

Panasonic

ideas for life

Programmable Controller

FP-X

Introducing a New Transistor Output Model
Pulse Output

4-Axis Integrated Control



2-Axis Linear Interpolation Simultaneously in 2 Pairs!



14-point type



30-point type



60-point type

FP-X Programmable Controller
ARCT1B273E '06.8

New

<http://www.nais-e.com/plc/>

Panasonic... the new name for **NAIS**

Downloaded from Elcodis.com electronic components distributor

Matsushita Electric Works, Ltd.

Introducing
a Transistor
Output Type

Programmable Controllers **FP-X**

4-axis pulse output in a compact body (C14 comes with 3 axes)

Simultaneous 2-axis linear interpolation is possible in two pairs

Servomotor and stepping motor control in production equipment has become increasingly diversified while requiring a greater number of axes – for example, electronic control for replacing cams, XY table + Z-axis control for cell-production and LCD alignment, 3D bending process of corrugated paper boxes and heat exchanger pipes, high-density coil winding operations etc. With such applications in mind, FP-X is a compact general-purpose PLC suited for small-scale equipment controls with its 4-axis pulse output built into the compact body, enabling multi-axis control in a very small space at a fraction of the equipment cost.

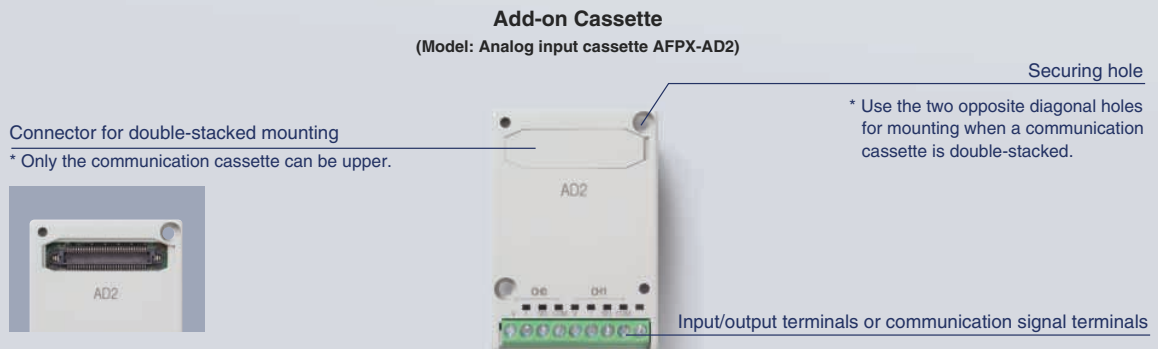
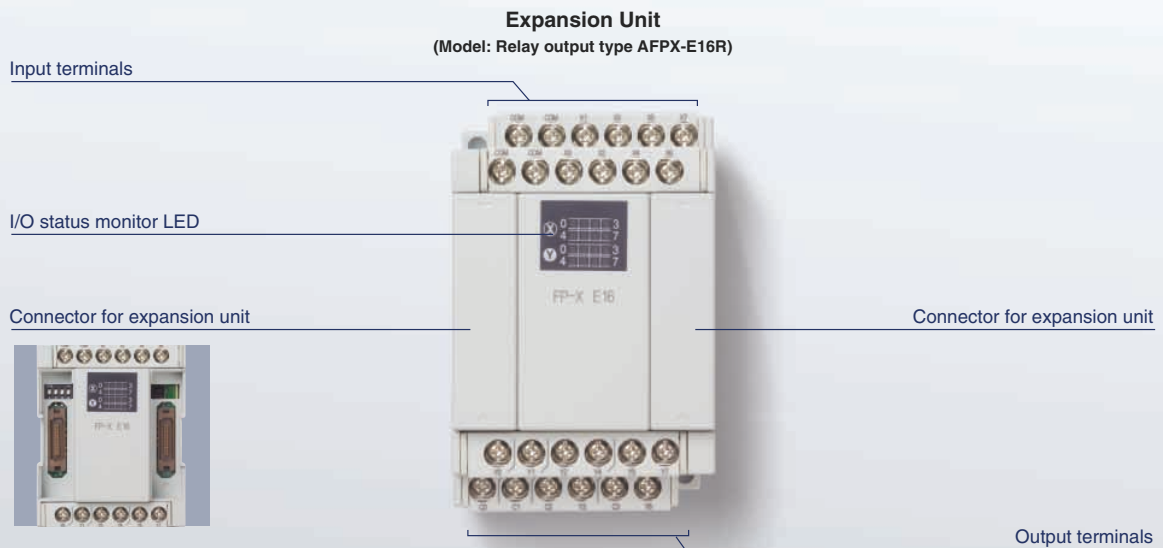
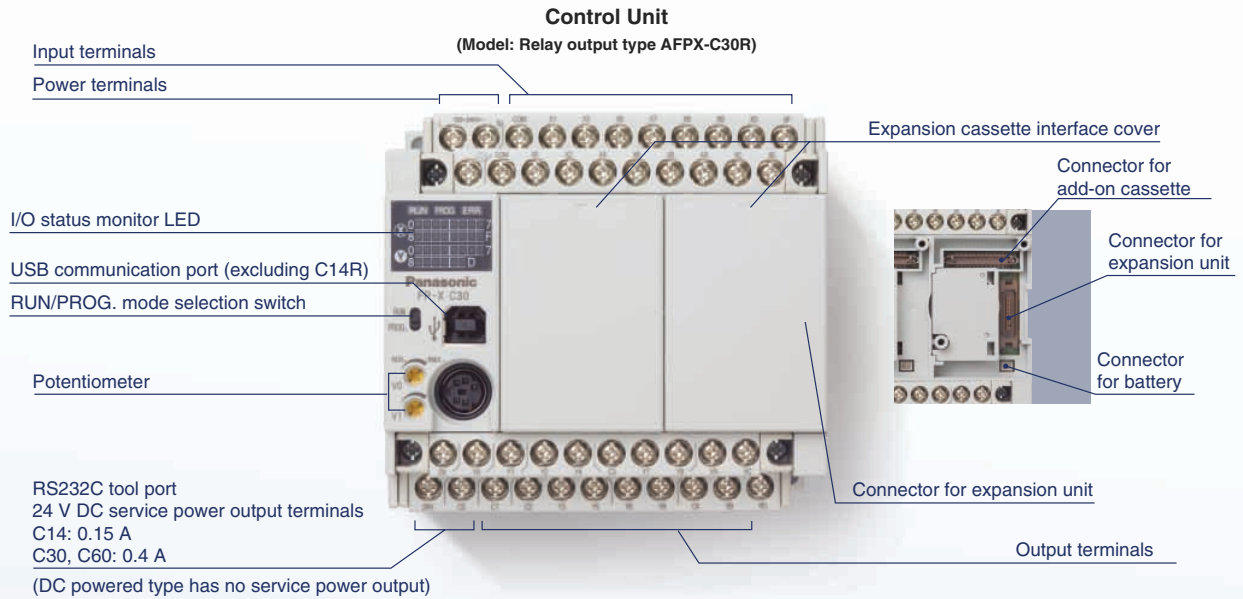


AFPX-C30
(Add-on cassette attached)



AFPX-C14
(Add-on cassette attached)

FP-X Name and Function of Each Part

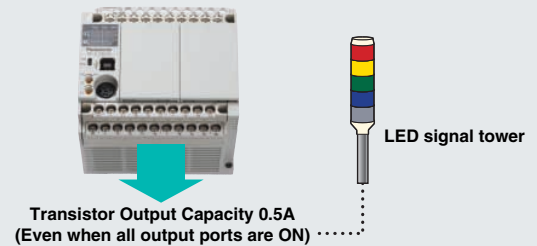


Usability

The enhanced functionality expands the ranges of applications, while improving the ease of use.

■ Securing 0.5A in every transistor output even when all output ports are ON.

The transistor output type is not limited by the control capacity of each common line. Every output port can secure 0.5A even when all output ports are ON for any basic unit C14, C30, C60 as well as the expansion units E16 and E30 (at 25° C) – Sufficient capacity for high-load switching such as LED type signal tower etc.

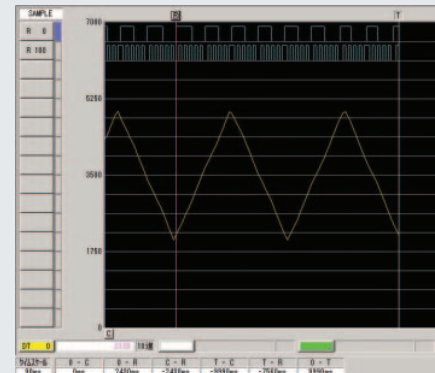


■ Equipped with a Sampling Trace Function – Smart Solution for Program Debugging

(Available from Ver. 2.0 of the transistor type and relay output types)

The sampling trace function enables the user to monitor a change of I/O condition or data register value in a very short time interval – an efficiency tool for debugging a ladder program.

The shortest sampling interval of the normal time-chart monitor is 10ms with the FPWIN GR or FPWIN PRO, but monitoring in much shorter intervals is often required during debugging operations. The sampling trace function enables data accumulation of any 16 contact data and 3 data register values once or several times within a scan time. Reading out these data through the FPWIN GR or FPWIN PRO enables the user to confirm an instantaneous change of status by time on the time-chart monitor.



(Normal Time-Chart Monitor)



(Sampling Trace)

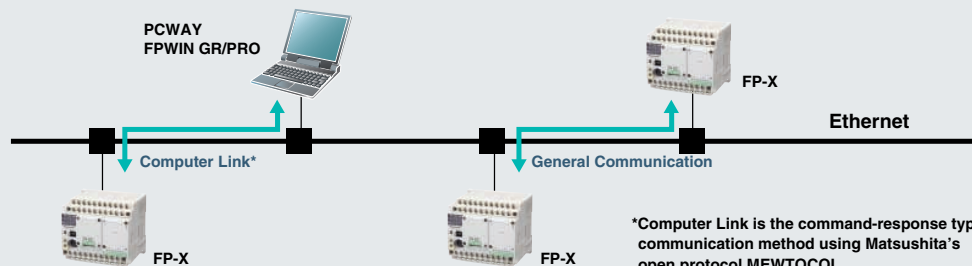
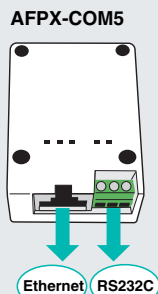


Invisible changes become visible!

■ The communication cassette (Ethernet Type) will be April 2007.

Using this option, you can monitor the data in FP-X on the PCWAY through the existing Ethernet, or remotely upload/download a program.

Interface	Ethernet (COM1)	10BASE-T, 100BASE-TX, TCP/IP	
	RS232C (COM2)	3-wire, Asynchronous, Max115.2kbps	
Ethernet Communication Mode (1:1 communication)	Computer Link	General communication (server)	General communication (client)
	PCWAY, FPWIN GR/PRO etc.	Wait for a connection by the partner FP-X ←	Connect to the specified partner → FP-X



*Computer Link is the command-response type communication method using Matsushita's open protocol MEWTOCOL.

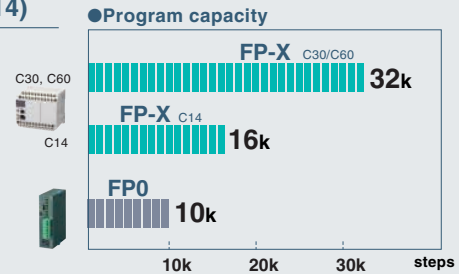
High capacity/High speed

The high-level basic performance provides sufficient room for future equipment expansion as well as a rich variation.

Abundant program capacity - 32 ksteps (16 ksteps for C14)

The program capacity of 32 ksteps, exceeding the capacity of most compact PLCs, can flexibly handle a wide variety of applications requiring future equipment expansion. An adequate comment area has of course been reserved. Free comment entry makes the program easy to understand during verification.

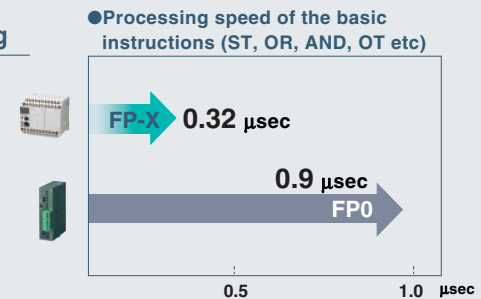
- Separate memory areas reserved for program memory and comments do not cause a reduction of program capacity when comments are entered.
- 100,000 I/O comment items, 5,000 lines of line-space comments, 5,000 lines of remark comments - All comments are stored in the FP-X simultaneously with the program.



Ultra high-speed scan at 0.32 μsec for instruction processing

High-speed processing is often required for small-scale equipment control such as serial data communication, network construction or PID temperature control. High-speed scanning at 0.32 μsec/step (basic instruction) easily meets such requirements.

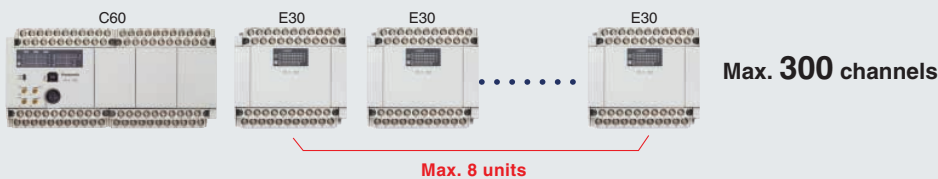
(Ex.) In the case of a 5-kstep program consisting of 35% basic instructions and 65% applied instructions,
→ Scan time: 1.9 ms (measured time)



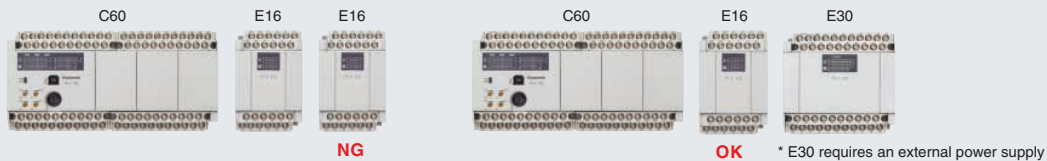
Abundant number of I/O points - Maximum 300 (Up to 382 points possible by using FP0 expansion units and add-on cassettes)

When the user cannot predict the number of I/O points required in the future for his machine or equipment, he is uncertain in selecting a PLC model. FP-X solves user concerns with a maximum of 300 I/O channels. The number can even be increased up to 382 points by using the add-on cassettes and FP0 expansion units.

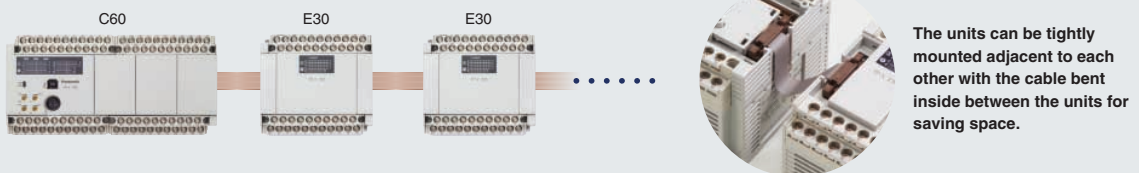
- Expansion units (E16R, E30R, EFP0) can be connected up to eight units.



- Two or more E16 can't be connected serially.
- E16 can be sandwiched with E30*



- Connection by using the cable included in each expansion unit.

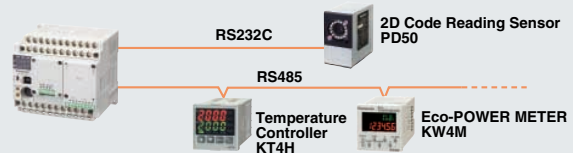


Network

Different types of equipment need to be linked – FP-X flexibly meet such requirements.

MEWTOCOL Master Function Has Been Added

By using the newly added MEWTOCOL master function for automatically generating MEWTOCOL (Matsushita Open Protocol) commands, serial communication with MEWTOCOL compatible units such as PD50, KT4H, KW4H etc becomes substantially easier.

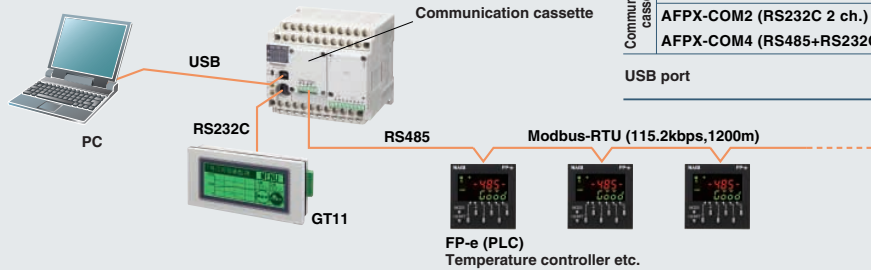


Up to 3 serial communication ports can be used at once.

The use of a communication cassette provides up to 3 serial communication ports.

Usable interfaces include RS232C, RS485, RS422, and USB.

*The RS232C tool port can be used as a general-purpose serial communication port.



Communication Port		
RS232C tool port		Always used
Communication cassette	AFPX-COM1 (RS232C 1 ch.)	Always used (Port No. COM1)
	AFPX-COM3 (RS485/422 selectable 1 ch.)	
	AFPX-COM2 (RS232C 2 ch.)	1st ch.
	AFPX-COM4 (RS485+RS232C)	2nd ch.
USB port		Switch-selectable (Port No. COM2) Default setting: USB port use

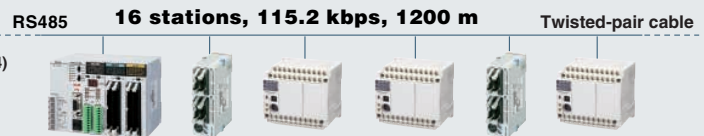
PLC Link

The MEWNET-W0 allows program-free links of up to 16 PLC units such as FP2/2SH or FPΣ. The distributed control system allows efficient model selection.

- Simple setting of the number of linked units, linked relays, and starting area address of the own station by using FPWIN GR/Pro allows sharing of contact information and data without programming.
- The transfer rate of 115.2 kbps, the highest rate for a compact model.
- A transfer distance of 1200 m, the longest distance for a compact model.
- FP-X and FPΣ allow a change of the station number by programming (SYS instruction).

Item	Specifications
Number of stations	16 stations
Transmission speed	115.2 kbps
Transmission distance	1200 m
Shared data	128 words (data register), 64 words (contacts)
Communication method	Floating master

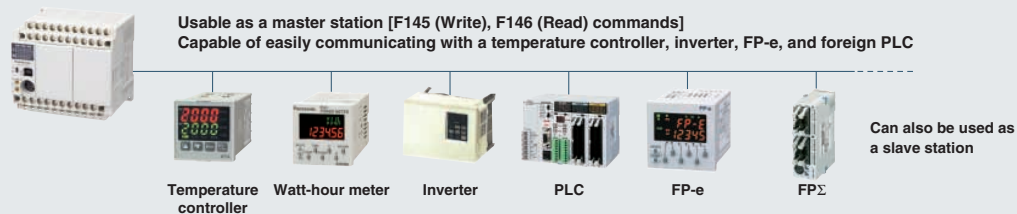
FP-X requires a communication cassette (AFPX-COM3 or AFPX-COM4)
 FP2/2SH requires a multi-communication unit (AFP2465, AFP2805)
 FPΣ requires a communication cassette (AFPG803, AFPG806)



Modbus* Compatibility

Compatible with both the master and slave of the Modbus* RTU, the world's de-facto standard
 Great performance is expected for air-conditioning, temperature controls etc.

* Protocol developed by the Modicon Inc. of the United States



Another available application

When 17 or more FP-X units need to be linked, the use of a Modbus instead of a MEWNET-W0 can accommodate up to 99 FP-X units. Because each FP-X can be a master or slave, a multi-master link can be constructed by passing a token from a user program.



Programming

Note: Product names and company names in this chart are trademarks or registered trademarks of the respective companies.

Control FPWIN GR for Windows

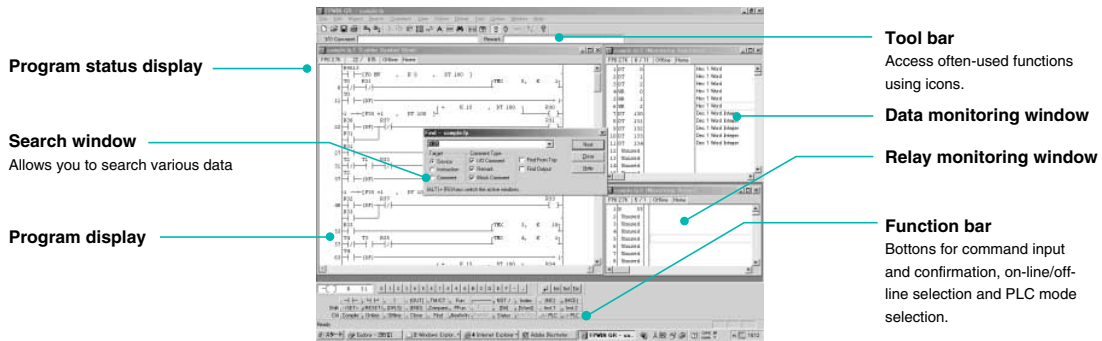
The ladder programming software for FP series – highly operational software tool for maximizing convenience in the field.

■ Features

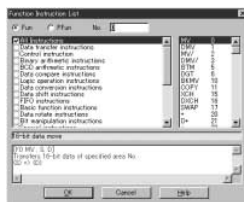
1. Easy field operations not requiring the use of a mouse for data entry, search, writing, monitoring and timer changes, all carried out only from the keyboard.
2. Allows standard operations in Windows, such as Copy & Paste, etc.
3. All FP series PLCs are supported. The software assets produced by using Ver. 4 or Ver. 3 of NPST-GR are usable.
4. Easy programming with wizard functions.
5. Communication with OPC Server, CommX, GTWIN, PCWAY simultaneously through the same port.

■ Operational Environment

OS	Windows95 (OSR2 or higher)/98/Me/NT (Ver. 4.0 or later)/2000/XP
Hard disk capacity	At least 40 MB
CPU	Pentium 100 MHz or higher
Onboard memory	At least 64 MB (depends on OS)
Screen resolution	At least 1024 × 768
Display colors	High color (16-bit or higher)
Applicable PLC	FP-X/FP-e/FP0/FP2/FP2SH
Compatible FP-X version	Relay output type: Ver.2.50 and after Transistor output type: Ver.2.70 and after

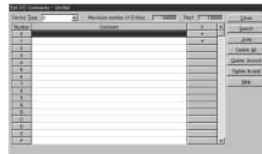


Function instruction list



Classified by type, function instructions can be selected from the displayed list. (Simple help included.)

I/O comment edit function



Successive I/O comments can be input for each device type. Data from Excel and other applications can be copied and pasted via the clipboard.

Status display



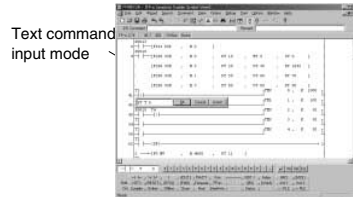
Displays information concerning PLC usage situation and settings, and detailed information when an error occurs.

Text Compiler



This software is for importing and exporting programs created in text format to and from FPWIN GR. Programs created on the PLC of another company can be edited as text and then be transferred to the FP Series without difficulty.

Text command input mode



A ladder diagram is displayed as a mnemonic code is entered from the keyboard.

■ Accompanying Tools

● Data Editor

This software for the PC is for reading and writing data stored in the memory of FP Series main unit or on an IC card. If a large data table is required in a PLC, the data can be created and edited on a PC and then download to the PLC.

● Modem connection

Communication via modem is easy with FP Series units in isolated locations.

● Wizard function

A Wizard function included in FPWIN GR since versions 2.2 can automatically generate ladder programs by simply entering and selecting required items in the dedicated screen. It can be used to assist in positioning, PID instruction input, and FP-e screen display instruction input.

● Personal preference settings

It is possible to switch among preference settings for FPWIN GR, Data Editor and Text Compiler that are set up for different individuals.

Part Number List

FP-X Control Unit

	Product name	Power supply	Specifications	Part number
Relay output	FP-X C14R Control unit	100 to 240V AC	8-point input of 24 V DC, 6-point output of 2 A relay Program capacity 16 ksteps, 2-point potentiometer	AFPX-C14R
	FP-X C30R Control unit	100 to 240V AC	16-point input of 24 V DC, 14-point output of 2 A relay Program capacity 32 ksteps, 2-point potentiometer, USB port	AFPX-C30R
	FP-X C60R Control unit	100 to 240V AC	32-point input of 24 V DC, 28-point output of 2 A relay Program capacity 32 ksteps, 4-point potentiometer, USB port	AFPX-C60R
	FP-X C14TD Control unit	24V DC	8-point of 24 V DC, 6-point output of 0.5 A transistor (NPN) Program capacity 16 ksteps, 2-point potentiometer	AFPX-C14TD
	FP-X C14T Control unit	100 to 240V AC	8-point of 24 V DC, 6-point output of 0.5 A transistor (NPN) Program capacity 16 ksteps, 2-point potentiometer	AFPX-C14T
	FP-X C14PD Control unit	24V DC	8-point of 24 V DC, 6-point output of 0.5 A transistor (PNP) Program capacity 16 ksteps, 2-point potentiometer	AFPX-C14PD
Transistor output	FP-X C14P Control unit	100 to 240V AC	8-point of 24 V DC, 6-point output of 0.5 A transistor (PNP) Program capacity 16 ksteps, 2-point potentiometer	AFPX-C14P
	FP-X C30TD Control unit	24V DC	16-point of 24 V DC, 14-point output of 0.5 A transistor (NPN) Program capacity 32 ksteps, 2-point potentiometer, USB port	AFPX-C30TD
	FP-X C30T Control unit	100 to 240V AC	16-point of 24 V DC, 14-point output of 0.5 A transistor (NPN) Program capacity 32 ksteps, 4-point potentiometer, USB port	AFPX-C30T
	FP-X C30PD Control unit	24V DC	16-point of 24 V DC, 14-point output of 0.5 A transistor (PNP) Program capacity 32 ksteps, 2-point potentiometer, USB port	AFPX-C30PD
	FP-X C30P Control unit	100 to 240V AC	16-point of 24 V DC, 14-point output of 0.5 A transistor (PNP) Program capacity 32 ksteps, 2-point potentiometer, USB port	AFPX-C30P
	FP-X C60TD Control unit	24V DC	32-point of 24 V DC, 28-point output of 0.5 A transistor (NPN) Program capacity 32 ksteps, 4-point potentiometer, USB port	AFPX-C60TD
	FP-X C60T Control unit	100 to 240V AC	32-point of 24 V DC, 28-point output of 0.5 A transistor (NPN) Program capacity 32 ksteps, 4-point potentiometer, USB port	AFPX-C60T
	FP-X C60PD Control unit	24V DC	32-point of 24 V DC, 28-point output of 0.5 A transistor (PNP) Program capacity 32 ksteps, 4-point potentiometer, USB port	AFPX-C60PD
	FP-X C60P Control unit	100 to 240V AC	32-point of 24 V DC, 28-point output of 0.5 A transistor (PNP) Program capacity 32 ksteps, 4-point potentiometer, USB port	AFPX-C60P

FP-X Expansion Unit

	Product name	Power supply	Specifications	Part number
Relay output	FP-X E16R Expansion I/O unit	—	8-point input of 24 V DC, 8-point relay output of 2 A Remarks; Two or more E16R can't be connected serially because it can't supply the power to other units. With an 8cm extension cable	AFPX-E16R
	FP-X E30R Expansion I/O unit	100 to 240V AC	16-point input of 24 V DC, 14-point relay output of 2 A Remarks; Possible to connect up to 8 units including E16R, EFP0. With an 8cm extension cable	AFPX-E30R
Transistor output	FP-X E16T Expansion I/O unit	—	8-point input of 24 V DC, 8-point transistor (NPN) output of 0.5 A Remarks; Two or more E16T cannot be connected serially because it cannot supply the power to other units. With an 8cm extension cable	AFPX-E16T
	FP-X E16P Expansion I/O unit	—	8-point input of 24 V DC, 8-point transistor (PNP) output of 0.5 A Remarks; Two or more E16T cannot be connected serially because it cannot supply the power to other units. With an 8cm extension cable	AFPX-E16P
	FP-X E30TD Expansion I/O unit	24V DC	16-point input of 24 V DC, 14-point transistor (NPN) output of 0.5 A Remarks; Possible to connect up to 8 units including E16, EFP0. With an 8cm extension cable	AFPX-E30TD
	FP-X E30T Expansion I/O unit	100 to 240V AC	16-point input of 24 V DC, 14-point transistor (NPN) output of 0.5 A Remarks; Possible to connect up to 8 units including E16, EFP0. With an 8cm extension cable	AFPX-E30T
	FP-X E30PD Expansion I/O unit	24V DC	16-point input of 24 V DC, 14-point transistor (PNP) output of 0.5 A Remarks; Possible to connect up to 8 units including E16, EFP0. With an 8cm extension cable	AFPX-E30PD
	FP-X E30P Expansion I/O unit	100 to 240V AC	16-point input of 24 V DC, 14-point transistor (PNP) output of 0.5 A Remarks; Possible to connect up to 8 units including E16, EFP0. With an 8cm extension cable	AFPX-E30P
	Expansion FP0 Adapter	24V DC	Up to 3 FP0 expansion units can be connected via an adapter. With an 8cm extension cable and power cable	AFPX-EFP0

FP-X Add-on Cassette

Product name	Specifications	Part number
FP-X COM1 Communication cassette	RS232C 1 ch. RS, CS control signal equipped (non-insulated)	AFPX-COM1
FP-X COM2 Communication cassette	RS232C 2 ch. (non-insulated)	AFPX-COM2
FP-X COM3 Communication cassette	RS485/422 selectable 1ch (insulated)	AFPX-COM3
FP-X COM4 Communication cassette	RS485 1 ch. (insulated) + RS232C 1 ch. (non-insulated)	AFPX-COM4
FP-X COM5 Communication cassette	Ethernet 1 ch. (10BASE-T, 100BASE-TX) + RS232C 1 ch. (non-insulated)	AFPX-COM5
FP-X Input cassette	8 point input of 24 V DC	AFPX-IN8
FP-X Output cassette	8 point output of NPN 0.3 A	AFPX-TR8
	6 point output of PNP 0.5 A	AFPX-TR6P
FP-X Analog input cassette	2 point 12-bit non-insulated 0 to 10 V DC/0 to 20 mA	AFPX-AD2
FP-X Pulse I/O cassette (for relay output type control unit only)	High-speed counter: single-phase 2 ch., each 80 kHz or two-phase 1 ch., 30 kHz. Pulse output: one axis 100 kHz/ch. (Use restriction is applied for a two-unit installation)	AFPX-PLS
FP-X Master memory with a real-time clock	Master memory: Capable of storing all program steps and comments simultaneously. Storage of FPWIN Pro source files. Real-time clock: Year, month, day, hour, minute, second, day of week (optional battery required)	AFPX-MRTC

FP-X Options and Service Parts

Product name	Specifications	Part number
FP-X Backup battery	Battery for backing up the operation memory and real-time clock	AFPX-BATT
FP-X Expansion cable (8 cm)	Expansion unit connection cable, 8 cm	AFPX-EC08
FP-X Expansion cable (30 cm)	Expansion unit connection cable, 30 cm	AFPX-EC30
FP-X Expansion cable (80 cm)	Expansion unit connection cable, 80 cm	AFPX-EC80
FP-X Terminal block	Terminal block for C30, C60 and E30, 21 pins, cover with no marking, five units included	AFPX-TAN1

Related Products List

FP Memory Loader

Product name	Part number
Data non-hold type	AFP8670
Data hold type	AFP8671

PCWAY Ver. 2.7 (Operation Data Managing Software)

Product name	Part number
PCWAY IBM printer port version	AFW10011
PCWAY USB port version	AFW10031
PCWAY Version upgrade	AFW10401

* Charged version upgrade for Ver. 2.0 to 2.6.

Control CommX Ver. 1.3 (OCX for Communication)

Product name	Part number
Control CommX IBM printer port	AFW20011
Control CommX USB port	AFW20031

FP Web-Server Unit

Product name	Part number
FP Web-Server unit	AFP0610
FP Web Configurator Tool	AFPS30510

Key Unit

Economical type is available for secondary key.
The key unit is available for PCWAY and Control CommX.

Product name	Part number
Key unit IBM printer port version	AFW1031*
Key unit USB port version	AFW1033

*The discontinuation of AFW1031 production is scheduled for August 2007.

Specifications

1. General Specifications

Item	Description
Rated voltage	100 to 240 V AC (AC power), 24 V DC (DC power)
Operating voltage range	85 to 264 V AC (AC power), 20.4 to 28.8 V DC (DC power)
Rush current	40 A or less (C14), 45 A or less (C30, C60) at 25°C (AC power) 12 A or less at 25°C (DC power)
Allowed momentary power off time	10 ms or more
Ambient temperature	0 to +55°C
Storage temperature	-40 to +70°C
Ambient humidity	10 to 95% RH (at 25 °C, non-condensing)
Storage humidity	10 to 95% RH (at 25 °C, non-condensing)
Breakdown voltage	Combined input/output terminals - Combined power and ground terminals, 2300 V AC 1 minute (AC power), 500 V AC ^{*1} 1 minute (DC power)
	Input terminals - Relay output terminals, 2300 V AC ^{*1} 1 minute
	Input terminals - Transistor output terminals, 500 V AC ^{*1} 1 minute
Insulation resistance	Power terminals - Ground terminals, 1500 V AC ^{*1} 1 minute (AC power), 500 V AC ^{*1} 1 minute (DC power)
	Combined input/output terminals - Combined power and ground terminals, 100 MΩ or higher (500 V DC using an insulation resistance meter)
	Input terminals - Output terminals, 100 MΩ or higher (500 V DC using an insulation resistance meter)
Vibration resistance	Power terminals - Ground terminals, 100 MΩ or higher (500 V DC using an insulation resistance meter)
	5 to 9 Hz, single amplitude 3.5 mm/9 to 150 Hz, constant acceleration 9.8 m/s ² , 1 sweep/min, 10 sweeps in each XYZ direction
Shock resistance	147 m/s ²
Noise immunity	1500 V [P-P] pulse width 50 ns, 1 μs (AC power), 500 V [P-P] pulse width 50 ns, 1 μs (DC power) (per noise simulator method) (power terminals)
Operating condition	No corrosive gas and no excessive dust
EC Directive Compliance Standard	Conforming to EN61131-2
Level of contamination	2
Over-voltage category	II

*1 Cutoff current 5 mA

2. Power Consumption, Weight

Product name	Part number	Current consumption	Weight
Control unit	AFPX-C14○○	26 W or less ^{*2}	Approx. 280 g or less
	AFPX-C30○○	52 W or less ^{*2}	Approx. 490 g or less
	AFPX-C60○○	64 W or less ^{*2}	Approx. 780 g or less
Expansion I/O unit	AFPX-E16○○	8 W or less ^{*2}	Approx. 195 g or less
	AFPX-E30○○	42 W or less ^{*2}	Approx. 430 g or less
Expansion FP0 adapter	AFPX-EFP0	0.24 W or less ^{*3}	Approx. 65 g
FP-X communication cassette	AFPX-COM1	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM2	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM3	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM4	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM5	2 W or less ^{*2}	Approx. 20 g
FP-X analog input cassette	AFPX-AD2	2 W or less ^{*2}	Approx. 25 g
FP-X input cassette	AFPX-IN8	1 W or less ^{*2}	Approx. 25 g
FP-X output cassette	AFPX-TR8	1 W or less ^{*2}	Approx. 25 g
	AFPX-TR6P	1 W or less ^{*2}	Approx. 25 g
FP-X pulse I/O cassette	AFPX-PLS	2 W or less ^{*2}	Approx. 25 g
FP-X master memory cassette	AFPX-MRTC	2 W or less ^{*2}	Approx. 20 g

*2 Power consumption by the AC power supply connected to the control unit *3 Power consumption by the DC power supply connected to the expansion FP0 adapter

*4 Please refer to FP0 users manual for FP0 expansion units.

Please refer to the user manual and specifications for further details.

Specifications

4. Input Specifications (Control unit, expansion unit)

Item	Description	
	Relay output	Transistor output
Insulation method	Photo-coupler	
Rated input voltage	24 V DC	
Operating voltage range	21.6 to 26.4 V DC	
Rated input current	Approx. 4.7 mA (Control unit X0 to X7)	Approx. 8 mA (Control unit X0 to X3)
	Approx. 4.3 mA (Control unit X8 and after, expansion unit)	Approx. 4.7 mA (Control unit X4 to X7) Approx. 4.3 mA (Control unit X8 and after, expansion unit)
Input points per common	8 points/common (C14, E16) 16 points/common (C30, C60)	
	(Input power polarity either positive or negative)	
Min. ON voltage/ON current	19.2 V/3 mA	19.2 V/6 mA (Control unit X0 to X3) 19.2 V/3 mA (Control unit X4 and after, expansion unit)
Max. OFF voltage/OFF current	2.4 V/1 mA	2.4 V/1.3 mA (Control unit X0 to X3) 2.4 V/1 mA (Control unit X4 and after, expansion unit)
Input impedance	Approx. 5.1 kΩ (Control unit X0 to X7) Approx. 5.6 kΩ (Control unit X8 and after, expansion unit)	Approx. 3 kΩ (Control unit X0 to X3) Approx. 5.1 kΩ (Control unit X4 to X7) Approx. 5.6 kΩ (Control unit X8 and after, expansion unit)
Response time	OFF → ON	Control unit X0 to X7 0.6 ms or less: Normal input 50 ms or less: High-speed counter, pulse catch, interruption input setting*1
		Control unit X4 to X7 135 μs or less: Nominal input 5 μs or less: High-speed counter, pulse catch, interruption input setting*1
	ON → OFF	Control unit X8 and after, expansion unit 0.6 ms or less
Operating indicator	LED display	

*1 Specification at the rated input voltage of 24 V DC, 25°C.

5. Relay Output Specifications (Control units, Expansion units)

Item	Description
Output type	1a contact
Rated control capacity (Resistive load)	2 A 250 V AC, 2 A 30 V DC (8 A or less/common)
Output points per common	4 points/common
Response time	OFF → ON
	ON → OFF
Life time	Mechanical
	Electrical
Surge absorber	None
Operating indicator	LED display

6. Transistor Output Specifications

Item	Description
Insulation method	Photocoupler
Output type	Open collector
Rated load voltage	NPN type: 5 to 24 V DC, PNP type: 24 V DC
Load voltage allowable range	NPN type: 4.75 to 26.4 V DC, PNP type: 21.6 to 26.4 V DC
Max. load current	0.5 A
Max. inrush current	1.5 A
Output points per common	8 points/common (C14, E16) 8 points/common, 6 points/common (C30, C60, E30)
OFF state leakage current	1 μA or less
ON state voltage drop	0.3 V DC or less
Response time	OFF → ON
	ON → OFF
Voltage range for external power supply	21.6 to 26.4 V DC
Surge absorber	Zener diode
Operating indicator	LED display

*2 Please refer to the user manual for Y0 to Y7 of the transistor output type.

