LCLCTC SK Series Built In Speed Controller User Manual

Contents

LCLCTC

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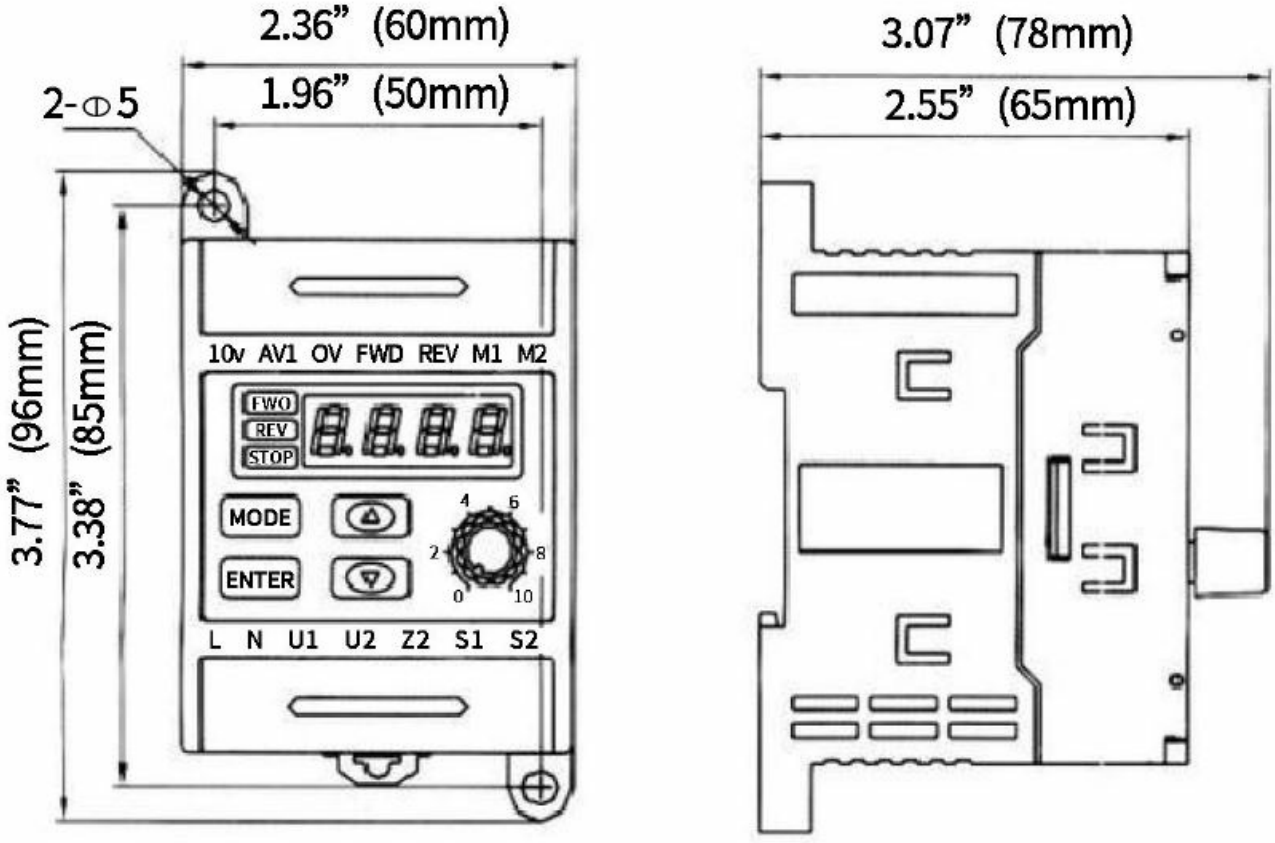
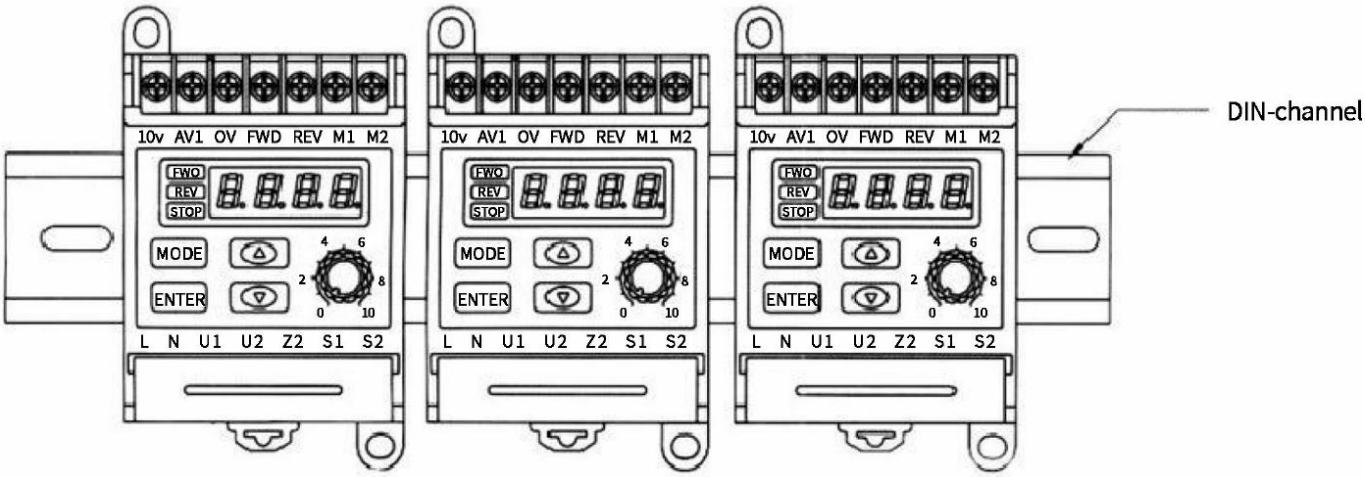
DIMENSIONS



SK Series Built-in Speed Controller Outline and Installation Diagram



Instructions for Use

- Do not use in explosive environments, flammable gas environments, corrosive environments, or places that are prone to getting wet or near combustible materials.
- Avoid continuous vibration and excessive impact.
- During normal operation, the surface temperature of the motor casing may exceed 70°C. Therefore, please affix the warning sign shown in the image on the environments where contact with the motor is possible.
- Please ensure that the grounding terminal is properly grounded.
- Installation, connection, inspection, and other operations should be carried out by professional technicians.

Thank you for purchasing and using this product. To ensure safety and proper operation, please read this user manual before installing and using the product!

Features

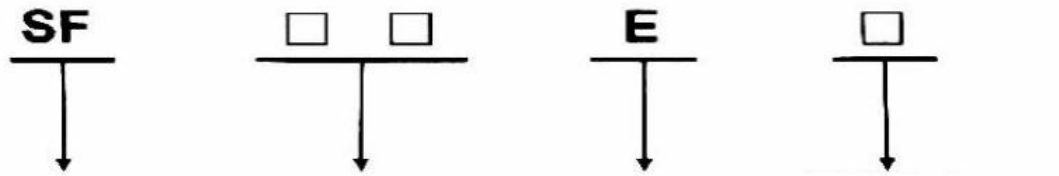
- Utilizing MCU digital control technology, this product features rich functions and outstanding performance.
- Featuring a digital display menu-driven interface, it allows for convenient and quick modification of settings.
- It can set the display magnification according to the user’s display needs and automatically convert the displayed target value.
- It can achieve complex motion control such as slow acceleration, slow deceleration, quick stop, and four-speed levels.
- External switch control and 0-10V analog control are available.
- Analog control can automatically match the maximum rotational speed, making adjustment and control convenient and safe.
- A stall protection function is provided to prevent the motor and speed controller from burning out due to locked-rotor conditions.

Model Array List

Category / Power Supply Voltage / Motor Power	SF Series Panel Mounted Variable Frequency Drive		SK Series Built-in Variable Frequency Drive	
	220V	110V	220V	110V
6w	SF06E	SF06A	SK200E	SK200A
15W	SF15E	SF15A		
25W	SF25E	SF25A		
40W	SF40E	SF40A		
60W	SF60E	SF60A		
90W	SF90E	SF90A		
120W	SF120E	SF120A		
200W	SF200E	SF200A		

Model Naming Method

○ Panel-type:



Model code

Panel-type speed controller

Motor Powe Code (W)

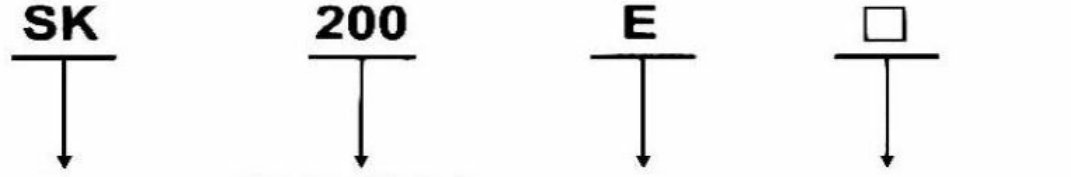
6W~200W

Voltage code

E(Single-phase220V)
A(Single-phase110V)

Derivative code

○ Built-in type:



Model code

Built-in speed controller

Motor Power Code (W)

6W~200W

Voltage code

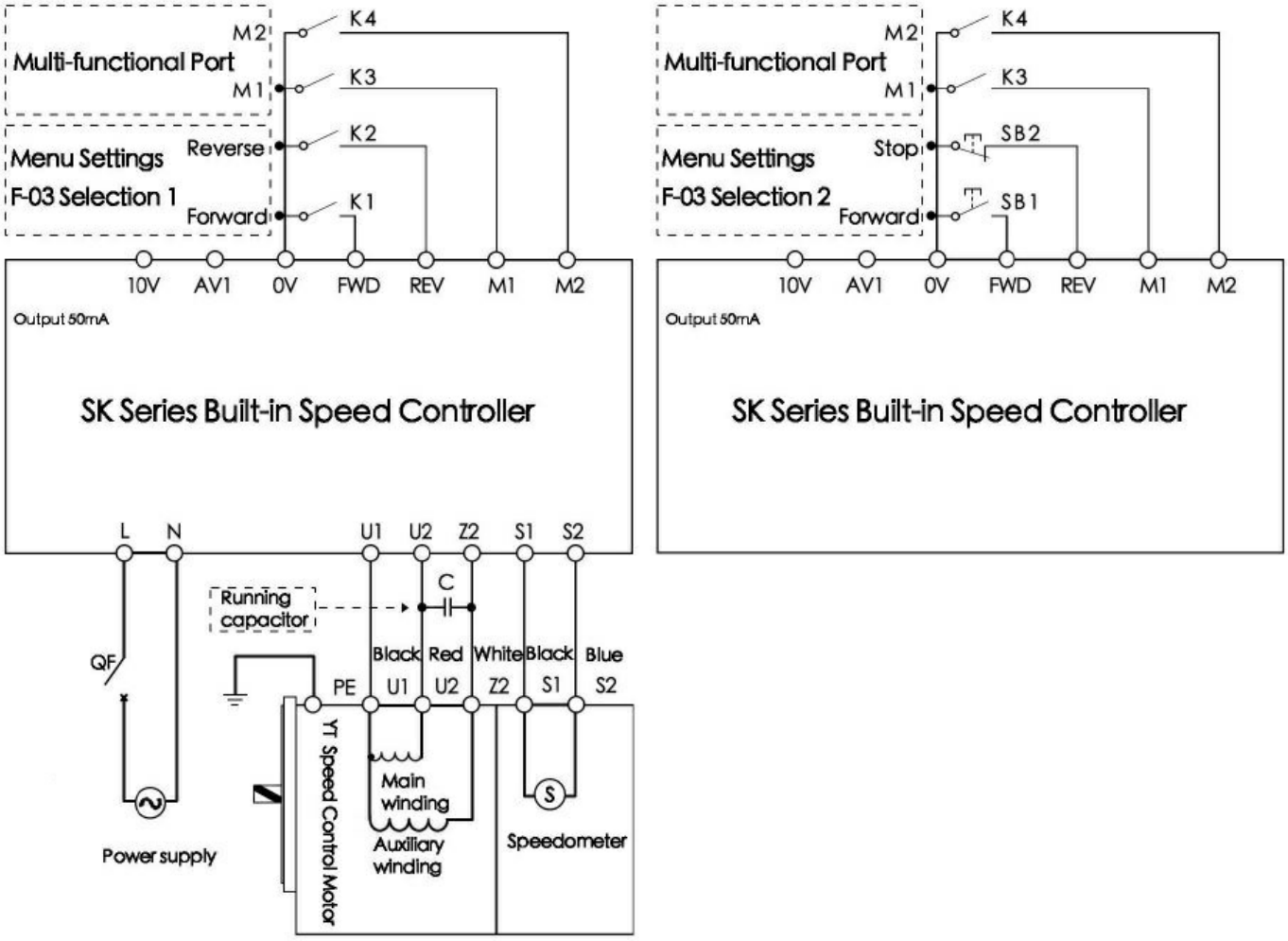
E(Single-phase220V)
A(Single-phase110V)

Derivative code

Performance parameter table

Model number	SF□□E	SF□□A	SK200E	SK200A
Installation method	Panel-type		Built-in type	
Power supply voltage	Single-phase 220V	Single-phase 110V	Single-phase 220V	Single-phase 110V
Power supply frequency	50/60 Hz			
Applicable motor type	YT Series Variable Speed Motor			
Operating capacitance	Built-in (built inside the speed controller)		External (placed inside the packaging of the variable speed motor, requiring user connection)	
Motion control function	Panel or external switch operation control, speed regulation, slow acceleration, and slow deceleration		External switch operation control, speed regulation, slow acceleration, slow deceleration, quick stop, 4-speed levels	
Speed regulation method	Panel "▲"、"▼" key; Panel Knob		Panel "▲"、"▼"key; Panel Knob; 0~10V Analog Signal	
Speed control range	90~3000 r/min. (User can set based on motor pole number, power frequency, and usage requirements.)			
Operating environment	Ambient temperature: -10℃~+45℃ (no freezing), ambient humidity: below 85% (no condensation).			

Wiring Diagram for SK Series Built-in Speed Controller



QF Circuit Breaker Specification Sheet

Power supply voltage	Motor power	QF current specification
220V	6~90W	1A
220V	120~200W	2A
110V	6~90W	3A
110V	120~200W	4A

- The power supply voltage must be consistent with the voltage specification of the speed controller.
- QF is a circuit breaker that protects the speed controller and motor when a short circuit occurs.

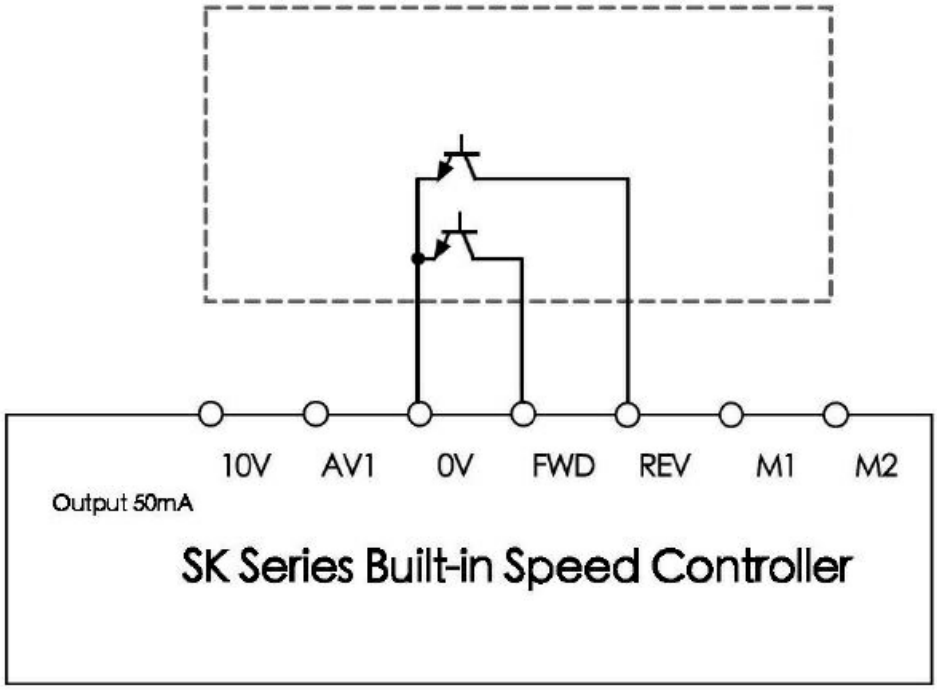
Running Capacitor Specifications

Power supply voltage / Motor power	220V	220V
6W	0.7μF/450V	2.5μF/250V
15W	1μF/450V	4μF/250V
25W	1.5μF/450V	6μF/250V
40W	2.5μF/450V	10μF/250V
60W	3.5μF/450V	14μF/250V
90W	5μF/450V	20μF/250V
120W	6μF/450V	24μF/250V
200W	10μF/450V	40μF/250V

Note: The running capacitor should be selected according to the motor model and placed inside the variable speed motor package.

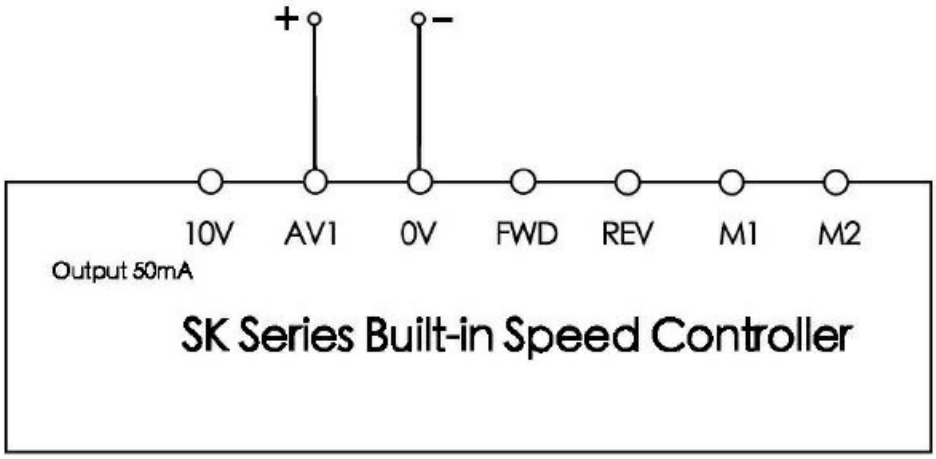
The maximum output current of the 10V port is 50mA.
Programmable Logic Controller (PLC)

1. The control ports of FWD, REV, M1, and M2 are controlled by a Programmable Logic Controller (PLC)
2. NPN or open collector transistor output



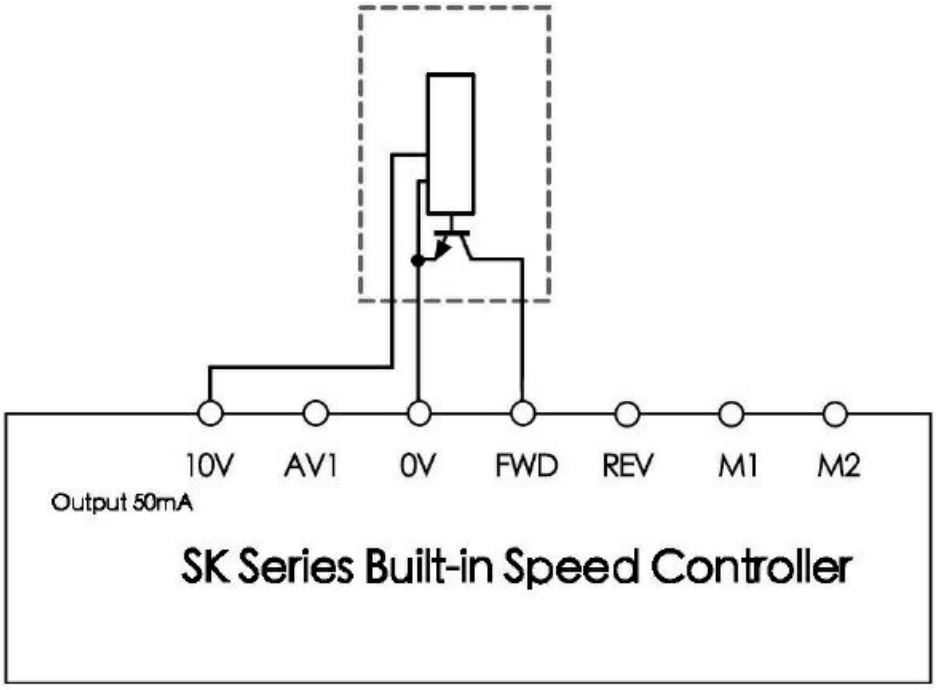
0-10V analog control

1. Use external 0-10V analog control to regulate motor speed.
2. Menu settings: Set F-06 to 3 for external 0-10V analog control.



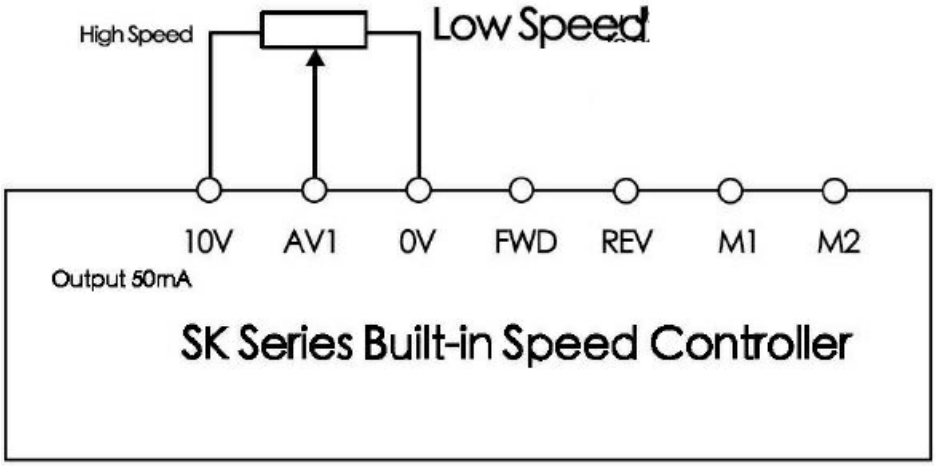
Sensor

1. The FWD, REV, M1, and M2 control ports are suites do shots oct riches. etc.
2. Switch output mode: Three-wire NPN transistor output.



5kΩ Speed Potentiometer

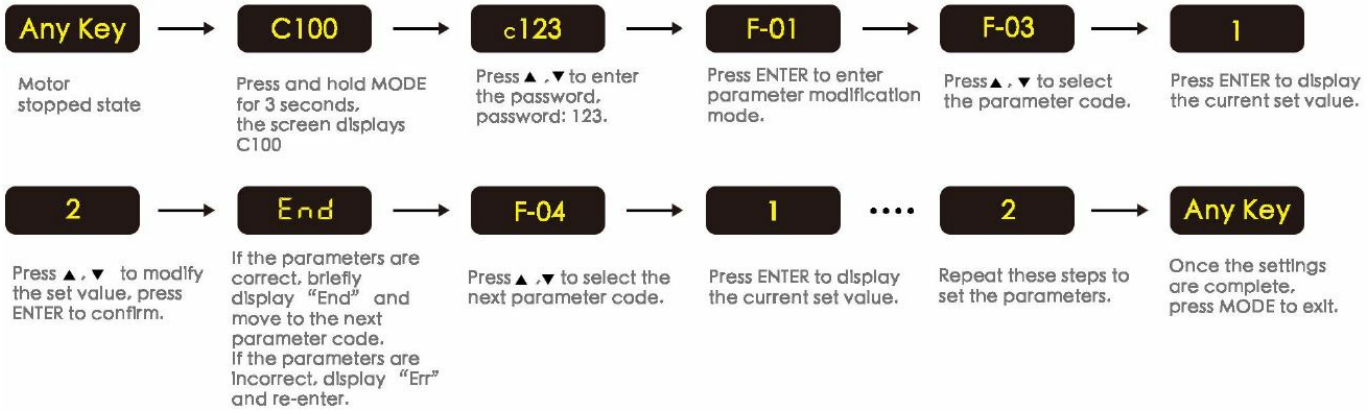
1. Use an external speed potentiometer To control the motor speed.
2. Menu settings: Set F-06 to value 3 for external 0-10V analog control.



SK Series Built-in Variable Speed Controller Menu

Menu Modification

Note: To ensure safety, parameter modifications for F-03, F-05, and F-29 must be performed when the motor is in a stopped state Otherwise, the settings cannot be applied and the screen will display "Err".



SK Series Built-in Speed Controller Menu List

Parameter Code	Parameter Function	Setting Range	Function Description	Factory Default Value	User Set Value
F-01	Display Content	1. Motor Speed Set Value 2.Ratio Speed Set Value	Ratio Speed Set Value= Motor Speed Set Value+ Ratio	1	
F-02	Ratio Setting	1.0-999.9	Set according to the display intuitiveness, displaying the target value.	1.0	
F-03	Operation Control Modi	1. Forward/Reverse 2. Foiward/Stop	electing Foiward/Reverse, the motor is controlled by switches KI and IC.2.Selecting Foiward/StoI the motor is controlled by buttons S81 and S82.	, 1	
F-04	Rotation Made	1. Allow Forward and Reverse Rotation 2. Allow Forward Rotation. Disable Reverse Rotation 3. Allow Reverse Rotation, Disable Forward Rotation	Limit motor rotation direction to prevent equipment malfunctions or accidents. When F-03 is set to 2. F-04 is automatically set to *2* and cannot be changed. If the rotation direction needs to be changed. it can be set by F-05.	1	

F-05	Rotation Direction	1.No reversal 2. Reversal	No need to change motor wiring, easily change the motor rotation direction to match habits or requirements.	1	
F06	Main Speed Adjustment Method	1.Pane button 2.Panel lc::nob 3.Extern6l -10V analog input	1. When any multifunction terminal Ml, M2 is closed, the motor operation is segmented speed and the main speed adjustment is invalid. 2. The panel lc::nob and external 0-1OV analog input automatically match from O to the maximum speed. 3. When an external speed control potentiometer is connected to the 0-10V analog input AVI. The main speed adjustment method, F-06, should be set to 3.	1	
F-07	Maximum Speed	500-3000	Limits the maximum motor speed to prevent overspeed. damage, or accidents. For a 50Hz power supply, the maximum speed is UOO, and for a 60Hz power supply, the maximum speed is 1600. If the maximum speed exceeds these values, the motor may overheat and vibrate.	1400	
F-0B	Minimum Speed	90-1000	Limits the minimum motor speed to prevent unstable speed. overheating, and overload caused by running at low speeds.	90	
F-09	Forward Start Acceleration Time	0.1-10.0s	Longer time results in a smooth and gradual motor startup. Shorter time results in a fast and a ggressive motor startup.	1.0	
F-10	Forward Stop Mode	1. Free deceleration stop 2.Quiclc:: stop 3. Slow deceleration stop	1. lf free deceleration stop is selected, and the motor stops slowly. To choose quick:: stop, change the F-11 setting value to adjust the speed of quick:: stop. 2. lf free deceleration stop is selected, the motor stops quickly. To choose slow deceleration stop, change the F-12 setting value to adjust the speed of slow deceleration stop.	1	
F-11	Quick:: stop intensity during the forward stop.	1-10	When F-10 is set to 2, the menu is effective. The larger the value, the faster the stop.	5	
F-12	Slow deceleration time during a forward stop.	0..1-10.os	When F-1O is set to 3. the menu is effective. The larger the value. the slower the stop.	1	

F-13	Time for acceleration during reverse start	0..1~10.0S	IA longer time results in a gentle motor start, with a longer startup time. A shorter time results in a fast and aggressive motor start. with a shorter start up time.	1.0	
F-14	Reverse stopping method	1. Free Deceleration Stop 2. Quick Stop 3. Slow Deceleration Stop	1. If the free deceleration stop option is selected, the motor will stop slowly, You can choose the quick stop option by changing the F-15 setting to adjust the speed of the quick. stop. 12-the free deceleration stop option is selected, the motor will stop quickly. You can choose the 15I0w deceleration stop option by changing the F-16 setting to adjust the speed of the slow deceleration stop.	1	
F-15	Quick stop intensity during reverse stop	1~10S	When F-14 is set to *2,* the menu is active. The larger the value, the quicker. er, the stop.	5	
F-16	Time for slow deceleration all in reverse ston	1-10s	When F-14 is set to 3, the menu is active. The larger the value, the slower the stop.	1.0	
F-17	First Speed Range	Minimum soeed – Maximum soeed	When multifunction terminal M1 is closed, the motor operates at the first speed.	500	
F-1B	Second Speed Range	Minimum speed – Maximum speed	When multifunction terminal M1 is closed, the motor operates at the first speed.	700	
F-19	Third Speed Range	MinimLm speed .. Maximum speed	When both multifunction terminals M1 and M2 are closed, the motor operates at the third speed.	900	
F-29	Restore Factory Settings	1. Do not restore 2. Restore factory settings		1	
F-30	Program Version	Code+ Version		02 …	

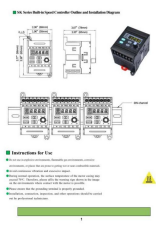
Fault Alarm Er-1

1. Overload or blockage.
2. Abd the motor or tie heme, capacitor troller,

Troubleshooting

1. Check and eliminate the faults.
2. Power off and restart to clear the alarm.

Documents / Resources

	LCLCTC SK Series Built In Speed Controller [pdf] User Manual SK Series Built In Speed Controller, SK Series, Built In Speed Controller, Speed Controller, Controller

References

- User Manual