

FP0R series: The ultra-compact PLCs

Features

- Ultra high-speed processing enhances productivity
- An ultra high speed of 0.08μs/step for basic instructions for the first 3000 steps and 0.58μs/step thereafter. The FP0R is ideal for positioning and process automation applications, e.g. in labeling machines.
- Large programming capacity of 16k or 32k steps
- Generous data register of up to 12k or 32k words
- Independent comment memory for documenting purposes
- USB2.0 port provides high-speed program transfer
- The new F-type FP0R provides maintenance-free and complete backup of all data without requiring a battery. Industry's first!
- Highly advanced, built-in positioning functions for up to 4 axes (servo/stepping motor)
- Jog operation
- Individual settings for acceleration and deceleration for ramp functions
- Target speed can be changed by an external signal input during jog operation or trapezoidal control
- Can read encoder signals of up to 50kHz (pulse frequency measurement)
- 6-channel high-speed counters and 4-axis pulse outputs can be used simultaneously
- FP0R units provide various kinds of networking communication using a built-in interface or expansion units
- Ethernet (Modbus TCP/IEC60870)
- Profibus
- CC-Link
- MEWNET-W0
- C-NET
- RS232C + RS484 serial communication
- FP0R – same ultra compact size as FP0
- FP0R – fully compatible with FP0 units



Specifications for the CPU types of the FP0R

CPU type	C10 series (relay output)	C14 series (relay output)	C16 series (transistor output)	C32 series (transistor output)	T32 series (transistor output)	F32 series (transistor output)
Number of inputs	6	8	8	16	16	16
Number of outputs	4 relay	6 relay	8 NPN/PNP	16 NPN/PNP	16 NPN/PNP	16 NPN/PNP
Output capacity	2A	2A	0.2A	0.2A	0.2A	0.2A
Digital I/O (max.)	106	110	112	128	128	128
Internal relays (R)	4096					
Processing speed	Up to 3000 steps: 0.08μs/step (basic instruction) After 3000 steps: 0.58μs/step (basic instruction)					
Program memory	EEPROM (no back-up battery required)					
Program capacity	16,000 steps			32,000 steps		
Data register (DT)	12,315 words			32,765 words		
Memory backup (Flash ROM)	Backup with F12, P13 instruction for all areas					--
	Auto backup when power is off: Counters: 16 Internal relays: 128 Data register: 315 words					
Memory backup (RAM)	--				Backup of the entire area by a built-in secondary battery	Backup of the entire area by FRAM (without the need for a battery)
High-speed counter	Single-phase: 6 channels (50kHz); 2-phase: 3 channels (15kHz)					
Pulse output	--		4 channels (50kHz), two channels can be controlled individually			
PWM output	--		4 channels (6Hz to 4.8kHz)			
RS232C interface	Up to two serial interfaces					
RS485 port	One RS485 port is mounted on each of C10MRS, C14MRS, C16MT, C16MP, C32MT, C32MP, T32MT, T32MP, F32MT, F32MP type (3P terminal block) Transmission speed (Baud rate): 19,200bits/s 115,200bits/s, Transmission distance: 1200m 9.843ft. Communication method: half duplex					
Clock/calendar function	--				Available	--
Other functions	Rewriting in RUN mode, download in RUN mode (incl. comments) 8-character password setting, and program upload protection					
Operating voltage	24V DC (± 10%)					

A wide variety of both single and combined units

Control units

Relay output type



Transistor output type



10 points	
Input	Output
6 points	4 points
AFP0RC10RS AFP0RC10CRS with 2nd RS232C AFP0RC10MRS with RS485	

14 points	
Input	Output
8 points	6 points
AFP0RC14RS, AFP0RC14CRS with 2nd RS232C AFP0RC14MRS with RS485	

16 points	
Input	Output
8 points	8 points
AFP0RC16P (PNP), AFP0RC16T (NPN) AFP0RC16CP (PNP), AFP0RC16CT (NPN) with 2nd RS232C AFP0RC16MT, AFP0RC16MP with RS485	

32 points	
Input	Output
16 points	16 points
AFP0RC32P (PNP), AFP0RC32TC (NPN) AFP0RC32CP (PNP), AFP0RC32CT (NPN) with 2nd RS232C AFP0RC32MT, AFP0RC32MP with RS485	

32 points (T-type)	
Input	Output
16 points	16 points
AFP0RT32CP (PNP), AFP0RT32CT (NPN) with 2nd RS232C AFP0RT32MT, AFP0RF32MT with RS485	

32 points (F-type)	
Input	Output
16 points	16 points
AFP0RF32CP (PNP), AFP0RF32CT (NPN) with 2nd RS232C AFP0RT32MP AFP0RF32MP with RS485	

FP Memory Loader

AFP8670

- Read or write programs (up to 60k steps) from or to a PLC
- Personal computer is not required
- Applicable with FP0R, FP-e, FPΣ (Sigma), FP-X and FP2SH



S-LINK MASTER CPU

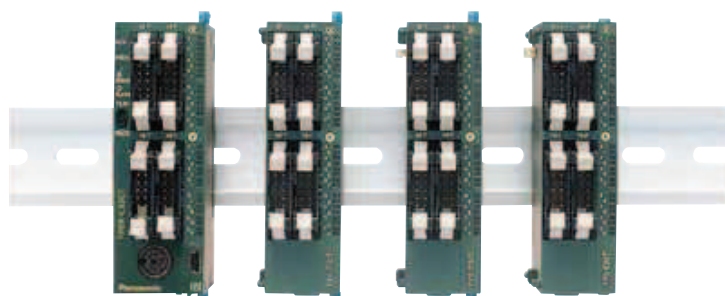
FP0-SL1

- Control of 64 input and 64 output points is possible with one unit
- Simple connection of S-LINK I/O devices
- Sensors can be easily connected with plug-in connections



Up to three expansion units can be directly connected without connection cables

The expansion unit can be attached easily without any cables to the control unit. Special expansion cables, backplanes, and so forth, are unnecessary as the expansion unit employs a stacking system that uses expansion connectors and lock levers on the surface of the unit itself.



Control unit Expansion unit Expansion unit Expansion unit (Up to 3 units can be added.)

A maximum of 3 expansion units can be added to the control unit

Digital I/O units

Relay output type



8 points	
Input 4 points	Output 4 points
AFP0RE8RS	

16 points	
Input 8 points	Output 8 points
AFP0RE16RS	

32 points	
Input 16 points	Output 16 points
FP0-E32RS	

Input only type



8 points	
Input 8 points	
AFP0RE8X	

16 points	
Input 16 points	
AFP0RE16X	

Transistor output type



8 points	
Output 8 points	
AFP0RE8YP (PNP) AFP0RE8YT (NPN)	

16 points	
Input 8 points	Output 8 points
AFP0RE16P (PNP) AFP0RE16T (NPN)	

16 points	
Output 16 points	
AFP0RE16YP (PNP) AFP0RE16YT (NPN)	

32 points	
Input 16 points	Output 16 points
AFP0RE32P (PNP) AFP0RE32T (NPN)	

8 points	
Output 8 points	
AFP0RE8YRS	

Analog I/O units



3 points	
Input 2 points	Output 1 point
FP0-A21	

4 points	
Output 4 points	
FP0-A04I	

4 points	
Output 4 points	
FP0-A04V	

8 points	
Input 8 points	
FP0-A80	

- Input (12 bit):
± 10V, 0 – 5V,
0 – 20mA
- Output (12 bit):
± 10V, 0 – 20mA

–

4 – 20mA

–

± 10V

± 10V, ± 100mV
0 – 5V, 0 – 20mA

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Temperature control units



4 points	
Input 4 points	
FP0-TC4	

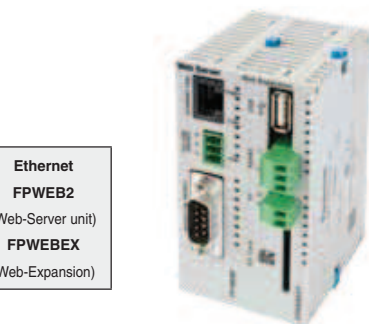
8 points	
Input 8 points	
FP0-TC8	

6 points	
Input 6 points	
FP0-RTD6	

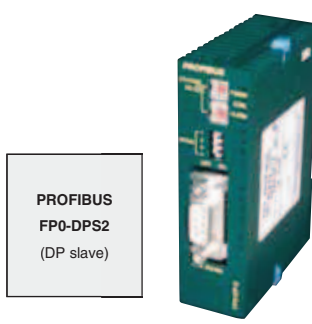
- K, J, T, R type thermocouples
can be used
- Resolution: 0.1°C
- Accuracy: 0.8°C (R type: 3°C)
- Temperature range:
-100 to 1500°C

- Pt100, Pt1000,
Ni1000
- Temperature range:
-200 to 500°C

Networking units



Ethernet FPWEB2 (Web-Server unit) FPWEBEX (Web-Expansion)
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PROFIBUS FP0-DPS2 (DP slave)
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FP Modem-56k (FP analog modem)
