

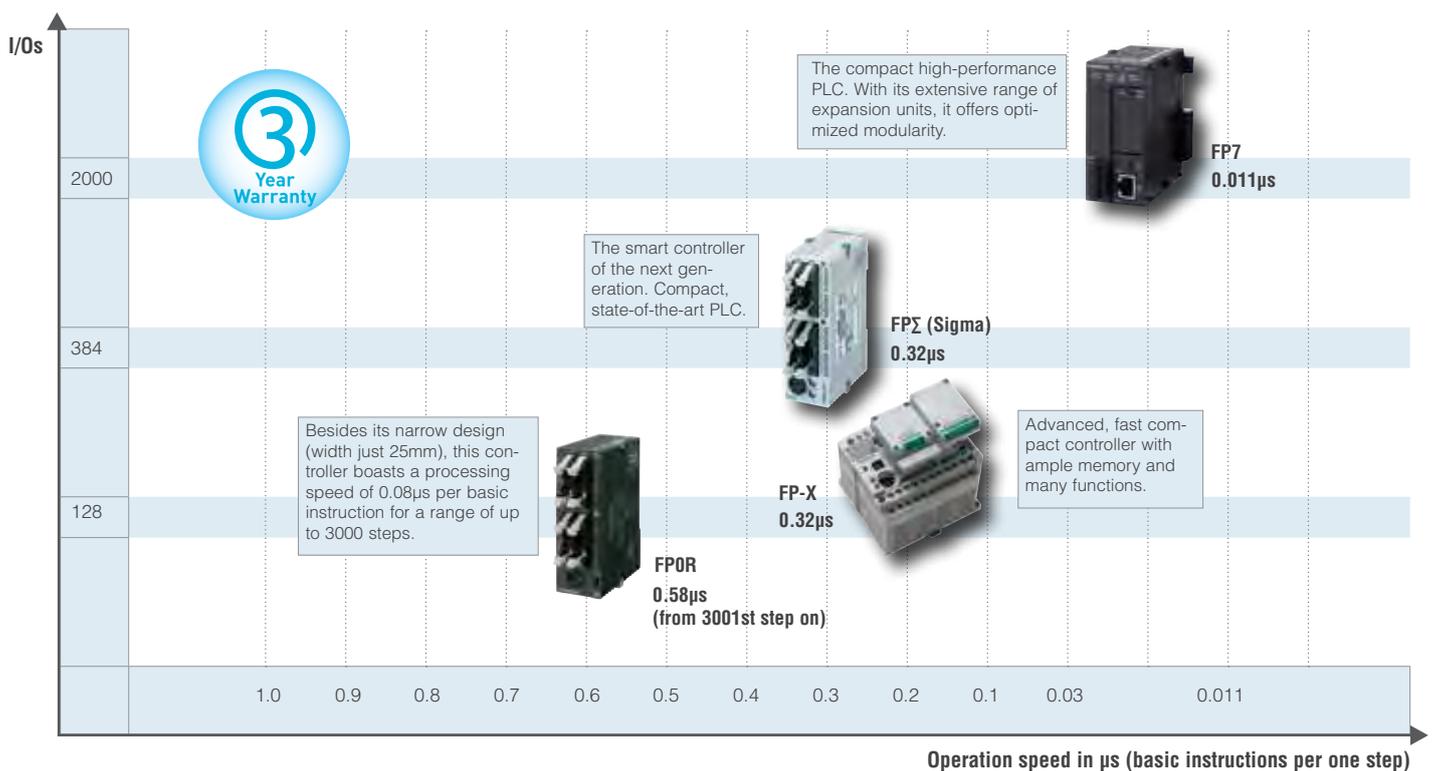
## Overview

### PROGRAMMABLE LOGIC CONTROLLERS



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## Overview



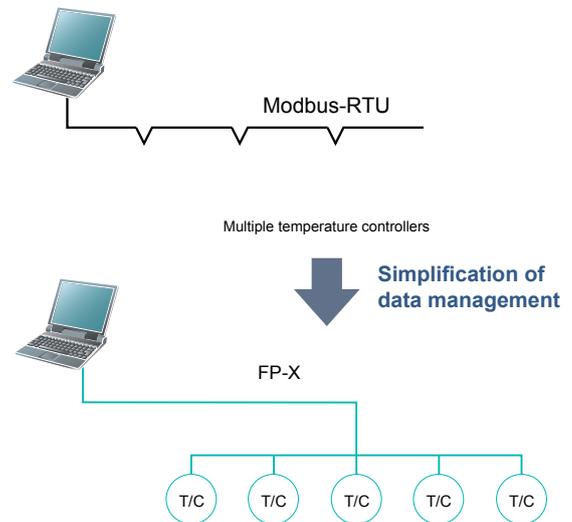
Model features	FP0R				FPΣ			FP-X		
										
CPU type	C10, C14 and C16	C32	T32	F32	C24	C28	C32	C14	C30	C60
Max. no. of inputs/outputs	106 to 112	128	128	128	376	380	380	328	352	382
Max. no. of expansion units	3 units				7 units (right: 3, left: 4)			8 units + up to 3 add-on cassettes		
Program capacity	16k steps	32k steps			32k steps			16k steps	32k steps	
Comment memory	■ (built-in memory)				■ (built-in memory)			■ (built-in memory)		
Operation speed (basic instructions)	0.08μs (up to 3k steps), 0.58μs (≥3k steps)				0.32μs/step			0.32μs/step		
Data registers (DT)	12315 words	32765 words								
Internal flags (R)	4096 (256 words)									
Ethernet	(FP Web-Server 2 and KS1 signal converter)							■ (FP Web-Server 2 and Ethernet communication cassette)		
Modbus RTU	■ (RS485)				■ (RS485 communication cassette)			■ (RS485 communication cassette)		
CC-Link	■ (Slave, CC-Link unit)				■ (Slave, CC-Link unit)			■ (Slave, CC-Link unit)		
Computer link (MEWTOCOL)	■ (TOOL port, COM port)				■ (TOOL port, communication cassette)			■ (TOOL port, communication cassette)		
Program-controlled communication (non-procedural)	■ (COM port)				■ (TOOL port, communication cassette)			■ (TOOL port, communication cassette)		
PLC Link / MEWNET-W0)	■ (RS232C, 1:1) (RS485, 1: up to 16 units)				■ (RS485 communication cassette)			■ (RS485 communication cassette)		
Remote I/O (MEWNET-F)	■ (64-point slave stations, I/O link unit)									
S-LINK	■ (S-LINK unit)							-		
Pulse output	4 axes/50kHz (C16, C32 or T32)				2 axes/100kHz (transistor output type)			2 axes/100kHz (transistor output type)		
Positioning unit	-				2-axis/4-axis type, up to 16 axes			1 axis/100kHz (pulse I/O add-on cassette)		
PWM output	4 channels/4.8kHz/1000 resolution (C16, C32, T32 or F32)				2 channels/12kHz/1000 resolution (transistor output type)			4 channels/12kHz/1000 resolution (transistor output type)		
High-speed counter	6 channels/50kHz				4 channels/50kHz			8 channels/50kHz		
Voltage/current input Voltage/current output	4-channel analog input unit, 8-channel analog input unit, 4-channel analog output unit, 2-channel analog input/1-channel analog output unit, 4-channel analog input/2-channel analog output unit							2-channel analog input cassette, 2-channel analog output cassette, 2-channel analog input /1-channel analog output cassette		
Temperature input	8-channel thermocouple unit							2-channel thermocouple input cassette, 2-channel RTD input cassette		
Clock/calendar function	■ (T32 only)				■			■ (MRTC cassette)		
Others	Mini USB port				2 potentiometer inputs			-	USB port	USB port

## Simple temperature control

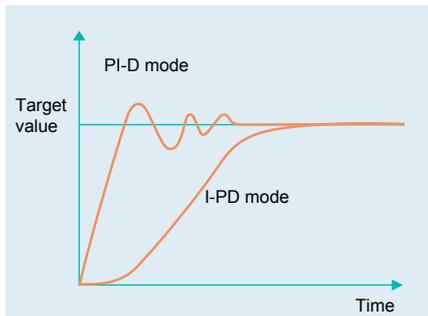
The advanced PID control facilitates high-speed, high-accuracy multi-point temperature control.

### Multi-point PID control

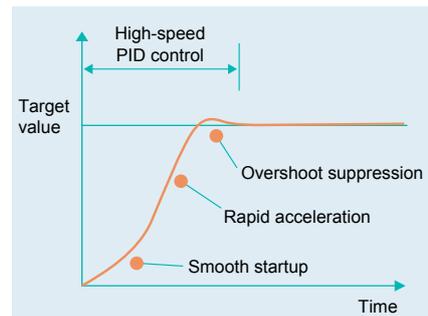
- High-accuracy PID control  
With a sophisticated algorithm and floating-point operations
- Two modes selectable  
High-speed control PI-D mode (derivative type) and overshoot suppression I-PD mode (proportional-derivative type)
- Ultra high-speed computations in 32μs/loop
- Simple parameter setting  
With simultaneous multi-point auto-tuning



Two modes are selectable



Partial optimum control by changing parameters



Multi-step control by changing the target value



## Web connectivity and communication

### Total communication, everywhere, anytime

Total connectivity in modern automation.

Visualize, monitor and modify the PLC data from anywhere in the world. Take remote control of your machine. Integrate a mini SCADA for process monitoring from any computer, tablet, or smartphone.



Panasonic presents the **FP Web-Server 2 (FPWEB2)** as a hub of the Smart Machine: a small device that adds advanced functionality to any machine.



## Smallest class compact PLC analog unit

### Ultra-compact add-on cassettes for analog control

"Require slightly more functions", "Want to add functions to the existing equipment" – The rich variety of add-on cassettes helps solve these requirements by supplementing the PLC with functions and I/O points.

- Insulated
- Compact
- Economical



<b>AFPX-AD2</b>	Analog input cassette with 2 inputs (0–10V/0–20mA, 12-bit, non-insulated)
<b>AFPX-A21</b>	Analog I/O cassette Input: 2 channels (0–5V/0–10V or 0–20mA, 12-bit, insulated) Output: 1 channel (0–10V or 0–20mA, 12-bit, insulated)

<b>AFPX-DA2</b>	Analog output cassette with 2 channels (0 to 10V or 0 to 20mA, 12-bit, insulated)
<b>AFPX-TC2</b>	Thermocouple input with 2 channels (K/J type, resolution: 0.2°C, insulated)
<b>AFPX-RTD2</b>	RTD input with 2 channels (insulated)

## Hot or cold – always controlled

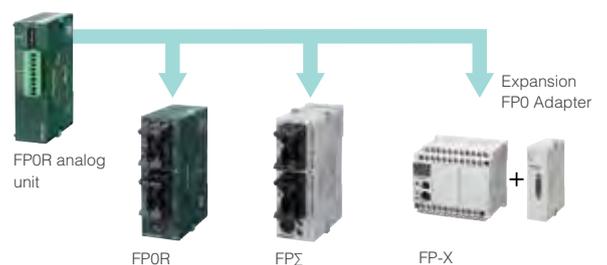
### For accuracy and precision

- › High resolution (0.1K/°F, 0.01K/°F)
- › High conversion speed (1 or 0.1s for all channels)
- › Number of inputs: 6 (Pt100, Pt1000, Ni1000, resistor)

### AFPOR analog units

### Excellent performance and wide product range

- › 5 input and 6 output ranges
- › High resolution of 14 bits
- › Can be used with all Panasonic compact PLCs



Specification	P/N
4x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA)	AFPORAD4
8x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA)	AFPORAD8
4x 14-bit outputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA, 4–20mA)	AFPORDA4
2x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA) and 1x 14-bit output (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA, 4–20mA)	AFPORA21
2x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA) and 2x 14-bit outputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA, 4–20mA)	AFPORA42

## The compact PLC for high-speed and high-accuracy positioning

### The palm-sized ultra-compact PLC allows you to establish a network servo system with up to 16 axes.

The RTEX (RTEX = Panasonic Realtime Express) positioning unit is compatible with Panasonic's MINAS series and enables you to construct a high-speed, high-accuracy, wire-saving servo system.

The sophisticated design reduces the wiring work significantly, thus contributing to the quick commissioning of equipment with a multi-axis control function.

- › High-speed 100Mpps communication
  - Highly accurate positioning control of multiple axes
- › 2-axis/4-axis/8-axis types
  - Position data of up to 600 points can be registered
- › 2-axis linear interpolation
- › 2-axis circular interpolation
- › 3-axis spiral interpolation
- › Reduced wiring costs
  - Compatible with commercially available LAN cables
- › Manual pulser input



### ■ Configurator PM

Reliable and user-friendly software tool for the complete process from setup through startup and operation monitoring of the functions, including specification of axes to be used, parameter setting, data table creation, JOG operation, home return, and data monitoring.



### ■ MINAS series

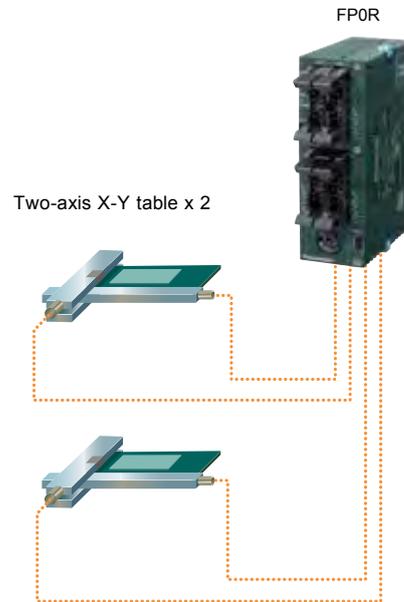
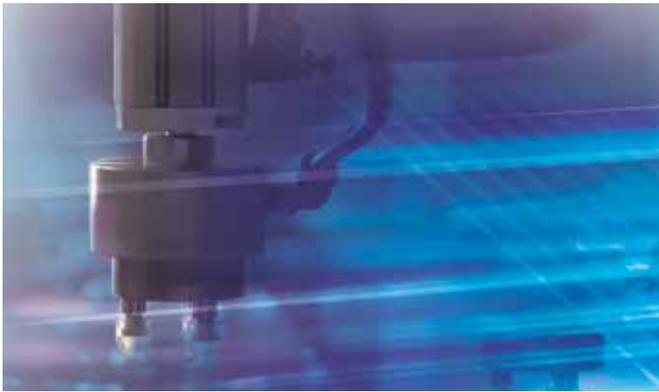
- › Features an upgraded real-time auto tuning function
- › The improved vibration damping makes the motor usable in a wide variety of mechanisms. The operability for both low and high rigidity mechanisms has been improved.
- › Usable for a wide range of functions from position to speed and torque instructions



## Positioning control available with built-in 4-axis pulse outputs

**Four built-in channels with a pulse output of max. 50kHz allow for simultaneous 2-axis linear interpolation of two sets.**

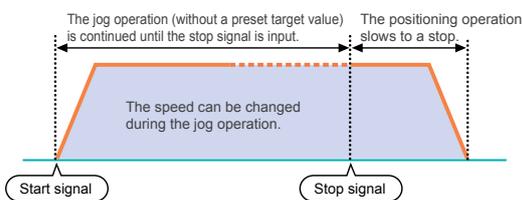
No complicated speed calculation or programming is required. Two sets such as two X-Y tables, for example, can undergo 2-axis linear interpolation (F175 instruction).



## Large variety of positioning instructions

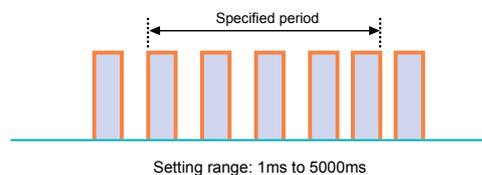
### ■ Jog positioning control (F171 instruction)

Motion can be started without a preset target value. When a stop signal is input, the target value is set, and the motion is slowed to a stop.



### ■ Measuring the pulse frequency (F178 instruction)

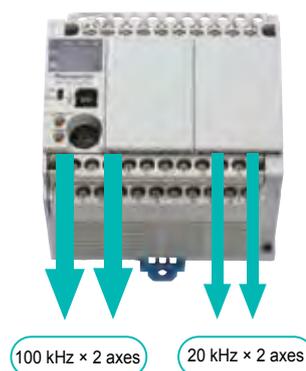
Pulses input in a specified period by a single instruction are counted, and the frequency is calculated.



## Built-in 100kHz and 20kHz pulse outputs for two axes each

### Relay output type even with 2-axis linear interpolation

By adding 2 pulse I/O cassettes (AFPXPLS), linear interpolation is possible at the maximum composite speed of 80kHz. The command used for this unit is F175 (SPSH), the same as that for the transistor output types.





# FP0R

Pocket-sized ultra-compact controller for use in extremely narrow spaces

## ■ Features

- › Large-capacity program/data memory  
Program capacity: 32k steps max.  
Data register: 32k words max.
- › Ultra-high speed processing  
80ns / step (ST instruction) for basic instructions for the first 3000 steps
- › USB tool port as standard equipment  
Capable of high-speed program transfer with USB 2.0
- › Multi-axis control available without expansion units  
Built-in pulse outputs for four axes (50kHz max. each)
- › Battery-less automatic backup of all data  
The F type has a built-in FRAM provides maintenance-free and complete backup of all data without requiring a battery. Industry's first!

CPU type	C10, C14 and C16	C32	T32	F32
Max. number of inputs/outputs	106 to 112	128	128	128
Max. number of expansion units	3 units			
Program capacity	16k steps	32k steps		
Comment memory	■ (built-in memory)			
Operation speed (basic instructions)	0.08μs (up to 3k steps), 0.58μs (3k and more)			
Data registers (DT)	12315 words	32756 words		
Internal flags	4096 (256 words)			
Ethernet	■ (FP Web-Server 2 and KS1 signal converter)			
Modbus RTU	■ (RS485)			
CC-Link	■ (Slave, CC-Link unit)			
MEWTOCOL-COM	■ (TOOL port, COM port)			
Program-controlled communication	■ (COM port)			
PLC Link (MEWNET-W0)	RS232C: 1:1, RS485: up to 16 units			
Remote I/O (MEWNET-F)	■ (64-point slave units, I/O link unit)			
S-LINK	■ (FP0-SL1 control unit)			
Built-in pulse output	4 axes/50kHz (C16, C32 or T32)			
Positioning unit	-			
PWM output	4 channels/4.8kHz/resolution: 1000 (C16, C32, T32, or F32)			
High-speed counter	6 channels/50kHz			
Voltage/current input Voltage/current output	4-channel analog input unit, 8-channel analog input unit, 4-channel analog output unit, 2-channel analog input/1-channel analog output unit, 4-channel analog input/2-channel analog output unit			
Temperature input	8-channel thermocouple unit			
Clock/calendar function	-	■	-	-
Others	Mini USB port			



# FPΣ

## High-performance ultra-compact PLC

### ■ Features

- **Abundant program capacity: 32k steps**  
 The 32k steps program capacity can accommodate an increase in the number of programs accompanying functionality enhancements, expansions, or changes of equipment.
- **Equipped with an independent comment memory**  
 All of 100,000 I/O comments, 5,000 lines of block comments, and 5,000 lines of remark comments are saved in FPΣ together with programs.
- **Equipped with a high-speed RISC processor**  
 Equipped with a RISC processor, achieving high-speed processing with a scan time of less than 2ms for 5000 steps.
- **High-speed positioning unit**  
 The 4Mpps maximum frequency and startup speed of 0.005ms allow use for linear servo control.
- **Simple temperature control**  
 A temperature control program can be written in only one line by using the PID instruction F356 (EZPID), facilitating temperature control by a PLC, which had previously been considered difficult.

CPU type	C24	C28	C32
Max. number of inputs/outputs	376	380	380
Max. number of expansion units	7 units (right: 3, left: 4)		
Program capacity	32k steps		
Comment memory	■ (built-in memory)		
Operation speed (basic instructions)	0.32μs/step (basic instructions)		
Data registers (DT)	32765 words		
Internal flag	4096 (256 words)		
Ethernet	■ (FP Web-Server 2 and KS1 signal converter)		
Modbus RTU	■ (RS485 communication cassette)		
CC-Link	■ (Slave, CC-Link unit)		
MEWTOCOL-COM	■ (TOOL port, communication cassette)		
Program-controlled communication	■ (TOOL port, communication cassette)		
PLC Link (MEWNET-W0)	■ (RS485 communication cassette)		
Remote I/O (MEWNET-F)	■ (64-point slave stations, I/O link unit)		
S-LINK	■ (S-LINK unit)		
Built-in pulse output	2 axes/100kHz (transistor output type)		
Positioning unit	2-axis/4-axis type, up to 16 axes		
PWM output	2 channels/12kHz/1000 resolution (transistor output type)		
High-speed counter	4 channels/50kHz		
Voltage/current input	4-channel analog input unit, 8-channel analog input unit, 4-channel analog output unit, 2-channel analog input/1-channel analog output unit, 4-channel analog input/2-channel analog output unit		
Voltage/current output			
Temperature input	8-channel thermocouple unit		
Clock/calendar function	■		
Others	2 potentiometer inputs		



# FP-X

Equipped with a USB port for easy connection to a PC. Also compatible with Ethernet.

## ■ Features

- › Abundant program capacity: 32k steps**  
 The 32k steps program capacity can accommodate an increase in the number of programs accompanying functionality enhancements, expansions, or changes of equipment.
- › Equipped with an independent comment memory**  
 All of 100,000 I/O comments, 5,000 lines of block comments, and 5,000 lines of remark comments are saved in FP-X together with programs.
- › Equipped with a high-speed RISC processor**  
 Equipped with a RISC processor, achieving high-speed processing with a scan time of less than 2ms for 5,000 steps.
- › Add-on cassettes expand the functionality while maintaining the space-saving size**  
 Up to three add-on cassettes can be attached to the control unit. Functionality can be enhanced without increasing the required footprint. The 17 types of add-on cassettes, including the communication and analog types, cover a wide variety of applications.
- › Multi-axis control by the built-in pulse output**  
 The transistor output type controller has a built-in pulse output that allows multi-axis control of the servo and stepping motors. C14: 3 axes, C30/C60: 4 axes

CPU type	C14	C30	C60
Max. no. of inputs/outputs	328	352	382
Max. no. of expansion units	8 units + up to 3 add-on cassettes		
Program capacity	16k steps	32k steps	
Comment memory	■ (built-in memory)		
Operation speed (basic instructions)	0.32μs/step		
Data registers (DT)	32765 words		
Internal flags (R)	4096 (256 words)		
Ethernet	■ (FP Web-Server 2 and Ethernet communication cassette)		
Modbus RTU	(RS485 communication cassette)		
CC-Link	■ (Slave, CC-Link unit)		
MEWTOCOL-COM	■ (TOOL port, communication cassette)		
Program-controlled communication	■ (TOOL port, communication cassette)		
PLC Link (MEWNET-W0)	■ (RS485 communication cassette)		
Remote I/O (MEWNET-F)	■ (64-point slave stations, I/O link unit)		
S-LINK	■ (S-LINK unit)		
Pulse output	2 axes/100kHz (transistor output type)		
Positioning unit	1 axis/100kHz (pulse I/O add-on cassette)		
PWM output	4 channels/12kHz/1000 resolution (transistor output type)		
High-speed counter	8 channels/50kHz		
Voltage/current input	2-channel analog input cassette,		
Voltage/current output	2-channel analog output cassette,		
	2-channel analog input /1-channel analog output cassette		
Temperature input	2-channel thermocouple input cassette, 2-channel RTD input cassette		
Clock/calendar function	■ (MRTC cassette)		
Others	–	USB port	



# FP7

A new era of automation control. Visualize work site conditions by collecting and transferring information.

## ■ Features

- › Compact size with room for expansion functions
- › Equipped with a cassette interface.  
Add-on cassettes can be added to the CPU to increase functionality without increasing the width of the unit. Communication cassettes support communication via RS232C, RS422, and RS485.
- › Up to 16 different units can be connected to a single CPU.
- › High-capacity SD (SDHC) memory cards up to 32GB are supported.
- › High performance (min. scan time 1ms, max. 20μs for 60k steps); the processing speed is less susceptible to frequent Ethernet communication.
- › GT power supply terminals

Item	AFP7CPS21	AFP7CPS31	AFP7CPS31E	AFP7CPS41E
Power supply	24V DC or FP power supply unit			
Max. number of inputs/output	8.192 / 8.192			
Max. number of expansion units	64 (4x16)			
Operation speed	14ns	11ns/step (basic instructions)		
Program memory	Built-in flash ROM (no backup battery required)			
Program capacity	64k steps	120k steps	196k steps	
Internal relays (R)	32768			
Timers (T)	4096 points: 1–4,294,967,295 (in units of 10μs, 1ms, 10ms, 100ms or 1s)			
Counters (C)	1024 points: 1–4,294,967,295			
Ethernet function	–		Built-in	
Constant scan time	0–125ms			
Clock/calendar function	Built-in			



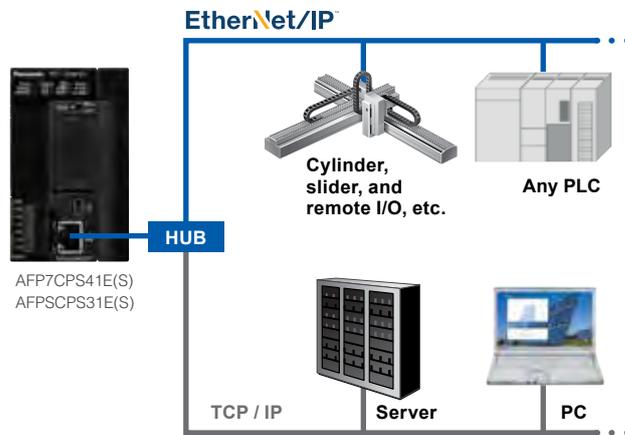
**Move** **Control machinery and facilities**

Apart from a high operation speed and a large capacity, the FP7 features great ease of use, which is important for design-in, use in production, and maintenance.



■ **Ethernet/IP compatibility**

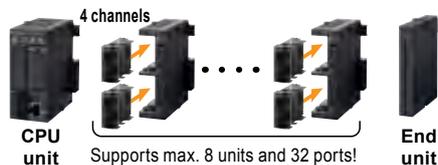
Models with built-in Ethernet ports add functionality to the CPU unit. Easy connection with all kinds of robots and PLCs enables control and communication.



■ **Cassette system reduces unit cost and footprint**

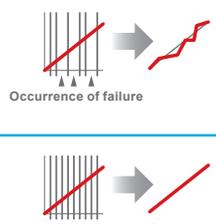
Serial communication and analog functionality of the CPU units can be expanded easily and at low cost.

Moreover, when the FP7 is used as a serial communication unit, as many as 35 channels can be used. This helps to reduce cost and footprint.



**Analog input unit**

- > Doesn't depend on CPU scanning
- > Analog buffering
- > High-speed conversion: 25µs/ch
- > Overall accuracy: ±0.05% F.S. (at +25°C +77°F)



**Analog sampling that does not depend on the CPU**

Sampling and data collection takes place in the analog unit! This is ideal for high-accuracy measurement applications because with the fixed cycle, analog signals can be held in the buffer.

**Dependent on scan by the CPU**

The scan gets delayed when the CPU slows down due to other processes and sampling becomes sporadic.

**Sampling in the analog unit**

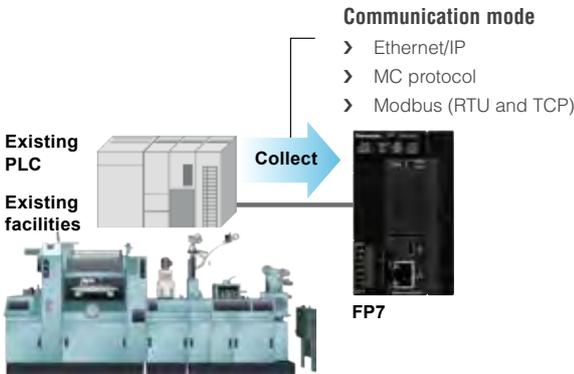
Accurate sampling possible thanks to a fixed cycle.

**Collect** Collects production site information

The FP7 can collect multiple data related to production such as voltage, electric power, temperature, production output, alarm notifications, etc.



■ Supports all types of protocol



The FP7 supports many different protocols for Ethernet / serial communications so that the FP7 can easily be installed in existing production facilities.

**Store** Logs and stores collected information

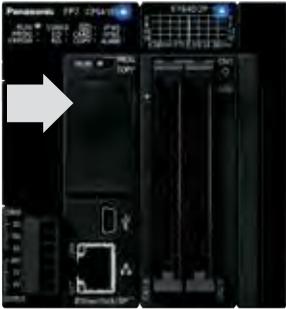
The FP7 stores and logs the collected information securely.

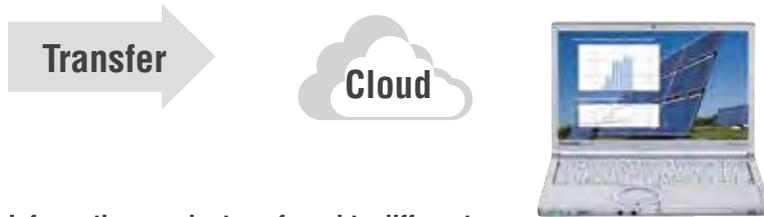
■ Data logging with the FP7 series

The FP7 series supports data logging of process data on commercial SD cards. Up to 16 log files can be created in parallel. For secure storage, high-capacity SD (SDHC) memory cards with up to 32GB can be used.

■ Intelligent data space management thanks to shared program and data registers

The available data space is distributed depending on whether operation programs or collected data need more space. It is not necessary to purchase expensive upgrade models because there is not enough data space available.



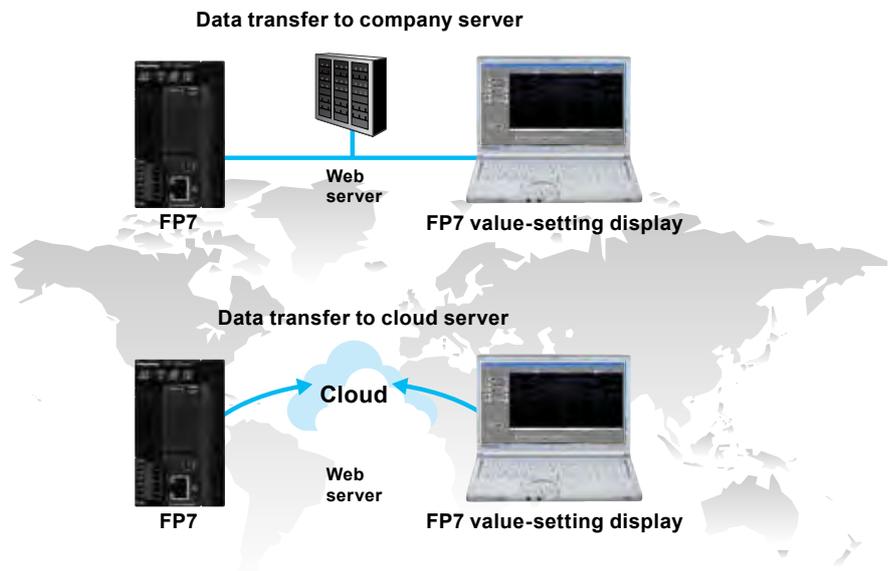


**Information can be transferred to different types of media**

Wherever the collected information is needed, the FP7 transmits it, be it to a PC, a server, the cloud, or anywhere else.

■ **HTTP(S) client function (SSL-compatible)**

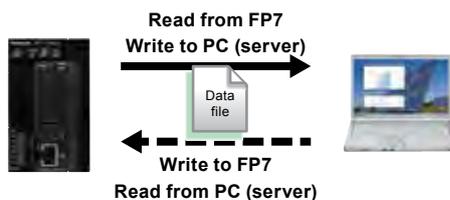
Transfer data from the FP7 to a web server for easy viewing with a browser. Send and receive data from multiple FP7 units on a schedule controlled by the FP7. Communicate both inside the firewall on an intranet and outside the firewall to the wider world through the Internet.



Allow users from around the world to access the current state of their equipment.

■ **Information can be transferred to different types of media**

Allows the PC to read the logging data in the FP7's SD memory card and to write setting values and other parameters.



■ **FTP(S) client function (SSL-compatible)**

The FP7 can generate and write data files to an FTP server on a PC as well as read data files from the FTP server.

The sessions use SSL, thus protecting IDs and passwords.



**All information at your fingertips**

Data collected by the FP7 can be displayed in a web browser. Whether you are using a smartphone or a PC, it's easy to check the current state of the worksite.

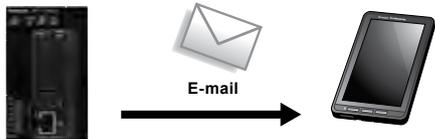
**Web-server function**

Monitor and control the FP7 without the need for a dedicated software. Users can check the accumulated data in the FP7 with a browser and send control commands as required.



**Information updates via e-mail**

Supervise the operation of the equipment via e-mail. Receive and view daily reports as well as get notifications if a malfunction occurs.

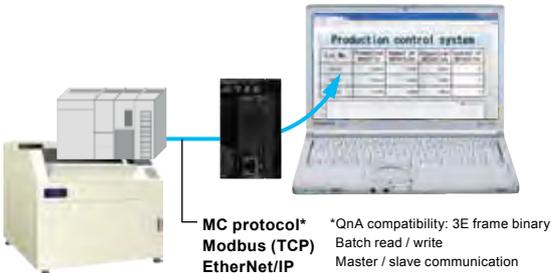


**E-mail sending function (SSL-compatible)**

Configure the FP7 to send e-mails on a preset schedule or when a preset condition changes in the PLC. The e-mails can be sent with data files attached and are protected by SSL.

**Local & remote connectivity**

The standard CPU boards with Ethernet interface offer connectivity without limits, from remote programming to monitoring and data logging to FTP server, MEWTOCOL (client/server), Ethernet/IP and Modbus TCP.



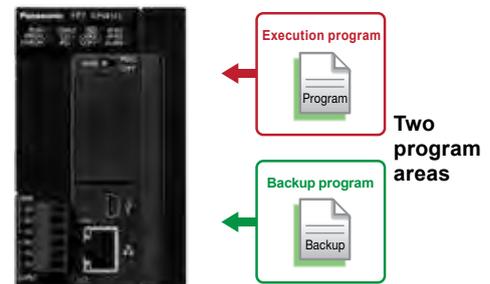
## Archiving of events

All events concerning the CPU or the programs are logged. All program changes are registered, which is useful for debugging and tracing the cause of malfunctions.

Date of occurrence	Time	Trigger event
2014/11/21	14:05:35	Power: ON
2014/11/21	14:07:13	Open cover
2014/11/21	14:20:25	Insert SD memory card.
2014/11/21	14:30:19	Close cover
2014/11/21	14:31:00	Download program
2014/11/21	14:33:10	Switch operation mode to RUN
2014/11/21	14:35:12	Program edition during RUN
2014/11/21	14:35:32	Upload program
2014/11/21	14:40:07	Power: OFF

## Built-in program backup for fast recovery of factory defaults

The CPU unit can store two programs, one for execution and one for backup. In the event of a fault, no SD memory card is needed to return to a previously saved backup program.



## Hour meter operation

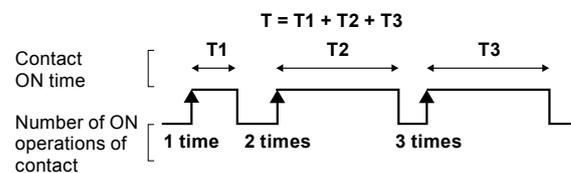
Indication of maintenance schedules for PLC and peripheral equipment

### Input contacts (X):

Automatically measure and log total ON times and number of ON operations of connected sensors.

### Output contacts (Y):

Automatically measure and log total ON times and number of ON operations of connected actuators. The maintenance schedules for relays, motors, etc. can be optimized.



## Battery-less data backup

Fewer maintenance tasks need to be performed because the PLC requires no battery. And, to save power, the FP7 can be switched off without hesitation.

Item	Without battery	With battery
Program holding	Yes	Yes
Data register holding <sup>1</sup>	Yes	Yes
Clock / calendar operation	No <sup>2</sup>	Yes

Notes: 1) Data register (DT) of up to 256k words can be backed up.

2) Clock / calendar operation can be maintained for about a week if the PLC is switched off. Allow at least 30 minutes of ON time before switching the PLC off again.

## Clock / calendar adjustable via Ethernet

The battery-free operation works because the built-in clock / calendar function can be adjusted via Ethernet after the PLC has been switched on.

## Custom Web

User set up their own screens with Control Web Creator and upload them to the FP7. Then, the information in the FP7's internal web server can be monitored with any browser.

(Example) IP address:  
192.168.xxx.xxx



Ethernet



Two types of web contents to choose from

Enter the URL in a browser

URL <http://192.168.xxx.xxx/>

## Control Web Creator

This is a graphics creation tool that allows you to easily design web content that is published by the FP7. You can creatively design content by arranging web components such

as switches, lamps, and meters on the screen and then setting the properties. Your content will be linked to information in the PLC without you needing any knowledge of HTML.



- > Same style of operation as GTWIN, the screen design tool for touch panels.
- > Components can be arranged by dragging and dropping.
- > Detailed component settings are easy using properties.
- > Components do not lose quality when enlarged or reduced, and you can color them as desired.
- > Images can be pasted in.

## System Web

The CPU comes with its own preset web content so you can start displaying data right away. Use it to check the status of the FP7 (settings, operation history, errors, etc.).

You can view the data registers, etc., using a PC or smartphone.

(Example) IP address:  
192.168.xxx.xxx



Ethernet



Enter the URL in a browser

URL <http://192.168.xxx.xxx/sys/>



# FPWEB

An "all-terrain vehicle": total communication, total connectivity everywhere, anytime

### Advantages

- › Uses existing Intranet, saves wiring
- › Uses standard browser, saves SCADA software
- › Remote control & remote monitoring & remote programming
- › Alarm information via e-mail
- › Interface/protocol converter

### Data logger

- › Logging of PLC data and saving it on an SD memory card or transmitting it via FTP (only possible when FP Web Expansion unit is attached)

### Web-Server

- › PLC data presented as HTML5 pages
- › Access via standard Internet browser
- › HTML entry field for PLC data change
- › Optional password protection
- › Java applet functions library

### E-mail

- › PLC can send e-mails, also with PLC data attachments
- › E-mail server access via LAN or Internet dial-up
- › PLC defined or pre-stored mail text

Item	FP Web-Server	FP Web Expansion
Part number	FPWEB2	FPWEBEXP
Current consumption	65mA	Additional 20mA on FP Web-Server
Operating voltage	24V DC (10.8–26V DC)	Internally powered by FPWEB2
Communication port	RS232C to connect to the PLC, RS232C to connect to a modem, 100Base-TX/10Base-T Ethernet	USB host port (supports GT series and FP-X PLCs), RS485
Storage space	Built-in Flash ROM	SD/SDHC card slot
Data logging	Via FP Web Expansion	Logging on SD/SDHC Card
Digital output	Via FP Web Expansion	High-speed photo coupler
Communication protocols	MEWTOCOL, DNS, HTTP, HTTPS, SMTP, FTP, TELNET, TCP/IP, UDP/IP, PPP, SNMP, Modbus RTU, Modbus-TCP, SNMPv1, IEC 60870-5-101, IEC 60870-5-104	
Security	Password protection, IP lock	
Ambient temperature	0°C to +55°C	
Storage temperature	-20°C to +70°C	
Dimensions (W x H x D)	25 x 90 x 60 (mm)	
Weight	0.11kg	0.07kg
Software (Part number)	FP Web Configurator (FPWEBTOOL2D)	IEC 60870 license for FPWEB2 (IEC60870LIS) FP Web Designer (AFPS36510-E)



FP-PS24-0120E  
(24V DC/5A)

FP-PS24-024E  
(24V DC/1A)

FP-PS24-060E  
(24V DC/2.5A)

# FP-PS24

The high-end power supply

## ■ Features

- › 24W/1A (primary 100-240V AC, 2x secondary 24V DC/1A)
- › 60W/2.5A (primary 100-240V AC, 2x secondary 24V DC/2.5A)
- › 120W/5A (primary 100-240V AC, 2x secondary 24V DC/5A)
- › All units are of course short-circuit protected
- › Compliant with safety standards IEC60950, UL60950, CSA22.2-60950, EN60950 tested by CSA
- › Protection class II, without grounding
- › Compact size with optimal cooling
- › Easy DIN-rail mounting and wiring



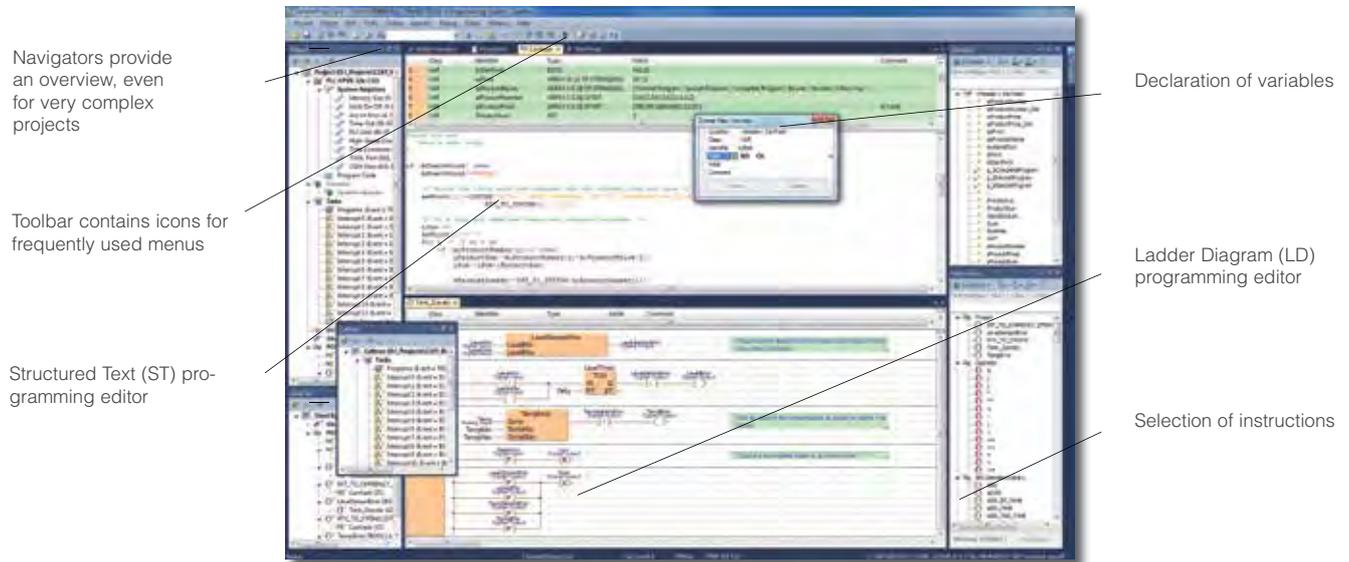
# FP-Modem

Safe, easy and cost-effective M2M communication

## ■ Features

- › Extremely compact
- › Operating voltage 24V DC
- › Attachable to a 35mm DIN rail
- › Maximum line speed of up to 56kbit/s
- › Leased line mode (peer-to-peer) up to 20km with 33.6kbit/s
- › Multidrop leased line mode according to V.23 at 1200bit/s
- › DCD output for connection to the digital input of a PLC
- › PSTN text message send + receive
- › CLIP decoder for calling line identification and callback
- › Serial data communication interfaces RS232C & RS485 are built in

## Control FFWIN Pro 7



### The most important Control FFWIN Pro highlights at a glance:

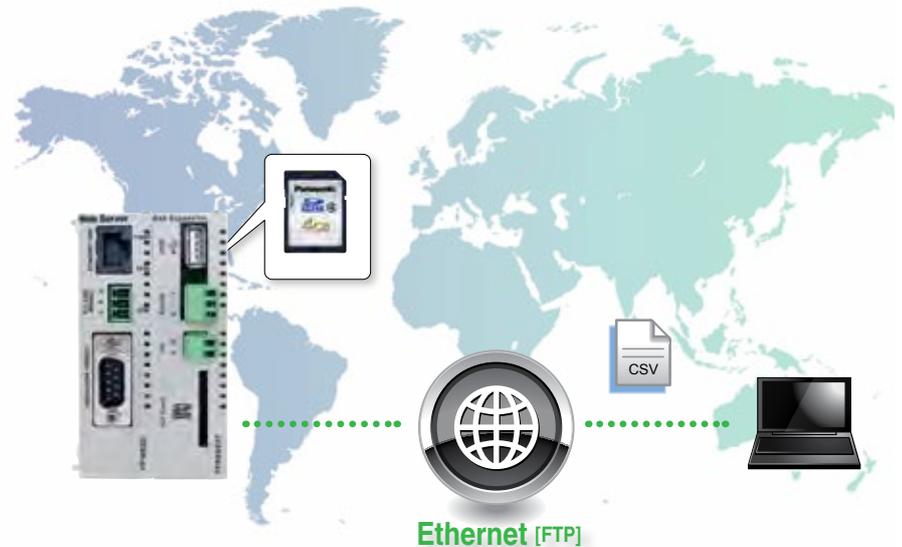
- › One software for all FP series PLCs
- › 5 programming languages (instruction list, ladder diagram, function block diagram, sequential function chart, structured text)
- › Well-structured navigator provides a clear overview of programming organization units (POUs), tasks, system registers, etc., simplifying project management
- › Reuse of ready-made functions and function blocks saves time needed for programming and debugging
- › Remote programming, service, monitoring, and diagnostics via RS232 (COM), modem, Ethernet, USB
- › Forced ON/OFF for input and output contacts via the PC
- › Extensive comments for online documentation created hand in hand with the program
- › Names of variables, functions, function blocks and comments can be written in all languages thanks to Unicode
- › Improved programming comfort: snap function, automatic placement of newly inserted elements, existing connection retained while moving elements
- › Keyboard-control mode to accelerate programming
- › 8 languages are supported: English, German, French, Italian, Spanish, Japanese, Korean, and Chinese
- › Clock / calendar function on the PLC can be set in the software
- › All IEC functions support the FP7
- › New communication and pointer functions
- › New family of overloaded and type-safe instructions for 32-bit type PLCs (FP7) and 16-bit type PLCs
- › SD card instructions

Product	Part number
Control FFWIN Pro 7 programming software, version 7 (for all FP series PLCs)	FPWINPRO7
Control FFWIN Pro upgrade to version 7 (upgrades all former versions of Control FFWIN Pro to version 7)	FPWINPRO7-UPGRADE

Ready-made libraries	Part number
Ethernet Library	NCL-ET1-LIB
Process and Temperature Control Library	NCL-PTC-LIB
Inverter Serial Communication Library	NCL-ISC-LIB
GSM Communication Library	NCL-CG-LIB
Modem Communication Library	NCL-CMEU-LIB
Motion Control Library	NCL-MC-LIB
Modbus Library, master and slave functionality	NCL-MODBUS-LIB
Control configurator MS open version	NCLCCMSLIB

Many other ready-made libraries including Master/Slave of PROFIBUS/DeviceNet/CANopen function blocks can be downloaded from [www.panasonic-electric-works.com](http://www.panasonic-electric-works.com) (download area)

## FP Web Configurator



### Our Windows-based program helps you easily set up and configure the FP Web-Server, e.g.:

- › Automatic integration of PLC data into HTML pages
- › Preparation of pre-stored e-mail addresses and texts
- › Internet dial-up and e-mail server settings
- › TCP/IP address and parameter changes
- › Passwords and security setup
- › IEC 60870-5 parameters and modem settings

### Application examples:

- › Visualization and remote control via HTTP/HTTPS: PLC data can be presented as HTML pages
- › Control FPWIN Pro remote programming via TCP/IP: Programming and monitoring access via Ethernet with and without VPN tunnels
- › Alarm sending via e-mail: Predefined alarm messages can be sent to a user (optional via Internet dial-up)

## FP Web Designer



### Features of the FP Web Designer

- › WYSIWYG (What you see is what you get) editor for graphic design of applications
- › The designed pages can be called up by a web browser on any PC connected to LAN or WAN
- › All process values are shown automatically on the screen. Each diagram can display up to 5 trend curves for measured values stored in PLCs. A simple mouse click updates the page
- › The measured values together with trend curves can be stored as CSV files
- › Alarm information can be visualized in web browser and saved. Updating alarm information runs in the background so that the web pages always display the current status in the browser.
- › The web pages in the browser can be password-protected to prevent unauthorized access and changes
- › Process values can be imported in CSV format from PLC programs written with Control FPWIN Pro
- › Extensive and expandable macro libraries available
- › Online help in English and German

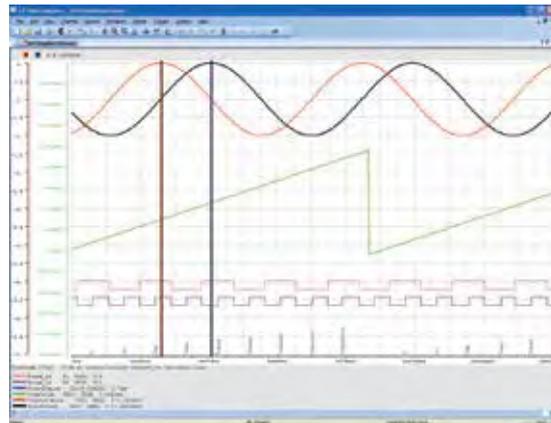
## FP OPC Server



### Features of the FP OPC Server

- › Modern and intuitive user interface allows you to configure the server. While creating the application, sophisticated user assistance helps you in your work
- › The server complies to the following OPC DA client/server technologies: OPC DA 1.0a , OPC DA 2.05a, OPC DA 3.0
- › The PLCs can be accessed via serial, modem and Ethernet communication lines
- › State-of-the-art import / export mechanism allows you to save, exchange or edit data in XML format. Data can also be exchanged using a CSV file
- › An icon or tool tip notifies the user about possible errors in configuration
- › The FP OPC Server allows you to clearly structure your application, e.g. by grouping elements in meaningful hierarchies
- › Tolerant of interruptions due to optimized communication features

## FP Data Analyzer



### Features of the FP Data Analyzer

- › The FP Data Analyzer is a software tool used to read and display PLC data. Such data can be stored in a file and analysed in offline mode. The tool can be used for:
  - › Performing failure diagnostics
  - › Finding and isolating failures
  - › Performing analyses, system optimization, scan time reduction
- › Documenting processes
- › Shortening the time between setup and operation
- › Carrying out machine maintenance
- › Improving development

**FP0R CPUs**

Description	Part number
FP0R-C10, 16k steps, 6 IN / 4 OUT relay (2A), screw terminal block, RS232, USB, 24V DC	AFP0RC10RS
FP0R-C10, 16k steps, 6 IN / 4 OUT relay (2A), screw terminal block, RS232C, USB, 24V DC	AFP0RC10CRS
FP0R-C10 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 16k steps, 6 IN (PNP + NPN), 4 OUT relay, screw terminal block, 24V DC	AFP0RC10MRS
FP0R-C14, 16k steps, 8 IN / 6 OUT relay (2A), screw terminal block, RS232, USB, 24V DC	AFP0RC14RS
FP0R-C14, 16k steps, 8 IN / 6 OUT relay (2A), screw terminal block, RS232C, USB, 24V DC	AFP0RC14CRS
FP0R-C14 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 16k steps, 8 IN (PNP + NPN), 6 OUT relay, screw terminal block, 24V DC	AFP0RC14MRS
FP0R-C16, 16k steps, 8 IN / 8 OUT (0.2A), MIL connector, RS232, USB, 24V DC	AFP0RC16P (PNP), AFP0RC16T (NPN)
FP0R-C16, 16k steps, 8 IN / 8 OUT (0.2A), MIL connector, RS232C, USB, 24V DC	AFP0RC16CP (PNP), AFP0RC16CT (NPN)
FP0R-C16 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 16k steps, 8 IN (PNP + NPN) / 8 OUT transistor, MIL connector, 24V DC	AFP0RC16MP (PNP), AFP0RC16MT (NPN)
FP0R-C32, 32k steps, 16 IN / 16 OUT (0.2A), MIL connector, RS232, USB, 24V DC	AFP0RC32P (PNP), AFP0RC32T (NPN)
FP0R-C32, 32k steps, 16 IN / 16 OUT (0.2A), MIL connector, RS232C, USB, 24V DC	AFP0RC32CP (PNP), AFP0RC32CT (NPN)
FP0R-C32 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 32k steps, 16 IN (PNP + NPN) / 16 OUT transistor, MIL connector, 24V DC	AFP0RC32MP (PNP), AFP0RC32MT (NPN)
FP0R-T32, 32k steps, 16 IN / 16 OUT (0.2A), RTC, MIL connector, RS232C, USB, 24V DC	AFP0RT32CP (PNP), AFP0RT32CT (NPN)
FP0R-T32 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 32k steps, 16 IN (PNP + NPN) / 16 OUT transistor, MIL connector, RTC, buffered RAM, 24V DC	AFP0RT32MP (PNP), AFP0RT32MT (NPN)
FP0R-F32, 32k steps, 16 IN / 16 OUT (0.2A), FRAM, RS232C, USB, 24V DC	AFP0RF32CP (PNP), AFP0RF32CT (NPN)
FP0R-F32 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 32k steps, 16 IN (PNP + NPN) / 16 OUT transistor, MIL connector, flash RAM, 24V DC	AFP0RF32MP (PNP), AFP0RF32MT (NPN)

**FPΣ (Sigma) CPUs**

Description	Part number
FPG-C24R2, 32k steps, 16 IN / 8 OUT relay, terminal block, 24V DC	FPG-C24R2H
FPG-C28P2, 32k steps, 16 IN / 12 OUT transistor (PNP), MIL connector, 24V DC	FPG-C28P2H
FPG-C32T2, 32k steps, 16 IN / 16 OUT transistor (NPN), MIL connector, 24V DC	FPG-C32T2H
FPG-C24R2TM, 32k steps, 16 IN / 8 OUT relay, plus 2 thermistor input, terminal block, 24V DC	FPGC24R2HTM
FPG-C28P2TM, 32k steps, 16 IN / 12 OUT transistor (PNP), plus 2 thermistor input, MIL connector, 24V DC	FPGC28P2HTM
FPG-C32T2TM, 32k steps, 16 IN / 16 OUT transistor (NPN), plus 2 thermistor input, MIL connector, 24V DC	FPGC32T2HTM

**FPΣ (Sigma) serial communication unit and cassettes**

Description	Part number
FPG-COM1 cassette, 1x RS232C (5 pin)	FPG-COM1
FPG-COM2 cassette, 2x RS232C (2x 3pin)	FPG-COM2
FPG-COM3 cassette, 1x RS485 (3 pin)	FPG-COM3
FPG-COM4 cassette, 1x RS232C (3 pin) and 1x RS485 (2 pin, 19.2 and 115.2kbit/s)	FPG-COM4
FPG-COM4 cassette, 1x RS232C (3 pin) and 1x RS485 (2 pin, 2.4 and 9.6kbit/s)	AFPG806T17
FPG-SDU unit, 3x RS485 (5 pin), terminal block, 300bit/s to 115,2kbit/s	AFPG951T34

**FPΣ (Sigma) accessories**

Description	Part number
FPG-EM1 data memory expansion unit, 256Kwords (512kByte)	FPGEM1
Backup battery	AFPG804

**FPΣ (Sigma) digital expansion units (left side)**

Description	Part number
FPG-XY64D2P expansion, 32 IN / 32 OUT transistor (PNP), MIL connector, 24V DC	FPG-XY64D2P
FPG-XY64D2T expansion, 32 IN / 32 OUT transistor (NPN), MIL connector, 24V DC	FPG-XY64D2T

**FP0R/FPΣ (Sigma)/FP-X analog expansion units (right side)**

Description	Part number
FP0R/Sigma analog expansion, 2x 14-bit inputs (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA) and 1x 14-bit output (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA, 4-20mA)	AFP0RA21
FP0R/Sigma analog expansion, 4x 14-bit inputs (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA) and 2x 14-bit outputs (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA, 4-20mA)	AFP0RA42
FP0R/Sigma analog expansion, 4x 14-bit inputs (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA)	AFP0RAD4
FP0R/Sigma analog expansion, 8x 14-bit inputs (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA)	AFP0RAD8
FP0R/Sigma analog expansion, 4x 14-bit outputs (-10 to +10V, -5 to +5V, 0-10V, 0-5V, 0-20mA, 4-20mA)	AFP0RDA4

**FPΣ (Sigma) analog expansion units (left side)**

Description	Part number
FPΣ (Sigma) analog expansion, 4x 16bit IN ( 0-10V; 0-20mA with 50Ω resistance) and 4x 12-bit OUT (0-10V, -10 to +10V; 4-20mA), MIL connector, 24V DC	FPGAD44D50
FPΣ (Sigma) analog expansion, 4x 16bit IN (0-10V; 0-20mA with 250Ω resistance) and 4x 12-bit OUT (0-10V, -10 to +10V; 4-20mA), MIL connector, 24V DC	FPGAD44D250

**FPΣ (Sigma) positioning units**

Description	Part number
FPG-PP11, 1-axis positioning unit with transistor outputs	FPGPP11
FPG-PP12, 1-axis positioning unit with line driver outputs	FPGPP12
FPG-PP21, 2-axis positioning unit with transistor outputs	FPGPP21
FPG-PP22, 2-axis positioning unit with line driver outputs	FPGPP22
FPG-PN2AN, 2-axis RTEX positioning unit	FPGPN2AN
FPG-PN4AN, 4-axis RTEX positioning unit	FPGPN4AN
FPG-PN8AN, 8-axis RTEX positioning unit	FPGPN8AN
RTEX configuration software	AFPS66510

**FP0R/FPΣ (Sigma)/FP-X digital expansion units (right side)**

Description	Part number
FP0R-E8 expansion unit, 8 IN, MIL connector, 24V DC	AFP0RE8X
FP0R-E8 expansion unit, 4 input / 4 OUT relay, terminal block, 24V DC	AFP0RE8RS
FP0R-E8 expansion unit, 8 OUT relay, terminal block, 24V DC	AFP0RE8YRS
FP0R-E8 expansion unit, 8 transistor OUT, MIL connector, 24V DC	AFP0RE8YP (PNP), AFP0RE8YT (NPN)
FP0R-E16 expansion unit, 16 input, MIL connector, 24V DC	AFP0RE16X
FP0R-E16 expansion unit, 8 IN / 8 OUT relay, terminal block, 24V DC	AFP0RE16RS
FP0R-E16 expansion unit, 8 IN / 8 transistor OUT, MIL connector, 24V DC	AFP0RE16P (PNP), AFP0RE16T (NPN)
FP0R-E16 expansion unit, 16 transistor OUT, MIL connector, 24V DC	AFP0RE16YP (PNP), AFP0RE16YT (NPN)
FP0R-E32 expansion unit, 16 input / 16 transistor OUT, MIL connector, 24V DC	AFP0RE32P (PNP), AFP0RE32T (NPN)

**FP0R/ FPΣ (Sigma)/FP-X temperature units (right side)**

Description	Part number
FP0 thermocouple unit, resolution: 0.1°C, 4 input channels, -100°C to +1500°C	FP0TC4
FP0 thermocouple unit, resolution: 0.1°C, 8 input channels, -100°C to +1500°C	FP0TC8
FP0 RTD unit, Pt100, Pt1000, Ni1000, 6 input channels (3-wire), -200°C to +500°C, resolution 0.1°C	FP0RTD6

**FP0R/FPΣ (Sigma) cables and accessories**

Description	Part number
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (1x blue, 1x white), 1m	AFP0521D
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (1x blue, 1x white), 3m	AFP0523D
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (blue), 1m	AFP0521BLUED
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (blue), 3m	AFP0523BLUED
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (orange), 1m	AFP0521ORANGED
I/O cable with 10-pin MIL connector and 10 colored wires, set of two cables, 1m	AFP0521COLD
I/O cable with 10-pin MIL connector and 10 colored wires, set of two cables, 2m	AFP0522COLD
I/O cable with 40-pin MIL connector and 40 blue wires, 1m	AYT58403BLUED
I/O cable with 40-pin MIL connector and 40 blue wires, 3m	AYT58406BLUED
I/O cable with 40-pin MIL connector and 40 colored wires based on DIN 47100, 1m	AYT58403COLD
I/O cable with 40-pin MIL connector and 40 colored wires based on DIN 47100, 3m	AYT58406COLD
Power supply cable for FPWEB2, FP0R and FPΣ (Sigma), 1m	AFPG805J
Power supply cable for FP0/FP0R, FP Modem-56k, 1m	AFP0581J
Mounting plate for FPΣ (Sigma) CPUs and expansion units on a panel, 10 pcs per set	AFP0811
Slim type mounting plate for FP0 expansion units, 10 pcs per set	AFP0803
FPΣ (Sigma) high capacity battery holder. Battery CR123A is not included.	AFPG807
Backup battery	AFPG804
FP Memory Loader, data clear type	AFP8670
FP Memory Loader, data hold type	AFP8671
MIL connector, attaches to transistor output type (2 sockets per pack)	AFP0807
Pressure connection tool for MIL connection	AXY52000FP

**FP-X CPUs**

Description	Part number
FP-X-C14R, 8 IN (24V DC) / 6 OUT (2A relay), terminal block, 230V AC	AFPXC14R
FP-X-C14RD, 8 IN (24V DC) / 6 OUT (2A relay), terminal block, 24V DC	AFPXC14RD
FP-X-C14, 8 IN (24V DC) / 6 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXC14P (PNP), AFPXC14T (NPN)
FP-X-C14, 8 IN (24V DC) / 6 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXC14PD (PNP), AFPXC14TD (NPN)
FP-X-C30R, 16 IN (24V DC) / 14 OUT (2A relay), terminal block, 230V AC	AFPXC30R
FP-X-C30R, 16 IN (24V DC) / 14 OUT (2A relay), terminal block, 24V DC	AFPXC30RD
FP-X-C30, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXC30P (PNP), AFPXC30T (NPN)
FP-X-C30, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXC30PDJ (PNP), AFPXC30TDJ (NPN)
FP-X-C38, 32k steps, 24 IN (24V DC) / 14 OUT (transistor NPN, 0.5A), 4 analog inputs (0–10V or 0–20mA, 12 bit) and 2 analog outputs (0–10V or 0–20mA, 12 bit), screw terminal, 230V AC	AFPX-C38AT
FP-X-C60R, 32 IN (24V DC) / 28 OUT (2A relay), terminal block, 230VAC	AFPXC60R
FP-X-C60R, 32 IN (24V DC) / 28 OUT (2A relay), terminal block, 24V DC	AFPXC60RD
FP-X-C60, 32 IN (24V DC) / 28 OUT (transistor, 0.5A), terminal block, 230VAC	AFPXC60P (PNP), AFPXC60T (NPN)
FP-X-C60, 32 IN (24V DC) / 28 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXC60PD (PNP), AFPXC60TD (NPN)

**FP-X expansion units**

Description	Part number
FP-X-E16R expansion unit, 8 IN (24V DC) / 8 OUT (2A relay), terminal block	AFPXE16R
FP-X-E16 expansion unit, 8 IN (24V DC) / 8 OUT (transistor, 0.5A), terminal block	AFPXE16P (PNP), AFPXE16T (NPN)
FP-X-E16X expansion unit, 16 IN (24V DC), terminal block	AFPX-E16X
FP-X-E14YR expansion unit, 14 OUT (2A relay), terminal block	AFPX-E14YR
FP-X-E30R expansion unit, 16 IN (24V DC) / 14 OUT (2A relay), terminal block, 230V AC	AFPXE30R
FP-X-E30RD expansion unit, 16 IN (24V DC) / 14 OUT (2A relay), terminal block, 24V DC	AFPXE30RD
FP-X-E30 expansion unit, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXE30P (PNP), AFPXE30T (NPN)
FP-X-E30 expansion unit, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXE30PD (PNP), AFPXE30TD (NPN)
Adapter for connecting FP0 expansion units, 24V DC	AFPXEFP0

### FP-X add-on cassettes

Description	Part number
FP-X I/O cassette, 4 IN (24V DC) / 4 OUT (NPN, 0.3A), terminal block	AFPX-IN4T3
FP-X input cassette, 8 IN (24V DC), terminal block	AFPXIN8
FP-X output cassette, 6 OUT (PNP, 0.5A), terminal block	AFPXTR6P (PNP)
FP-X output cassette, 8 OUT (NPN, 0.3A), terminal block	AFPXTR8 (NPN)
FP-X pulse I/O cassette, HSC input (single-phase 2 ch., each 80kHz or two-phase 1ch., 30kHz, pulse output: one axis 100kHz/ch). Cannot be used with a transistor output control unit.	AFPXPLS
FP-X analog input cassette, 2 inputs (0–10V or 0–20mA, 12-bit, 2ms/2ch.)	AFPXAD2
FP-X analog output cassette, 2 outputs (0–10V or 0–20mA, 12-bit, 2ms/2ch.)	AFPX-DA2
FP-X analog I/O cassette, 2 ch. inputs (0 to 10V or 0 to 20mA, 12-bit, 2ms/2ch.), 1 ch. output (0–10V or 0–20mA, 12-bit, 1ms/ch) (insulated)	AFPX-A21
FP-X thermocouple input cassette, 2-point thermocouple input, K/J type, -50°C to +500°C, resolution 0.2°C, 200 ms/2 ch. (insulated)	AFPX-TC2
FP-X RTD cassette, 2-point RTD input, PT100, -200°C to +850°C, resolution 0.1°C	AFPX-RTD2
FP-X master memory cassette with a clock/calendar function	AFPXMRTC
FP-X-COM1 communication cassette, 1ch. RS232C (5 pin)	AFPXCOM1
FP-X-COM2 communication cassette, 2ch. RS232C (2x 3 pin)	AFPXCOM2
FP-X-COM3 communication cassette, 1ch. RS485 (3 pin)	AFPXCOM3
FP-X-COM4 communication cassette, 1ch. RS232C (3 pin) and 1ch. RS485 (2 pin)	AFPXCOM4
FP-X-COM5 communication cassette, 1ch. Ethernet (10Base-T, 100Base-TX) and 1ch. RS232C (3 pin)	AFPXCOM5
FP-X-COM6 communication cassette, 2x RS485, 115.2 kbit/s	AFPXCOM6
Control Configurator WD, tool software for setting the Ethernet port of the COM5 communication cassette	Free to download from our homepage

### FP-X accessories

Description	Part number
FP-X backup battery for backing up the operation memory and real-time clock	AFPXBATT
FP-X expansion cable	AFPXEC08 (8cm), AFPXEC30 (30cm), AFPXEC80 (80cm)
FP-X terminal block for C30, C60 and E30, 21 pins, cover with no marking, set of 5 pcs.	AFPXTAN1

### FPOR/FPΣ (Sigma)/FP-X network communication

Description	Part number
FP Web-Server 2, Ethernet with 10/100Mbit/s and Modem interface	FPWEB2
FP Web Expansion Unit for FPWEB2	FPWEBEXP
IEC license for FPWEB2	IEC60870LIS
FPWEB Configurator Tool ver. 2	FPWEBTOOL2D
FP Web Designer, economy edition – HTML visualization for FPWEB2, limited for 250 process points, 15 views, 1 offline trend + 1 alarm	AFPS36510-E
FP Web Designer, basic edition – HTML visualization for FPWEB2, limited for 500 process points, 30 views, 3 offline trends + 1 alarm	AFPS36510-B
FP Web Designer, extended edition – HTML visualization for FPWEB2, no limitation	AFPS36510-X
Connection cable for FPWEB2 <—> FP series PLC TOOL port, 2m	AIGT8192
FPΣ (Sigma) PROFIBUS DP master unit	FPG-DPV1-M
FPΣ (Sigma) DeviceNet master unit	FPG-DEV-M
FPΣ (Sigma) CANopen master unit	FPG-CAN-M
Control Configurator FM for Fieldbus Master Units	AFPS35510
FPΣ (Sigma) PROFIBUS DP slave unit	FPG-DPV1-S
FPΣ (Sigma) DeviceNet slave unit	FPG-DEV-S
FPΣ (Sigma) CANopen slave unit	FPG-CAN-S
FPΣ (Sigma) PROFINET I/O slave unit	FPG-PRT-S
FPΣ (Sigma) BACnet-IP slave unit. 10/100 Mbit/s	FPG-BACIP-S
FPΣ (Sigma) BACnet-MSTP slave unit. 9600 to 76.800 Mbit/s	FPG-BACMSTP-S

## FP0R/FPΣ (Sigma)/FP-X network communication

Description	Part number
FP0/FP0R PROFINET DP slave unit, or works as remote IO unit without controller	FP0DPS2D
MEWNET-F slave unit	FP0IOL
FPΣ (Sigma) S-Link master unit as expansion	FPGSL
FPΣ (Sigma) CC-Link slave unit as expansion	FPGCCL
C-NET adapter (RS232C/RS422), 100 to 240V AC	AFP8536CEJ
C-NET adapter (RS485) S2-Type, 30cm cable for FP0/FPΣ (Sigma)/FP2 TOOL port	AFP15402J
Programming cable for FP and GT series (9-pin Sub-D to 5-pin miniDIN), L type, 3m	AFC8513D
FP Modem-56k (56kbit/s, V.23/V.32bis/V.34/V.90, RS232/RS485)	FP-modem-56k
RS232C cable for FP Modem-56k ↔ FP series PLC COM port (3 pins), 0.5m	CABMODPLC111D
RS232C cable for FP Modem-56k ↔ FP series PLC COM port (9 pins), 0.5m	CABMODPLC211D
RS232C cable for FP Modem-56k ↔ FP series PLC TOOL port (5 pins), 2m	CABMODPLC311D
RS232C cable for FP Modem-56k ↔ FP series PLC TOOL port (5 pins), 0.5m	AFS8TP
KS1 signal converter, Ethernet ↔ RS232C/RS485, 24V DC	AKS1202

## 24V DC power supply units

Description	Part number
Power supply unit 24W (primary 100– 240V AC, 2x secondary 24V DC/1A, short-circuit protected)	FP-PS24-024E
Power supply unit 60W (primary 100– 240V AC, 2x secondary 24V DC/2.5A, short-circuit protected)	FP-PS24-060E
Power supply unit 120W (primary 100– 240V AC, 2x secondary 24V DC/5A, short-circuit protected)	FP-PS24-120E

## FP7 CPUs

Description	Part number
120k steps, operation speed 11ns, no Ethernet support	AFP7CPS31
120k steps, operation speed 11ns, Ethernet communication available	AFP7CPS31E
196k steps, operation speed 11ns, Ethernet communication available	AFP7CPS41E
64k steps, operation speed 14 ns, no Ethernet support	AFP7CPS21

## FP7 communication cassettes

Description	Part number
RS232C, 1 channel (insulated)	AFP7CCS1
RS232C, 2 channels (insulated)	AFP7CCS2
RS422 or RS485, 1 channel (insulated)	AFP7CCM1
RS422 or RS485, 2 channels (insulated)	AFP7CCM2
RS232C, 1 channel (insulated) and RS485	AFP7CCS1M1
Ethernet 100Base-TX/10Base-T	AFP7CCET1

## FP7 application cassettes

Description	Part number
2-channel analog input voltage/current	AFP7FCAD2
2-channel analog input, 1-channel analog output	AFP7FCA21
2-channel thermocouple input, K/J type	AFP7FCTC2

**FP7 digital input, output and mixed I/O units**

Description	Part number
16 IN, 12–24VDC, configurable input time constant	AFP7X16DW
32 IN, 12–24VDC, configurable input time constant	AFP7X32D2
64 IN, 12–24VDC, configurable input time constant	AFP7X64D2
16 OUT, relay, 2A/point, 5A/common, 16 points/common	AFP7Y16R
16 OUT, transistor, PNP, load current 1.0A, 5A/common, 16 points/common	AFP7Y16P
16 OUT, NPN, load current: 1.0 A, 5 A/common, 16 points/common	AFP7Y16T
32 OUT, transistor, PNP, load current 0.3A, 3.2A/common, 32 points/common	AFP7Y32P
32 OUT, NPN, load current 0.3A, 3.2A/common, 32 points/common	AFP7Y32T
64 OUT, transistor, PNP, load current 0.3A/0.1A, 3.2A/common, 32 points/common	AFP7Y64P
64 OUT, load current: 0.3 A, 0.1 A, mixed 3.2A/common, 32 points/common	AFP7Y64T
32 IN, 32 OUT, transistor, PNP, input: 24VDC, 32 points/common Output: load current 0.3A/0.1 A, 3.2A/common, 32 points/common	AFP7XY64D2P
32 IN, 32 OUT, NPN, input: 24VDC, 32 points/common Output: load current: 0.3A, 0.1A, mixed 3.2 A/common, 32 points/common	AFP7XY64D2T

**FP7 multi I/O unit**

Description	Part number
High-speed counter and interrupt input, pulse output, PWM output, positioning function	AFP7MXY32DWDH

**FP7 analog input and output units**

Description	Part number
Input unit, 4 channels, voltage/current, conversion rate: 25µs/channel, resolution max. 16 bits, accuracy: max. ±0.05% F.S. (at 25°C)	AFP7AD4H
Output unit, 4 channels, voltage/current, conversion rate: 25µs/channel, resolution max. 16 bits, accuracy: max. ±0.05% F.S. (at 25°C)	AFP7DA4H
Output unit, 8 channels, Voltage/current, conversion rate 25µs/channel, resolution max. 16 bit, accuracy max. ±0.1% F.S. (at 25°C)	AFP7AD8

**FP7 thermocouple & RTD units**

Description	Part number
8 channels, analog input, resolution 0.1°C, K, J, T, N, R, S, B, E, types	AFP7TC8
8 channels, analog input, resolution 0.1°C, Pt100/JPt100/Pt1000	AFP7RTD8

**FP7 high-speed counter units**

Description	Part number
2 channels, 16MHz (for two-phase factor 4 input mode), 4MHz (for incremental/decremental input mode)	AFP7HSC2T
4 channels, 16MHz (for two-phase factor 4 input mode), 4MHz (for incremental/decremental input mode)	AFP7HSC4T

**FP7 positioning units**

Description	Part number
Line driver, 2 axes, 1–4Mpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP02L
Line driver, 4 axes, 1–4Mpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP04L
Transistor, 2 axes, 1–500kpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP02T
Transistor, 4 axes, 1–500kpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP04T

## FP7 motion control units

Description	Part number
FP7 EtherCAT unit, 16 axes, electronic gear, clutch, and cam function	AFP7MC16EC
FP7 EtherCAT unit, 32 axes, electronic gear, clutch, and cam function	AFP7MC32EC
FP7 EtherCAT unit, 64 axes, electronic gear, clutch, and cam function	AFP7MC64EC

## FP7 pulse output units

Description	Part number
Line Driver, 2 axes, 1pps to 500kpps	AFP7PG02L
Line Driver, 4 axes, 1pps to 500kpps	AFP7PG04L
Transistor, 2 axes, 1pps to 4Mpps	AFP7PG02T
Transistor, 4 axes, 1pps to 4Mpps	AFP7PG04T

## FP7 serial communication unit

Description	Part number
2 cassettes per unit, max. 8 units can be installed per CPU	AFP7NSC

## FP7 expansion units

Description	Part number
Up to 3 slave units can be connected to one expansion master unit	AFP7EXPM
Up to 16 I/O units and intelligent units can be connected to one expansion slave unit	AFP7EXPS

## FP7 Fieldbus master units

Description	Part number
FP7 CANopen Master FMU	AFP7NCANM
FP7 DeviceNet Master FMU	AFP7NDNM
FP7 PROFIBUS Master FMU	AFP7NPFBM
FP7 Profinet Master FMU	AFP7NPFNM

## FP7 Web Creator

Description	Part number
Web content creation software for the web-server function of the FP7 CPU	AFPSWCKEY

## Control FPWIN Pro

Description	Part number
Control FPWIN Pro programming software, version 7, version for all FP series PLCs	FPWINPRO7
Control FPWIN PRO upgrade to version 7	FPWINPRO7-UP
Programming cable for FP0R/FP0/FP-e/FPG/FPX/FP2 TOOL port to PC, 9-pin Sub-D to 5-pin miniDIN, L type, 3m	AFC8513D
Cable with USB 1.1 to RS232 with 9-pin Sub-D converter, 2m	CABUSBSE9D
Programming cable: USB A to USB B, 2m	AFPXCABUSB2D
Programming cable, USB A to mini USB B (5-pin), 2m, USB2.0 compatible	CABMINIUSB5D

**FP7 power supply units**

Description	Part number
Power supply unit, input 100–240VAC, output 24VDC 1.0A	AFP7PSA1
Power supply unit, input 100–240VAC, output 24VDC 1.8A	AFP7PSA2

**FP Memory Loader**

Description	Part number
FP Memory Loader, data non-hold type	AFP8670
FP Memory Loader, data hold type	AFP8671

**Other software products**

Description	Part number
FPWEB Configurator Tool ver. 2	FPWEBTOOL2
FP Web Designer, economy edition – HTML visualization for FPWEB2, limited for 250 process points, 15 views, 1 offline trend + 1 alarm	AFPS36510-E
FP Web Designer, basic edition – HTML visualization for FPWEB2, limited for 500 process points, 30 views, 3 offline trends + 1 alarm	AFPS36510-B
FP Web Designer, extended edition – HTML visualization for FPWEB2, no limitation	AFPS36510-X
Control Configurator FM for Fieldbus Master Units	AFPS35510
Control Configurator MS, Setup software for alarm message system based on FP0R	AFPS34610D
Configurator ET, for FP2-ET2	AFPS32510D
Control Configurator WD for Ethernet configuration DLU, GT32T1, AFPX-COM5 and KS1, free download from <a href="http://www.panasonic-electric-works.com">www.panasonic-electric-works.com</a>	Control Configurator WD
FP OPC Server	AFPS03510D
FP Data Analyzer, monitoring software for all FP series PLCs	AFPS04510
PCWAY software + USB port dongle: Data monitoring in Excel format	AFW10031J
USB port dongle for PC Way software	AFW1033J
FPGT loader: up/download all programs and data from FP series PLCs and GT panels	AFPS77510
Control FP Connect software: One ActiveX control for MFC, Visual Basic and C#, Office applications and COM applications to communicate with FP series PLCs	AFPS37510

**Connection technology: UM connector terminal**

Description	Part number
UM connector – terminal without LED (8-pin connection to PLC, via flat cable to FP0/FP0R/FPΣ)	UM45-FLK14PLC
UM connector – terminal with LED (8-pin connection to PLC, via flat cable to FP0/FP0R/FPΣ)	UM45-FLK14LAPLC
Flat cable with connector, UM (14 pins) <—> FP0R/FPΣ input connector (10 pins)	CABUM45005X (0.5m), CABUM4501X (1m), CABUM4503X (3m)
Flat cable with connector, UM (14 pins) <—> FP0R/FPΣ output connector (10 pins)	CABUM45005Y (0.5m), CABUM4501Y (1m), CABUM4503Y (3m)

**Connection technology: PLC relay terminal**

Description	Part number
PLC relay terminal with 8 relays (changeover contact with screw terminal) for connecting to FP-series PLCs	PLC-BSC
Flat cable with connector, PLC-BSC (14 pins) <—> FP0/FP0R (10 pins), 3m	CABPLCBSC03
Relay terminal with 8 relays (changeover contact with screw terminal) for connecting to FP-series PLCs	AFPRT8
Flat cable with connector, AFPCT10PINS/AFPRT8 (10 pins) <—> FP0/FPΣ (10 pins), 1m	CABAFPCT10PINS
FP0-RT80-6A, relay terminal with 8 relays AC250V/2A, MC connector	FP0-RT8Y-6A

**Connection technology: MMFP power relay terminal**

Description	Part number
Flat cable with connector, MMFP30R <—> PLC, 40 pins, 1m	FC40FF/1

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