IDEC

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

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LOGIC ENGINE

Function Specifications

			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
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	16	6	9	14
			Expansion: 224 Additional: 256	Expansion: 224 Additional: 256			Expansion: 64
	Output		8	16	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).

		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 minumum (500V DC megger) Between I/O and ⏚ terminals: 10MΩ minumum (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 55ºC				
	Storage Temperature	−25 to +70ºC (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/s² (1G), 2 hours per axis on each of three mutually perpendicular axes (IEC61131-2)				
	Shock Resistance	147 m/s² (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)
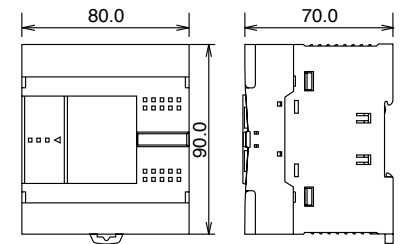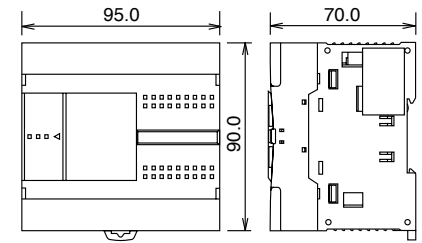
CPU Dimensions - Slim

47.5   14.6   70.0

90.0

FC5A-D16RK1, FC5A-D16RS1

47.5   11.3   70.0

90.0
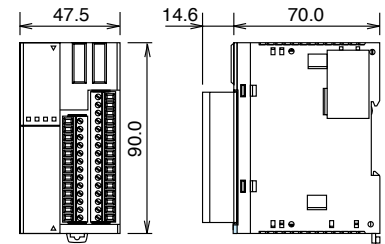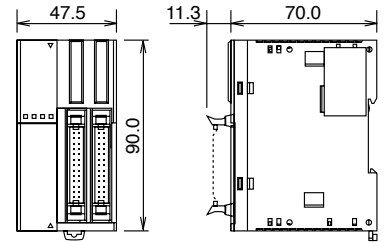
FC5A-D32K3, FC5A-D32S3

CPU Dimensions - Brick

80.0   70.0

90.0

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

95.0   70.0

90.0

FC5A-C24R2, FC5A-C24R2C

All dimensions in mm.

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

IDEC

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