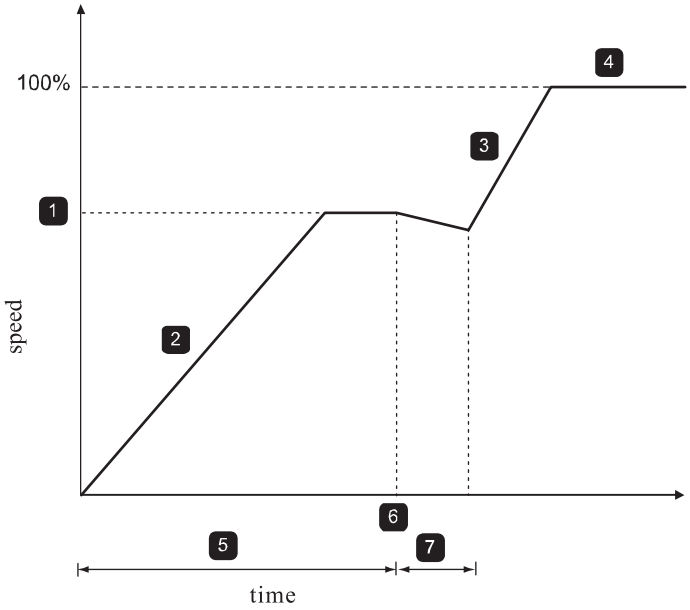
3. Start the motor under normal load conditions and monitor the speed characteristics and motor current of the motor after the switching contactor (KM1) is switched and the stator resistance (R1) is shorted.
   If the motor does not accelerate immediately after the conversion, increase the setting of parameter 12D.
   If the motor current changes abruptly after the conversion, the setting of parameter 12D needs to be reduced.



1	R1 constant speed
2	First slope
3	Second slope
4	Operating mode (I <120% of motor rated current)

5	Parameter 7E Relay B Open Delay
6	KM1 closed
7	Parameter 12C conversion time

Note
In order for this device to work properly, only the motor settings of group-are used. Use only constant current starting method (parameter 2A starting method).

Chapter 11 Fault Resolution

11.1 Protection Response

When a protection condition is detected, the soft starter writes the protection condition to the event log. It may trip and may issue a warning. The soft starter response depends on the protective measures setting (parameter setting 16).
The user cannot adjust one or more of the protection responses. These trips are usually caused by external events (such as phase loss), or they may be caused by internal faults of the soft starter. These trips have no related parameters and cannot be set as warnings or logs.
If the soft starter trips, you need to identify and clear the conditions that triggered the trip, reset the soft starter, and then restart. To reset the starter, press the RESET button on the control panel-or activate the "Reset remote input".
If the soft starter alarms, the soft starter will reset automatically after the cause of the alarm is eliminated.

11.2 Trip Message

The following table lists the protection mechanisms and possible trip causes of the soft starter. Some settings can be adjusted with parameter settings 4 protection settings and parameter settings 16 protection measures, while other settings are built-in system protection and cannot be set or adjusted.

Display	Possible cause / suggested solution
Analog input trip	Determine and exclude activation conditions for analog input A. Related parameters: 6N, 60, 6P
Waiting for data	The operation board did not receive data from the control PCB. Check that the cables on the starter are properly connected and installed.
Battery / clock	A real-time clock verification error has occurred, or the backup battery voltage is too low. If the battery voltage is too low and the power is off, the date / time setting will be lost. Reset the clock. Related parameters: 16M
Controller	This is the name chosen for the programmable input. See Input Trip.
Current imbalance	Current imbalances can be caused by motor problems, environmental problems, or installation problems, such as: ● Unbalanced supply voltage ● Motor winding problem ● Small motor load ● Input terminals L1, L2, or L3 lack phase in operating mode The thyristor has an open circuit. Only by replacing the thyristor and checking the performance of the starter can the diagnosis be clearly determined. Whether the thyristor is malfunctioning. Related parameters: 4H, 4I, 16E
Current read error LX	Where X is 1, 2 or 3. Internal fault (PCB failure). When the thyristor power is cut off, the current transformer circuit output does not reach zero. Contact your local supplier for advice. This trip cannot be adjusted. Related parameters: None
Starting limit time	Trip limit time trips can occur in the following situations: ● Parameter 1A motor rated current is not suitable for this motor ● The parameter 2D current limit is set too small ● Parameter 2B start ramp time is set to be larger than the 4A setting start limit time ● Parameter 2B The starting ramp time is set too short, it is not suitable for large inertia loads when using adaptive control Related parameters: 1A, 2B, 2D, 4A, 4B, 9B, 10B, 10D, 16B
Trigger failed PX	Where X is phase 1, phase 2, or phase 3. The thyristor does not trigger as expected. The thyristor may be malfunctioning, or the internal wiring may be malfunctioning. This trip cannot be adjusted. Related parameters: None
Excessive rated current (Rated current is out of range)	This trip cannot be adjusted. If the soft starter uses a delta connection instead of a star connection to connect the motor, it can support larger motor rated current values. If the soft starter is connected using the star connection method, but the programmed setting of parameter 1A motor rated current exceeds the maximum value of the star connection method, the soft starter will trip when starting (see Minimum and Maximum Current Setting on page 71). If the soft starter is connected to the motor using a delta connection method, the soft starter may not detect the connection correctly. Contact your local supplier for advice. Related parameters: 1A and 9B

Display	Possible cause / suggested solution
Frequency (power)	This trip cannot be adjusted. The power frequency is outside the specified range. Check whether other equipment in this range affects the power supply, especially variable speed drives and switching power supplies. If the soft starter is connected to a generator set, the generator may be too small, or there may be speed regulation problems. Related parameters: 4J, 4K, 4L, 16F
Ground fault	This fault occurs only when an RTD / ground fault card is installed. Test output cable insulation and motor insulation. Identify and eliminate any ground fault cause. Related parameters: 40, 4P, 16N
Radiator overheating	Check if the cooling fan is working. If installed in a cabinet, check for adequate ventilation. During the starter's start and operation, the fan works and continues to work for 10 minutes after the starter enters the stopped state. Note Models 0023B to 0053B and 0170B do not have cooling fans. For models with a cooling fan, the fan is turned on at startup and turned off after 10 minutes of inactivity. Related parameters: 16L
High level	This is the name chosen for the programmable input. See Input Trip.
High pressure	This is the name chosen for the programmable input. See Input Trip.
Input Trip	One of the inputs of the soft starter is set to the trip function and is activated. Check the input status to determine which input is active, and then exclude the trigger condition. Related parameters: 6A、6B、6C、6D、6E、6F、6G、6H、6I、6J、16G、16H
Instantaneous Overcurrent	The soft starter reports this trip when any of the following conditions occur: The motor power increases sharply. Causes may include transient overload conditions exceeding an adjustable delay. Related parameters: 2U、2V、16P The current through the motor exceeds the built-in trip point of the soft starter. 7.2 times of parameter 1A *Motor rated current* 6 times the starter current rating Causes of transient overcurrent include locked rotors, or a malfunction of the motor or wiring. This trip cannot be adjusted. Related parameters: None
Internal fault X	This trip cannot be adjusted. The soft starter has tripped due to an internal fault. Contact your local supplier for the meaning of fault code (X). Related parameters: None
L1 Phase Loss L2 Phase Loss L3 Phase Loss	This trip cannot be adjusted. Before starting, check whether the starter has detected and displayed a phase loss. In the running state, the starter detects that the current of the affected phase has dropped below 2% of the programmed motor's rated current, and the duration exceeds 1 second, which indicates that the phase on the line side is missing or the connection to the motor is disconnected. Check the power, input and output connections of the starter and the motor. Failure of thyristor, especially open circuit of thyristor, will also cause phase loss. Only by replacing the thyristor and checking the performance of the starter, can the diagnosis of the thyristor fail clearly. Related parameters: None
L1-t1 Short L2-t2 Short L3-t3 Short	Before starting, check whether the starter detects and displays a short circuit of the thyristor or an internal short circuit of the bypass contactor. If the starter is connected to the motor using a star connection method, consider using a two-phase control method to keep the starter working until the starter can be repaired. Note Only motors connected by star connection support two-phase control. If the soft starter is connected using a delta connection method, two-phase control does not work. The next time the control power is applied, the starter will trip due to an Lx-Tx short circuit. If the control power is turned on again between two starts, the two-phase control does not work. Related parameters: 15D

Display	Possible cause / suggested solution
Low control voltage	The soft starter has detected a drop in the control voltage. ● Check external control power (terminals A1, A2, A3) and reset the starter. If external control power is stable: ● It may be that the 24V power supply on the main control PCB is faulty, or the bypass drive PCB may be faulty (only the internal bypass type). Contact your local supplier for advice. In the ready state, this protection is not activated. Related parameters: 16X
Low level	This is the name chosen for the programmable input. See Input Trip.
Low pressure	This is the name chosen for the programmable input. See Input Trip.
Motor overload (thermal model)	The motor has reached its maximum thermal capacity. Overload may be caused by: ● Soft starter protection setting does not match the thermal capacity of the motor ● Too many starts per hour ● The output is too large ● Damaged motor windings Remove the cause of the overload and allow the motor to cool Related parameters: 1A, 1B, 1C, 1D, 16A  Attention Parameters 1B, 1C and 1D determine the trip current of the motor overload protection. The default settings of parameters 1B, 1C and 1D provide motor overload protection: level 10, trip current, FLA (rated current) 105% or equivalent.
Motor 2 overload	 Refer to Motor Overload (Thermal Model) above. Attention Only applicable after programming the second group of motors. Related parameters: 9A, 9B, 9C, 9D, 9E, 16A
Motor connection TX	Where X is 1, 2 or 3. The motor is connected to the soft starter using a star connection or delta connection method. ● Check each connection between the motor and soft starter to see if the power supply circuit is unblocked. ● Check the connections on the motor terminal box. This trip cannot be adjusted. Related parameters: None
Motor thermistor	● The motor thermistor input is enabled and the resistance of the thermistor input exceeds 3.6 kΩ for more than 1 second. ● Motor winding is overheating. Determine the cause of overheating, allow the motor to cool, and then restart the motor. ● The motor thermistor input is turned on.  Attention If an effective motor thermistor is no longer used, a 1.2kΩ resistor must be connected between terminals B4 and B5. Related parameters: 16I
Network communication (between interface and network)	The network master has sent a trip command to the starter, or there is a problem with the network communication. Examine the cause of communication problems on the network. Related parameters: 16K
No traffic	This is the name chosen for the programmable input. See Input Trip.
Not ready	Check input A (C53, C54). It is possible to disable the starter via a programmable input. If parameter 6A or 6F is set to disable the starter and there is an open circuit on the corresponding input, the soft starter will not start.
Parameter is out of range	This trip cannot be adjusted. ● The parameter value is outside the valid range. The operator panel will display the first invalid parameter. ● An error occurred while loading the data from the EEPROM into the RAM after the operation board was powered on. ● The parameter setting or actual value on the operation panel does not match the starter parameters. ● "Load user settings" was selected, but no saved files are available. Reset fault. The starter will load the default settings. If the problem persists, contact your local dealer. Related parameters: None

Display	Possible cause / suggested solution
Phase sequence	The phase sequence on the soft starter input terminals (L1, L2, L3). Is incorrect. Check the phase sequence on L1, L2, L3. Make sure the setting in parameter 4G is suitable for the device. Related parameters: 4G
PLC	This is the name chosen for the programmable input. See Input Trip.
Power-down / power circuit	This trip cannot be adjusted. When a start command is issued, one or more phases of the starter are not energized. Check whether the main contactor is closed when the start command is issued and whether it is closed until the soft stop is completed. Check the fuse. If the soft starter is tested with a small motor, at least 2% of the minimum rated current must flow through each phase. Related parameters: None
Pump failure	This is the name chosen for the programmable input. See Input Trip.
RTD A overheated to RTD 6 overheated.	Above the RTD / PT100 set temperature, the soft starter trips. Identify and exclude activation conditions for the corresponding inputs.  Attention Pt100 B ~ PT100 G can only be used after RTD / PT100 and ground fault card are installed. Related parameters:11A、11B、11C、 11D、11E 、11F、11G、16O ~ 16U
RTD circuit failure	The displayed RTD / PT100 has a short circuit. Check and exclude this condition. Related parameters: none
Starter communication (connect Port and soft starter)	There is a problem with the connection between the soft starter and the optional ommunication interface. Remove the interface and reinstall it. If the problem persists, contact your local dealer. The soft starter has an internal communication error. Contact your local dealer. Related parameters:16J
Disable starter	This is the name chosen for the programmable input. See Input Trip.
Thermistor circuit	The thermistor input is enabled, and: ● The input resistance is less than 20 Ω (the cold resistance of most thermistors is greater than this value), or a short circuit has occurred. Check and exclude this condition. Related parameters: none
Time limit overcurrent	The soft starter has a built-in bypass and requires a large current during operation. (When the protection curve of 10A is tripped, or the motor current rises to 600% of the motor rated current setting value.) Related parameters: none
Under current	The motor current drops sharply, which is caused by unloading. Causes of descent include broken components (shafts, belts, or couplings), or the pump is idling. Related parameters: 4C、4D、16C
Unsupported option (Triangle connection method (This feature is not supported)	This trip cannot be adjusted. The selected function cannot be used (for example, the triangle connection method does not support jog). Related parameters: None
Vibration alarm	This is the name chosen for the programmable input. See Input Trip.
VZC failure PX	Where X is 1, 2 or 3. Internal fault (PCB failure). Contact your local supplier for advice. This trip cannot be adjusted Related parameters: None

11.3 General faults

The following table describes known soft starter failures without tripping or warning.

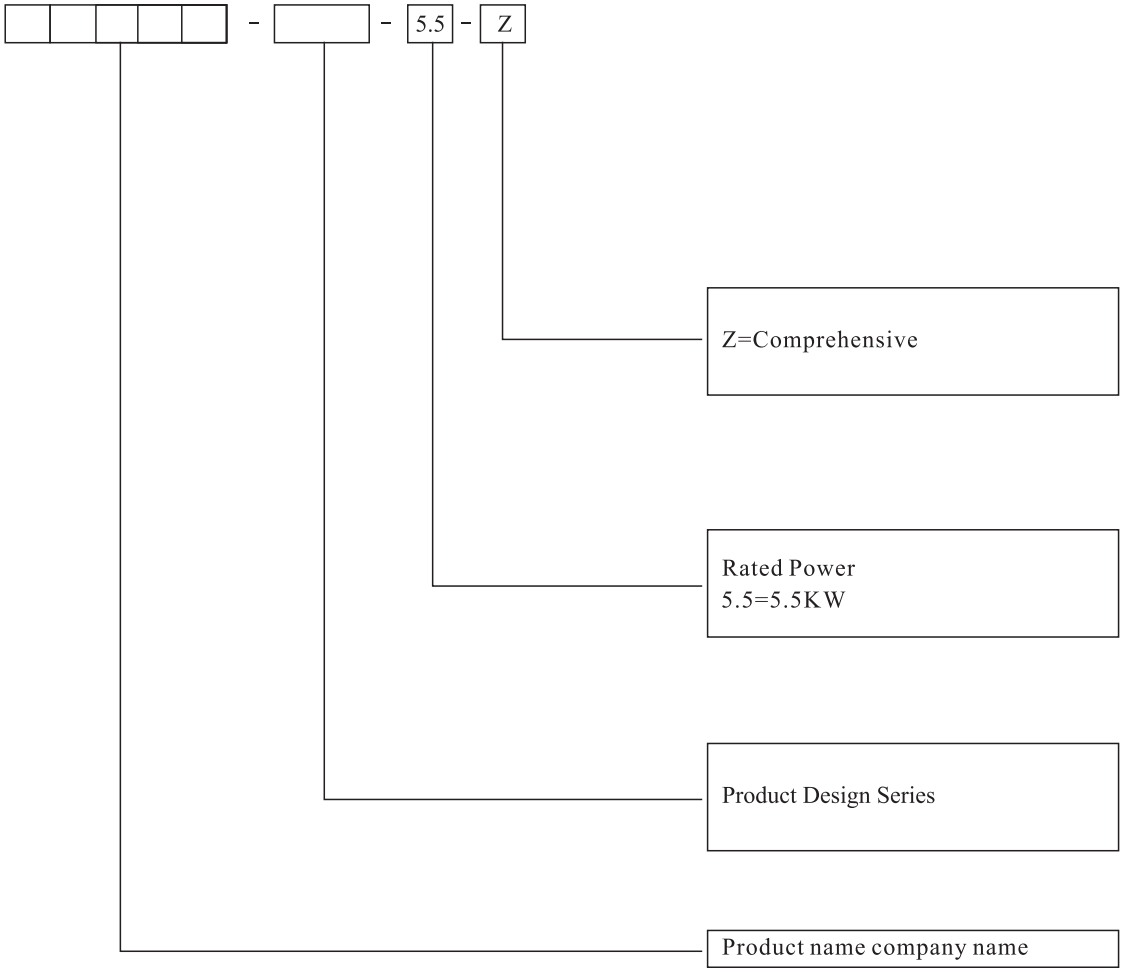
Symptom	Possible reason
Starter "Not Ready"	Check input A (C53, C54). It is possible to disable the starter via a programmable input. If you participate The number 6A or 6F is set to starter disabled and the corresponding input. If there is an open circuit, the soft starter will not start.
The soft starter does not respond to START or RESET on the operation panel.	The soft starter may be in remote control mode. When the soft starter is in remote mode,The local LED on the actuator does not light up. Press the L / R (local / remote) button once to switch to local control.
The soft starter does not respond to commands from the control inputs.	The soft starter may be in local control mode. When the soft starter is in local control mode,The local LED on the starter is on. Press the L / R (local / remote) button once to switch to Local control. The control cable may be connected incorrectly. Check remote control start input, remote control stop input And remote control reset input are configured correctly (see Control Cables on page 6 for details)The signal sent to the remote control input may be wrong. Activate each input signal in turn and test. input signal. The corresponding remote control input LED on the starter should be on.
The soft starter does not respond to start commands from local control or over-control.	The soft starter may be waiting for the restart delay to elapse. Restart delay length is subject to parameters 4M restart delay control. The motor may be too hot to start. If parameter 4N Motor Temperature Measurement is set to Measure Only when the soft starter calculates that the motor has sufficient thermal capacity to successfully complete the start, The soft starter is allowed to start. Wait for the motor to cool down before attempting to start.It is possible to disable the starter via a programmable input. If parameter 6A or 6F is set as starter disabled If there is an open circuit on the corresponding input, the soft starter will not start. If no longer needed Disable the starter and close the input circuit. Note Parameter 6Q Local / Remote: Controls when the L / R (local / remote) button is enabled.
When using two-wire remote control, reset is not performed after automatic reset.	The two-wire remote control start signal must be canceled, and then the start signal reapplied to restart.
When using two-wire remote control, the remote start / stop command overrides the automatic start / stop setting.	The auto start / auto stop function can only be used in remote mode with three or four wire control.
If there is a connection between the thermistor inputs B4 and B5, or if the motor thermistor between B4 and B5 is permanently removed, a non-resettable thermistor circuit will trip.	After establishing the connection and activating the short-circuit protection, enable the thermistor input.Remove the connection and load the default parameter group. This will disable the thermistor input and clear the trip. Connect a 1k2Ω to the thermistor input Set the thermistor protection to "record only" (parameter 16I).
When using two-wire remote control, the remote start / stop command overrides the automatic start / stop setting.	The auto start / auto stop function can only be used in remote mode with three or four wire control.
The soft starter cannot control the motor correctly during the starting process.	If a small motor rated current setting (parameter 1a) is used, the starting performance may be unstable.This may affect the use of soft starters on small test motors rated from 5 A to 50 A.A power factor correction capacitor must be connected at the power supply end of the soft starter. To control dedicatedThe power factor correction capacitor contactor connects the contactor to the operation relay terminal.
The motor cannot reach full speed.	If the starting current is too small, the motor cannot produce enough torque to accelerate to full speed.The soft starter may trip due to the starting limit time. Be careful Ensure that the motor starting parameters are suitable for the application and use the expected motor starting curve. If parameter 6A or 6F is set as motor parameter selection, check whether the corresponding input is in the expected state. The load may be blocked. Check whether the load is seriously overloaded and whether the rotor is locked.
Motor operation is unstable.	The thyristor in the soft starter must have a current of at least 5A to be locked. If the rated current is less than When testing the soft starter on the motor of 5A, the thyristor may not lock normally.

The motor is irregular or noisy.	If the soft starter is connected to the motor by triangle connection method, the soft starter may not be inspected correctly Test connection. Contact your local supplier for advice.
Soft stop ends too fast.	The soft stop setting may not be appropriate for the motor and load. Check the settings of parameters 2h, 2I, 10h and 101. If the load of the motor is very small, the function of soft stop is very limited.
Adaptive control, braking, inching and two-phase control functions do not work.	These functions can only be used with star connection. If the soft starter is connected with triangle connection method, these functions will not work.
After the adaptive control is selected, the motor is started normally, and the second start is different from the first start.	The first adaptive control start is a real constant current so that the starter can understand the motor characteristics. Adaptive control is used for subsequent starting.
When this option is selected, two-phase control does not work.	The next time control power is applied, the starter will trip due to Lx-Tx short circuit. If the control power is switched on again between two starts, the two-phase control will not work.
Starter "waiting for data	The operation board did not receive data from the control PCB. Check the cable of the display on the starter Whether the connection and installation are correct.
The display of the operation panel is in disorder.	The fixing screws of the operation board may not be tightened, causing intermittent connection. Tighten the operation panel Fix the screws or install the four corners in place.
Display distortion	Check whether the fixing screws of the operation board are tightened too tightly. Loosen the screws slightly.
Unable to save parameter settings.	Make sure that after adjusting the parameter settings, press the menu (store) button to save the new values. If you press exit(exit), changes are not saved. Check whether the parameter write protection (parameter 15b) is set to read-write. If parameter write protection is set If it is read-only, you can view the parameters, but you cannot change them. You must enter the security access password To change parameter write protection settings. EEPROM on operation panel. May be faulty. Failure of EEPROM will also cause soft starter Trip, and an error message will be displayed on the operation panel: parameter out of range. Contact local supplier Ask for advice.
Attention! Cut off the main power supply	If the three-phase power supply is connected, the soft starter will not activate the operation simulation. This can prevent accidents Trigger direct start.

Chapter 12 Appendix

12.1 Specifications

Model code



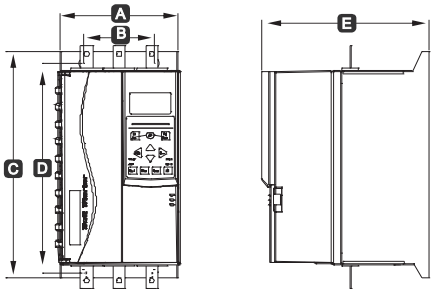
Minimum and maximum current settings

The minimum rated current setting and the maximum rated current setting of the soft starter depend on the model:

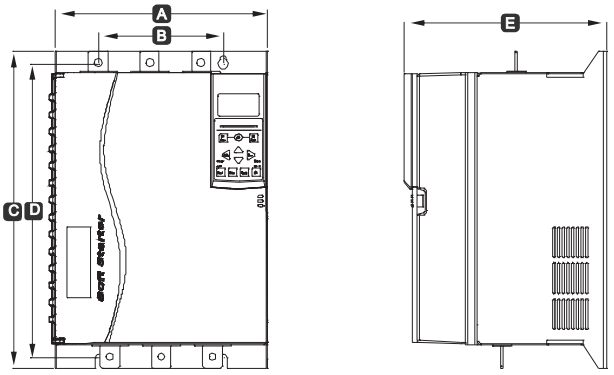
Model	Star connection method	Rated current of delta connection method
SCKR1-7000-5.5-Z	11A	16A
SCKR1-7000-7. 5-Z	15A	22A
SCKR1-7000-011-Z	23A	34A
SCKR1-7000-015-Z	30A	44A
SCKR1-7000-018-Z	37A	55A
SCKR1 -7000-022-Z	45A	67A
SCKR1-7000-030-Z	60A	89A
SCKR1-7000-037-Z	75A	111A
SCKR1-7000-045-Z	90A	133A
SCKR1-7000-055-Z	110A	163A
SCKR1-7000-075-Z	150A	222A
SCKR1-7000-090-Z	180A	266A
SCKR1-7000-110-Z	220A	325A
SCKR1-7000-132-Z	255A	377A
SCKR1-7000- 160-Z	320A	474A
SCKR1 -7000-185-Z	370A	548A
SCKR1-7000-200-Z	400A	592A
SCKR1-7000-220-Z	425A	629A
SCKR1 -7000-250-Z	500A	7 40A
SCKR1-7000-280-Z	560A	829A
SCKR1-7000-320-Z	630A	932A
SCKR1 -7000-350-Z	700A	1036A
SCKR1-7000- 400-Z	800A	1184A
SCKR1-7000-450-Z	900A	1332A
SCKR1-7000-500-Z	1000A	1480A

Size and weight

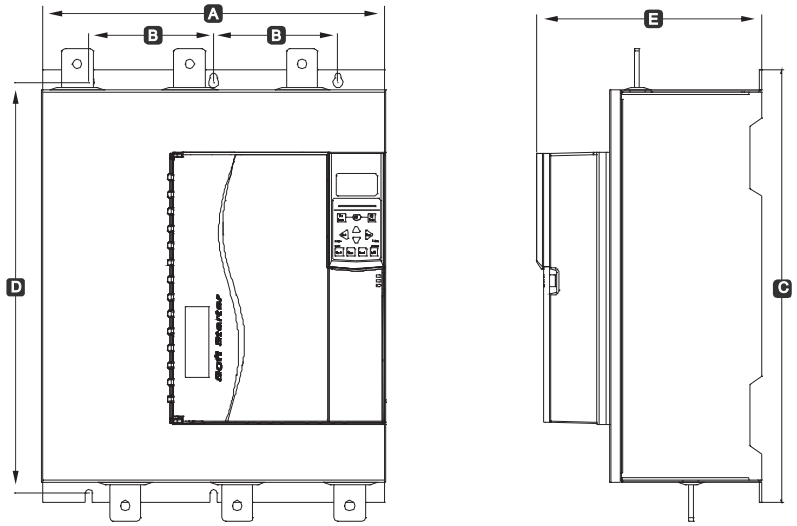
5.5KW~55KW



75KW~110KW



132KW~500KW



Model	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Weight kg
5.5KW~55KW	152	92	292	269	215	Not applicable	Not applicable	Not applicable	5. 2
75KW~110KW	274	160	408	385	260	Not applicable	Not applicable	Not applicable	17. 5
132KW~500KW	440	320 (160*2)	530	530	290	Not applicable	Not applicable	Not applicable	35. 5

12.2 parameter value

If you need the assistance of the supplier or service technician, please fill in all parameter settings in the table below.

1	Motor data - 1	User settings 1	User settings 2
1A	Rated current of motor		
1B	Locked rotor time		
1C	Locked rotor current		
1D	Service factor of motor		
2	Start / stop MODE-1		
2A	Starting mode		
2B	Starting ramp time		
2C	Initial current		
2D	Current limit		
2E	Adaptive starting curve		
2F	Jump start time		
2G	Jump start amplitude		
2H	Stop mode		
2I	Stopping time		
2J	Adaptive stop curve		
2K	Adaptive control gain		
2L	Braking torque		
2M	Braking time		
3	Auto start / stop		
3A	Auto start mode		
3B	Auto start time		
3C	Automatic stop mode		
3D	Auto stop time		
4	Protection settings		
4A	Starting limit time		
4B	Starting limit Time-2		
4C	Undercurrent		
4D	Under current delay		
4E	Instantaneous overcurrent		
4F	Instantaneous overcurrent delay I		
4G	Phase sequence		
4H	Current imbalance		
4I	Current unbalance delay		
4J	frequency measurement		
4K	Frequency variation		
4L	Frequency delay		
4M	Restart delay		
4N	Motor temperature measurement		
4O	Earth fault current		
4P	Earth fault delay		
4Q	Retain		
4R	Retain		
4S	Retain		
4T	Retain		
5	Automatic reset trip		
5A	Automatic reset function		
5B	Maximum reset times		
5C	A / b reset delay		
5D	C reset delay		

6	Input		
6A	Input a function		
6B	Enter a name		
6C	Input a trip		
6D	Input a trip delay		
6E	Input a initial delay		
6F	Input b function		
6G	Enter b name		
6H	Input b trip		
6I	Input b trip delay		
6J	Input b initial delay		
6K	Input c function		
6L	Input d function		
6M	Remote reset logic		
6N	Analog input trip		
6O	Analog input range		
6P	Simulated trip point		
6Q	Local / remote:		
6R	Remote control communication		
7	Output		
7A	Relay a function		
7B	Relay a opening delay		
7C	Relay a off delay		
7D	Relay b function		
7E	Relay b on delay		
7F	Relay b off delay		
7G	Relay c function		
7H	Relay c on delay		
7I	Relay c off delay		
7J	Relay d function		
7K	Relay e function		
7L	Relay f function		
7M	Low current indication		
7N	High current indication		
7O	Motor temperature indication		
7P	Analog output a		
7Q	Analog a range		
7R	Analog a max		
7S	Analog a min		
7T	Analog output B		
7U	Analog B range		
7V	Analog B Max		
7W	Analog B min		
8	monitor		
8A	language		
8B	F1button function		
8C	F2 button function		
8D	Display current or power		
8E	Top left corner of screen		
8F	Top right corner of screen		

8G	Bottom left corner of screen		
8H	Bottom right corner of screen		
8I	Graphic data		
8J	Graphic display period		
8K	Graphic display maximum		
8L	Graphic display minimum		
8M	Current calibration		
8N	Main supply voltage		
8O	Voltage calibration		
9	Motor data-2		
9A	Double thermal protection model		
9B	Motor rated current - 2		
9C	Locked rotor time-2		
9D	Locked rotor current-2		
9E	Motor service factor-2		
10	Start / stop mode-2		
10A	Starting mode-2		
10B	Starting ramp-2		
10C	Initial current - 2		
10D	Current limit-2		
10E	Adaptive starting curve-2		
10F	Jump start time-2		
10G	Jump start amplitude-2		
10H	Stop mode-2		
10I	Stop time-2		
10J	Adaptive stop curve-2		
10K	Adaptive control gain 2		
10L	Brake torque-2		
10M	Braking Time-2		
11	RTD temperature		
11A	*RTD/PT100 A°C*		
11B	*RTD/PT100 B°C*		
11C	*RTD/PT100 C°C*		
11D	*RTD/PT100 D°C*		
11E	*RTD/PT100 E°C*		
11F	*RTD/PT100 F°C*		
11G	*RTD/PT100 G°C*		
12	Slip ring motor		
12A	Motor data 1 ramp		
12B	Motor data 2 ramp		
12C	Conversion time		
12D	Slip ring reduction		
15	Senior		
15A	Access code		
15B	Parameter write protection		
15C	Emergency operation		
15D	Short circuit thyristor action		
16	Protective measures		
16A	Motor overload		
16B	Starting limit time		
16C	Undercurrent		

16D	Instantaneous overcurrent		
16E	Current imbalance		
16F	Frequency		
16G	Input a trip		
16H	Input b trip		
16I	Motor thermistor		
16J	Starter communication		
16K	Network communication failure		
16L	Heatsink ot		
16M	Battery / clock failure		
16N	Grounding fault		
16O	*RTD/PT100 A*		
16P	*RTD/PT100 B*		
16Q	*RTD/PT100 C*		
16R	*RTD/PT100 D*		
16S	*RTD/PT100 E*		
16T	*RTD/PT100 F*		
16U	*RTD/PT100 G*		
16V	Retain		
16W	Retain		
16X	Low control voltage		
20	limit		

Manufacturer: Zhejiang ZIRI Electrical Technology Co.,Ltd.
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325604.Zhejiang ,China.
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Website:www.chziri.com