

# 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 2x0.5-10 (Phoenix Contact)	
Internal Current Draw	All outputs ON	35mA (5V DC) 50mA (24V DC)
	All outputs OFF	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

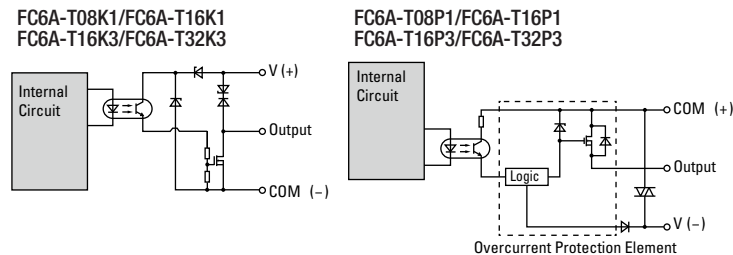
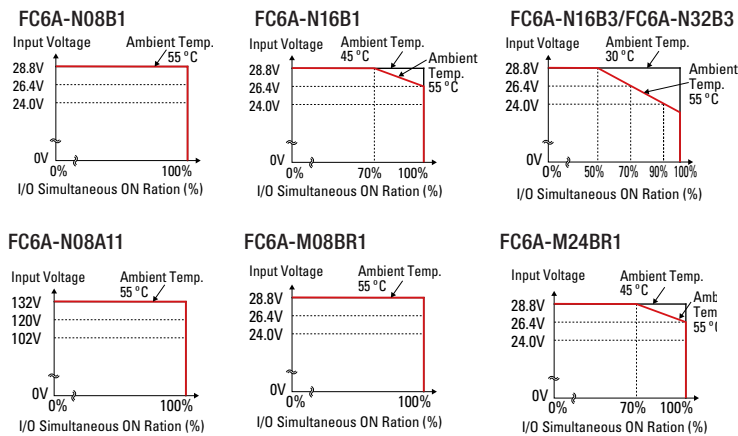
Part Number	FC6A-T08K1 FC6A-T08P1	FC6A-T16K1 FC6A-T16P1	FC6A-T16K3 FC6A-T16P3	FC6A-T32K3 FC6A-T32P3
Output Points	8 (8/1 common)	16 (16/1 common)		32 (16/1 common)
Output Type	FC6A-T□K□: Transistor sink output FC6A-T□P□: Transistor source output			
Rated Load Voltage	24V DC			
Operating Load Voltage 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 2x0.5-10 (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)
Internal Power Consumption (at 24V DC while all outputs ON)	0.53W		0.80W	
Output Delay	Turn ON Time			
	Turn OFF Time			
Weight (approx)	110g	105g	75g	115g

## Mixed I/O Module Specifications

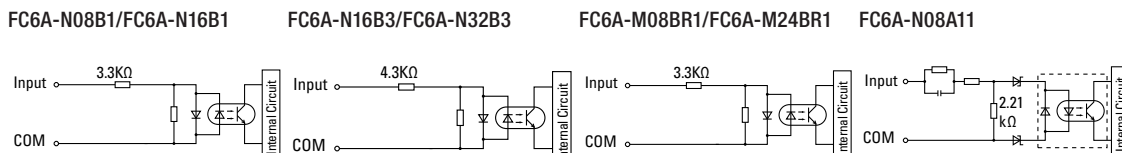
Part Number	FC6A-M08BR1	FC6A-M24BR1	
Input Specifications	Input Points	4 (4/1 common)	16 (16/1 common)
	Rated Input Voltage	24V DC sink/source input signal	
	Input Voltage Range	0 to 28.8V DC	
	Rated Input Current	7 mA/point (24V DC)	
	Input Impedance	3.4 kΩ	
	OFF Voltage	5V maximum	
	ON Voltage	15V 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 2x0.5-10 (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 (%)**

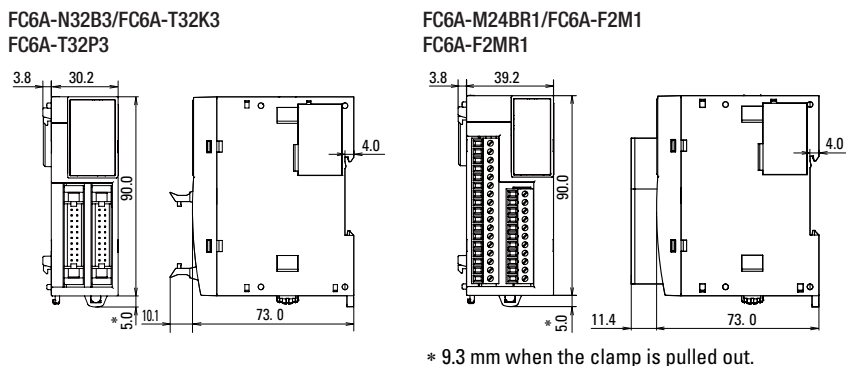
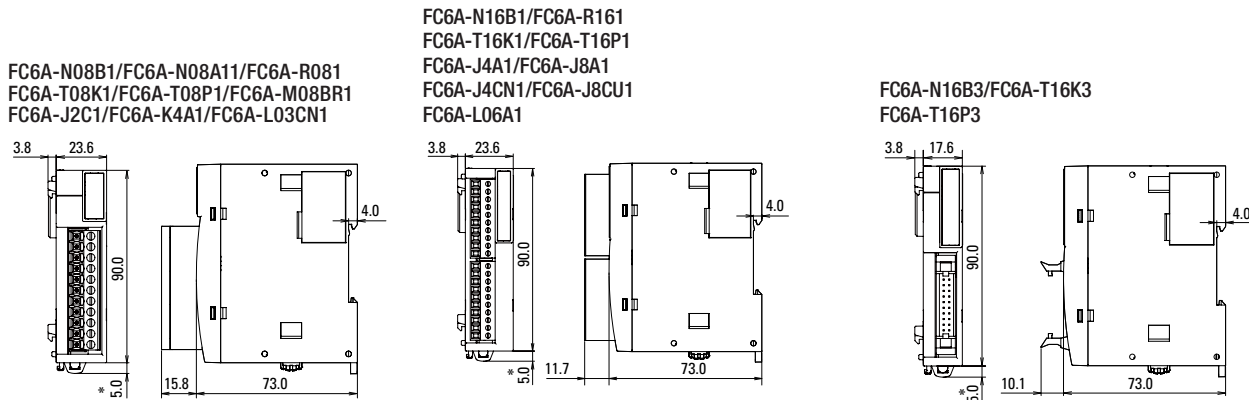
**Output Internal Circuit**



**Input Internal Circuit**



**DIMENSIONS** (all dimensions are in mm)



\* 9.3 mm when the clamp is pulled out.

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