

FP3

The FP3 is the standard model in the FP series unit type PLCs.



■ Features

1. The FP3 is designed in mind the expandability of both hardware and software

The 16-, 32- or 64-point I/O unit easily expands without any limitation on the number and position of units. By adding up to 2 boards (from 48 up to 512 points), the number of I/O's can be increased up to 1536 points.

2. A wide range of units are available to meet your specific control needs.

Analog I/O units (7 types)
 High-speed counter position control units (4 types)
 Operation display panel, computer I/F unit (1 type)
 Serial data control units (2 types)
 Remote I/O units (3 types)
 Linking units (5 types)

3. A series of CPU units with comment memory is also available.

I/O comments can be written in the CPU unit for circuit verification to facilitate the review and change of the program. *
 * For part number AFP3211C only

4. ROM (Optional)

ROM is available for program storage and copy memory.

■ Power supply / I/O Specifications

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

* 100 V AC or 200 V AC is selectable.

■ Performance Specifications

Item	Description	
Number of I/O points	Up to 512 points per board	
Expansion	Up to 2 boards Max. 1536 points when expanded Up to 2048 points when Remote I/O	
Operation speed	0.5 μ s/step	
Built-in memory	RAM (ROM is optional.)	
Memory capacity	Approx. 10k steps/Approx. 16k steps (varies with different models)	
Operation memory	Internal relay	1568 points
	Timer/Counter(T/C)	256 points in total
	Data register	2048 words

■ Special Functions

Item	Description
Analog I/O	Available by adding A/D and D/A converter units.
High speed counter	Available by adding high-speed counter unit. (Max. 100 kHz)
Pulse output	Positioning unit F type (Max. 400 kHz) Positioning unit E type (Max. 200 kHz) Pulse output unit (Max. 40 kHz)
RS232C port	Available by adding C.C.U.
Interrupt input	Available by adding interrupt input unit.

■ Special Network Functions

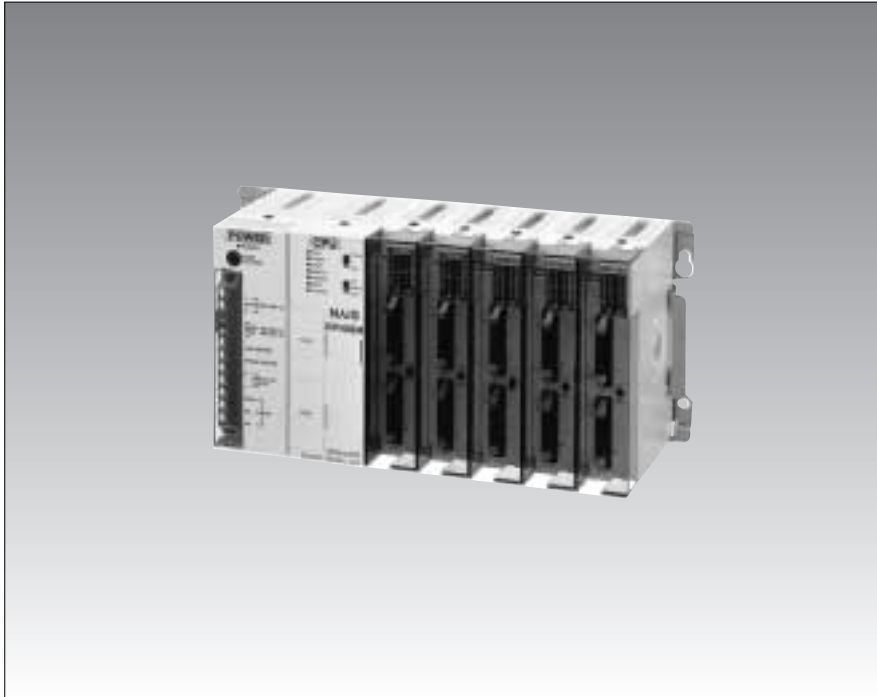
Item	Description
Remote I/O	MEWNET-TR, MEWNET-F
PC Link	MEWNET-W (Wire), MEWNET-P (Optical), MEWNET-H (Coaxes)
Computer link	Linkable with a tool port and the C.C.U. Linkable with MEWNET-H link board.
Modem connection	Available

■ Other Built-in Functions

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

FP10SH

This ultra high-speed, high-performance model achieves a scanning speed of 1 ms/10k step.



■ Features

- 1. High-speed scanning speed of 1 ms/10k step**
 Its parallel processing system executes computation and communication processing by separate micro processors respectively, to provide high-speed computation and communication processing.
- 2. Ample program capacity**
 A RAM with 30k steps is standard. Memory can be expanded up to 60k/120k steps by adding an expansion memory.
- 3. The FP10SH supports the 115k bits/s communication port.**
 Both the tool port and the standard RC232C port support 115k bits/s, allowing high-speed communication when a program is transported or an operation display panel is connected.
- 4. ROM/IC memory card is optionally available**
 ROM/IC memory cards can be installed in the unit for program storage and copying. Comment memory installed on optional boards allows you to write the comment on a generated program in the CPU. The IC memory card can also be used as expansion data memory.
- 5. Instructions for high-speed processing and data processing are added.**
 Timer instructions in 1 ms and real number operation instructions are added.

■ Power supply / I/O Specifications

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

* 100 V AC or 200 V AC is selectable.

■ Performance Specifications

Item	Description	
Number of I/O points	Up to 512 points per board	
Expansion	Up to 3 boards Max. 2048 points when expanded Up to 8192 points when Remote I/O	
Operation speed	0.04 μ s/step	
Built-in memory	RAM (ROM/IC memory card is optional)	
Memory capacity	30k steps Total number of points: Up to 120k steps when expanded	
Operation memory	Internal relay	14192 points
	Timer/Counter(T/C)	3072 points in total
	Data register	10240 words

■ Special Functions

Item	Description
Analog I/O	Available by adding A/D and D/A converter units.
High speed counter	Available by adding high-speed counter unit. (Max. 100 kHz)
Pulse output	Positioning unit F type (Max. 400 kHz) Positioning unit E type (Max. 200 kHz) Pulse output unit (Max. 40 kHz)
RS232C port	RS232C port is standard equipment on CPU unit
Interrupt input	Available by adding interrupt input unit.

■ Special Network Functions

Item	Description
Remote I/O	MEWNET-TR, MEWNET-F
PC Link	MEWNET-W (Wire), MEWNET-P (Optical), MEWNET-H (Coaxes)
Computer link	Linkable by using tool port or RS232C port on CPU unit. Also available by adding C.C.U. and MEWNET-H link board.
Modem connection	Available. Data can be transmitted by using the RS232C port on the CPU unit.

■ Other Built-in Functions

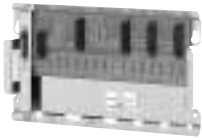
Item	Description
Program block-edit during RUN	Available
Constant scan	Available
Adjustable input time filtering	Not available
Clock/Calendar function	Built-in type

FP3/FP10SH Lineup

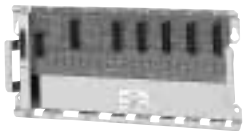
Medium and Large PLC FP3/FP10SH

Backplanes

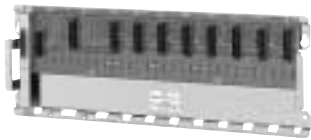
● Master backplanes



3-slot type

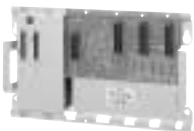


5-slot type

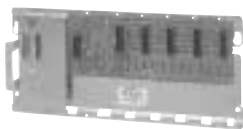


8-slot type

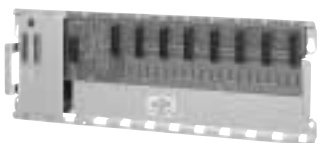
● Expansion backplanes



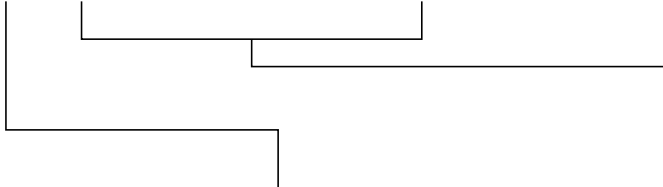
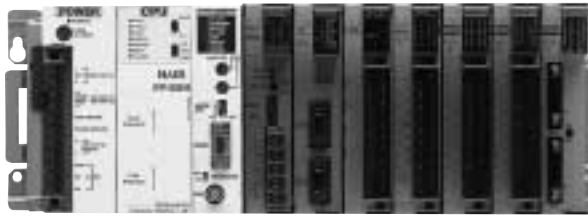
3-slot type




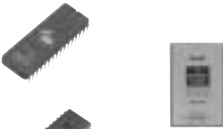






5-slot type



8-slot type



<p>CPU unit (with built-in RAM)</p> <p>An expansion memory unit (RAM) is available for the FP10SH.</p>	 FP3 CPU unit	 FP10SH CPU unit
<p>Optional memory</p> <p>Note: A ROM operation board or IC card board is required when optional memory is used for FP10SH.</p>	<p>For FP3</p>  Memory (EP-ROM) Master memory EEP-ROM	<p>For FP10SH</p>  EP-ROM F-ROM IC memory card SRAM
<p>MEWNET-F (remote I/O) Slave unit</p>  <p>This remote I/O slave unit need to be installed on the PLC when used as a slave station of the MEWNET-F (remote I/O system).</p>		

<p>Power supply unit</p>		
 100/200 V AC type (selectable)	 24 V DC type	 Power supply dummy unit

I/O units



16-point DC input type
16-point AC input type
8-point AC input type



32-point DC input type



64-point DC input type



16-point relay output type



16-point transistor output type,
triac output type



32-point transistor output type



64-point transistor output type



8-point DC input/
8-point relay output type



32-point DC input/
32-point transistor output type

High-speed interrupt unit



Interrupt unit

Expansion data memory unit



Expansion data memory unit

Analog I/O units



A/D converter unit
(analog input)



D/A converter unit
(analog output)



Thermocouple input unit



RTD input unit

Positioning and Motor control units



High-speed counter unit



Pulse output unit



Positioning unit E type



Positioning unit F type



Serial data unit



Data processing unit

Operation display panel and computer interface unit



Computer communication unit (C.C.U.)

Remote I/O-related units



MEWNET-F Remote I/O master unit



MEWNET-TR Transmitter master unit



S-LINK unit



MEWNET-W (wire) link unit



MEWNET-P (optical) link unit



MEWNET-H link unit



C-NET link unit



ET-LAN unit

Link-related units

FP3/FP10SH Options

■ Fittings



Terminal cover for FP3 I/O unit

For double terminal block. Used for wire connection by round crimp-style terminals

Part number: **AFP3801**



FP3 dummy unit

Unit for vacant slot cover

Part number: **AFP3300**

■ Spare Parts



Spare battery (Lithium battery)

For FP3/10SH CPU unit positioning unit F type and expansion data memory unit

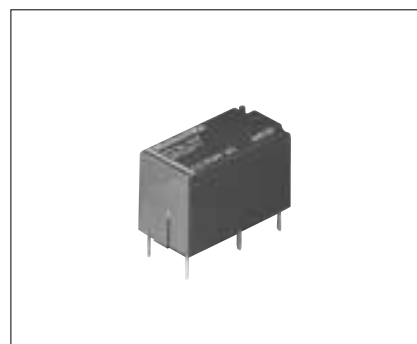
Part number: **AFP8801**



Spare battery (Lithium battery)

For FP3 data process unit

Part number: **AFP8805**



Spare relay

PC relay (for FP3 output unit)

Part number: **APC33125**



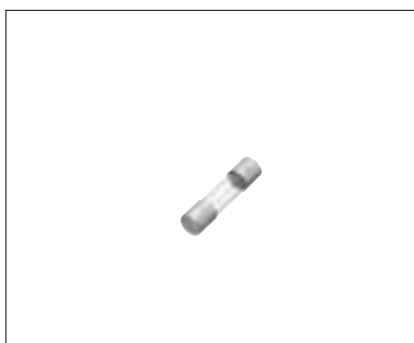
Spare fuse for power supply unit

2 A type (for FP3 power supply units: AFP3631, AFP3634)

Part number: **AFP88021**

4 A type (for FP3 power supply unit: AFP3638)

Part number: **AFP88022**



Spare fuse for FP3 I/O unit

5 A type (for Transistor output units: AFP33483, AFP33583)

Part number: **AFP88042**

5 A type (for Triac output unit: AFP33703)

Part number: **AFP88032**

FP3/FP10SH Product Types

1. CPU units (Built-in RAM)

A: Available N/A: Not available

Product name	Operation speed	Built-in RAM	Optional memory			Other functions		Part number
			Expansion RAM	ROM	IC memory card	Comment	Sampling trace	
FP3 CPU unit	0.5 μs or more	10k steps	—	A	N/A	N/A	N/A	AFP3210C-F
		16k steps	—	A	N/A	N/A	A	AFP3220C-F
FP10SH CPU unit	From 0.04 μs	30k steps	A	A note 1)	A note 1)	A note 2)	A	AFP6221V3
	From 0.10 μs		A	A note 1)	A note 1)	A note 2)	A	AFP6211V3

Notes: 1) To use a ROM or IC memory card with the FP10SH CPU unit, select the right ROM board or IC card board listed below.
 2) The FP10SH CPU unit does not have a comment memory. For this function, select the right ROM board or IC card board.
 3) Up to 12 characters can be entered in the comment memory of the FP3 CPU unit (AFP3211C-F).

2. Optional memories

Product name		Specifications	Part number
FP3	Memory	Used to store the program and drive ROM for driving the FP3. (27C256A equivalent) (2 pcs., 16K steps)	AFP5202
	Master memory	Used to copy and transfer the program for driving the FP3. (28C64 equivalent)(2 pcs., 8k steps) Used to copy and transfer the program for driving the FP3. (28C256 equivalent)(2 pcs., 16k steps)	AFP5205 AFP5206
FP10SH	Expansion memory unit	RAM unit added inside the FP10SH CPU unit.	30k steps 90k steps AFP6204 AFP6205
	ROM operation board	Optional board for fitting ROM to the FP10SH CPU unit. The board is equipped with comment memory.	AFP6208
	F-ROM	FLASH-ROM is used to copy programs and drive ROM. Equivalent to SST-29EE020-150-4C-PH This F-ROM is for writing data by attaching it to ROM operation board.	AFP5208
	EP-ROM	EP-ROM is used to store programs and drive ROM. Equivalent to M27C2001-150F1 Commercially available ROM writer is needed.	AFP5209
	IC card board	Optional board for fitting IC memory card to the FP10SH CPU unit. The board is equipped with comment memory.	AFP6209A
	IC memory card	S-RAM type RAM type best suited to store data. Also applicable as program memory. Backed up by battery.	1M B AIC31000

3. Backplanes

Product name	Specifications	Part number
FP3 Master backplane	3-slot type	AFP3505-F
	5-slot type	AFP3501-F
	8-slot type	AFP3502-F
FP3 Expansion backplane	3-slot type	AFP3506-F
	5-slot type	AFP3503-F
	8-slot type	AFP3504-F
FP3 Expansion cable	50 cm 19.685 inch	AFP3510
	1 m 3.281 ft.	AFP3511
	3 m 9.843 ft.	AFP3513
	10 m 32.808 ft.	AFP35110
	15 m 49.213 ft. (for FP3)	AFP35115

Note: For use of a 10 m 32.808 ft. or 15 m 49.213 ft. cable on the FP10SH, the system register must be set as specified.

4. Power supply unit

Product name	Specifications	Part number	
FP3 Power supply unit	Power supply 100/200 V AC type	Internal power supply: 5 V DC, 2.4 A External power supply: 24 V DC, 0.8 A	AFP3631
		Internal power supply: 5 V DC, 9 A (at ambient temperature 45°C or less)	AFP3638
	Power supply 24 V DC type	Internal power supply: 5 V DC, 2.4 A	AFP3634
FP3 Power supply dummy unit	Used instead of power supply unit when an extra power supply is not needed for the expansion backplane.	AFP3639	

FP3/FP10SH

5. I/O units

Product name	Type	Number of I/O points	Style	Specifications	Part number		
FP3 Input Unit	DC input	16	Terminal style	12 to 24 V DC Sink/Source \pm common input	AFP33023-F		
		32	Connector style	12 to 24 V DC Sink/Source \pm common input	AFP33024-F		
				5 V DC Sink/Source \pm common input	AFP33014-F		
		64	Connector style	24 V DC Sink/Source \pm common input, high-speed response type	AFP33068-F		
				12 to 24 V DC Sink/Source \pm common input, high-speed response type	AFP33028-F		
	64	Connector style	12 to 24 V Sink/Source \pm common input	AFP33027-F			
	AC input	8	Terminal style	100 to 120 V AC	AFP33041		
				200 to 240 V AC	AFP33051		
		16	Terminal style	100 to 120 V AC	AFP33043		
				200 to 240 V AC	AFP33053		
2 A without relay sockets				AFP33103-F			
FP3 Output Unit	Relay output	16	Terminal style	2 A with relay sockets	AFP33203-F		
				2 A without relay sockets	AFP33103-F		
	Transistor output NPN	16	Terminal style	NPN 5 to 24 V 0.5 A DC	AFP33483-F		
				32	Connector style	NPN 5 to 24 V 0.1 A DC	AFP33484-F
						NPN 5 to 24 V 0.1 A DC	AFP33487-F
	Transistor output PNP	16	Terminal style	PNP 5 to 24 V 0.5 A DC	AFP33583-F		
				32	Connector style	PNP 5 to 24 V 0.1 A DC	AFP33584-F
						PNP 5 to 24 V 0.1 A DC	AFP33587-F
	Triac output	16	Terminal style	Triac 100 to 200 V 0.5 A DC	AFP33703		
	FP3 I/O Mixed Unit	DC input Relay output	Input: 8 Output: 8	Terminal style	Input: 12 to 24 V DC Sink/Source input \pm common input Output: 2 A	AFP33223	
DC input Transistor output NPN		Input: 32 Output: 32	Connector style	Input: 12 to 24 V DC Sink/Source input \pm common input Output: NPN 5 to 24 V 0.1 A DC	AFP33428		
DC input Transistor output PNP		Input: 32 Output: 32	Connector style	Input: 12 to 24 V DC Sink/Source input \pm common input Output: PNP 5 to 24 V 0.1 A DC	AFP33528		

Notes: 1. The connector-type input/output units do not come with the connector. Select the right connector from the Connectors/Terminals Lists.
2. Maximum load current value of the transistor output units depend on the operating voltage. Refer to the Hardware Manual.

6. Intelligent units for Positioning and Motor control

Product name	Specifications	Part number	
FP3 High-speed Counter Unit	2 phases BIN 24 bits preset Control output Counting speed can be changed to 100k count/s, 50k count/s, 25k count/s, 8k count/s by program setting.	Single channel type	AFP3621
		Dual channel type	AFP3622
FP3 Pulse Output Unit	Pulse motor Pulse output for controlling servomotor (Low frequency: 200 Hz to 5 kHz, High frequency: 3 k to 40 kHz) Pulse output counter		AFP3480
FP3 Positioning Unit E type	Positioning points: 50 points per axis Speed command: Max. 200k pulse/s A connector is attached.	1-axis type	AFP3431E
		2-axis type (stand alone)	AFP3432E
FP3 Positioning Unit F type (for combination transistor output and line driver output)	Line driver output for positioning unit F type Performance: transistor output type equivalent A connector is attached.	1-axis type	AFP3434
		2-axis type	AFP3435
		3-axis type	AFP3436
FP Teaching Unit II	Positioning unit F/E type common		AFP5134
	Connection cable for between Teaching unit II and FP3 Positioning unit E type		AFP5520
	Connection cable for between Teaching unit II and FP3 Positioning unit F type		AFP1523

7. Intelligent unit for High-speed interrupt control

Product name	Specifications	Part number
FP3 Interrupt unit	The system executes the interrupt program after accepting interrupt input. 8 inputs, 12 to 24 V DC	AFP3452

8. Intelligent units for Analog input and output

Product name			Specifications	Part number	
A/D Converter Unit	G type	8-channel, non-insulated	Input range: -10 to +10 V → -4,000 to +4,000 (resolution 1/8,000) Response time: 20 ms or less/channel	AFP3402	
			Input range: 1 to 5 V → 0 to +8,000 (resolution 1/8,000) Response time: 20 ms or less/channel	AFP3403	
			Input range: 4 to 20 mA → 0 to +8,000 (resolution 1/8,000) Response time: 20 ms or less/channel	AFP3405	
	I type	8-channel, insulated	Input range: 1 to 5 V → 0 to +8,000 (resolution 1/8,000) Input range: 4 to 20 mA → 0 to +8,000 (resolution 1/8,000) Response time: 20 ms or less/channel	AFP3406	
			Input range: 0 to 5 V → 0 to +8,000 (resolution 1/8,000) Input range: 0 to 20 mA → 0 to +8,000 (resolution 1/8,000) Response time: 20 ms or less/channel	AFP3407	
			Input range: -10 to +10 V → -4,000 to +4,000 (resolution 1/8,000) Input range: -20 to +20 mA → -4,000 to +4,000 (resolution 1/8,000) Response time: 20 ms or less/channel	AFP3408	
	C type	4-channel, non-insulated	Input range: -10 to +10 V → -2,000 to +2,000 (resolution 1/4,000) Input range: 1 to 5 V → 0 to +4,000 (resolution 1/4,000) Input range: -20 to +20 mA → -1,000 to +1,000 (resolution 1/2,000) Input range: 4 to +20 mA → 0 to +4,000 (resolution 1/4,000) Scaling, averaging function, warning signal Response time: 2.5 ms or less/1 channels	AFP3400	
	D/A Converter Unit	I type	2-channel, insulated	Output range: 0 to +4,000 → 0 to 5 V (resolution 1/4,000) Response time: 5 ms or less/2 channels	AFP3412
				Output range: -2,000 to +2,000 → -10 to +10 V (resolution 1/4,000) Response time: 5 ms or less/2 channels	AFP3413
Output range: 0 to +4,000 → 1 to 5 V (resolution 1/4,000) Response time: 5 ms or less/2 channels				AFP3416	
4-channel, insulated			Output range: 0 to +4,000 → 4 to 20 mA (resolution 1/4,000) Response time: 5 ms or less/2 channels	AFP3417	
			Output range: 0 to +4,000 → 0 to 5 V (resolution 1/4,000) Response time: 10 ms or less/4 channels	AFP3414	
			Output range: -2,000 to +2,000 → -10 to +10 V (resolution 1/4,000) Response time: 10 ms or less/4 channels	AFP3415	
C type		2-channel, non-insulated (with upper and lower limit preset function for the analog output)	Output range: 0 to +4,000 → 1 to 5 V (resolution 1/4,000) Output range: 0 to +4,000 → 4 to +20 mA (resolution 1/4,000) Response time: 5 ms or less/2 channels	AFP3418	
			Output range: 0 to +4,000 → 4 to 20 mA (resolution 1/4,000) Response time: 10 ms or less/4 channels	AFP3419	
			Output range: -2,000 to +2,000 → -10 to +10 V (resolution 1/4,000) Output range: -2,000 to +2,000 → -20 to +20 mA (resolution 1/4,000) Response time: 5 ms or less/2 channels	AFP3410	
FP3 Thermocouple Input Unit (4-channel)			Compatible sensor type: K-type 0 to 1000°C 32 to 1,832°F J-type 0 to +600°C 32 to 1,112°F Digital converted data: 0 to +4,000 (resolution 1/4,000) Input temperature ranges: ① 0 to 200°C 32 to 392°F, ② 0 to 400°C 32 to 752°F, ③ 0 to 600°C 32 to 1,112°F, ④ 0 to 1,000°C 32 to 1,832°F	AFP3420	
FP3 RTD Input Unit (4-channel)			Compatible sensor type: Pt100 and Jpt100: -100 to +200°C -148 to 392°F Digital converted data: 0 to +4,000 (resolution 1/4,000) Input temperature ranges: ① -100 to 200°C -148 to 392°F, ② -100 to +50°C -148 to 122°F, ③ -50 to -100°C -58 to -148°F, ④ -20 to +80°C -4 to 176°F, ⑤ 50 to +200°C 122 to 392°F	AFP3421	

9. Intelligent unit for Computer interface

Product name	Specifications	Part number
FP3 Computer Communication Unit	The unit can communicate with a computer in 1:1 mode. RS232C × 1 channel The unit can also be connected with our operation display panel.	AFP3462

Note: Use the accompanying D-SUB connector (9 pins) or a separately sold cable.

10. Intelligent units for Serial data control and POP control

Product name	Specifications	Part number
FP3 Serial Data Unit	Serial I/O can be performed by a sequence instruction. ^{note 1)} RS232C × 2 channels	AFP3460
FP3 Data Process Unit	Data can be processed by connecting the device with a RS232C port. Programming language: BASIC, RS232C × 2 channels ^{note 1)}	AFP3461
DP-TERM Software for FP3 data process unit	Emulation software for using a computer as terminal (VT-100 equivalent) for data process unit programming A text processed program can be pulled up or down freely. ^{note 2)}	A Version for PC/AT compatible machines. 3.5" 2DD & 5.25" 2HD floppy disks are packed together. AFP866518

Notes: 1) Use the accompanying D-SUB connector (9 pins) or a separately sold cable.

2) The DP-TERM software does not come with an operating system package. Prepare an OS package for your computer.

FP3/FP10SH

11. Remote I/O system master units

Product name	Specifications	Part number
FP3 MEWNET-TR Transmitter Master Unit	Suitable for the small-size remote I/O system The I/O transmitter unit alone can be used for the slave station. Max. of 128 inputs and 128 outputs can be controlled per master unit.	AFP3750
FP3 MEWNET-F Remote I/O Master Unit	Suitable for the remote I/O system having the large number of using points. The slave station can be selected among a terminal board, slave unit, or manifold solenoid valve. Max. 2,048 points can be controlled per master unit. (For FP10SH, 4,096 points)	AFP3742
FP3 Remote I/O Slave Unit	Selects a unit freely by using the FP3 backplane. (The link unit, the CCU, the interrupt unit and the remote I/O master unit cannot be used. The interrupt function of the high-speed counter/pulse output unit cannot be used.)	AFP3745
FP3 S-LINK Unit (SUNX)	This unit can be directly connected to a SUNX S-LINK reduced wiring system. A sensor block, connector I/O unit or 1ch/2ch unit, etc., can be selected for the slave station. Max. 128 points can be controlled per unit.	SL-FP3

12. Link-related intelligent units

Product name	Specifications	Part number
FP3 MEWNET-H Link Unit	MEWNET-H Link Unit for FP3/FP10SH, installed on FP3 master backplane with MEWNET-H system software, please contact your dealer.	AFP3700
FP3 MEWNET-W Link Unit	MEWNET-W Link Unit for FP3/FP10SH Installed on FP3 master backplane.	AFP3720
FP3 MEWNET-P Link Unit	MEWNET-P Link Unit for FP3/FP10SH Installed on FP3 master backplane.	AFP3710
FP3 C-NET Link Unit	C-NET Link Unit for FP3/FP10SH Installed on FP3 master backplane. RS485 × 1 channel	AFP3463
FP3 ET-LAN Link Unit	Ethernet Link Unit for FP3/FP10SH Installed on FP3 master backplane.	AFP3790

13. Expansion data memory unit

Product name	Specifications	Part number	
FP3 Expansion Data Memory Unit	Data memory expansion unit which can be attached to the I/O unit installation area	256K B	AFP32091
		512K B	AFP32092

14. Maintenance parts

Product name	Specifications	Part number
Lithium Battery	For FP3 CPU unit, FP3 positioning unit	AFP8801
	For FP3 data process unit	AFP8805
Relay	PC relay for FP3 output unit	APC33125
Fuse for Power Supply Unit	2 A type for FP3 power supply unit (for AFP3631 and AFP3634)	AFP88021
	4 A type for FP3 power supply unit (for AFP3638)	AFP88022
Fuse for FP3 Output Unit	5 A type for triac type output unit (for AFP33703)	AFP88032
	5 A type for transistor type output unit (for AFP33483 and AFP33583)	AFP88042
Cover for FP3 I/O Unit Terminal Block	2-step type	AFP3801
FP3 Dummy Unit	For blank slot	AFP3300