

MicroSmart Pentra with Logic Engine

Features

- Fast processing speed
- Supports 32-bit data processing
- IEEE standard Floating Pt. Math
- Built-in Modbus master & slave
- Field upgradeable firmware
- Up to 512 I/Os
- Configure up to 56 analog I/Os
- Max. of 7 communication ports
- Embedded 100kHz HSC & pulse outputs
- Online Edit and Simulation Mode
- UL Listed for Class 1 Div. 2 Hazardous Locations



LOGIC ENGINE

		Slim (Book) Models with Logic Engine					All-In-One (Brick) Models							
		FC5A-D16RK1 FC5A-D16RS1		FC5A-D32K3 FC5A-D32S3			FC5A-C10R2 FC5A-C10R2C		FC5A-C16R2 FC5A-C16R2C		FC5A-C24R2 FC5A-C24R2C			
Function Specifications	Instruction Words		35 basic											
			88 advanced		92 advanced			76 advanced		76 advanced		81 advanced		
	Program Capacity ^{*1}		62.4KB (10,400 steps)					13.8 KB (2,300 steps)		27KB (4,500 steps)		54KB (9,000 steps)		
	User Program Storage		EEPROM (10,000 times rewritable)											
	Processing Time	Basic Instruction		83μs (1,000 steps)					1.16ms (1,000 steps)					
		END Processing ^{*2}		0.35ms					0.64ms					
	Expandable I/O Modules		7 modules + additional 8 modules using the expansion interface module					—				4 modules		
	I/O Points	Input		8	Expansion: 224		16	Expansion: 224		6	9		14	Expansion: 64
		Output		8	Additional: 256		16	Additional: 256		4	7		10	
	Internal Relay		2,048 points					2,048 points						
	Shift Register		256 points					128 points						
	Data Register		42,000 points ^{*3}					2,000 points						
	Expansion Data Register		6,000 points					—						
	Counter		256 points					256 points						
	Timer (1-sec, 100-ms, 10-ms, 1-ms)		256 points					256 points						
	Input Filter		Without filter, 3 to 15 ms (selectable in increments of 1 ms)											
	Catch Input/Interrupt Input		Four inputs (I2 through I5) Minimum turn on pulse width: 5 μs maximum Minimum turn off pulse width: 5 μs maximum					Four inputs (I2 through I5) Minimum turn on pulse width: 40 μs maximum Minimum turn off pulse width: 150 μs maximum						
	High-speed Counter	Maximum Counting Frequency and High-speed Counter Points		Total 4 points Single/two-phase selectable: 100 kHz (2 points) Single-phase: 100 kHz (2 points)					Total 4 points Single/two-phase selectable: 50 kHz (1 point) Single-phase: 5 kHz (3 points)					
		Counting Range		0 to 4294967295 (32 bits)					0 to 65535 (16 bits)					
		Operation Mode		Rotary encoder mode and adding counter mode										
	Analog Potentiometer		Quantity		1 point								2 points	
			Data Range		0 to 255									
	Analog Voltage Input	Quantity		1 point					—					
		Input Voltage Range		0 to 10V DC										
		Input Impedance		Approx. 100kΩ										
		Data Range		0 to 255 (8 bits)										
	Pulse Output	Quantity		2 points		3 points			—					
		Maximum Frequency		100 kHz										
	Sensor Power Supply	Output Voltage Current		24V DC (+10% to -15%), 250 mA										
		Overload Detection		—					—					
		Isolation		Isolated from the internal circuit										
	Port 1		RS232C (maintenance communication, user communications)											
	Port 2 Communication Adapter (optional) ^{*4}		Yes											
	Clock Cartridge (optional)		Yes											
	Memory Cartridge (optional)		Yes											
	HMI Module (optional)		Yes											
	Modbus Master/Slave		Yes											

Notes: The maximum number of relay outputs that can be turned on simultaneously is 54 including those on the CPU module.

*1. One step equals 6 bytes.

*2. Not including expansion I/O service time, and clock function, data link and interrupt processing time.

*3. Extra data registers D10000 through D49999 are enabled using WindLDR Function Area Settings, then run-time program download cannot be used.

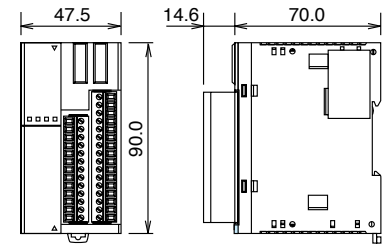
*4. Maintenance communication, user communication, Modem communication, data link, Modbus master/slave communication (FC5A only).

Specifications don't on following page

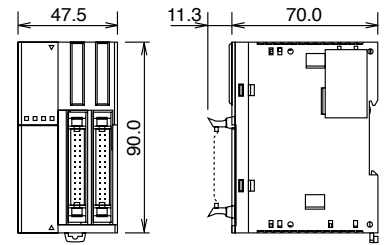
		Slim (Book) Models with Logic Engine		All-In-One (Brick) Models		
		FC5A-D16RK1 FC5A-D16RS1	FC5A-D32K3 FC5A-D32S3	FC5A-C10R2 FC5A-C10R2C	FC5A-C16R2 FC5A-C16R2C	FC5A-C24R2 FC5A-C24R2C
General Specifications	Rated Power Voltage	24V DC		AC power model: 100 to 240V AC DC power model: 24V DC		
	Allowable Voltage Range	20.4 to 26.4V DC (including ripple)		AC power model: 85 to 264V AC DC power model: 20.4 to 28.8V DC (including ripple)		
	Rated Power Frequency	N/A	N/A	AC power model: 50/60 Hz (47 to 63 Hz)		
	Maximum Input Current	700mA (26.4V DC) ^{*1}		250mA (85V AC) 160mA (24V DC)	300mA (85V AC) 190mA (24V DC)	450mA (85V AC) ^{*2} 360mA (24V DC) ^{*3}
	Maximum Power Consumption	19W (26.4V DC) ^{*1}		AC: FC5A-C10R2: 30VA (264V AC) 20VA (100V AC) ^{*4} DC: FC5A-C10R2C: 3.9W (24V DC) ^{*5}	AC: FC4A-C16R2: 31VA (264 V AC) 22VA (100V AC) ^{*4} DC: FC5A-C16R2C: 4.6W (24V DC) ^{*5}	AC: FC4A-C24R2: 40VA (264V AC) 33VA (100V AC) ^{*2} DC: FC5A-C24R2C: 8.7W (24V DC) ^{*3}
	Allowable Momentary Power Interruption	10ms (at 24V DC)		10ms (rated power voltage)		
	Dielectric Strength	Between power and ⚡ terminals: 500V AC, 1 minute Between I/O and ⚡ terminals: 1,500V AC, 1 minute		Between power and ⊕ or ⚡ terminals: 1500V AC, 1 minute Between I/O and ⊕ or ⚡ terminals: 1500V AC, 1 minute		
	Insulation Resistance	Between power and ⚡ terminals: 10MΩ minimum (500V DC megger) Between I/O and ⚡ terminals: 10MΩ minimum (500V DC megger)		Between power and ⊕ or ⚡ terminals: 10MΩ minimum (500V DC megger) Between I/O and ⊕ or ⚡ terminals: 10MΩ minimum (500V DC megger)		
	Noise Resistance	DC power terminals: 1.0kV, 50ns to 1μs I/O terminals (coupling clamp): 1.5kV, 50ns to 1μs		AC power terminals: 1.5kV, 50ns to 1μs DC power terminals: 1.0kV, 50ns to 1μs I/O terminals (coupling clamp): 1.5 kV, 50ns to 1μs		
	Inrush Current	50A maximum (24V DC)		35A		40A
	Power Supply Wire	22 - 18AWG				
	Operating Temperature	0 to 55°C				
	Storage Temperature	−25 to +70°C (no freezing)				
	Relative Humidity	Level RH1 (IEC61131-2), 10 to 95% (no condensation)				
	Altitude	Operation: 0 to 2,000m, Transport: 0 to 3,000m				
	Pollution Degree	2 (IEC60664-1)				
	Corrosion Immunity	Free from corrosive gases				
	Degree of Protection	IP20 (IEC60529)				
	Grounding Wire	22 - 18AWG		16AWG		
	Vibration Resistance	When mounted on a DIN rail or panel surface: 5 to 9 Hz amplitude 3.5 mm, 9 to 150 Hz acceleration 9.8 m/s ² (1G), 2 hours per axis on each of three mutually perpendicular axes (IEC61131-2)				
Shock Resistance	147 m/s ² (15G), 11 ms duration, 3 shocks per axis on three mutually perpendicular axes (IEC61131-2)					
Weight	230g	190g	AC model: 230g DC model: 240g	AC model: 250g DC model: 260g	AC model: 305g DC model: 310g	

Notes: *1. CPU module + 7 I/O modules. *2. CPU module (including 250 mA sensor power) + 4 I/O modules. *3. CPU module + 4 I/O modules.
*4. CPU module (including 250 mA sensor power). *5. CPU module (24V DC)

CPU Dimensions - Slim

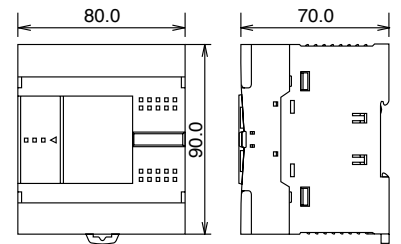
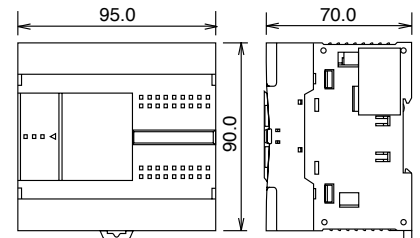


FC5A-D16RK1, FC5A-D16RS1



FC5A-D32K3, FC5A-D32S3

CPU Dimensions - Brick

FC5A-C10R2, FC5A-C16R2
FC5A-C10R2C, FC5A-C16R2C

FC5A-C24R2, FC5A-C24R2C

All dimensions in mm.



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Slim Models



16 I/O Points

32 I/O Points

All-In-One Models



10 I/O Points

16 I/O Points

24 I/O Points