

MicroSmart FC6A PLC

Digital I/O Specifications



KEY FEATURES

- 16 modules to choose from
- Screw or MIL type terminal block
- 8/16/32 points I/O module

SPECIFICATIONS

Input Module Specifications

Part Number		FC6A-N08B1	FC6A-N16B1	FC6A-N16B3	FC6A-N32B3	FC6A-N08A11
Input Points		8 (8/1 common)	16 (16/1 common)		32 (16/1 common)	8 (4/1 common)
Rated Input Voltage		24V DC sink/source input signal				100 to 120V AC
Input Voltage Range		0 to 28.8V DC				0 to 132V AC (50/60 Hz)
Rated Input Current		7 mA/point (24V DC)		5 mA/point (24V DC)		17 mA/point (120V AC, 60 Hz)
Input Impedance		3.4 kΩ		4.4 kΩ		0.8 kΩ (60 Hz)
OFF Voltage		5V maximum				20V maximum
ON Voltage		15V minimum				79V minimum
OFF Current		1.2 mA maximum		0.9 mA maximum		—
ON Current		4.2 mA minimum (at 15V DC)		3.2 mA minimum (at 15V DC)		
Input Delay Time (24V DC)		Turn ON: 4.1ms, Turn OFF: 4.1ms				Turn ON: 25ms, Turn OFF: 30ms
Isolation		Between input terminals: Not isolated Internal circuit: Photocoupler-isolated				Between input terminals in the same common: Not isolated Between input terminals in different commons: Isolated Between input terminals and internal circuits: Photocoupler-isolated
External Load for I/O Interconnection		Not needed				
Signal Determination Method		Static				
Effect of Improper Input Connection		Both sink and source input signals can be connected. If any input exceeding the rated value is applied, permanent damage may be caused.				If any input exceeding the rated value is applied, permanent damage may be caused.
Cable Length		3m in compliance with electromagnetic immunity				—
Connector Insertion/Removal Durability		100 times minimum				
Applicable Ferrule		1-wire: AI 0.5-8 WH (Phoenix Contact) 2-wire: AI-TWIN 2×0.5-10 (Phoenix Contact)		—		
Internal Current Draw	All Inputs ON	30mA (5V DC) 0mA (24V DC)	40mA (5V DC) 0mA (24V DC)	40mA (5V DC) 0mA (24V DC)	65mA (5V DC) 0mA (24V DC)	40mA (5V DC) 0mA (24V DC)
	All Inputs OFF	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)
Internal Power Consumption (at 24V DC while all inputs ON)		0.20W	0.27W	0.27W	0.44W	0.27W
Weight (approx.)		110g	105g	75g	110g	110g

Relay Output Module Specifications

Part Number		FC6A-R081	FC6A-R161
Output Points		8 (4/1 common)	16 (8/1 common)
Output Type		1NO	
Maximum Load Current		2A per point	
		7A per common	8A per common
Minimum Switching Load		1 mA/ 5V DC (reference value)	
Initial Contact Resistance		30 mΩ maximum	
Electrical Life		100,000 operations minimum (rated load 1,800 operations/hour)	
Mechanical Life		20,000,000 operations minimum (no load 18,000 operations/hour)	
Rated Load		Resistive load: 240V AC 2A, 30V DC 2A	
		Inductive load: 240V AC 2A (cos ϕ = 0.4) 30V DC 2A (L/R =7 ms)	
Dielectric Strength		Between output and ground terminals: 1,500V AC, 1 minute	
		Between output terminal and internal circuit: 1,500V AC, 1 minute	
		Between output terminals (COMs): 1,500V AC, 1 minute	
Connector Insertion/ Removal Durability		100 times minimum	
Applicable Ferrule		1-wire: AI 0.5-10 (Phoenix Contact)	
		2-wire: AI-TWIN 2×0.5-10 (Phoenix Contact)	
Internal Current Draw	All outputs ON	35mA (5V DC) 50mA (24V DC)	50mA (5V DC) 100mA (24V DC)
	All outputs OFF	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)
Internal Power Consumption (at 24V DC while all outputs ON)		1.44W	2.74W
Weight (approx.)		130g	140g

Transistor Output Module Specifications

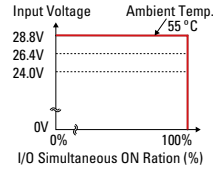
Part Number		FC6A-T08K1 FC6A-T08P1	FC6A-T16K1 FC6A-T16P1	FC6A-T16K3 FC6A-T16P3	FC6A-T32K3 FC6A-T32P3
Output Points		8 (8/1 common)	16 (16/1 common)		32 (16/1 common)
Output Type		FC6A-T□K□: Transistor sink output FC6A-T□P□: Transistor source output			
Rated Load Voltage		24V DC			
Operating Load Voltage Range		19.2 to 28.8V DC			
Maximum Load Current		0.5A per point		0.1A per point	
		3A per common		1A per common	
Voltage Drop (ON Voltage)		1V maximum (voltage between COM and output terminals when output is on)			
Inrush Current		1A maximum			
Leakage Current		0.1mA maximum			
Clamping Voltage		Approx. 50V			
Maximum Lamp Load		12W		2.4W	
Inductive Load		L/R = 10ms (28.8V DC 1Hz)			
External Current Draw		FC6A-T□K□: 100 mA maximum, 24V DC (power voltage at the +V terminal) FC6A-T□P□: 100 mA maximum, 24V DC (power voltage at the -V terminal)			
Overcurrent Protection		Transistor Sink Output: No Transistor Source Output: Yes			
Isolation		Between output terminal and internal circuit: Photocoupler-isolated Between output terminals: Not isolated			
Connector Insertion/ Removal Durability		100 times minimum			
Applicable Ferrule		1-wire: AI 0.5-10 (Phoenix Contact) 2-wire: AI-TWIN 2×0.5-10 (Phoenix Contact)			
Internal Current Draw	All outputs ON	25mA (5V DC) 15mA (24V DC)	30mA (5V DC) 25mA (24V DC)		45mA (5V DC) 50mA (24V DC)
	All outputs OFF	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)	17mA (5V DC) 0mA (24V DC)
Internal Power Consumption (at 24V DC while all outputs ON)		0.53W	0.80W		1.50W
Output Delay	Turn ON Time	400 μs maximum			
	Turn OFF Time	450 μs maximum			
Weight (approx)		110g	105g	75g	115g

Mixed I/O Module Specifications

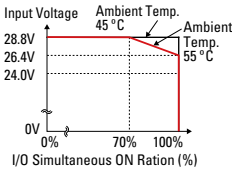
Part Number		FC6A-M08BR1		FC6A-M24BR1	
Input Specification	Input Points		4 (4/1 common)	16 (16/1 common)	
	Rated Input Voltage		24V DC sink/source input signal		
	Input Voltage Range		0 to 28.8V DC		
	Rated Input Current		7 mA/point (24V DC)		
	Input Impedance		3.4 kΩ		
	OFF Voltage		5V maximum		
	ON Voltage		15V minimum		
	OFF Current		1.2 mA maximum		
	ON Current		4.2 mA minimum (at 15V DC)		
	Input Delay Time (24V DC)		Turn ON Time: 4.1ms, Turn OFF Time: 4.1ms		
	Isolation		Between input terminals: Not isolated Internal circuit: Photocoupler-isolated		
	External Load for I/O Interconnection		Not needed		
	Signal Determination Method		Static		
	Effect of Improper Input Connection		Both sinking and sourcing input signals can be connected. If any input exceeding the rated value is applied, permanent damage may be caused.		
Cable Length		3m in compliance with electromagnetic immunity			
Output Specifications	Output Points		4 (4/1 common)	8 (4/1 common)	
	Output Type		1NO		
	Maximum Load Current		2A per point 7A per common		
	Minimum Switching Load		1 mA/ 5V DC (reference value)		
	Initial Contact Resistance		30 mΩ maximum		
	Electrical Life		100,000 operations minimum (rated load 1,800 operations/hour)		
	Mechanical Life		20,000,000 operations minimum (no load 18,000 operations/hour)		
	Rated Load		Resistive load: 240V AC 2A, 30V DC 2A Inductive load: 240V AC 2A (cos ϕ = 0.4), 30V DC 2A (L/R =7 ms)		
	Dielectric Strength		Between output and PE terminals: 1,500V AC, 1 minute Between output terminal and internal circuit: 1,500V AC, 1 minute Between output terminals (COMs): 1,500V AC, 1 minute		
	Connector Insertion/Removal Durability		100 times minimum		
	Applicable Ferrule		1-wire: AI 0.5-10 (Phoenix Contact), 2-wire: AI-TWIN 2×0.5-10 (Phoenix Contact)		
	Internal Current Draw	All I/Os ON	30mA (5V DC), 25mA (24V DC)		55mA (5V DC), 25mA (24V DC)
		All I/Os OFF	17mA (5V DC), 0mA (24V DC)		17mA (5V DC), 0mA (24V DC)
	Internal Power Consumption (at 24V DC while all I/Os are ON)		0.80W		0.97W
Weight (approx.)		120g		165g	

Temperature derating curves: Input voltage vs. I/O Simultaneous ON Ratio (%)

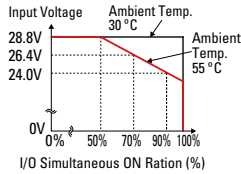
FC6A-N08B1



FC6A-N16B1

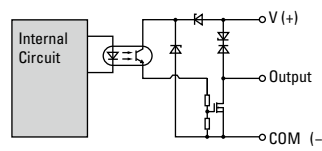


FC6A-N16B3/FC6A-N32B3

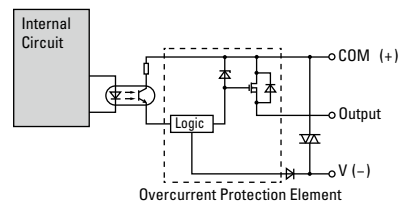


Output Internal Circuit

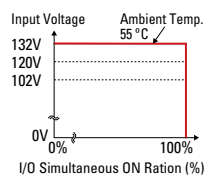
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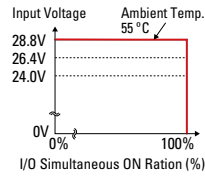
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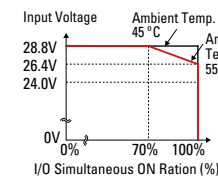
FC6A-N08A11



FC6A-M08BR1

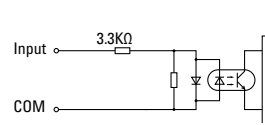


FC6A-M24BR1

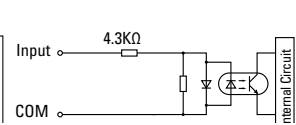


Input Internal Circuit

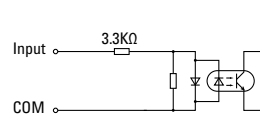
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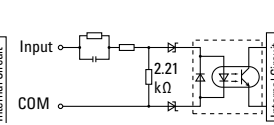
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FC6A-M08BR1/FC6A-M24BR1

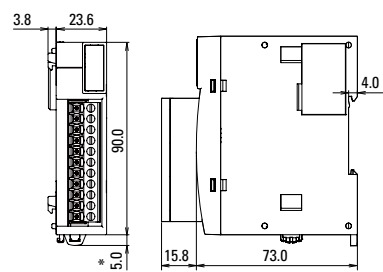


FC6A-N08A11

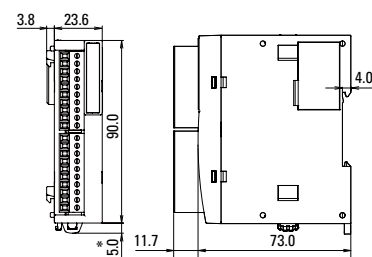


DIMENSIONS (all dimensions are in mm)

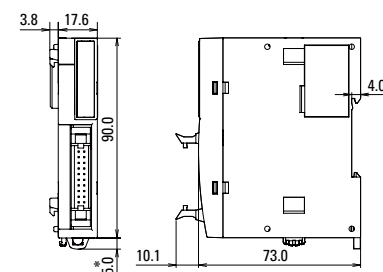
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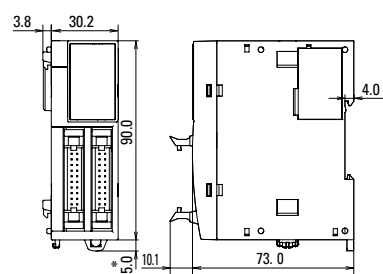
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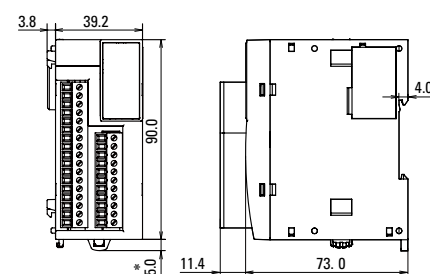
FC6A-N16B3/FC6A-T16K3 FC6A-T16P3



FC6A-N32B3/FC6A-T32K3 FC6A-T32P3



FC6A-M24BR1/FC6A-F2M1 FC6A-F2MR1



* 9.3 mm when the clamp is pulled out.

