

Related Products List

FP Memory Loader

Product name	Part number
Data non-hold type	AFP8670
Data hold type	AFP8671

PCWAY Ver. 2.7 (Operation Data Managing Software)

Product name	Part number
PCWAY IBM printer port version	AFW10011
PCWAY USB port version	AFW10031
PCWAY Version upgrade	AFW10401

* Charged version upgrade for Ver. 2.0 to 2.6.

Control CommX Ver. 1.3 (OCX for Communication)

Product name	Part number
Control CommX IBM printer port	AFW20011
Control CommX USB port	AFW20031

FP Web-Server Unit

Product name	Part number
FP Web-Server unit	AFP0610
FP Web Configurator Tool	AFPS30510

Key Unit

Economical type is available for secondary key.
The key unit is available for PCWAY and Control CommX.

Product name	Part number
Key unit IBM printer port version	AFW1031*
Key unit USB port version	AFW1033

*The discontinuation of AFW1031 production is scheduled for August 2007.

Specifications

1. General Specifications

Item	Description
Rated voltage	100 to 240 V AC (AC power), 24 V DC (DC power)
Operating voltage range	85 to 264 V AC (AC power), 20.4 to 28.8 V DC (DC power)
Rush current	40 A or less (C14), 45 A or less (C30, C60) at 25°C (AC power) 12 A or less at 25°C (DC power)
Allowed momentary power off time	10 ms or more
Ambient temperature	0 to +55°C
Storage temperature	-40 to +70°C
Ambient humidity	10 to 95% RH (at 25 °C, non-condensing)
Storage humidity	10 to 95% RH (at 25 °C, non-condensing)
Breakdown voltage	Combined input/output terminals - Combined power and ground terminals, 2300 V AC 1 minute (AC power), 500 V AC ^{*1} 1 minute (DC power)
	Input terminals - Relay output terminals, 2300 V AC ^{*1} 1 minute
	Input terminals - Transistor output terminals, 500 V AC ^{*1} 1 minute
Insulation resistance	Power terminals - Ground terminals, 1500 V AC ^{*1} 1 minute (AC power), 500 V AC ^{*1} 1 minute (DC power)
	Combined input/output terminals - Combined power and ground terminals, 100 MΩ or higher (500 V DC using an insulation resistance meter)
	Input terminals - Output terminals, 100 MΩ or higher (500 V DC using an insulation resistance meter)
Vibration resistance	Power terminals - Ground terminals, 100 MΩ or higher (500 V DC using an insulation resistance meter)
Shock resistance	5 to 9 Hz, single amplitude 3.5 mm/9 to 150 Hz, constant acceleration 9.8 m/s ² , 1 sweep/min, 10 sweeps in each XYZ direction 147 m/s ²
Noise immunity	1500 V [P-P] pulse width 50 ns, 1 μs (AC power), 500 V [P-P] pulse width 50 ns, 1 μs (DC power) (per noise simulator method) (power terminals)
Operating condition	No corrosive gas and no excessive dust
EC Directive Compliance Standard	Conforming to EN61131-2
Level of contamination	2
Over-voltage category	II

*1 Cutoff current 5 mA

2. Power Consumption, Weight

Product name	Part number	Current consumption	Weight
Control unit	AFPX-C14○○	26 W or less ^{*2}	Approx. 280 g or less
	AFPX-C30○○	52 W or less ^{*2}	Approx. 490 g or less
	AFPX-C60○○	64 W or less ^{*2}	Approx. 780 g or less
Expansion I/O unit	AFPX-E16○○	8 W or less ^{*2}	Approx. 195 g or less
	AFPX-E30○○	42 W or less ^{*2}	Approx. 430 g or less
Expansion FP0 adapter	AFPX-EFP0	0.24 W or less ^{*3}	Approx. 65 g
FP-X communication cassette	AFPX-COM1	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM2	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM3	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM4	2 W or less ^{*2}	Approx. 20 g
	AFPX-COM5	2 W or less ^{*2}	Approx. 20 g
FP-X analog input cassette	AFPX-AD2	2 W or less ^{*2}	Approx. 25 g
FP-X input cassette	AFPX-IN8	1 W or less ^{*2}	Approx. 25 g
FP-X output cassette	AFPX-TR8	1 W or less ^{*2}	Approx. 25 g
	AFPX-TR6P	1 W or less ^{*2}	Approx. 25 g
FP-X pulse I/O cassette	AFPX-PLS	2 W or less ^{*2}	Approx. 25 g
FP-X master memory cassette	AFPX-MRTC	2 W or less ^{*2}	Approx. 20 g

*2 Power consumption by the AC power supply connected to the control unit *3 Power consumption by the DC power supply connected to the expansion FP0 adapter

*4 Please refer to FP0 users manual for FP0 expansion units.

Please refer to the user manual and specifications for further details.

Specifications

3. Controls Specifications

Item	Specifications	
Program method	Relay symbol method	
Control method	Cyclic operation method	
Program memory	Flash ROM built-in (no battery backup required)	
Program capacity	16 ksteps (C14), 32 ksteps (C30, C60)	
Operation processing speed	Basic instruction 0.32 μs/step	
Basic instructions	111	
Applied instructions	216	
External inputs (X)	1760 points ^{*4}	
External outputs (Y)	1760 points ^{*4}	
Internal relay (R)	4096 points	
Special internal relay (R)	192 points	
Link relay (L)	2048 points	
Timer/counter (T/C)	Total 1024 points: timer capable of counting (1 ms, 10 ms, 100 ms, 1 s) x 32767 Counter capable of counting 1 to 32767	
Data register (DT)	12285 words (C14), 32765 words (C3R, C60)	
Link data register (LD)	256 words	
Special data register (DT)	374 words	
Index register (I0 to ID)	14 words	
Master control relay (MCR)	256 points	
Number of labels (LOOP)	256 labels	
Number of differentiations	Up to program capacity	
Number of stepladders	1000 stages	
Number of subroutines	500 subroutines	
Number of interruption programs	Relay output type: 15 programs (14 external, 1 constant) Transistor output type: 9 programs (8 external, 1 constant)	
High-speed counter ^{*5}	Built-in (Transistor output): single-phase 8 ch (50 kHz x 4 ch + 10 kHz x 4 ch) Built-in (Relay output): single-phase 8 ch (10 kHz x 8 ch) Pulse I/O cassette (AFPX-PLS) for relay output type: single-phase 2 ch (80 kHz x 2 ch)	
Pulse output ^{*6}	Built-in (Transistor output): 100 kHz x 2 ch + 20 kHz x 2 ch Pulse I/O cassette (AFPX-PLS) for relay output type: One unit (one axis) 100 kHz, or two units (two axes) 80 kHz	
Pulse catch input / interrupt input	Relay output type: Total 14 points (including the high-speed counter) Transistor output type: Total 8 points (including the high-speed counter)	
Periodical interrupt	0.5 ms to 30 s	
Potentiometer	2 points (0 to 1000) (C14, C30) 4 points (0 to 1000) (C60)	
Constant scan	Possible	
Real-time clock	Equipped (usable only when AFPX-MRTC is installed) ^{*7}	
Flash ROM backup ^{*9}	Backup by F12, P13 commands	Data register (32765 words)
	Auto-backup at power failure	Counter 16 points (1008 to 1023), Internal relay 128 points (R2470 to R255F), Data register 55 words
Battery backup	The memory allocated in the storage area by the system register (only when a battery is installed) ^{*8}	
Battery life (when no power is supplied)	Before installing AFPX-MRTC C14: 1230 days (actual operation 10 years at 25°C) C30, C60: 990 days (actual operation 10 years at 25°C) After installing AFPX-MRTC C14: 780 days (actual operation 10 years at 25°C) C30, C60: 680 days (actual operation 10 years at 25°C) (More than two batteries can be installed in C30 and C60. In this case, the battery life is extended several times)	
Password	Capable (4 or 8 characters selectable)	
Self-diagnosis function	Watch dog timer, program syntax check	
Comment storage	Capable (328 KB) (backup battery not required)	
PLC link function	Max 16 units, link relay 1024 points, link register 128 words (No data transfer or remote programming)	
Rewriting in RUN mode	Capable	

^{*4} The actual usable number of points is restricted by the hardware.

^{*5} Specification at the rated input voltage of 24 V DC, 25°C. Frequency may be lower due to the voltage and temperature.

^{*6} Max frequency may vary by the method of operation. Please refer to the manual for details.

^{*7} Calendar accuracy at 0°C: 119 sec/month or less, 25°C: 51 sec/month or less, 55°C: 148 sec/month or less (Real-time clock requires a battery.)

^{*8} When data is stored in the storage area while the battery is not installed, the data is not cleared and the data value may be indefinite.

The same condition occurs when the battery is exhausted.

^{*9} The number of possible rewrites is 10,000 or less.

Specifications

4. Input Specifications (Control unit, expansion unit)

Item		Description	
		Relay output	Transistor output
Insulation method		Photo-coupler	
Rated input voltage		24 V DC	
Operating voltage range		21.6 to 26.4 V DC	
Rated input current		Approx. 4.7 mA (Control unit X0 to X7)	Approx. 8 mA (Control unit X0 to X3)
		Approx. 4.3 mA (Control unit X8 and after, expansion unit)	Approx. 4.7 mA (Control unit X4 to X7)
Input points per common		8 points/common (C14, E16) 16 points/common (C30, C60)	
		(Input power polarity either positive or negative)	
Min. ON voltage/ON current		19.2 V/3 mA	19.2 V/6 mA (Control unit X0 to X3) 19.2 V/3 mA (Control unit X4 and after, expansion unit)
Max. OFF voltage/OFF current		2.4 V/1 mA	2.4 V/1.3 mA (Control unit X0 to X3) 2.4 V/1 mA (Control unit X4 and after, expansion unit)
Input impedance		Approx. 5.1 kΩ (Control unit X0 to X7)	Approx. 3 kΩ (Control unit X0 to X3)
		Approx. 5.6 kΩ (Control unit X8 and after, expansion unit)	Approx. 5.1 kΩ (Control unit X4 to X7) Approx. 5.6 kΩ (Control unit X8 and after, expansion unit)
Response time	OFF → ON	Control unit X0 to X7 0.6 ms or less: Normal input 50 ms or less: High-speed counter, pulse catch, interruption input setting*1 Control unit X8 and after, expansion unit 0.6 ms or less	Control unit X0 to X3 135 μs or less: Nominal input 5 μs or less: High-speed counter, pulse catch, interruption input setting*1 Control unit X4 to X7 135 μs or less: Nominal input 50 μs or less: High-speed counter, pulse catch, interruption input setting*1 Control unit X8 and after, expansion unit 0.6 ms or less
	ON → OFF	Same as above	
Operating indicator		LED display	

*1 Specification at the rated input voltage of 24 V DC, 25°C.

5. Relay Output Specifications (Control units, Expansion units)

Item		Description
Output type		1a contact
Rated control capacity (Resistive load)		2 A 250 V AC, 2 A 30 V DC (8 A or less/common)
Output points per common		4 points/common
Response time	OFF → ON	Approx. 10 ms
	ON → OFF	Approx. 8 ms
Life time	Mechanical	20 million operations or more (Operation frequency 180 times/min)
	Electrical	100,000 operations or more (Operation frequency 20 times/min at the rated control capacity)
Surge absorber		None
Operating indicator		LED display

6. Transistor Output Specifications

Item		Description
Insulation method		Photocoupler
Output type		Open collector
Rated load voltage		NPN type: 5 to 24 V DC, PNP type: 24 V DC
Load voltage allowable range		NPN type: 4.75 to 26.4 V DC, PNP type: 21.6 to 26.4 V DC
Max. load current		0.5 A
Max. inrush current		1.5 A
Output points per common		8 points/common (C14, E16) 8 points/common, 6 points/common (C30, C60, E30)
OFF state leakage current		1 μA or less
ON state voltage drop		0.3 V DC or less
Response time	OFF → ON	1 ms or less*2
	ON → OFF	1 ms or less*2
Voltage range for external power supply		21.6 to 26.4 V DC
Surge absorber		Zener diode
Operating indicator		LED display

*2 Please refer to the user manual for Y0 to Y7 of the transistor output type.