

Flat-Pak Modular

Key features of the FA2J flat-pack modular include:

- 6ms/K processing
- Up to 128 inputs, 128 outputs
- DC inputs, relay or transistor outputs
- Low profile for shallow panels
- 8-bit or 12-bit analog input, multiplexer
- Replaceable relays
- Memory: 1K, 4K
- High-speed counter
- Computer link, networking



UL Listed
File No. E102542



CSA Certified
File No. LR66809



Programming	Boolean or ladder logic
Available Instructions	15 basic, 57 advanced instructions [FA1J: 27 advanced instructions]
Capacity	964 steps (1K memory) 3,300 steps (4K memory)
Memory	1K, 4K CMOS-RAM (with battery) 4K EEPROM
Processing	6ms per 1K (basic instructions) [FA1J: 32ms per 1K]
Input	128 points (maximum)
Output	128 points (maximum)
Total I/O	256 points (maximum)
Internal Relay	608 points (240 can be maintained) [FA1J: 240 points; all can be maintained]
Special I/R	16 points
Shift Register	128 points (all can be maintained)
Single Shot Output	96 points
10ms Timer	80 points, subtracting, 0 to 999.9s 80 points [FA1J: not available]
Counter	45 points, adding, 0 to 9,999 (all can be maintained)
Reversible Counter	2 points (all can be maintained)
Data Register	400 points (all can be maintained) [FA1J: 100 points; all can be maintained]
Computer Interface	RS-232 link adaptor
External Control	Start: input 0; Stop and reset: function settings
Power Failure Protection	Internal relay, shift register, counter, reversible counter, data register
Diagnostics	CPU error (WDT), communication error, CRC error in user programs, operation code error
Auto Start	After power-up, automatic run state using function setting
Rated Voltage	100 to 240V AC 50/60Hz; Allowable: 85 to 110% of rated voltage; 24V DC $\pm 20\%$ (ripple 10% maximum)
Dielectric Strength	Between power or I/O terminal and ground: 1,500V AC, 1 minute (500V AC for analog lines)
Insulation Resistance	Between power or I/O terminal and ground: 10M Ω (500V DC megger)
Temperature	Operating: 0 to +55°C; Storage: -20 to +70°C
Operating Humidity	45 to 85% RH (avoid condensation)
Vibration Resistance	2G, 1 hour in each of 3 axes
Shock Resistance	10G
Noise Resistance	Between power or I/O terminal and ground: ± 1.3 kV p-p, 1 μ s (1kV DC pulse generator)
Ground Resistance	100 Ω (maximum)
Mounting Style	Panel mount

Part Numbers: FA2J

Item		Description	Part Number	
CPU	AC	FA2J CPU; power: 100 to 240V AC	PF2J-CPU1E	
	DC	FA2J CPU; power: 24V DC	PF2J-CPU1DCE	
Power	AC	Internal power supply for I/O expansion (100 to 240V AC)	PFJ-PS1	
	DC	Internal power supply for I/O expansion (24V DC)	PFJ-PS1DC	
	External	External power supply for DC inputs, sensors (24V DC/0.5A)	PFJ-PU2	
Expansion	Base Plate	For installing two I/O modules	PFJ-EB1	
	Double-Stack Expansion	Mount CPU or expansion power, plus "piggyback" mounting capacity for two I/O modules (order one PFJ-EB1 separately)	PFJ-DP1	
		Mount two I/O modules, plus "piggyback" mounting capacity for two more I/O modules (order two PFJ-EB1s parts separately)	PFJ-DP2	
Input	8-Point DC	Transistor (source)	24V DC NPN transistor inputs PFJ-N081	
		Transistor (sink)	24V DC PNP transistor inputs PFJ-N082	
	8-Point AC	100V AC	100 to 120V AC inputs, standard response 100 to 120V AC inputs, fast response PFJ-N083 PFJ-N083A	
		200V AC	200 to 240V AC inputs, standard response 200 to 240V AC inputs, fast response PFJ-N084 PFJ-N084A	
	16-Point DC	Transistor (source)	24V DC NPN transistor inputs 5V DC NPN transistor inputs PFJ-N161 PFJ-N161A	
		Transistor (sink)	24V DC PNP transistor inputs PFJ-N162	
	Analog Input	8-Bit	Voltage	0 to 10V DC inputs, 8-bit resolution, fast response 0 to 10V DC inputs, 8-bit resolution, standard response PFJ-N012 PFJ-N012A
			Current	4 to 20mA DC inputs, 8-bit resolution, fast response 4 to 20mA DC inputs, 8-bit resolution, standard response PFJ-N013 PFJ-N013A
12-Bit		Voltage	0 to 10V DC analog input, 1 point, 12-bit resolution 1 to 5V DC analog input, 1 point, 12-bit resolution PFJ-N112A PFJ-N113A	
		Current	4 to 20mA DC analog input, 1 point, 12-bit resolution PFJ-N114A	
Multiplexer	12-Bit Analog Input	Voltage Current	Analog multiplexer module, 4 points, voltage Analog multiplexer module, 4 points, current PFJ-4MPV PFJ-4MPI	
Output	8-Point	Relay	1NO contact, rated load 110V AC, 5A; 220V AC, 2A PFJ-T081	
		Transistor (sink)	Rated load 12 to 48V DC, 1A per point PFJ-T082	
		SSR	Rated load 100 to 240V AC 1A per point PFJ-T083	
	16-Point Transistor	Transistor (sink)	Rated load 12 to 28V DC, 0.5A per point Rated load 5 to 12V DC, 20mA per point PFJ-T162 PFJ-T162A	
		Transistor (source)	Rated load 12 to 28V DC, 50mA per point Rated load 12 to 28V DC, 0.5A per point PFJ-T162B PFJ-T162C	
	Analog	Voltage	0 to 10V DC output, 8-bit resolution PFJ-T012	
		Current	4 to 20mA DC output, 8-bit resolution PFJ-T013	
	Program Loader	Loader Extension Cable	Program loader with built-in PROM burner 59" (1.5m) — not included with program loader PF3S-HL161E PFA-1A11	
Memory Packs (see details on page J-42)		4K EEPROM (compatible with FA3S) 1K CMOS-RAM (compatible with FA3S) 4K CMOS-RAM (compatible with FA3S) PFA-1M14 PFA-1M21 PFA-1M24		
High Performance Input	High-Speed Counter	Single-phase, for high-frequency inputs Two-phase, for quadrature rotary encoder inputs PFA-N011A PFA-N011B		
Blank Module		Occupies unused slot on base plate PFJ-DM		
Computer Interface (all 3 parts required)		Link adaptor for 1:1 communications to IBM-compatible PC Link cable, FA series CPU to link adapter 12" (300mm) Link cable, PC to link adapter, 78.74" (2m) PF2-CLA PFA-1A51 PFA-1A54A		
Software		Windows-based programming software for all IDEC PLCs (for more information, see page J-44) WINDLDR		
User's Manuals		User's Manual FA2J EM325-0		
		8 Bit Analog I/O Manual EM049		
		12 Bit Analog Input Manual EM225		

FA3S: The Powerhouse

- UL Listed
File No. E102542
- CSA Certified
File No. LR66809
- CE Certified
EMC Approved*
File No. E9960513332
- *Some modules excepted



Key features of the FA3S include:

- Up to 256 local I/O points
- Up to 1,024 fiber optic remote I/O points, from up to 3,280' (1km) away
- 8-channel analog module
- RS232 and RS485 modules available
- Modem communications
- Real-time clock and calendar available
- High-speed interrupt I/O (16 or 32 points)
- Average Boolean scan: 0.3ms/K
- Up to 8K program steps
- Built-in programming/ASCII port

General Specifications

	Standard CPUs	High-Performance CPU
Available Instructions	15 basic, 57 advanced CP11T: plus 6 clock and protect instructions	15 basic 122 advanced
Program Capacity	CP11: 964 steps (1K memory) 3,300 steps (4K memory) CP11T: 3,300 steps (built-in EEPROM)	964 steps (1K memory) 4,036 steps (4K memory) CP13: 8,072 steps (8K memory)
Memory	CP11: 1K and 4K CMOS-RAM (with battery); 4K EEPROM; 4K EPROM CP11T: Built-in 4K EEPROM memory	1K and 4K CMOS-RAM (with battery); 4K EEPROM CP13: 8K CMOS-RAM or EEPROM
Average Scan Time	6µs per basic instruction	0.3µs per basic instruction
Input	128 points (maximum)	I/O configurable
Output	128 points (maximum)	I/O configurable
Total I/O Points	256 points	256 points
Internal Relay	608 points (240 points can be maintained)	1,024 points (240 points can be maintained)
Special Internal Relay	CP11: 16 points; CP11T: 18 points	32 points
Shift Register	128 points	224 points
Single Shot Output	96 points	256 points
Timer	80 points, subtracting (0–999.9s)	256 points
10ms Timer	80 points	80 points
Counter	45 points, adding (0–9,999) (all points can be maintained)	100 points, adding (0–9,999) (all points can be maintained)
Reversible Counter	2 points (all points can be maintained)	2 points (all points can be maintained)
Data Register	400 points (all points can be maintained)	1,000 points (all points can be maintained)
Forced I/O	Not available	Available (50 points simultaneously)
Remote I/O	Not available	1,024 points (plus 256 points basic capacity)
Runtime Program Modify	Not available	Available
Real-Time Clock/Calendar Runtime	Available on CP11T only	Not available
Program Protection	Available on CP11T only	Available
High-Performance Modules	High-speed counter (PF3S-HSC2)	High-speed counters (PF3S-HSC1 and -HSC2), high-speed interrupt I/O, remote I/O, RS232, RS485
External Control	Start: input 0 (release possible); Stop/reset: function designated	
Power Failure	Protected: Internal relay, shift register, counter, reversible counter, data register	
Self-Diagnostics	CPU error (WDT), communication error, CRC error in user programs, operation code error	
Auto Start Function	After power-up, automatic run, function designated	



The FA2 loader (PF2-2H4RE) and FA3 loader (PF3S-HL161E) are compatible with all FA series PLCs and the Micro-1.

Part Numbers: FA3S Series

Item	Description		Part Number
CPU	Standard CPU		PF3S-CP11
	Standard CPU with built-in 4K EEPROM & clock		PF3S-CP11T
	High Performance CPUs		PF3S-CP12 PF3S-CP13
Input	Transistor	16 point sink/source	PF3S-N16B
		32 point sink/source	PF3S-N32B PF3S-N325B
	AC	16 point 100-120V AC	PF3S-N16A1
		16 point 200-240V AC	PF3S-N16A2
	Analog	8 Channel: 0 - 10V	PF3S-AD8B1
		8 Channel: 4 - 20mA	PF3S-AD8B2
		1 Channel: 0 - 10V	PF3S-AD121
	1 Channel: 1 - 5V, 4 - 20mA	PF3S-AD122	
Multiplexer	4-channel analog input (voltage/current)		PF3S-MP41
Output	Relay	8-point	PF3S-R081
		16-point	PF3S-R161
	Transistor	16-point Transistor sink out	PF3S-T16K
		16-point Transistor source out	PF3S-T16S
		32-point Transistor source out	PF3S-T32K
		32-point TTL Transistor sink out	PF3S-T325K
		32-point Transitory source out	PF3S-T32S
	SSR	16-point	PF3S-S161
Analog	2 channel 0-10V, 4 - 20mA	PF3S-DA121	
Combination I/O			PF3S-M32K PF3S-M325K
High Speed Counter	One Channel	use with CP12/CP13	PF3S-HSC1
		use with any CPU	PF3S-HSC2
High Speed I/O	8pt Source In/ 8pt Sink Out,	use with CP12/CP13	PF3S-HSL1
Serial Interface	RS232 Communication module		PF3S-SIF2
	RS485 Communication module		PF3S-SIF4
Fiber Optic Remote I/O	Master	short range	PF3S-RMP1
		medium range	PF3S-RMQ1
	Slave	short range	PF3S-RTP1
		medium range	PF3S-RTQ1
AC Power Supply	Standard	12V DC, 1.25A	PF3S-PSA1
	Large Capacity	12V DC, 2.0A	PF3S-PSA2
DC Power Supply	12V DC, 1.7A		PF3S-PSD1
External Power Supply	24V DC, 1.0A		PF3S-EPA1
Backplane	2-slot base plate		PF3S-BP12
	3-slot base plate		PF3S-BP13
Program Loader	Loader	Program loader with built-in PROM burner 59" (1.5m)	PF3S-HL161E
	Extension Cable	— not included with program loader	PFA-1A11
Memory Packs (see details on page J-42)	4K EEPROM (compatible with FA3S)		PFA-1M14
	1K CMOS-RAM (compatible with FA3S)		PFA-1M21
	4K CMOS-RAM (compatible with FA3S)		PFA-1M24
Computer Interface (all 3 parts required)	Link adaptor for 1:1 communications to IBM-compatible PC		PF2-CLA
	Link cable, FA series CPU to link adapter 12" (300mm)		PFA-1A51
	Link cable, PC to link adapter, 78.74" (2m)		PFA-1A54A
Software	Windows-based programming software for all IDEC PLCs (for more information, see page J-44)		WINDLDR
	FA3S (CP11) User's Manual		EM266-CP11
Manuals	FA3S (CP12/CP13) Users Manual		EM267
	CP11T Addendum to CP11		EM283
	HSC2 High Speed Manual		EM279
	SIF2/F4 Serial I/O Manual		EM284
	F A Advanced Users Guide		EM297
Battery	Lithium battery for PF3S-CP11T CPU		ER17/33WK23