria**
Wiener Straße 89
A-2500 Baden
Phone: +43 (0)2252 / 85 55 20

OOO TECHNIKON **Belarus**
Prospect Nezavisimosti 177–9
BY-220125 Minsk
Phone: +375 (0)17 / 393 1177

ESCO DRIVES **Belgium**
Culliganlaan 3
BE-1831 Diegem
Phone: +32 (0)2 / 717 64 60

KONING & HARTMAN B.V. **Belgium**
Woluwelaan 31
BE-1800 Vilvoorde
Phone: +32 (0)2 / 257 02 40

INEA RBT d.o.o. **Bosnia and Herzeg.**
Stegne 11
SI-1000 Ljubljana
Phone: +386 (0)1 / 513 8116

AKHNATON **Bulgaria**
4, Andrei Ljapchev Blvd., PO Box 21
BG-1756 Sofia
Phone: +359 (0)2 / 817 6000

INEA CR **Croatia**
Losinjska 4 a
HR-10000 Zagreb
Phone: +385 (0)1 / 36 940 - 01/ -02/ -03

AutoCont C.S. S.R.O. **Czech Republic**
Kafkova 1853/3
CZ-702 00 Ostrava 2
Phone: +420 595 691 150

Beijer Electronics A/S **Denmark**
Lykkegardsvej 17
DK-4000 Roskilde
Phone: +45 (0)46/ 75 76 66

HANS FØLSGAARD A/S **Denmark**
Theilgaards Torv 1
DK-4600 Køge
Phone: +45 4320 8600

Beijer Electronics Eesti OÜ **Estonia**
Pärnu mnt. 160i
EE-11317 Tallinn
Phone: +372 (0)6 / 51 81 40

Beijer Electronics OY **Finland**
Vanha Nurmijärventie 62
FIN-01670 Vantaa
Phone: +358 (0)207 / 463 500

PROVENDOR OY **Finland**
Teljänkatu 8 A3
FIN-28130 Pori
Phone: +358 (0) 2 / 522 3300

UTECO A.B.E.E. **Greece**
5, Mavrogenous Str.
GR-18542 Piraeus
Phone: +30 (0)211 / 1206–900

MELTRADE Kft. **Hungary**
Fertő utca 14.
HU-1107 Budapest
Phone: +36 (0)1 / 431-9726

TOO Kazpromavtomatika **Kazakhstan**
Ul. Zhambyla 28
KAZ-100017 Karaganda
Phone: +7 7212 / 50 10 00

Beijer Electronics SIA **Latvia**
Ritausmas iela 23
LV-1058 Riga
Phone: +371 (0)6 / 784 2280

Beijer Electronics UAB **Lithuania**
Goštautų g. 3
LT-48324 Kaunas
Phone: +370 37 262707

ALFATRADE Ltd. **Malta**
99, Paola Hill
Malta-Paola PLA 1702
Phone: +356 (0)21 / 697 816

INTEHSIS SRL **Moldova**
bld. Traian 23/1
MD-2060 Kishinev
Phone: +373 (0)22 / 66 4242

HIFLEX AUTOM. B.V. **Netherlands**
Wolweverstraat 22
NL-2984 CD Ridderkerk
Phone: +31 (0)180 / 46 60 04

KONING & HARTMAN B.V. **Netherlands**
Haarlerbergweg 21–23
NL-1101 CH Amsterdam
Phone: +31 (0)20 / 587 76 00

Beijer Electronics AS **Norway**
Postboks 487
NO-3002 Drammen
Phone: +47 (0)32 / 24 30 00

Fonseca S.A. **Portugal**
R. João Francisco do Casal 87/89
PT-3801-997 Aveiro, Esgueira
Phone: +351 (0)234 / 303 900

Sirius Trading & Services **Romania**
Aleea Lacul Morii Nr. 3
RO-060841 Bucuresti, Sector 6
Phone: +40 (0) 21 / 430 40 06

INEA SR d.o.o. **Serbia**
Ul. Karadjordjeva 12/217
SER-11300 Smederevo
Phone: +381 (0)64 / 68 55 187

SIMAP SK **Slovakia**
Jána Derku 1671
SK-911 01 Trenčín
Phone: +421 (0)32 743 04 72

INEA RBT d.o.o. **Slovenia**
Stegne 11
SI-1000 Ljubljana
Phone: +386 (0)1 / 513 8116

Beijer Electronics Automation AB **Sweden**
Box 426
SE-20124 Malmö
Phone: +46 (0)40 / 35 86 00

OMNI RAY AG **Switzerland**
Im Schörli 5
CH-8600 Dübendorf
Phone: +41 (0)44 / 802 28 80

OOO "CSC-AUTOMATION" **Ukraine**
4-B, M. Raskovoyi St.
UA-02660 Kiev
Phone: +380 (0)44 / 494 33 44

I.C. SYSTEMS Ltd. **Egypt**
23 Al-Saad-Al-Alee St.
EG-Sarayat, Maadi, Cairo
Phone: +20 (0) 2 / 235 98 548

GIRIT CELADON Ltd. **Israel**
12 H'aomanut Street
IL-42505 Netanya
Phone: +972 (0)9 / 863 39 80

CEG LIBAN **Lebanon**
Cebaco Center/Block A Autostrade DORA
Lebanon-Beirut
Phone: +961 (0)1 / 240 445

ADROIT TECHNOLOGIES **South Africa**
20 Waterford Office Park 189 Witkoppen Road
ZA-Fourways
Phone: + 27 (0)11 / 658 8100

▲ MITSUBISHI ELECTRIC
Changes for the Better