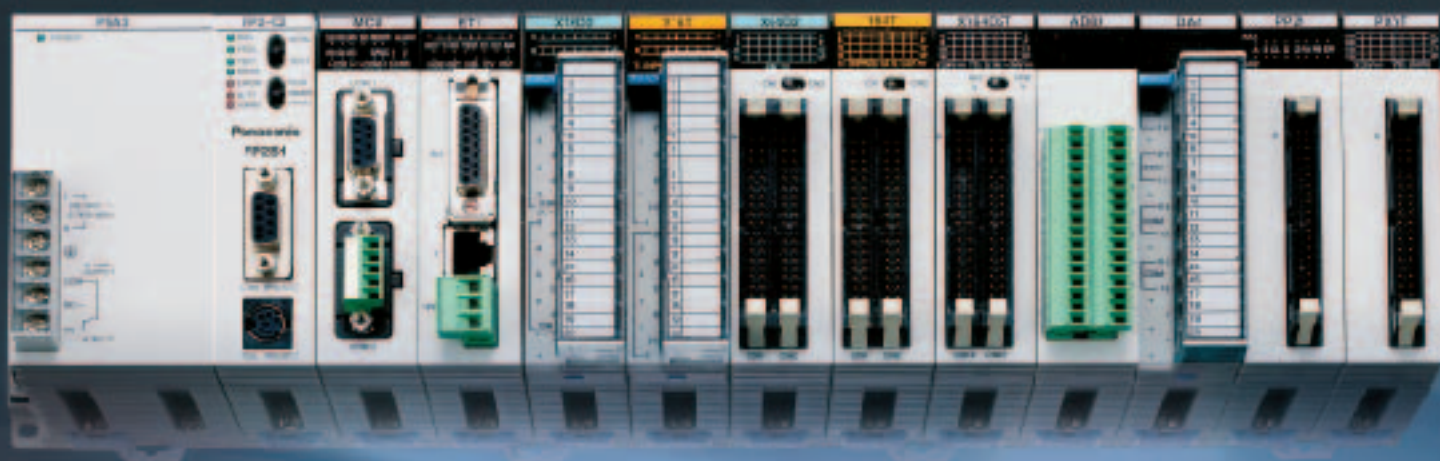


Panasonic
ideas for life

Programmable Controller
FP2/FP2SH

Machine Cybernation
High Speed & High Capacity



Programmable Controller FP2/FP2SH
ARCT1B283E '07.3

Compact body loaded with functions equivalent to a medium-scale PLC Superior cost performance, and ideal for built-in use

FP2/FP2SH is a compact PLC series (W 140 x H 100 x D 110 mm W5.512 x H3.937 x D4.331 inch when using five modules) loaded with multiple functions, achieving superior cost performance. The CPU units have an RS232C port as standard equipment, which allows for communications with external equipment, such as a computer or a display panel, and advanced "communications" for remote monitoring and remote maintenance via a modem. Furthermore, the new intelligent units support wider applications, including full-scale "motor (positioning) control", "analog control", and "networking". This series is perfect as built-in controllers for a variety of systems and equipment.

CPU units

Selectable from six types, including intelligent types, according to the application

There are six types of CPU units, including the standard type and the intelligent type with preinstalled commonly-used advanced functions. This selection allows for more economical system development according to the application. * See page 10 for details.

FP2

Intelligent type is also available
Superior cost performance



Standard type
FP2-C1
(AFP2211)



With 64 input points
FP2-C1D
(AFP2212)



With S-LINK
FP2-C1SL
(AFP2214)

FP2SH

Industry's highest class processing speed
Adequate programming capacity



60-k step
standard type
FP2-C2
(AFP2231)



60-k step type
for small PC card
FP2-C2P
(AFP2235)

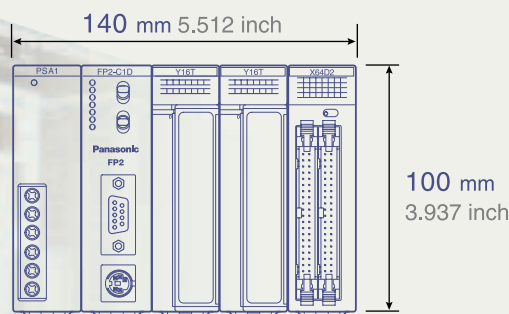


120-k step type
for small PC card
FP2-C3P
(AFP2255)

Body size

The front face is smaller
than an A6 sheet of paper.

The front face area is 140 mm 5.512 inch wide and 100 mm 3.937 inch high (when using five modules), which is small enough to fit completely on an A6 sheet of paper. The compact body requires minimum installation space.
* Depth: 108.3 mm 4.264 inch





Memory and I/O control

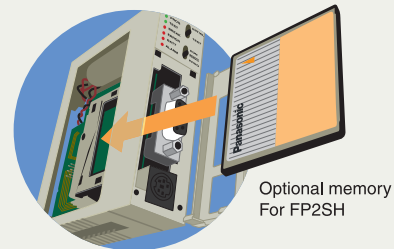
Equipped with an adequate program memory and operating memory capacity

The body is compact; however, the capacity of the standard program memory of FP2/FP2SH is as large as 16 k/60 k steps, and, when optional memory is added, 32 k/120 k steps. A variety of operation memory types are also available. The maximum number of controlled I/O points is 2,048 (2,048/8,192 for FP2/FP2SH when using remote I/O units), which is sufficient for medium-scale control.

Addition of optional memory

FP2: Addition of optional memory to the CPU unit allows it to store up to 32 k program steps, provides it with the clock/calendar function, and makes comment writing possible.

FP2SH: An optional IC card can be used as program memory or expanded data memory.



Optional memory
For FP2SH

I/O point expansion by adding backplanes

* See page 12 for details.

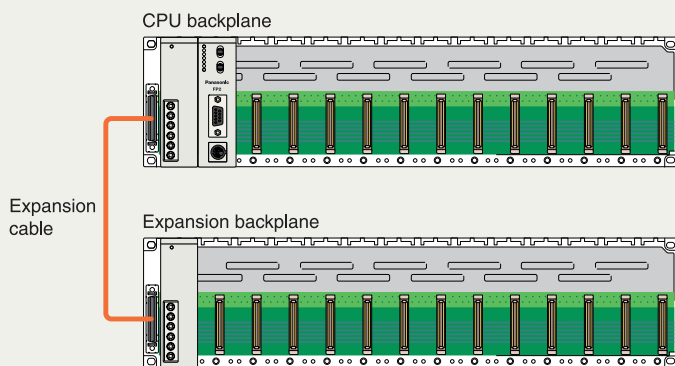
NEW

● Conventional backplane

Only one backplane can be added to one master backplane. When both the master and expansion backplanes are of the 14-module type, up to 1,600 I/O points can be controlled.

● H type backplane

Up to three backplanes can be added to one master backplane. A maximum of 32 units can be connected, and up to 2,048 I/O points can be controlled, values surpassing those of the conventional backplane expansion system (25 units/1,600 points).



(The backplane can be used as either a master or expansion backplane.)



| | Conventional type | H type |
|---------------------------|-----------------------|------------------------------------|
| Max. number of backplanes | 1 + 1 = 2 | 1 for master + 3 for expansion = 4 |
| Max. number of units | 12 + 13 = 25 | 8 + 8 x 3 = 32 |
| Max. number of I/O points | 25 x 64 = 1,600 | 32 x 64 = 2,048 |
| Max. cable length | 1 cable, 2 m 6.562 ft | 3 cables, 3.2m 10.499 ft |

* The H type and conventional type cannot be used in combination.

Motor control

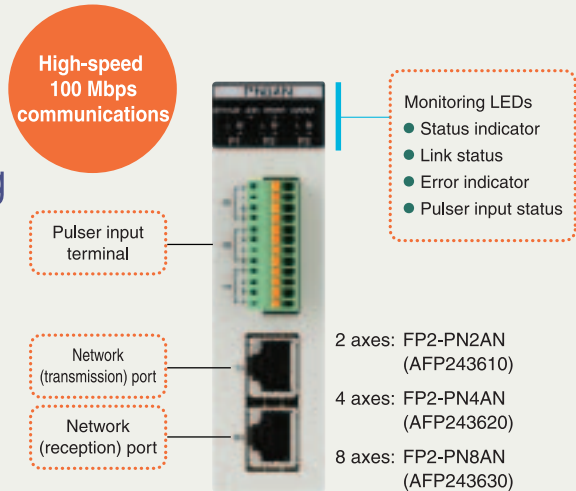


"RTEX" positioning units

Compatible with Realtime Express MINAS A4N*1 network servo systems
 Facilitate multi-axis high precision positioning

- High-accuracy multi-axis positioning control achieved by high-speed 100 Mbps communications
- Compatible with commercially-available LAN cables, significantly reducing wiring costs
- Two-axis unit available in addition to the four and eight-axis units
- Data from a maximum of 600 points can be registered for each axis.
- Three-axis helical interpolation supported in addition to two-axis linear and two-axis circular interpolation functions
- Dedicated tool software "Configurator PM" supports operations from setup through startup and monitoring.
- Equipped with a manual pulser input terminal, allowing for fine teaching

*1: Realtime Express and MINAS A4N are a trademark and a product name of Matsushita Electric Industrial Co., Ltd.



Controls up to 256 axes, adequately supporting large-scale equipment control

- Up to 32 eight-axis units can be connected, and up to 256 axes can be controlled. (when using FP2SH with H type backplane).
- Selectable among two, four, and eight-axis types to flexibly support control system configurations of a few or multiple axes
- Use in combination with the ultra-high speed and large capacity FP2SH CPU unit (20-k steps/1 ms (measured by our company), program capacity of 120-k steps) adequately supports the control of large-scale equipment.

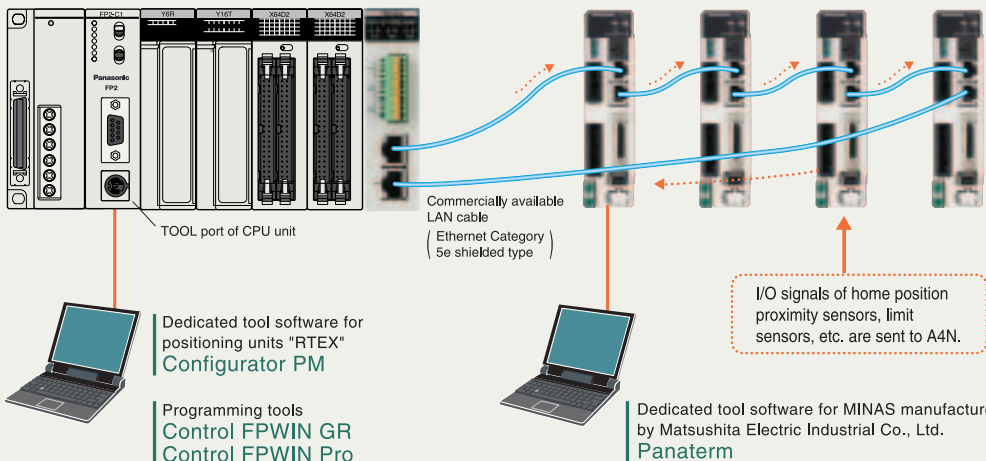
System configuration

Maximum number of connectable positioning units "RTEX"

FP2: 16 units FP2SH: 32 units

One positioning unit can control two to eight axes (depending on the type).

Servo amplifier: MINAS A4N manufactured by Matsushita Electric Industrial Co., Ltd.



Contact for inquiries about MINAS AC servomotor series:
 Motor Company, Matsushita Electric Industrial Co., Ltd.
 Telephone: +81-72-870-3057 Facsimile: +81-72-870-3120
<http://panasonic.co.jp/motor/eng/>

■ Positioning units

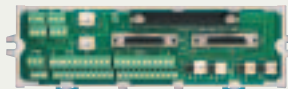
High-speed, high-accuracy pulse output type positioning unit Speed command: 4 Mpps, Startup time: 0.005 ms

Support pulse-input type stepping motors, and servomotors. The speed command range is up to 4 Mpps, allowing for high-speed and high-accuracy positioning. The startup time is as high as 0.005 ms, allowing for a reduction of the tact time.
 (Startup time: Time between reception of a command from a CPU unit and pulse output from a positioning unit)

- The feedback pulse count function counts output pulses from encoders or other devices.
- The jog positioning function widens the supported application range.
- The four types of S-curve acceleration/deceleration control allow for smooth startup and stoppage.
- Program libraries for linear interpolation and other operations are available.
 "Function Libraries for FPWIN Pro" can be downloaded from our website:
<http://www.mew.co.jp/ac/e/fasys/plc>
- Motor Driver I/F Terminal II is available for connection with MINAS AC servo series.



For 1 axis (AFP8503)



For 2 axes (AFP8504)



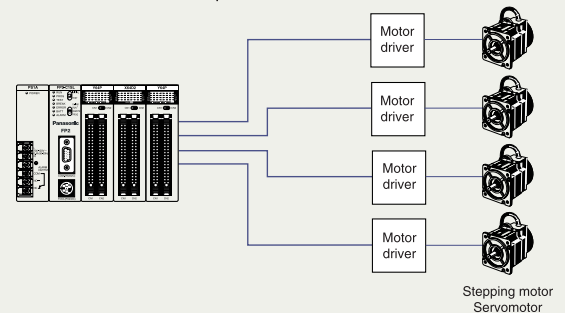
Positioning Unit (2 axes)
 FP2-PP21 FP2-PP22
 (AFP2432) (AFP2434)



Positioning Unit (4 axes)
 FP2-PP41 FP2-PP42
 (AFP2433) (AFP2435)

■ Configuration

- One unit can control up to 4 axes.



■ High-speed counter units and Pulse I/O units

Interrupt, counting, pulse output, and PWM output functions are integrated in a single unit.

- Equipped with four channels of a maximum of 200 kHz high-speed counter inputs, allowing for fine control.
- Equipped with eight user-allocatable outputs for the four high-speed counter channels. The number of counter stages can be changed.
- Have an interrupt function that allows the interrupt program to be started when the elapsed time reaches a set time or by timing it with an external input signal.
- Control up to 100 kpps pulse output and up to 30 kpps PWM output.
- A single module has high-speed counter, interrupt, general I/O, pulse output*, PWM output* functions, allowing for high-efficient system configuration. * Only available with the pulse I/O units.

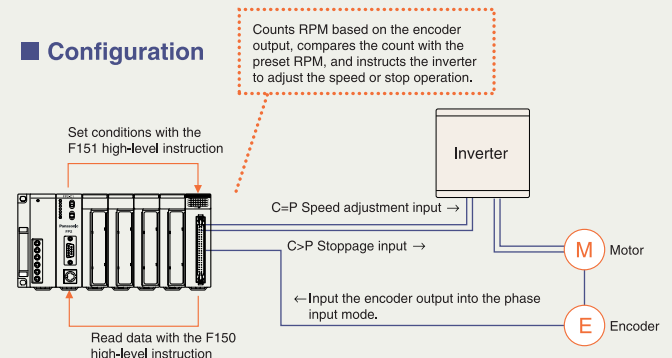


High-speed counter units
 FP2-HSCT(NPN)
 (AFP2441)
 FP2-HSCP(PNP)
 (AFP2451)



Pulse I/O units
 FP2-PXYT(NPN)
 (AFP2442)
 FP2-PXYP(PNP)
 (AFP2452)

■ Configuration

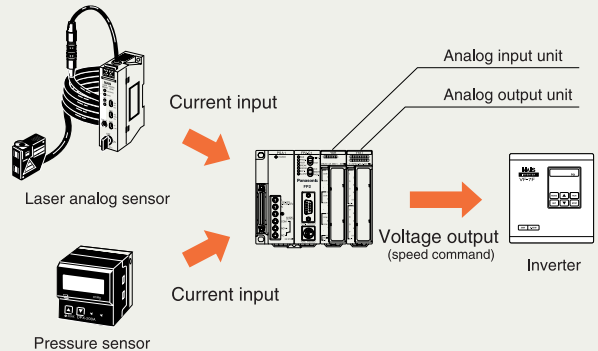


Analog control units

Multi-range control of a variety of equipment is possible. The units can be directly connected with thermocouples and resistance temperature detectors.

- Support voltage/current/temperature sensor ranges.
 The analog input unit supports voltage, current, and temperature sensors. The analog output unit supports voltage or current output. Different voltage/current ranges can be controlled concurrently.
- Equipped with multiple channels.
 The input unit has eight channels, and the output unit has four. Space-saving multiple-channel control is possible.
- High-speed conversion at 500 μ s by each channel
 The speed of voltage and current input/output conversion can reach as high as 500 μ s.
- I/O refresh system
 Since input/output data is allocated to the I/O memory, complicated programming is not necessary.

■ Configuration



■ Analog input units

Three types of analog input units are available to meet a wide variety of customer needs.

High speed, high accuracy, multiple-input unit with isolated channels

Industry's fastest level

High speed achieved by highly reliable isolation among channels
 Temperature conversion: 20 ms/ch
 Voltage conversion: 5 ms/ch
 (Without insulation setting: 500 μ s/ch)

Industry's top level

High accuracy conversion
 Voltage: $\pm 0.1\%$ (25°C)
 Temperature: $\pm 0.3\%$ (0 to 55°C)

Multiple inputs

A single unit supports inputs of thermocouple, RTD, and voltage data*1.



FP2-AD8X (AFP2401)

- For users who require faster and more accurate temperature control
- For users who require multiple isolated input channels or who want to reduce the cost per channel
- For users who want to input temperature and voltage (current) data through a single unit

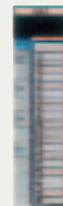
*1: Current inputs can be converted into voltage inputs by attaching the supplied external resistor to the input terminal section.

■ Analog output unit

Supports multiple channels. (Four channels per unit)

High speed, high accuracy

Conversion speed: 500 μ s/ch
 Overall accuracy: $\pm 1.0\%$ FS or less (0 to 55°C)



FP2-DA4 (AFP2410)

Input unit solely for RTDs (Pt100/Pt1000)

High speed, high accuracy

Conversion speed: 20 ms/ch
 Conversion accuracy: $\pm 0.3\%$ (0 to 55°C)

- For users who input RTD data only and require more affordable type



FP2-RTD (AFP2402)

Low cost input unit solely for voltage/current data

- Low cost unit for input of voltage/current data that indicates measurements of pressure, flow rate, fluid volume, speed, etc.



FP2-AD8V1 (AFP2400L)

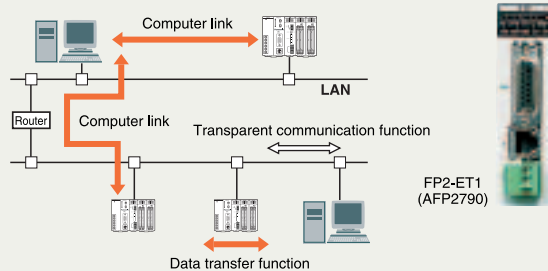
Networking units

Support a wide variety of networks, such as open networks, PLC links, remote I/O systems, and S-LINK.

Open networks

Ethernet

- (1) Supports three communications interfaces: 100BASE-TX, 10BASE-T, and 10BASE5
- (2) Supports TCP/IP and UDP/IP.
- (3) Communications among a maximum of eight connections are available.
- (4) Compatible with user-friendly MEWTOCOL.
- (5) Supports remote programming.



FL-net



FL-net is a responsive high-performance network for factory automation based on Ethernet. The Japan Electrical Manufacturers' Association started FL-net certification in April 2000. FL-net is now rapidly spreading into various fields, including manufacturing, food, medical, packaging, printing industries and public/social systems.

[FL-net function of the VE link unit]

- (1) 10-Mbps high-speed link
- (2) Large link area of 8 k points/8 k words
- (3) 254 nodes max.

FP2-VE
(AFP27960,
only for FP2SH)



PLC link

The PLC link is a system that allows our PLCs to share contact data and word data without programming.

VE mode



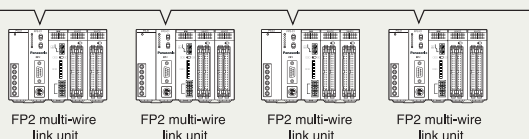
High-speed, large-capacity PLC link using the VE link unit based on Ethernet

- (1) 10-Mbps high-speed link
- (2) Large link area of 8,192 points/8,192 words
- (3) Up to 99 units can be connected.
- (4) Extendable to 2,500 m 8,202 ft. * When using a repeater

MEWNET-W2 mode

Large capacity PLC links can be established by using twisted-pair cables and multi-wire link units.

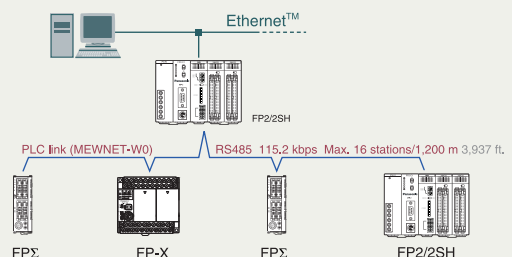
- (1) 500-kbps transmission speed
- (2) Transfer of data of 4,096 points/4,096 words is possible.
- (3) Up to 32 units can be connected.
- (4) Extendable to 1,200 m 3,937 ft.



MEWNET-W0 mode

A PLC link of the compact high-performance PLC "FPΣ" and FP-X can be established by using a combination of the multi-communication unit and an RS485 communication block. This mode enables the efficient connection of FP2/FP2SH, FPΣ, and FP-X units on a single network and contributes to significant cost reduction.

- (1) 115.2 kbps transmission speed
- (2) Transfer of data of 64 points/128 words is possible.
- (3) Up to 16 units can be connected.
- (4) Extendable to 1,200 m 3,937 ft.



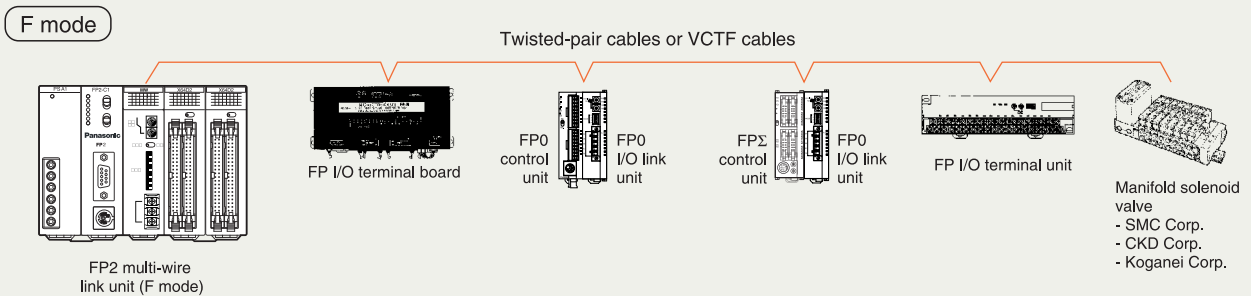
* Each FPΣ unit also requires that an RS485 cassette (AFPG803 or AFPG806) be attached.
* Each FP-X unit requires that an AFPX-COM3 or AFPX-COM4 communication cassette be attached.

Remote I/O systems

MEWNET-F mode

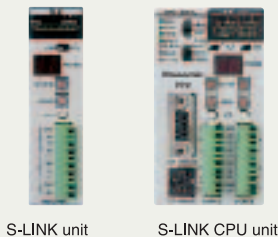
The number of I/O points can be increased up to 8,192, and the transmission distance can be extended up to 700 m 2,297 ft. by using the multi-wire link units.

- MEWNET-F is a remote I/O system that connects I/O units in separate locations with twisted-pair cables.
- The remote I/O master unit serves as a master station. Slave stations can be selected from the units shown on the next page.
- Up to four wiring routes are available, allowing for a complicated layout of slave stations.
- This network system is ideal for cases where I/O units need to be installed in separate locations or in a location away from the control box.

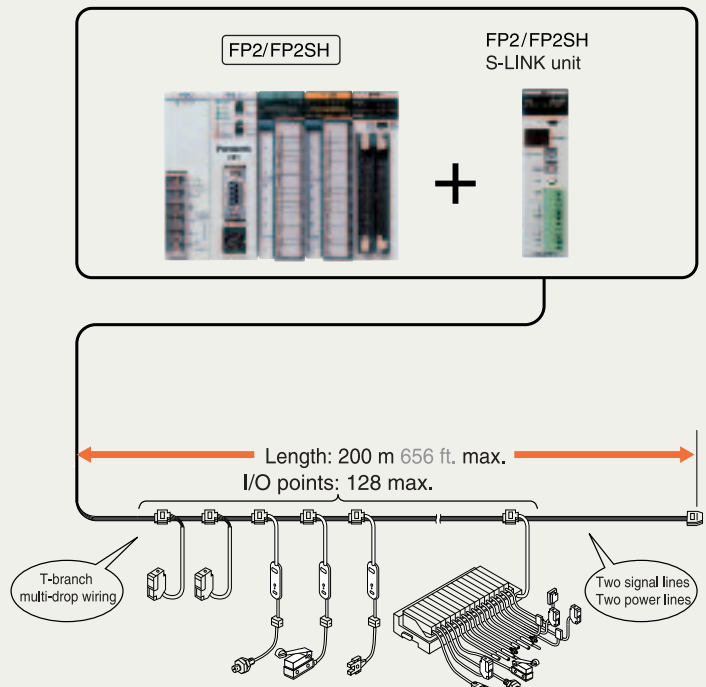


S-LINK

- S-LINK is a link system that allows the free layout of I/O devices, such as sensors, by T-branch connections with a four-wire flat cable.
- The number of I/O points can be increased up to 2,048 in increments of one channel having 128 points.
- A CPU unit with S-LINK ports and a single S-LINK unit are available. FP2-C1SL has two S-LINK ports and can control 256 I/O points.



- Sensors to be connected by S-LINK must be chosen from S-LINK-compatible sensors manufactured by SUNX Limited.



Note: The number of I/O points may be less than 128 depending on the connected device model and connection location.
 For details, refer to the S-LINK instruction manual of SUNX Limited.

Programmable Controller FP2/FP2SH

Serial communication control

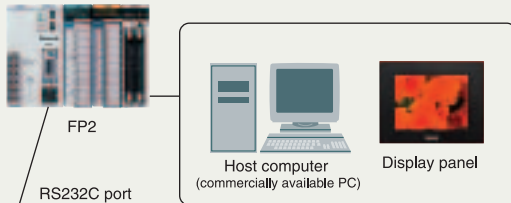
The CPU units have an RS232C port as standard equipment. The communication unit enables connections with RS232C/RS485/RS422-compatible devices.

CPU units

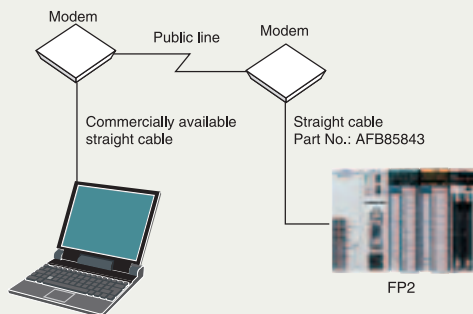
All CPU units have an RS232C port as standard equipment. They can be directly connected to a host computer or a display panel, and can also be connected to a modem to collect data from and change programs in devices in a remote location.



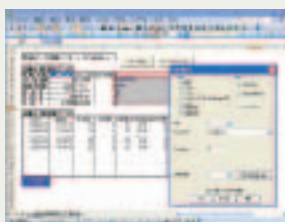
- Direct connection to a control panel or a computer



- Remote monitoring via a modem



- "PCWAY" for easy data collection



The operation data managing software "PCWAY" allows FP2/FP2SH operation data to be imported into Excel without programming.

* Excel is a registered trademark of the Microsoft Corporation.

Multi-communication unit (MCU)

The communication blocks are detachable.

Up to two blocks to be attached can be selected among RS485, RS232C, and RS422 blocks.



FP2-MCU (AFP2465)

Industry's fastest level

The 230 kbps communication speed (simultaneous two-channel communication) facilitates fast large-volume data communications.

[Selectable from three communication blocks]
The use of only one channel is also possible.

RS232C



FP2-CB232 (AFP2803)

RS422



FP2-CB422 (AFP2804)

RS485



FP2-CB485 (AFP2805)

The combination is selectable.



Multi-communication unit FP2-MCU (AFP2465)

COM2 (the lower channel) is sealed before shipping so that it can be protected from damage even when only COM1 is used.

* This unit cannot operate without a communication block attached. Purchase the above communication block(s) together with this unit.

FP2

The functions for a medium-scale PLC are squeezed into a compact body. Perfect when combining various devices.



■ Features

1. Compact body W140 x H100 mm* W 5.512 x H 3.937 inch.

The functions for a medium-scale PLC are squeezed into a compact body which requires minimal installation area for an overall reduction in the device size.

* The five-module type. (H: 100, W: 140, D: 108.3 mm) High design flexibility for number of modules.

2. Module specifications that allow you to design as you desire.

Backplanes for 5, 7, 9, 12, and 14 modules are available, and since the units have the same width, you can choose the most economical design for your application.

3. Standard equipped with RS232C port.

RS232C port allows connection with operation display panels and host computers, as well as remote surveillance using modems.

4. Different memory options are available to meet your application.

Memory units for comment, calendar timer, expansion RAM, and ROM operation are available so you can add just the options you need.

5. Dedicated instructions for high level data processing.

Real number data operation is supported too. So you can simplify programs for data processing more.

■ Power supply / I/O specifications

| Item | Description |
|--------------|---|
| Power supply | 100 V to 120 V AC / 200 V to 240 V AC / 100 V to 240 V AC, 24 V DC (varies with different models) |
| Input | 12 V to 24 V DC, 24 V DC \pm common |
| Output | Relay 2 A to 5 A / Transistor 0.1 A to 0.5 A (varies with different models) |

■ Performance specifications

| Item | Description | |
|----------------------|--|----------------------|
| Number of I/O points | Up to 768 points | |
| Expansion | Standard Units: 25 max. I/O points: 1,600 max. Remote I/O points: 2,048 max. | |
| | H type Units: 32 max. I/O points: 2,048 max. Remote I/O points: 2,048 max. | |
| Operation speed | 0.35 μ s/step (Basic instruction) | |
| Built-in memory | RAM (ROM is optional) | |
| Memory capacity | Approx. 16k steps | |
| Operation Memory | Internal relay | 4048 points |
| | Timer/Counter(T/C) | 1024 points in total |
| | Data register | 6000 words |

■ Special functions

| Item | Description |
|--------------------|--|
| Analog I/O | Available by adding analog input and analog output units. |
| High speed counter | Available by adding high-speed counter unit. (Max. 200 kHz) |
| Pulse output | Positioning unit 2-axis Positioning unit 4-axis |
| Serial | RS232C port Standard equipped with CPU unit. Expandable by adding C.C.U., M.C.U. and serial data unit. |
| | RS422 RS485 Expandable by adding M.C.U. |
| Interrupt input | Available by adding high-speed counter unit or pulse I/O unit. |

■ Special network functions

| Item | Description |
|------------------|--|
| Remote I/O | S-LINK, MEWNET-F |
| PLC Link | MEWNET-W2 (Wire) MEWNET-W0 |
| Computer Link | Linkable by using tool port or COM. port on CPU unit. Also available by adding M.C.U. and C.C.U. |
| Modem connection | Available |

■ Other built-in functions

| Item | Description |
|-------------------------------|--|
| Program block-edit during RUN | Available |
| Constant scan | Available |
| Adjustable input time ltering | Not available |
| Clock/Calendar function | Can be used with the addition of the calendar function option. |

FP2SH

Scanning time of 1 ms for 20k steps.

A high-performance model for high-speed operation.



■ Features

1. Scanning time of 1 ms for 20k steps.

With an operating speed at the top of its class, super high-speed processing is made possible. The result is a dramatically decreased tact time and high-speed device.

2. Large programming capacity of up to 120k steps.

Both the large programming capacities of 60k and 120k are available depending on the model.

3. Optional small PC card is also available.

The small PC card is available for programming backup or data memory expansion. This allows data processing of great amounts of data.

4. Built-in comment and calendar timer functions.

These functions, options with the FP2, are built right into the FP2SH.

* The I/O unit and intelligent unit are the same for the FP2 series.

■ Power supply / I/O specifications

| Item | Description |
|--------------|---|
| Power supply | 100 V to 120 V AC / 200 V to 240 V AC / 100 V to 240 V AC, 24 V DC (varies with different models) |
| Input | 12 V to 24 V DC, 24 V DC \pm common |
| Output | Relay 2 A to 5 A / Transistor 0.1 A to 0.5 A (varies with different models) |

■ Performance specifications

| Item | Description | |
|----------------------|--|------------------------|
| Number of I/O points | Up to 768 points | |
| Expansion | Standard Up to 1 backplane Units: 25max. I/O points: 1,600 max. Remote I/O points: 8,192 max. | |
| | H type Up to 3 backplanes Units: 32 max. I/O points: 2,048 max. Remote I/O points: 8,192 max. | |
| Operation speed | 0.03 μ s/step (Basic instruction) | |
| Built-in memory | RAM (ROM/Small PC card is optional) | |
| Memory capacity | Approx. 60 k steps/Approx. 120 k steps (varies with different models) | |
| Operation Memory | Internal relay | 14,192 points |
| | Timer/Counter(T/C) | 3,072 points in total |
| | Data register | 10,240 words |
| | File register | 32,765 words x 3 banks |

■ Special functions

| Item | Description |
|--------------------|--|
| Analog I/O | Available by adding analog input and analog output units. |
| High speed counter | Available by adding high-speed counter unit. (Max. 200 kHz) |
| Pulse output | Positioning unit 2-axis Positioning unit 4-axis |
| Serial | RS232C port Standard equipped with CPU unit. Expandable by adding C.C.U., M.C.U. and serial data unit. |
| | RS422 RS485 Expandable by adding M.C.U. |
| Interrupt input | Available by adding high-speed counter unit or pulse I/O unit. |

■ Special network functions

| Item | Description |
|------------------|---|
| Remote I/O | S-LINK, MEWNET-F |
| PLC Link | MEWNET-W2 (Wire) MEWNET-W0 MEWNET-VE FL-NET |
| Computer Link | Linkable by using tool port or COM. port on CPU unit. Also available by adding M.C.U and C.C.U. |
| Modem connection | Available |

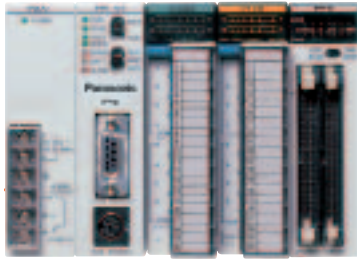
■ Other built-in functions

| Item | Description |
|-------------------------------|---------------|
| Program block-edit during RUN | Available |
| Constant scan | Available |
| Adjustable input time ltering | Not available |
| Clock/Calendar function | Built-in type |

FP2/FP2SH system configurations and unit lineup

Unit combinations

- Each unit is counted in the number of modules occupied. Most of the units occupy one module each. Some units occupy two modules each.
- Each unit is mounted on a backplane chosen depending on the total number of modules occupied by the all units used.
The power supply unit and CPU unit must be mounted on the CPU backplane.
- Only one backplane other than the five-module type can be added by using an expansion cable. A power supply must be mounted on the expansion backplane.
- If the backplane is of the H type, up to three backplanes can be added.
- Most of the units can be used in any combination; however, some combinations are subject to constraints due to the unit type, current consumption, and other factors besides the above requirements.
Please contact us for details.



Power Supply Units



100 V AC,
2.5 A type
FP2-PSA1
(AFP2631)



200 V AC,
2.5 A type
FP2-PSA2
(AFP2632)



100 to 240 V AC,
5 A type
FP2-PSA3
(AFP2633)



24 V DC,
5 A type
FP2-PSD2
(AFP2634)

Backplanes

(For use with both master and expansion backplanes. Only the 5-module type can not be used with expansion backplane.)



5-module type
FP2-BP05 (AFP25005)



7-module type
FP2-BP07 (AFP25007)



9-module type
FP2-BP09 (AFP25009)

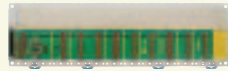


12-module type
FP2-BP12 (AFP25012)



14-module type
FP2-BP14 (AFP25014)

H type Backplanes



H type master backplane
(11 modules): 8 slots
FP2-BP11MH (AFP25011MH)



H type expansion backplane
(10 modules): 8 slots
FP2-BP10EH (AFP25010EH)

■ Units that occupy two modules each
There is a two-module type in the power supply and CPU units.

| Type | Model No. |
|-------------------------------|-----------|
| Power supply unit, 5 A type | FP2-PSA3 |
| | FP2-PSD2 |
| CPU unit with 64 input points | FP2-C1D |
| CPU unit with S-LINK ports | FP2-C1SL |



Expansion cable
(60cm/23.62 in.)
FP2-EC (AFP2510)



Expansion cable
(2m/78.74 in.)
FP2-EC2 (AFP2512)



Dummy unit
FP2-DM
(AFP2300)

CPU Units

FP2



Standard type
FP2-C1
(AFP2211)



With 64-point input
FP2-C1D
(AFP2212)



With S-LINK
FP2-C1SL
(AFP2214)

FP2SH



Standard type
(60k steps)
FP2-C2
(AFP2231)



For small PC card
(60k steps)
FP2-C2P
(AFP2235)



For small PC card
(120k steps)
FP2-C3P
(AFP2255)

Input and Output Units



16-point DC input
FP2-X16D2 (AFP23023)
16-point NPN transistor output
FP2-Y16T (AFP23403)
16-point PNP transistor output
FP2-Y16P (AFP23503)
6-point Relay output (5A)
FP2-Y6R (AFP23101)
16-point Relay output (2A)
FP2-Y16R (AFP23103)



32-point DC input
FP2-X32D2 (AFP23064)
32-point NPN transistor output
FP2-Y32T (AFP23404)
32-point PNP transistor output
FP2-Y32P (AFP23504)



64-point DC input
FP2-X64D2 (AFP23067)
64-point NPN transistor output
FP2-Y64T (AFP23407)
64-point PNP transistor output
FP2-Y64P (AFP23507)
32-point input/32-point NPN output mixed
FP2-XY64D2T (AFP23467)
FP2-XY64D7T (AFP23477)
32-point input/32-point PNP output mixed
FP2-XY64D2P (AFP23567)
FP2-XY64D7P (AFP23577)

Optional Memories

For FP2



FP2-EM1
FP2-EM2



FP2-EM3
FP2-EM6
FP2-EM7

Type of memory unit

| Product number | Part number | Comment input function | Clock/calendar function | With 16k expansion RAM | ROM socket |
|----------------|-------------|------------------------|-------------------------|------------------------|------------|
| FP2-EM1 | AFP2201 | A | A | N/A | N/A |
| FP2-EM2 | AFP2202 | A | A | A | N/A |
| FP2-EM3 | AFP2203 | A | A | A | A |
| FP2-EM6 | AFP2206 | N/A | N/A | A | A |
| FP2-EM7 | AFP2207 | N/A | N/A | N/A | A |

A: Available
N/A: Not available



F-ROM
FP2-EM4 (AFP2204)



EP-ROM
FP2-EM5 (AFP2205)

FP Memory Loader



For FP2SH



Memory unit with ROM socket
FP2-EM7 (AFP2207)



F-ROM
(AFP5208)

Data clear/
Data hold type
AFP8670/
AFP8671



Small PC card (2MB)
F-ROM
(AIC50020)



Small PC card (2MB)
SRAM
(AIC52000)



EP-ROM
(AFP5209)

Analog Input/Output Units



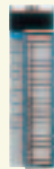
Voltage/current input unit
FP2-AD8VI (AFP2400L)



Multiple analog input unit
FP2-AD8X (AFP2401)



Resistance thermometer device input unit
FP2-RTD (AFP2402)



Analog output unit
FP2-DA4 (AFP2410)

Positioning Units

NEW



Positioning units
RTX
FP2-PN2AN (AFP243610)

NEW



Positioning units
RTX
FP2-PN4AN (AFP243620)

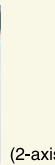
NEW



Positioning units
RTX
FP2-PN8AN (AFP243630)



Positioning units
FP2-PP21 (AFP2432)



Positioning units
FP2-PP22 (AFP2434)



Positioning units
FP2-PP41 (AFP2433)



Positioning units
FP2-PP42 (AFP2435)

Pulse Input/Output Units



High-speed counter unit
FP2-HSCP (AFP2441)



Pulse I/O unit
FP2-PXYT (AFP2442)



Multi-communication unit
FP2-MCU (AFP2465)
* The communication blocks are available separately.



Serial data unit
FP2-SDU (AFP2460)



Computer communication unit
FP2-CCU (AFP2462)

Multi-Communication Unit

Serial Data Control Unit

Operation Display Panel and Computer Interface Unit

Link-related Units

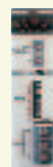
NEW



VE-LINK
FP2-VE (AFP27960)



ET-LAN
FP2-ET1 (AFP2790)



Multi-wire link unit
FP2-MW (AFP2720)



S-LINK
FP2-SL2 (AFP2780)

Panasonic Servo MINAS All/S Series



Motor Driver I/F Terminal II



1-axis type



2-axis type

AFP8503

AFP8504

Specifications ①

■ CPU units

| Item | | FP2 CPU unit | | FP2SH CPU unit | | |
|-------------------------|----------------|---|------------------|-----------------------|-----------------------------|-------------------|
| | | FP2-C1 (AFP2211) FP2-C1D (AFP2212) FP2-C1SL (AFP2214) | | FP2-C2 (AFP2231) | FP2-C2P (AFP2235) | FP2-C3P (AFP2255) |
| Operation speed | Basic | 0.35 μs or more | | 0.03 μs or more | | |
| | High-level | 0.93 μs or more | | 0.06 μs or more | | |
| Program capacity | Built-in RAM | 16 k steps | | 60 k steps | | 120 k steps |
| | w/expansion | 32 k steps | | Not available | | Not available |
| Number of I/O points | No expansion | Conventional type | Max. 768 points | Max. 768 points | | |
| | | H type | Max. 512 points | Max. 512 points | | |
| | w/expansion | Conventional type | Max. 1600 points | Max. 1600 points | | |
| | | H type | Max. 2048 points | Max. 2048 points | | |
| | w/ remote I/O | Max. 2048 points | | Max. 8192 points | | |
| Operation memory | Internal relay | 4048 points | | 14192 points | | |
| | Data register | 6000 words | | 10240 words | | |
| | File register | 0 to 143333 words (w/expansion 0 to 30717words) | | 32765 words x 3 banks | | |
| | Link register | 256 words | | 8448 words | | |
| Optional memory | | F-ROM/EP-ROM | | F-ROM/EP-ROM | Small PC card (F-ROM/S-RAM) | |
| Comment memory | | Optional memory unit | | Available | | |
| Clock/Calendar function | | Optional memory unit | | Available | | |

■ Power supply units

| Item | | FP2-PSA1 (AFP2631) | FP2-PSA2 (AFP2632) | FP2-PSA (3AFP2633) | FP2-PSD2 (AFP2634) |
|---------------------------------|-----------------|--|-----------------------------|---|------------------------------------|
| Input | Rated voltage | 100 V - 120 V AC | 200 V - 240 V | 100 V - 240 V AC | 24 V DC |
| | Current Current | 0.4 A or less (at 100 V AC) | 0.2 A or less (at 200 V AC) | 0.7 A or less (at 100 V AC) 0.4 A or less (at 200 V AC) | 2.5 A or less |
| | Surge current | 40 A or less (55°C) | | 30 A or less (25°C) | 10 A or less |
| | Rated frequency | 47 Hz ~ 63 Hz | | | - |
| | Operating | 85 to 132 V AC | 170 to 264 V AC | 85 to 264 V AC | 20.4 to 31.2 V DC ^{note)} |
| Output | Voltage range | 2.5A max. | | 5 A max. | |
| Alarm contact capacity | | 30 V DC 1 A | | | |
| Alarm contact operation | | When the ALARM LED of CPU unit is lit | | | |
| Alarm contact type | | 1c contact | | | |
| Leakage current | | Between input and ground terminals, 0.75 mA or less | | | |
| Breakdown voltage | | 1500V AC for 1 minute (between input and ground terminals) | | | |
| Insulation resistance | | 100 MΩ 500V DC (between input and ground terminals) | | | |
| Guaranteed lifetime | | 20000 hours at 55°C | | | |
| Overcurrent protection function | | Built-in overcurrent protection | | | |
| Fuse | | Built-in type | | | |
| Terminal screw | | M3 | | | |
| Module size | | 1 module | 1 module | 2 module | 2 module |

Note)

Allowable voltage fluctuation range after startup for the FP2-PSD2 is -35% to +30%. At startup, apply -15% to +30% the rated voltage for 100 ms or more.

■ Input units

| Item | DC input unit | | | I/O mixed unit (input side) | |
|-----------------------------------|---|-----------------------------|---|---|---|
| | 16-point DC input type | 32-point DC input type | 64-point DC input type ^{note 1)} | DC input type/Transistor output (NPN) type ^{note 2)} | DC input type/Transistor output (PNP) type ^{note 3)} |
| | FP2-X16D2 (AFP23023) | FP2-X32D2 (AFP23064) | FP2-X64D2 (AFP23067) | FP2-XY64D2T (AFP23467) | FP2-XY64D2P (AFP23567) |
| Rated input voltage | 12 - 24 V DC | 24 V DC | 24 V DC | 24 V DC | 24 V DC |
| Rated input current | Approx. 8 mA (at 24 V DC) | Approx. 4.3 mA (at 24 V DC) | Approx. 4.3 mA (at 24 V DC) | Approx. 4.3 mA (at 24 V DC) | Approx. 4.3 mA (at 24 V DC) |
| Input impedance | Approx. 3 kΩ | Approx. 5.6 kΩ | Approx. 5.6 kΩ | Approx. 5.6 kΩ | Approx. 5.6 kΩ |
| Min. ON voltage/Min. ON current | 9.6 V/4 mA | 19.2 V/4 mA | 19.2 V/4 mA | 19.2 V/4 mA | 19.2 V/4 mA |
| Max. OFF voltage/Max. OFF current | 2.5 V/1 mA | 5.0 V/1.5 mA | 5.0 V/1.5 mA | 5.0 V/1.5 mA | 5.0 V/1.5 mA |
| Response time | OFF→ ON | 0.2 ms or less | 0.2 ms or less | 0.2 ms or less | 0.2 ms or less |
| | ON→ OFF | 0.2 ms or less | 0.3 ms or less | 0.3 ms or less | 0.3 ms or less |
| Input points per common | 8 points/common (Either the positive or negative of the input power supply can be connected to the common terminal.) | 32 points/common | 32 points/common | 32 points/common | 32 points/common |
| Connection method | Terminal block (M3 screw) | One 40-pin connector | Two 40-pin connectors | Two 40-pin connectors | Two 40-pin connectors |

Note: The number of ON points that can be actuated simultaneously is limited by the input voltage and the ambient temperature.

1) The specifications also apply to the input side of the CPU unit with 64 input points "FP2-C1D" (AFP2212).

2) The specifications also apply to the DC-input, transistor-output (NPN) type I/O-mixed unit with ON pulse catch input "FP2-XY64D7T" (AFP23477).

However, the response time is as follows: OFF→ ON: 0.2 ms or less (X0-X1F); ON→ OFF: 0.3 ms or less (X0-X1B), 1.0 to 5.0 ms (X1C-X1F)

3) The specifications also apply to the DC-input, transistor-output (PNP) type I/O-mixed unit with ON pulse catch input "FP2-XY64D7P" (AFP23577).

However, the response time is as follows: OFF→ ON: 0.2 ms or less (X0-X1F); ON→ OFF: 0.3 ms or less (X0-X1B), 1.0 to 5.0 ms (X1C-X1F)

■ Output units

| Item | Relay output unit | | | | Transistor output unit | | | | I/O mixed unit (output side) ^(note 3) and 4) | |
|---|--|--|---|---|--|--|--|--|--|--|
| | ^{note 1)} 6-point type | 16-point type | NPN open collector ^(note 2) 16-point type | PNP open collector ^(note 2) 16-point type | NPN open collector | PNP open collector | NPN open collector | PNP open collector | DC input type/ Transistor output (NPN) type | DC input type/ Transistor output (PNP) type |
| | FP2-Y6R (AFP23101) | FP2-Y16R (AFP23103) | FP2-Y16T (AFP23403) | FP2-Y16P (AFP23503) | FP2-Y32T (AFP23404) | FP2-Y32P (AFP23504) | FP2-Y64T (AFP23407) | FP2-Y64P (AFP23507) | FP2-XY64D2T (AFP23467) | FP2-XY64D2P (AFP23567) |
| Rated control capacity | 5A 250V AC (10A/common) 5A 30V DC (10A/common) Min. load: 100mA 10V (resistor load) | 2A 250V AC (5A/common) 2A 30V DC (5A/common) Min. load: 100μA 10V (resistor load) | — | — | — | — | — | — | — | — |
| Rated load voltage | — | — | 5-24 V DC | 5-24 V DC | 5-24 V DC | 5-24 V DC | 5-24 V DC | 5-24 V DC | 5-24 V DC | 5-24 V DC |
| Max. load current | — | — | 0.5 A (at 12 to 24 V DC) 0.1 A (at 5 V DC) | 0.5 A (at 12 to 24 V DC) 0.1 A (at 5 V DC) | 0.1 A (at 12 to 24 V DC) 50 mA (at 5 V DC) | 0.1 A (at 12 to 24 V DC) 50 mA (at 5 V DC) | 0.1 A (at 12 to 24 V DC) 50 mA (at 5 V DC) | 0.1 A (at 12 to 24 V DC) 50 mA (at 5 V DC) | 0.1 A (at 12 to 24 V DC) 50 mA (at 5 V DC) | 0.1 A (at 12 to 24 V DC) 50 mA (at 5 V DC) |
| Max. surge current | — | — | 3A 10 ms or less | 3A 10 ms or less | 0.3 A | 0.3 A | 0.3 A | 0.3 A | 0.3 A | 0.3 A |
| OFF state leakage current | — | — | 1μA or less | 1μA or less | 1μA or less | 1μA or less | 1μA or less | 1μA or less | 1μA or less | 1μA or less |
| ON state maximum voltage drop | — | — | 0.5 V or less | 0.5 V or less | 1 V or less (at 6 to 26.4 V DC) 0.5 V or less (at 6 V DC or less) | 1.5 V or less (at 6 to 26.4 V DC) 0.5 V or less (at 6 V DC or less) | 1 V or less (at 6 to 26.4 V DC) 0.5 V or less (at 6 V DC or less) | 1.5 V or less (at 6 to 26.4 V DC) 0.5 V or less (at 6 V DC or less) | 1 V or less (at 6 to 26.4 V DC) 0.5 V or less (at 6 V DC or less) | 1.5 V or less (at 6 to 26.4 V DC) 0.5 V or less (at 6 V DC or less) |
| Repose time | OFF→ON | 10 ms or less | 10 ms or less | 0.1 ms or less | 0.1 ms or less | 0.1 ms or less | 0.1 ms or less | 0.1 ms or less | 0.1 ms or less | 0.1 ms or less |
| | ON→OFF | 8 ms or less | 8 ms or less | 0.3 ms or less | 0.3 ms or less | 0.3 ms or less | 0.3 ms or less | 0.3 ms or less | 0.3 ms or less | 0.3 ms or less |
| Power supply for driving internal circuit | Voltage | 24V DC±10% (21.6V to 26.4V DC) | 24V DC±10% (21.6V to 26.4V DC) | 4.75 to 26.4V DC | 4.75 to 26.4V DC | 4.75 to 26.4V DC | 4.75 to 26.4V DC | 4.75 to 26.4V DC | 4.75 to 26.4V DC | 4.75 to 26.4V DC |
| | Current | 70mA or less | 160 mA or less | 120 mA or less (at 24 V DC) | 70 mA or less (at 24 V DC) | 140 mA or less (at 24 V DC) | 150 mA or less (at 24 V DC) | 250 mA or less (at 24 V DC) | 270 mA or less (at 24 V DC) | 120 mA or less (at 24 V DC) |
| Input points per common | 2 points/common | 8 points/common | 8 points/common | 8 points/common | 32 points/common | 32 points/common | 32 points/common | 32 points/common | 32 points/common | 32 points/common |
| Connection method | Terminal block (M3 screw) | Terminal block (M3 screw) | Terminal block (M3 screw) | Terminal block (M3 screw) | One 40-pin connector | One 40-pin connector | Two 40-pin connectors | Two 40-pin connectors | Two 40-pin connectors | Two 40-pin connectors |

Notes 1: The number of ON points that can be actuated simultaneously is limited by the input voltage and the ambient temperature.

2: The maximum load current is limited by the external power supply voltage.

1) The current capacity of each common terminal is 5 A max.

2) The maximum load current of the transistor output unit is limited by the external power supply voltage.

3) The specifications also apply to the DC-input, transistor-output (NPN) type I/O-mixed unit with ON pulse catch input "FP2-XY64D7T" (AFP23477).

4) The specifications also apply to the DC-input, transistor-output (PNP) type I/O-mixed unit with ON pulse catch input "FP2-XY64D7P" (AFP23577).

■ Analog I/O units

1. Analog input

| Item | FP2-AD8X (AFP2401) | FP2-RTD (AFP2402) | FP2-AD8VI (AFP2400L) |
|---------------------------|--|---|--|
| Number of input points | 8 channels | 8 channels | 8 channels |
| Voltage | ±10 V (1/65536) | — | ±10 V (1/65536) |
| | 1 V ± 5 V (1/13107) | — | 1 V to 5 V (1/13107) |
| Current | ±100 mV (1/65536) | — | — |
| | — ^(note 1) | — | ±20 mA (1/32768) 4 mA to 20 mA (1/13107) |
| Input range (resolution) | S: 0 to +1500°C (0.1°C) | — | — |
| | J: -200 to +750°C (0.1°C) | | |
| | J: -100 to +400°C (0.1°C) | | |
| | K: -200 to +1200°C (0.1°C) | | |
| | K: -200 to +1000°C (0.1°C) | | |
| | K: -200 to +600°C (0.1°C) | | |
| | T: -200 to +350°C (0.1°C) | | |
| | R: 0 to +1500°C (0.1°C) | | |
| | N: -200 to +1300°C (0.1°C) | | |
| | R.T.D | | |
| Conversion speed | Voltage | 500 μs/ch (insulated), 5 ms (insulated) | 500 μs/ch |
| | Current | — | 500 μs/ch |
| | Thermocouple | 20 ms/ch | — |
| | R.T.D | 20 ms/ch | — |
| Overall accuracy | Voltage: ±0.1% F.S. (25 °C) Voltage temperature coefficient: ±0.3% (0 to 55 °C) | | ±1.0% F.S. (0 to 55°C) |
| Insulation method | Between the input terminal and FP2 internal circuits: Photocoupler and DC/DC converter | | Between the input terminal and FP2 internal circuits: Photocoupler |
| | Between channels: PhotoMOS relay | | |
| Digital output | Averaging | | |
| | Offset setting | | |
| Broken wire sensing | Selectable from 3 to 64 times for each channel (Moving average after cutting the maximum and minimum values) | | — |
| | Selectable from K -2048 to +2047 for each channel | | |
| Input range change method | Each channel (only when a thermocouple or RTD is inputted) | | — |
| | Batch switching of all channels: By the range setting switch | | |
| | Each channels: By shared memory setting | | |

Note 1) Current inputs can be converted into voltage inputs by attaching the supplied external resistor to the input terminal section.

2. Analog output

| Item | Analog output unit FP2-DA4(AFP2410) |
|------------------------------|---|
| Number of output points | 4 channels |
| Output range (digital input) | Voltage |
| | Current |
| Resolution | ±10 V (K-2048 to K+2047) 0 to 20 mA (K0 to K4095) |
| Conversion speed | 1/4096 |
| Overall accuracy | 500 μs/ch |
| Insulation method | ±1.0% F.S. or less (0 to 55°C) |
| Analog output | - Between the output terminal and FP2 internal circuits: Photocoupler - Between channels: No insulation Hold/Non-hold setting by shared memory setting |

Specifications ②

■ ET-LAN units (AFP2790)

● Performance Specification

| Item | Specifications |
|-------------------------------------|--|
| Communications function | - MEWTOCOL-COM: computer link function (Max. 2K B) - MEWTOCOL-DAT: data transfer (Max. 1020 words) - Transparent communication |
| Number of communication connections | 8 connections max. |
| Transparent communications buffer | Transmit Factory setting: 1k words/connection x 3 |
| | Receive Factory setting: 1k words/connection x 3 |

● Transmission Specifications for Communication Interface

| Item | 100BASE-TX ^{note 1)} | 100BASE-T ^{note 1)} | 100BASE5 |
|-----------------------------------|-------------------------------|-------------------------------|----------------------------|
| Transmission speed | 100M bit/s | 10M bit/s | 10M bit/s |
| Transmission method | Base band | Base band | Base band |
| Max. segment length | 100 m ^{note 2)} | 100 m ^{note 2)} | 500 m |
| Max. distance between nodes | 205 m (2 segments) | 500 m (5 segments) | 2500 m (5 segments) |
| Communication cable or connection | Category 5 UTP cable | Category 3, 4 and 5 UTP cable | Transceiver cable |
| Max. transceiver cable length | - | - | 50 m ^{note 3)} |
| Max. number of nodes | - | - | 100 nodes/segment |
| Node spacing | - | - | Integer multiples of 2.5 m |

Notes: 1) Switching between 100BASE-TX and 10BASE-T is done automatically by auto negotiation function.
2) The standards cite 100 m 328.08 ft. as the maximum, but noise resistance measures such as attaching a ferrite core may be necessary in some cases, depending on the usage environment. Also, if the hub is positioned close to a control board, we recommend using it at a distance of 10 m 32.808 ft. or less.
3) The standards cite 50 m 164.04 ft. as the maximum, but noise resistance measures such as attaching a ferrite core may be necessary in some cases, depending on the usage environment. Also, if the transceiver is positioned close to a control board, we recommend using it at a distance of 5 m 16.404 ft. or less.

■ Multi-communication units (AFP2465)

| Item | General-purpose serial communications | | Computer link ^{note 1)} (Matsushita open protocol "MEWTOCOL" should be used.) | | PLC link function |
|---|---|--|---|--|--|
| | 1:1 communications | 1:N communications | 1:1 communications | 1:N communications | |
| Communication block used | AFP2803 AFP2804 | AFP2805 | AFP2803 AFP2804 | AFP2805 | AFP2803 AFP2805 |
| Interface | RS232C RS422 | RS485 | RS232C RS422 | RS485 | RS232C RS485 |
| Communication method | Full duplex | Two-wire half duplex | Full duplex | Two-wire half duplex | Token passing (Floating master) |
| Synchronization | Start-stop synchronization | | | | |
| Transmission line | Three-core or five-core shielded wire | Twisted-pair cable or VCTF | Three-core or five-core shielded wire | Twisted-pair cable or VCTF | Twisted-pair cable or VCTF |
| Transmission distance | 15 m Length: 1,200 m max. | Length: 1,200 m max. | 15 m Length: 1,200 m max. | Length: 1,200 m max. | 1200m (RS485) 15m (RS232C) |
| Transmission speed (To be set in the system register) | 300 to 230400bps | 300 to 230400bps (19,200 bps when our C-NET adapter is connected) | 300 to 230400bps | 300 to 230400bps (19,200 bps when our C-NET adapter is connected) | 115200bps |
| Transmission code | ASCII, JIS7, JIS8, and binary | | ASCII, JIS7, JIS8 | | |
| Transmission format (To be set in the system register) | Data length: 7 bits/8 bits | | | | |
| | Parity: 0/Invalid/Valid (Odd/Even) | | | | |
| | Stop bit: 1 bit/2 bits | | | | |
| | Start code: With STX / Without STX | | | | |
| | End code: CR/CR+LF/Time setting/ETX | | - | | |
| Number of stations | - | 99 stations max. (32 stations max. when our C-NET adapter is connected) | - | 99 stations max. (32 stations max. when our C-NET adapter is connected) | 16 stations max. |
| PLC link capacity | - | - | - | - | Link relay: 1,024 points Link register: 128 words |
| COM1 (upper channel) | A | A | A | A | A |
| COM2 (lower channel) | A | A | A | A | N/A |
| Number of attachable units | 23 units max. (including 8 units for the computer link and 2 channels for the PLC link) | | | | |
| Supported versions | CPU unit (both FP2 and FP2SH): Ver. 1.4 or later, FPWIN-GR: Ver. 2.4 or later, EPWIN-PRO: Ver. 5.1 or later | | | | |

Note: 1) The protocol can be downloaded from: <http://www.mew.co.jp/ac/fasys/plc>

A: Available
N/A: Not available

■ Multi-wire link units

| Item | FP2-MW (AFP2720) | | |
|--------------------------------|--------------------------------------|---|---------------------------------------|
| | W mode | W2 mode | F mode |
| Communication method | Token bus | | |
| Transmission method | Polling | | |
| Transmission speed | Base band | | |
| Transmission speed | 500k bit/s | 500k bit/s, 250k bit/s | 500k bit/s |
| Transmission distance | Extendable to 800 m | Extendable to 800 m 250 kbits/s: 1,200 m max. 500 kbits/s: 800 m max. | Extendable to 700 m |
| Number of connectable stations | 32 stations max. | | 1 master + 32 slave stations max. |
| Transmission error check | CRC (cyclic redundancy check) system | | |
| Synchronization | Start-stop synchronization | | |
| Interface | RS485 compatible | | |
| Transmission line | Twisted-pair cable | | Twisted-pair cables or VCTF cables |
| RAS function | Hardware self-diagnosis function | | |

Note: 1) When the unit is used in W2 mode, it must be set by user programs.

■ MEWNET-VE link units (AFP27960)

NEW

| | VE mode (PLC link) | FL-net mode |
|--------------------------------------|---|---|
| Communication interface | Ethernet 10BASE5/10BASE-T | |
| Communication speed | 10Mbit/s | |
| Cycle time example | 50 ms/32 units (2,048 points/2,048 words) | |
| Cable length | 10BASE5 : 500m (2500m) 10BASE-T : 100m (500m) | * The lengths in parentheses are available when a repeater is used. |
| Communication protocol | MEWTOCOL | FL-net [FA link protocol (UDP/IP)] |
| Link communication specifications | Link relay 8,192 points/unit Link register 8,192 words/unit | |
| Message communication specifications | 2,048 bytes max. (Compatible with MEWTOCOL) | 1,024 bytes max. (Not compatible with MEWTOCOL) |
| Number of nodes | 99 units max. | 254 units max. |
| Other functions | Data transfer Remote programming Multilevel link communications | Interconnection with other companies' units |

* For FP2SH (Cannot be used for FP2)

■ S-LINK units

| Item | S-LINK units FP2-SL2 (AFP2780) | CPU unit with S-LINK ports FP2-C1SL (AFP2214) |
|--|---|--|
| | Number of channels | 1 |
| Number of I/O points | 128 points max. | 128 points max. × 2 |
| | The number of input and output points for each channel can be selected by the switch in the unit body. Input: 0/32/64/96/128 points Output: 0/32/64/96/128 points | |
| Rated power supply voltage | +24 V DC ±10% Maximum allowable ripples (P-P): ±10% (S-LINK terminal block IN-24 V DC 1.6 A or less) | |
| Power consumption ^{note 1)} | [Current consumption of the S-LINK controller (incl. D-G line current consumption)] +24 V DC 1.6 A or less [Maximum allowable current supply (Supply to the S-LINK and I/O devices through the 24 V - 0 V line)] +24 V DC 5 A (Fuse: 5A or less) | |
| Transmission method | Bi-directional time division multiplex transmission | |
| Synchronization | Bit/Frame synchronization | |
| Transmission protocol | S-LINK protocol | |
| Transmission speed | 28.5k bit/s | |
| Transmission distance ^{note 2)} FAN-OUT ^{note 2)} | Main signal line: Extendable to 200 m (max. 400 m when a booster is used) 320 | |
| Connection method | T-branch multi-drop wiring or standard multi-drop wiring [+24, 0 V, D-G (with a function of D-G short-circuit protection)] | |

Notes: 1) Refer to the "Power Capacity Determination" section of SUNX Limited's S-LINK Design Manual for details of the current consumption.
2) Refer to SUNX Limited's S-LINK Design Manual for the booster and FAN-OUT.

Specifications ③

■ Positioning units: RTEX (Network type) **NEW**

| Item | | 2-axis type | 4-axis type | 8-axis type |
|--|--|--|-------------|-------------|
| Part No. | | AFP243610 | AFP243620 | AFP243630 |
| Model No. | | FP2-PN2AN | FP2-PN4AN | FP2-PN8AN |
| Unit specifications | Control method | PTP control, continuous path (CP) control | | |
| | Interpolation control | Two/Three-axis linear interpolation, two-axis circular interpolation, three-axis helical interpolation | | |
| | Unit of control | pulse/ μ m/inch/degree | | |
| | Positioning data | 600 points per axis | | |
| | Backup | Parameters and data tables can be saved in FROM. | | |
| | Acceleration/deceleration method | Linear/S-curve acceleration and deceleration | | |
| | Acceleration/deceleration time | 0 to 10,000 ms (in increments of 1 ms) | | |
| Positioning range | (-1073741823 to +1073741823 pulses) Increment/Absolute specification | | | |
| Speed control function | Supported by a JOG operation (free-run operation) | | | |
| Torque control function | Supported by a real-time torque control function | | | |
| Home return | Search method | Home proximity (DOG) search | | |
| | Creep rate | Can be set freely | | |
| Others | | Pulser input operation supported | | |
| | | Auxiliary output code and auxiliary output contact | | |
| | | Dwell time | | |
| | | In-position contact | | |
| Communication speed | 100Mbps | | | |
| Cables | Commercially available LAN straight cable (Category 5e shielded cable) | | | |
| Connection system | Ring | | | |
| Communication cycle/ Number of connectable stations | 0.5 ms, 8 axes max./system (Command cycle: 1 ms) | | | |
| Transmission distance | Between terminals: 60 m Total: 200 m | | | |

■ Positioning units: Multifunction type (Pulse output type)

| Item | | AFP2432 | AFP2433 | AFP2434 | AFP2435 |
|---|--------------------------------|---|---------------------|-------------------------------------|---------------------|
| | | FP2-PP21 | FP2-PP41 | FP2-PP22 | FP2-PP42 |
| Output type | | Transistor | | Line driver | |
| Number of axes controlled | | 2 axes, independent | 4 axes, independent | 2 axes, independent | 4 axes, independent |
| Position command | Command units | Pulse unit (The program specifies whether Increment or Absolute is used.) | | | |
| | Max. pulse count | Signed 32 bits (-2147483648 to +2147483647 pulses) | | | |
| Speed command | Command range | 1 pps to 500 kpps (can set in 1 pps.) | | 1 pps to 4 Mpps (can set in 1 pps.) | |
| | Acceleration/deceleration | Linear acceleration/deceleration, S acceleration/deceleration (this takes the form of an "S") | | | |
| Acceleration/deceleration command | "S" Acceleration/deceleration | Can select from Sin curve, Secondary curve, Cycloid curve and Third curve. | | | |
| | Acceleration/deceleration time | 0 to 32767 ms (can set in 1 ms) | | | |
| Home return | Home Return speed | Speed setting possible (changes return speed and search speed) | | | |
| | Input terminals | Home input, Near home input, Over limit input (+), Over limit input (-) | | | |
| | Output terminals | Deviation counter clear output signal | | | |
| Operation mode | | <ul style="list-style-type: none"> ● E point control (Linear and S accelerations/decelerations selecting possible) ● P point control (Linear and S accelerations/decelerations selecting possible) ● Home return function (Home search) ● JOG operation function ● JOG positioning function ● Pulser input function Transfer multiplication ratio ($\times 1, \times 2, \times 5, \times 10, \times 50, \times 100, \times 500, \times 1000$ selecting possible) ● Real-time frequency change function ● Infinity output function | | | |
| Startup time | | 0.02 ms or 0.005 ms possible | | | |
| Output interface | Output mode | 1 pulse output (Pulse/Sign), 2 pulse output (CW/CCW) | | | |
| Feedback counter | Countable range | Signed 32-bit (-2147483648 to +2147483647 pulse) | | | |
| | Input mode | 2-phase input*, Direction distinction input, Individual input (transfer multiple available for each.) | | | |
| Other functions | | The flag to compare the elapsed value is built in. (The timing signal outputs at the optional position during an operation.) | | | |
| Internal current consumption (at 5 VDC) | | 200mA max. | 350mA max. | 200mA max. | 350mA max. |
| External power supply | Voltage | 21.6 V DC to 26.4 V DC | | | |
| | Current consumption | 50 mA | 90 mA | 50 mA | 90 mA |

Note: Previous FP2 positioning units AFP2430 (FP2-PP2) and AFP2431 (FP2-PP4) are not compatible with the multi-function type FP2 positioning unit. Please contact us.
* 2-phase input cannot be used with multiples of one.

■ High-speed counter units and Pulse I/O units

| Item | | FP2 High-speed counter unit | FP2 Pulse I/O unit | |
|---|---|---|--|--|
| Part No. | | AFP2441 (NPN) | AFP2442 (NPN) | |
| | | AFP2451 (PNP) | AFP2452 (PNP) | |
| Part No. | Insulation method | Photocoupler insulation | | |
| | Rated voltage | 24 V DC | | |
| | Rated current | Approx. 7.5 mA (when using 24 V DC) | | |
| | Input impedance | Approx. 3.2 k Ω | | |
| | Usage voltage range | 20.4 V DC to 26.4 V DC | | |
| | Min. ON voltage/Min. ON current | 19.2 V / 6 mA | | |
| | Min. OFF voltage/Min. OFF current | 5.0 V / 1.5 mA | | |
| | Response time ^{note 1)} | OFF→ON | 1 μ s or less | |
| | | ON→OFF | 2 μ s or less | |
| | Input time constant setting | None, 4 μ s, 8 μ s, 16 μ s, 32 μ s (set in 2-input units) | | |
| Common method | 16 points/common (+ common) | | | |
| Counter | Number of counter channels | 4 channels | | |
| | Calculation range | 32-bit with sign (-2,147,483,648 to +2,147,483,647) | | |
| | Max. calculation speed ^{note 1)} | 200 kHz | | |
| | Input modes | 3 modes (direction control, individual input, phase input) | | |
| Max. calculation speed ^{note 1)} | 2.5 μ s | | | |
| Other | 8 comparison outputs, multiplier function (1, 2, 4) | | | |
| Interrupt | Number of interrupt points ^{note 2)} | None, 1/unit, 8/unit (set with mode setting switches) | | |
| | Interrupt processing delays | 160 μ s max. (when using FP2 CPU unit) 50 μ s max. (when using FP2SH CPU unit) | | |
| Output specifications | Insulation method | Photocoupler insulation | | |
| | Rated load voltage | 5 - 24 V DC | | |
| | Rated load voltage range | 4.75 V DC to 26.4 V DC | | |
| | Max. load current | 0.1 A (A11 to A18, B11 to B14 pins), 0.8 A (B15 to B18 pins) | | |
| | Leakage current when off | 1 μ A max. | | |
| | Max. voltage drop when on | 0.5 V max. | | |
| | Response time | OFF→ON | 1 μ s max. | |
| | | ON→OFF | 1 μ s or less (NPN) 5 μ s or less (PNP) | |
| | Surge absorber | Zener diode | | |
| | Common method | 16 points/common | | |
| External power supply | Voltage | 20.4 V DC to 26.4 V DC | | |
| | Current ^(when using 24 V DC) | 90 mA or less (NPN) 200 mA or less (PNP) | | |
| Counter | Surge absorber | 8 points (A11 to A18 pins) | | |
| Pulse output | Channels | 4CH (B11 to B18 pins) | | |
| | Max. output frequency | 100 kHz | | |
| | Output modes | 2 modes (direction control, individual output) | | |
| PWM output | Number of output points | - | | |
| | Max. load current | 4CH (B15 to B18 pins) 0.8 A | | |
| | Cycle ^{note 3)} | 1 Hz to 30 kHz | | |
| | Duty ^{note 3)} | 0 to 100% (unit: 1%) | | |

Notes:

- 1) This value is effective when the input time constant (filter) setting was set to "No setting".
- 2) If interrupts are used at the 1/unit setting, the interrupt from the external input terminal B1 (X8) or the interrupt program from the comparison 0 (one of among INT16 to INT23) is booted.
- 3) At maximum load current and resistance load. There may be distortion in the output waveform, depending on the load current and type of load.

Product types

■ CPU units (Built-in RAM)

| Product name | | Operation speed | Built-in RAM | Optional memory | | | Other | | Product number | Part number |
|--------------|--|-----------------|-------------------------------|-----------------|------------------------|------------------------|------------------------------|------------------------------|----------------|-------------|
| | | | | Expansion RAM | ROM | IC memory card | Clock/calendar | Comment memory | | |
| FP2 | Standard type CPU unit | From 0.35 μs | 16 k steps ^{note 1)} | Available | Available | Not available | Available ^{note 2)} | Available ^{note 3)} | FP2-C1 | AFP2211 |
| | CPU unit 64-point input | | | (See below.) | (See below.) | | | | FP2-C1D | AFP2212 |
| | CPU unit with S-LINK | | | | | | | | FP2-C1SL | AFP2214 |
| FPSH | Standard type CPU unit | From 0.03 μs | 60 k steps | Not available | Available (See below.) | Not available | Available (Built-in) | Available (Built-in) | FP2-C2 | AFP2231 |
| | CPU unit with IC memory card interface | | 60 k steps | Not available | Available (Built-in) | Available (See below.) | Available (Built-in) | Available (Built-in) | FP2-C2P | AFP2235 |
| | CPU unit with IC memory card interface | | 120 k steps | Not available | Available (Built-in) | Available (See below.) | Available (Built-in) | Available (Built-in) | FP2-C3P | AFP2255 |

Notes: 1) For FP2 CPU unit, the capacity can be expanded up to 32 k steps using the expansion RAM of the optional memory.
 2) The expansion memory unit (optional memory) with clock/calendar function is required for FP2 CPU unit.
 3) The expansion memory unit (optional memory) with comment input function is required for FP2 CPU unit.

■ Optional memories for FP2

| Product name | | Function | | | | Product number | Part number |
|--------------|-----------------------|---|----------------|---------------|---------------|----------------|-------------|
| | | Comment input | Clock/calendar | Expansion RAM | ROM socket | | |
| For FP2 | Expansion memory unit | Available | Available | Not available | Not available | FP2-EM1 | AFP2201 |
| | | Available | Available | Available | Not available | FP2-EM2 | AFP2202 |
| | | Available | Available | Available | Available | FP2-EM3 | AFP2203 |
| | | Not available | Not available | Available | Available | FP2-EM6 | AFP2206 |
| | | Not available | Not available | Not available | Available | FP2-EM7 | AFP2207 |
| | F-ROM | FLASH-ROM for program copy and ROM operation. Equivalent to SST-29EE010-120-4C-PH Enables writing with the programming tool when attached to the CPU unit. | | | | FP2-EM4 | AFP2204 |
| | EP-ROM | EP-ROM for program storage and ROM operation. Equivalent to M27C1001-12F1 A commercially available ROM writer is required. | | | | FP2-EM5 | AFP2205 |

■ Optional memories for FP2SH

| Product name | | Specification | Part number |
|---|-----------------------|---|-------------|
| ROM for FP2SH AFP2231 | Expansion memory unit | Socket for fitting ROM to the CPU unit | AFP2207 |
| | F-ROM | FLASH-ROM for program copy and ROM operation. Equivalent to SST-29EE020-150-4C-PH Enables writing with the programming tool when attached to the CPU unit. | AFP5208 |
| | EP-ROM | EP-ROM for program storage and ROM operation. Equivalent to M27C2001-150F1. A commercially available ROM writer is required. | AFP5209 |
| IC memory card (Small PC card) for FP2SH CPU unit with IC memory card interface | F-ROM | Backup unnecessary. Perfect for program memory Used for readout when using data memory. | AIC50020 |
| | SRAM | Perfect for data memory Can also be used for program backup. Battery backups. | AIC52000 |

Note: Please refer to "FPΣ Product Types" for FP Memory Loader.

■ Backplane

| Product name | | Specification | Product number | Part number |
|---------------------|-------------------|--|----------------|-------------|
| FP2 Backplane | Conventional type | 5-module type (for basic) | FP2-BP05 | AFP25005 |
| | | 7-module type (for basic and expansion) | FP2-BP07 | AFP25007 |
| | | 9-module type (for basic and expansion) | FP2-BP09 | AFP25009 |
| | | 12-module type (for basic and expansion) | FP2-BP12 | AFP25012 |
| | | 14-module type (for basic and expansion) | FP2-BP14 | AFP25014 |
| | H type | 8 slots (for basic) | FP2-BP11MH | AFP25011MH |
| | | 8 slots (for expansion) | FP2-BP10EH | AFP25010EH |
| FP2 Expansion cable | | 0.6 m | FP2-EC | AFP2510 |
| | | 2 m | FP2-EC2 | AFP2512 |

■ Power supply unit

| Product name | Specification | Product number | Part number |
|-----------------------|---------------------------------------|----------------|-------------|
| FP2 Power supply unit | Input: 100 to 120 V AC, Output: 2.5 A | FP2-PSA1 | AFP2631 |
| | Input: 200 to 240 V AC, Output: 2.5 A | FP2-PSA2 | AFP2632 |
| | Input: 100 to 240 V AC, Output: 5 A | FP2-PSA3 | AFP2633 |
| | Input: 24 V AC, Output: 5 A | FP2-PSD2 | AFP2634 |

■ I/O units

| Product name | Type | Number of point | Connection method | Specification | Product number | Part number |
|--------------------|---------------------------------|------------------|-------------------|--|----------------|-------------|
| FP2 Input unit | DC input | 16 points | Terminal | 12-24V DC | FP2-X16D2 | AFP23023 |
| | | 32 points | Connector | 24V DC | FP2-X32D2 | AFP23064 |
| | | 64 points | Connector | 24V DC | FP2-X64D2 | AFP23067 |
| FP2 Output unit | Relayoutput | 6 points | Terminal | 5 A, 2 points per one common | FP2-Y6R | AFP23101 |
| | | 16 points | Terminal | 2 A, 8 points per one common | FP2-Y16R | AFP23103 |
| | Transistor output NPN | 16 points | Terminal | 0.5A (12-24V DC), 0.1A (5V DC) | FP2-Y16T | AFP23403 |
| | | 32 points | Connector | 0.1A (12-24V DC), 50mA (5V DC) | FP2-Y32T | AFP23404 |
| | Transistor output PNP | 64 points | Connector | 0.1A (12-24V DC), 50mA (5V DC) | FP2-Y64T | AFP23407 |
| | | 16 points | Terminal | 0.5A (12-24V DC), 0.1A (5V DC) | FP2-Y16P | AFP23503 |
| | | 32 points | Connector | 0.1A (12-24V DC), 50mA (5V DC) | FP2-Y32P | AFP23504 |
| | | 64 points | Connector | 0.1A (12-24V DC), 50mA (5V DC) | FP2-Y64P | AFP23507 |
| FP2 I/O mixed unit | DC input, Transistor output NPN | Input 32 points | Connector | Input 24 V DC Output 0.1 A (12 to 24 V DC), 50 mA (5 V DC) | FP2-XY64D2T | AFP23467 |
| | | Output 32 points | | Input 24 V DC Output 0.1 A (12 to 24 V DC), 50 mA (5 V DC) with on pulse catch input | FP2-XY64D7T | AFP23477 |
| | DC input, Transistor output PNP | Input 32 points | Connector | Input 24 V DC Output 0.1 A (12 to 24 V DC), 50 mA (5 V DC) | FP2-XY64D2P | AFP23567 |
| | | Output 32 points | | Input 24 V DC Output 0.1 A (12 to 24 V DC), 50 mA (5 V DC) with on pulse catch input | FP2-XY64D7P | AFP23577 |

Note: Pressure welding socket is supplied. A special tool (Part number AXYS2000) is needed for connection. Please purchase separately if you are using a terminal or flat cable socket.

■ Maintenance parts

| Product name | Specification | Part number |
|--------------|--|-------------|
| Battery | For FP2, button type battery, CR2450 or equivalent | AFC8801 |
| Dummy unit | For FP2SH CPU unit, battery with cable | AFP8801 |
| | For blank slot | AFP2300 |

Intelligent units for remote I/O control

| Product name | Specification | Controllable I/O points | Product number | Part number |
|--------------------------|---|-------------------------------|----------------|-------------|
| FP2 Multi-wire link unit | Can connect as the remote I/O system MEWNET-F master station. Perfect for remote I/O systems using many points | Max. 2048 points per one unit | FP2-MW | AFP2720 |
| FP2 CPU unit with S-LINK | Direct connection to SUNX Co., Ltd., S-LINK reduced-wiring system CPU unit with 128 points x 2 channels | 256 points at S-LINK section | FP2-C1SL | AFP2214 |
| FP2 S-LINK unit | Direct connection to SUNX Co., Ltd., S-LINK reduced-wiring system CPU unit with 128 points x 2 channels | 128 points per one unit | FP2-SL2 | AFP2780 |

Intelligent units for analog I/O

| Product name | Specification | Number of I/O points | Product number | Part number |
|------------------------|--|--------------------------|----------------|-------------|
| FP2 Analog input unit | FP2-AD8VI Not insulated Voltage: 1 to 5 V, -10 to +10 V Current: 4 to 20 mA, -20 to +20 mA | Analog input: 8 channels | FP2-AD8VI | AFP2400L |
| | FP2-AD8X Insulated Voltages, currents, thermocouples, resistance thermometer devices | Analog input: 8 channels | FP2-AD8X | AFP2401 |
| | FP2-RTD R.T.D. type: Pt 100, JPt 100, JPt 1000 type | R.T.D. input: 8ch | FP2-RTD | AFP2402 |
| FP2 Analog output unit | Voltage range: -10 to +10 V Current range: 0 to 20 mA Resolution: 1/4096 | Analog input: 4 channels | FP2-DA4 | AFP2410 |

Positioning unit, High-speed counter unit and Pulse I/O unit

| Product name | Specification | | | Product number | Part number |
|--|---|---------------------------|-------------------|----------------|-------------|
| | Output type | Number of axes controlled | Speed command | | |
| FP2 Positioning unit RTEX | | 2 axes | | FP2-PN2AN | AFP243610 |
| | | 4 axes | | FP2-PN4AN | AFP243620 |
| | | 8 axes | | FP2-PN8AN | AFP243630 |
| Control Configurator PM | Tool software for positioning unit RTEX (English) | | | - | AFPS66510 |
| FP2 Positioning unit Multifunction type ^{note 3)} | Transistor | 2 axes, independent | 1 pps to 500 kpps | FP2-PP21 | AFP2432 |
| | | 4 axes, independent | | FP2-PP41 | AFP2433 |
| | Line drive | 2 axes, independent | 1 pps to 4 Mpps | FP2-PP22 | AFP2434 |
| | | 4 axes, independent | | FP2-PP42 | AFP2435 |
| FP2 High-speed counter unit | 8 interrupt inputs 4-channel high-speed counter 8 comparison outputs Input: 24 V DC Output: 5 to 24 V DC (0.1 A, 12 points/0.8 A, 4 points) | | NPN output | FP2-HSCT | AFP2441 |
| | | | PNP output | FP2-HSCP | AFP2451 |
| FP2 Pulse I/O unit | 8 interrupt inputs 4-channel high-speed counter 8 comparison outputs 4 pulse output channels 4 PWM output channels Input: 24 V DC Output: 5 to 24 V DC (0.1 A, 12 points/0.8 A, 4 points) | | NPN output | FP2-PXYT | AFP2442 |
| | | | PNP output | FP2-PXYP | AFP2452 |

Notes: 1) Pressure welding socket is supplied. A special tool (part no. AXYS2000) is needed for connection. Please purchase separately if you are using a terminal or flat cable socket.
2) Please refer to "FPΣ Product Types" for Motor driver I/F terminal II.
3) Previous FP2 positioning units AFP2430 (FP2-PP2) and AFP2431 (FP2-PP4) are not compatible with the multi-function type FP2 positioning unit. Please contact us.

Serial communication and Link-related intelligent units

| Product name | Specification | Number of channels | Product number | Part number |
|---------------------------------|--|--------------------|----------------|-------------|
| FP2 MEWNET VE-link unit | 10 Mbps, 8,192 points/8,192 words, 99 units max. (VE mode), 254 units max. (FL-net), 2,500 m * For FP2SH (Cannot be used for FP2) | 1ch | FP2-VE | AFP27960 |
| FP2 ET-LAN unit | Ethernet-compatible unit for FP2/FP2SH To be mounted on the CPU backplane | 1ch | FP2-ET1 | AFP2790 |
| Control Configurator ET | ET-LAN unit setting software (English) | - | - | AAFPS32510 |
| FP2 Multi-wire link unit | For PLC links Compatible with MEWNET-W/MEWNET-W2 | 1ch | FP2-MW | AFP2720 |
| FP2 Multi-communication unit | Up to two blocks to be attached can be selected among RS485, RS232C, and RS422 blocks. General-purpose serial communications, computer links, PLC links (MEWNET-W0) | 2ch | FP2-MCU | AFP2465 |
| RS232C block | (For the multi-communication unit) 230 kbps, 15 m max. | 1ch | FP2-CB232 | AFP2803 |
| RS422 block | (For the multi-communication unit) 230 kbps, 1,200 m max. | 1ch | FP2-CB422 | AFP2804 |
| RS485 block | (For the multi-communication unit) For PLC links (MEWNET-W0): 115 kbps, 16 stations, 1,200 m | 1ch | FP2-CB485 | AFP2805 |
| FP2 Computer communication unit | For 1:1 communication between a PLC and a computer RS232C x 2 ch Connection with a control panel is also possible. | 2ch | FP2-CCU | AFP2462 |
| FP2 Serial data unit | For communications with general-purpose RS232C devices The serial input/output is executed by sequence commands. | 2ch | FP2-SDU | AFP2460 |

Control FPCWIN GR for Windows

| Product name | Type | Part number | Applicable PLC | | | | | | | | | | |
|-----------------------|-----------------------|--------------------|----------------|-----|-------------|------------|-------|-----|-------|--------|-----------------|---|-----|
| | | | FP-X | FPΣ | FP0 FP-e | FP0 10k | FP1*1 | FP2 | FP2SH | FP-M*1 | FP3*1 FP10SH | | |
| FPCWIN GR for Windows | English: Full type | CD-ROM for Windows | AFPS10520 | A | A | A | A | A | A | A | A | A | A |
| | English: Small type | CD-ROM for Windows | AFPS11520 | A | A | A | A | A | N/A | N/A | A | A | N/A |
| | English: Ver. up type | CD-ROM for Windows | AFPS10520R | | | | | | | | | | |
| | Chinese | CD-ROM for Windows | AFPS10820 | A | A | A | A | A | A | A | A | A | A |
| | Chinese: Ver. up type | CD-ROM for Windows | AFPS10820R | | | | | | | | | | |
| | Korean | CD-ROM for Windows | AFPS10920 | | | | | | | | | | |

*1 FP1, FP-M, and FP3/FP10SH have been discontinued.

A: Available, N/A: Not available

Control FPCWIN Pro (IEC61131-3 compliant Windows version software)

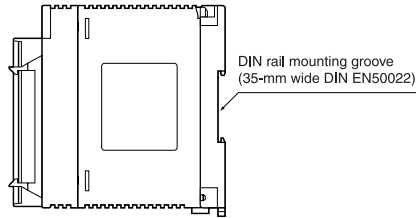
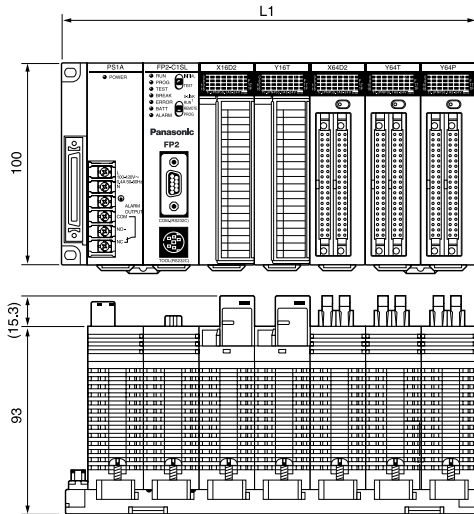
| Product name | Type | Part number | Applicable PLC | | | | | | | | | | |
|------------------------|---------------------|--------------------|----------------|-----|-------------|------------|-------|-----|-------|--------|-----------------|---|-----|
| | | | FP-X | FPΣ | FP0 FP-e | FP0 10k | FP1*1 | FP2 | FP2SH | FP-M*1 | FP3*1 FP10SH | | |
| FPCWIN Pro for Windows | English: Full type | CD-ROM for Windows | AFPS50550 | A | A | A | A | A | A | A | A | A | A |
| | English: Small type | CD-ROM for Windows | AFPS51550 | A | A | A | A | A | N/A | N/A | A | A | N/A |

*1: Ver. 5.1 or later will be supported soon.

*2: FP1, FP-M, and FP3/FP10SH have been discontinued.

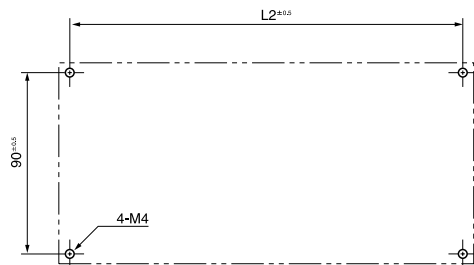
A: Available, N/A: Not available

FP2/FP2SH Dimensions



* The illustration shows a conventional 7-module type backplane.

Mounting dimension (Tolerance: ± 1.0)



● Conventional backplanes

| | 5-module | 7-module | 9-module | 12-module | 14-module |
|---------|----------|----------|----------|-----------|-----------|
| L1 (mm) | 140 | 209 | 265 | 349 | 405 |
| L2 (mm) | 130 | 199 | 255 | 339 | 395 |

Note: The 5-module type does not have an expansion connector.

● H type backplane

| | 11-module (master backplane) | 10-module (expansion backplane) |
|---------|------------------------------|---------------------------------|
| L1 (mm) | 349 | 349 |
| L2 (mm) | 339 | 339 |

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 These materials are printed with earth-friendly vegetable-based (soybean oil) ink.



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