Panasonic

NEW

Programmable Controller

FP0R SERIES

CE Conforming to EMC Directive

Makeover for FP0R Analog Units
Greatly Improved Performance, Extended Functions

NEW
Analog Input Unit
Input: 4 channels
AFP0RAD4

NEW
Analog Input Unit
Input: 8 channels
AFP0RAD8

NEW
Analog Output Unit
Output: 4 channels
AFP0RDA4

NEW
Analog I/O Unit
Input: 2 channels / Output: 1 channel
AFP0RA21

NEW
Analog I/O Unit
Input: 4 channels / Output: 2 channels
AFP0RA42

Higher resolution: 14 bits (previously 12 bits)

Higher resolution: 12 bits → 14 bits (analog input, output)
Higher precision: ±0.6 % → ±0.2 % (at 25 °C 77 °F)
Achieve high-resolution analog control in applications such as film winding, tension control, winding speed control, and other operations.

Enables move to multi-channel systems and optimization

Up to 8-channel input: Easier transition to multi-channel systems
And, with free combination of input/output, systems can be optimized.

Select among 5 input ranges and 6 output ranges

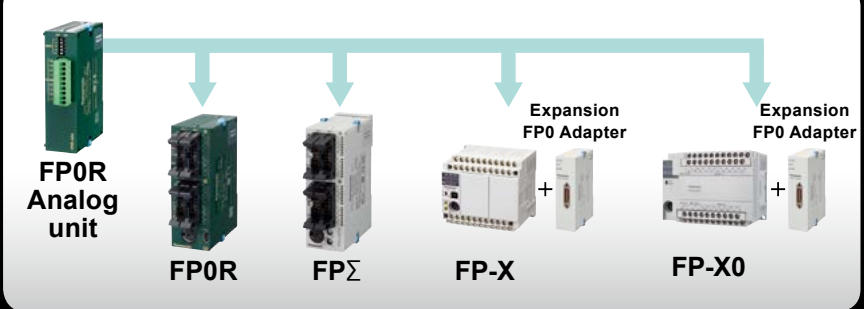
Five selectable input settings: ±10 V, ±5 V, 0 to +10 V, 0 to +5 V, 0 to 20 mA
Sixth output setting: ±10 V, ±5 V, 0 to +10 V, 0 to +5 V, 0 to 20 mA, 4 to 20 mA
With ±10 V support it is even possible to control the rotation of motors.

Easy backward compatibility

Use compatibility mode to retain existing ladder programming.
You can use a DIP switch to enable compatibility mode, which allows operation at 12-bit resolution (using program resources).

Can also be used with other PLCs outside the FP0R series

Use in connection with **FPΣ**, **FP-X**, and **FP-X0** series PLCs is possible.



FP0R series Control unit Features

- **Large capacity program/data memory**
  Program capacity: 32 k steps max., Data register: 32 k words max.
- **USB tool port provided as standard equipment**
  Capable of high-speed program transfer with USB 2.0
- **Battery-less automatic backup of all data**
  The F type has a built-in FeRAM, industry's first, that allows the automatic saving of all data without a backup battery.
- **Ultra-high speed processing**
  80 ns / step (ST instruction)
  * Within a range of 0 to 3,000 program steps
- **Multi-axis control available without expansion units**
  Built-in pulse outputs for four axes (50 kHz max. each)

SPECIFICATIONS

Item \ Product name / Part No.		Analog input units		Analog I/O units (Only input section)	
		AFP0RAD4	AFP0RAD8	AFP0RA21	AFP0RA42
Number of input / output channels		4 / 0	8 / 0	2 / 1	4 / 2
Input range (digital input range)	Voltage	−10 to +10 V 14 bits (−8,000 to +8,000) −5 to +5 V 14 bits (−8,000 to +8,000) 0 to +10 V 14 bits (0 to +16,000) 0 to +5 V 14 bits (0 to +16,000)			
	Current	0 to 20 mA 14 bits (0 to +16,000)			
Absolute maximum input	Voltage	±15 V			
	Current	±30 mA			
Input impedance	Voltage	1 MΩ approx.			
	Current	250 Ω approx.			
Max. resolution		14 bits (1/16,000)			
Overall accuracy	Voltage	±0.2 % F.S. or less (at +25°C +77°F) ±0.4 % F.S. or less (at 0 to +55°C +32 to +131°F)			
	Current	±0.3 % F.S. or less (at +25°C +77°F) ±0.6 % F.S. or less (at 0 to +55°C +32 to +131°F)			
Conversion speed		2 ms/all channels			
Other functions		Averaging processing (moving, number of times) Compatibility function for existing programs (12 bits)			
Insulation method	Between input terminals and internal circuit	Photocoupler and isolated DC/DC converter			
	Between channels	Not insulated			

Item \ Product name / Part No.		Analog output unit	Analog I/O units (Only output section)	
		AFP0RDA4	AFP0RA21	AFP0RA42
Number of input / output channels		0 / 4	2 / 1	4 / 2
Output range (analog output setting range)	Voltage	−10 to +10 V 14 bits (−8,000 to +8,000) −5 to +5 V 14 bits (−8,000 to +8,000) 0 to +10 V 14 bits (0 to +16,000) 0 to +5 V 14 bits (0 to +16,000)		
	Current	0 to 20mA 14 bits (0 to +16,000) 4 to 20mA 14 bits (0 to +16,000)		
Output impedance	Voltage	0.5 Ω or less		
Max. output current	Voltage	±10 mA		
Permissible output load resistance	Current	500 Ω or less		
Max. resolution		14 bits (1/16,000)		
Overall accuracy	Voltage	±0.2 % F.S. or less (at +25°C +77°F) ±0.4 % F.S. or less (at 0 to +55°C +32 to +131°F)		
	Current	±0.3 % F.S. or less (at +25°C +77°F) ±0.6 % F.S. or less (at 0 to +55°C +32 to +131°F)		
Conversion speed		500 µs/all channels		
Other functions		Compatibility function for existing programs (12 bits)		
Insulation method	Between the output terminals and internal circuit	Photocoupler and isolated DC/DC converter		
	Between channels	Not insulated		

PRODUCT TYPES

Product name	Number of channels	Part No.
FP0R Analog input unit	Input: 4 channels	**AFP0RAD4**
FP0R Analog input unit	Input: 8 channels	**AFP0RAD8**
FP0R Analog I/O unit	Input: 2 channels / Output: 1 channel	**AFP0RA21**
FP0R Analog I/O unit	Input: 4 channels / Output: 2 channels	**AFP0RA42**
FP0R Analog output unit	Output: 4 channels	**AFP0RDA4**

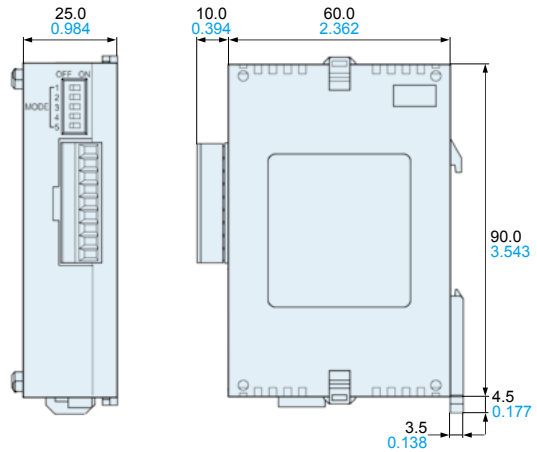
PREVIOUS MODEL SUBSTITUTION TABLE

Analog type		Previous model	New model
Input		———	**AFP0RAD4**
		AFP0401	**AFP0RAD8**
Output	Voltage	**AFP04121**	**AFP0RDA4**
	Current	**AFP04123**	
Input / Output		**AFP0480**	**AFP0RA21**
		———	**AFP0RA42**

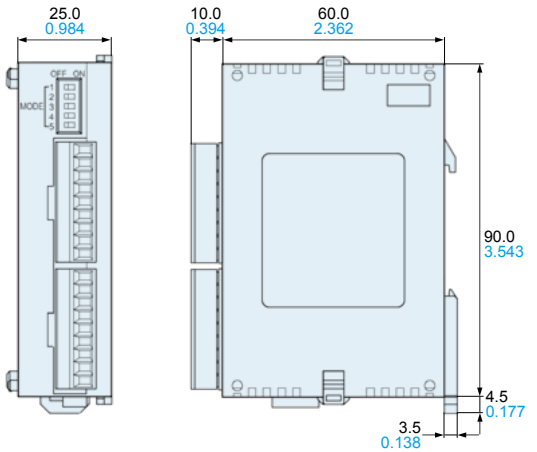
DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

AFP0RAD4 AFP0RA21 Analog unit



AFP0RAD8 AFP0RDA4 AFP0RA42 Analog unit



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