

BASE MODULE SPECIFICATIONS

Base Module Type No.	FL1F-H12SCD	FL1F-H12RCE FL1F-B12RCE	FL1F-H12RCA FL1F-B12RCA	FL1F-H12RCC FL1F-B12RCC		
Power Supply	Rated Power Voltage	24V DC	12/24V DC	24V AC/DC	100 to 240V AC/DC	
	Allowable Voltage Range	20.4 to 28.8V DC	10.8 to 28.8V DC	20.4 to 26.4V AC 20.4 to 28.8V DC	85 to 265V AC 100 to 253V DC	
	Rated Frequency	—	—	47 to 63Hz	47 to 63Hz	
	Current Draw	15 to 50 mA (24V DC) 1.2A (with max. load on digital output)	30 to 140 mA (12V DC) 15 to 90 mA (24V DC)	15 to 150mA (12V DC) 15 to 130mA (24V DC)	15 to 40mA (100V AC) 5 to 10mA (100V DC) 15 to 25mA (240V AC) 2 to 8mA (240V DC)	
	Allowable Momentary Power Interruption	—	2ms Typ. (12V DC) 5ms Typ. (24V DC)	5ms Typ. (24V AC/DC)	10ms Typ. (100V AC/DC) 20ms Typ. (240V AC/DC)	
	Power Consumption	1.2 W (24V DC)	1.7W (12V DC) 2.2W (24V DC)	3.6 W (24V AC) 3.2 W (24V DC)	4.6W (100V AC) 1.2W (100V DC) 6.0W (240V AC) 2.0W (240V DC)	
	Reverse Polarity Protection	Yes	Yes	—	—	
Clock	Backup Duration	20 days	20 days	20 days	20 days	
	Clock Accuracy	±2 sec/day (Typ.)	±2 sec/day (Typ.)	±2 sec/day (Typ.)	±2 sec/day (Typ.)	
Input	Input Signal	DC	DC	AC/DC	AC/DC	
	Input Points	8 (I1 to I8)	8 (I1 to I8)	8 (I1 to I8)	8 (I1 to I8)	
	High-speed Input ¹	4 (I3, I4, I5, I6), 5kHz maximum	4 (I3, I4, I5, I6), 5kHz maximum	—	—	
	Analog Input Points	4 (I1, I2, I7, I8)	4 (I1, I2, I7, I8)	—	—	
	Analog Input Range	0 to 10V DC (max. rated input: 28.8V DC)	0 to 10V DC (max. rated input: 28.8V DC)	—	—	
	Analog Input Error	±1.5 (of full scale)	±1.5 (of full scale)	—	—	
	Analog Input Resolution	10 bits (0 to 1000)	10 bits (0 to 1000)	—	—	
	Cycle time	300ms	300ms	300ms	300ms	
	Allowable Voltage Range	0 to 28.8V DC	0 to 28.8V DC	0 to 26.4V AC 0 to 28.8V DC	0 to 265V AC 0 to 253V DC	
	Input Impedance	Digital Input	5.8kΩ	5.8kΩ	4.8kΩ	610kΩ
		Analog Input	72kΩ	72kΩ	—	—
	Isolation	—	—	—	—	
	Operating Range	OFF Voltage	< 5V DC	< 5V DC	< 5V AC/DC	< 40V AC < 30V DC
		ON Voltage	≥ 12V DC	≥ 8.5 V DC	≥ 12V AC/DC	≥ 79V AC ≥ 79V DC
		OFF Current	< 0.9mA (I3 to I6) < 0.07mA (I1, I2, I7, I8)	< 0.88mA (I3 to I6) < 0.07mA (I1, I2, I7, I8)	< 1.2mA	< 0.05mA (AC) < 0.06mA (DC)
		ON Current	≥ 2.1mA (I3 to I6) ≥ 0.18mA (I1, I2, I7, I8)	≥ 1.5mA (I3 to I6) ≥ 0.12mA (I1, I2, I7, I8)	≥ 2.6mA	≥ 0.08mA (AC) ≥ 0.13mA (DC)
	Turn ON Time	1.5ms (Typ.) ≤ 1.0ms (I3 to I6)	1.5ms (Typ.) ≤ 1.0ms (I3 to I6)	1.5ms (Typ.)	100V AC: 40ms (Typ.) 240V AC: 30ms (Typ.) 100V DC: 25ms (Typ.) 240V DC: 20ms (Typ.)	
Turn OFF Time	1.5ms (Typ.) ≤ 1.0ms (I3 to I6)	1.5ms (Typ.) ≤ 1.0ms (I3 to I6)	15ms (Typ.)	100V AC: 45ms (Typ.) 240V AC: 70ms (Typ.) 100V DC: 60ms (Typ.) 240V DC: 75ms (Typ.)		
Wire Length ²	100m	100m	100m	100m		
Output	Output Signal	Transistor source output	Relay output	Relay output	Relay output	
	Output Points/ Contact Configuration	4 points (separate)	4NO contacts	4NO contacts	4NO contacts	
	Isolation	—	Isolated	Isolated	Isolated	
	Dielectric Strength (between power/input terminals and output terminals)	—	2500V AC, 1 minute 500V DC, 1 minute	2500V AC, 1 minute 500V DC, 1 minute	2500V AC, 1 minute 500V DC, 1 minute	
	Output Voltage	External power voltage	—	—	—	
	Maximum Load Current	0.3A maximum	Resistive load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC	Resistive load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC	Resistive load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC	
	Surge Current	—	30A maximum	30A maximum	30A maximum	
	Short-circuit Protection	Built-in current limiting resistor: Approx. 1A	External fuse required: 16A maximum	External fuse required: 16A maximum	External fuse required: 16A maximum	
	Minimum Switching Load	—	10mA, 12V DC (reference value)	10mA, 12V DC (reference value)	10mA, 12V DC (reference value)	
	Initial Contact Resistance	—	100mΩ maximum (at 1A, 24V DC)	100mΩ maximum (at 1A, 24V DC)	100mΩ maximum (at 1A, 24V DC)	
	Mechanical Life	—	10 million operations (no load, 10Hz)	10 million operations (no load, 10Hz)	10 million operations (no load, 10Hz)	
	Electrical Life	—	100,000 operations (rated resistive load) 1800 operations/hour	100,000 operations (rated resistive load) 1800 operations/hour	100,000 operations (rated resistive load) 1800 operations/hour	

¹ When selecting frequency trigger function and up/down counter function.

² 10m when connected to analog input (twisted pair cable)

Initialization Time: After power-up, the FL1F takes a maximum of 9 seconds (when using a micro SD card) for initialization. When initialization is complete, the FL1F is automatically set to RUN mode.