Heavy-duty / generator dedicated type

Smart motor soft starter/cabinet

GE300 series

[操作指导手册]

MANUAL OPERATION GUIDE

Preface

Thank you for choosing the liquid crystal display intelligent AC motor soft starter produced by our company. In order to give full play to the functions of this product, please read this manual carefully before use. Please operate and use correctly according to the regulations, and ensure the safety of the operator. When you find difficult problems in use and this manual cannot provide answers, please contact our company or local agents and distributors, we will serve you wholeheartedly .

Safety Precautions

1. The soft starter should be installed or guided by professional technicians;

2. Try to ensure that the motor power and specifications match the soft starter;

3. It is strictly forbidden to connect a capacitor to the output terminal (U.V.W) of the soft starter;

4. The input and output connections of the soft starter should be wrapped with insulating tape;

5. The shell of the soft starter must be grounded reliably;

6. When the equipment is repaired, the input power must be cut off first;

7. The internal circuit board is high voltage, non-professionals are not allowed to repair it.

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1. The function and characteristics of GE300 series soft starter

The intelligent AC motor soft starter is a new type of motor starting equipment with the current international advanced level designed and produced by adopting power electronic technology, microprocessor technology and modern control theory. This product can effectively limit the starting current when the asynchronous motor is started. It can be widely used in fans, water pumps, conveying and compressors and other loads. It is a traditional star/delta conversion, auto-coupling voltage reduction, magnetic control voltage reduction and other voltage reduction The ideal replacement product for starting equipment.

1.1 The function of GE300 series soft starter

※ Reduce the starting current of the motor, reduce the power distribution capacity, and avoid the investment in capacity expansion;

※ Reduce starting stress and prolong the service life of motors and related equipment; Smooth starting and soft stop avoid the surging problem and water hammer effect of traditional starting equipment;

※ A variety of starting modes and a wide range of current and voltage settings can be adapted to a variety of load situations and improve the process;

※ Perfect and reliable protection function, more effective protection of the safety of motors and related equipment;

※ It can be used in occasions of frequent start and stop.

1.2 Features of GE300 series soft starters

※ The GE300 series intelligent AC motor soft starter adopts high-performance microprocessor technology, which has higher performance and has the characteristics of a wider range of voltage adaptation.

※ 6 kinds of starting modes can be selected, which can maximize the motor to achieve the best starting effect.

※ The original swing starting mode has a good starting effect for the load with eccentric center of mass.

※ It can realize forward and reverse step-by-step frequency conversion jog function, and realize the motor forward and reverse jog operation.

※ Three parking modes can be selected: free parking, soft parking, DC brake parking

※ Online type and bypass type can be set freely.

※ Two driving modes can be selected: torque mode and smooth mode.

※ Two independent programmable output relays: It is convenient to realize the interlocking control with other equipment, and has the function of delay action, and the delay time is adjustable.

※ The three-phase current value can be displayed at the same time, and the current value can be independently calibrated.

※ Large-screen LCD man-machine interface, Chinese (Chinese display) and English two display modes, easy to operate.

※ A variety of protection and monitoring functions, thermal overload protection can be adjusted according to load requirements, and multiple protection functions can be independently selected to be turned on and off.

※ The last 12 failure records can be queried, providing a basis for failure analysis.

※ A set of 4-20mA (0-20mA) analog output

※ MODBUS RTU communication (RS485) is optional. The parameter setting, operation and monitoring can be entered through the host computer to realize highly intelligent control.

※ Actual power setting: When the power of the soft starter is greater than the actual load power, the rated current of the soft starter can be set according to the actual load to match the actual power of the soft starter with the load to ensure the start, operation, protection, etc. The accuracy of the parameters.

2. Product model and inspection

Each intelligent AC motor soft starter has undergone all functions and operation tests before leaving the factory. After the user receives the equipment, please check according to the following steps. If you find any problems, please contact the supplier immediately. Check the product nameplate: confirm whether the goods you receive are consistent with the products you ordered.

Use category： AC-53b

Standards compliant :GB/T14048.6-2016

GE300 motor soft starter

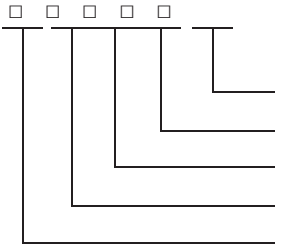
Rated power Pe： 75KW

Rated current Ie： 150A

Rated voltage Ue：3PAC380V

Serial number：

Date of manufacture：



Internal and external bypass options: Z means online, P means bypass
Product voltage level: 3-380V, 220V, 450V, 660V, need to be customized.
Adapted motor power: for example, 075 means 75KW. Product name: soft starter name

※ Check whether the product is damaged during transportation, such as: internal parts fall off, the outer shell is sunken,

Problems such as deformation and disconnection of the connection.

※ Product qualification certificate and user manual: Each soft starter is accompanied by a product qualification certificate and a user manual.

3. Conditions of use and installation

3.1 Conditions of use

The operating conditions have a certain impact on the normal use and life of the soft starter, so please install the soft starter in a place that meets the following operating conditions.

Product usage conditions:

Power supply: mains, self-provided power station, diesel generator set;

Input voltage: AC380V (-10% ~ +15%), 50Hz/60Hz;

Applicable motor: general squirrel cage asynchronous motor (winding motor Please specify when ordering);

Starting frequency: It is recommended that standard products start and stop

no more than 15 times per hour;

Cooling method: forced air cooling (thyristor online type) / natural air cooling (bypass type);

installation method: wall-mounted;

Conditions of use: Smart AC motor bypass soft starter should be equipped with a bypass contactor when in use;

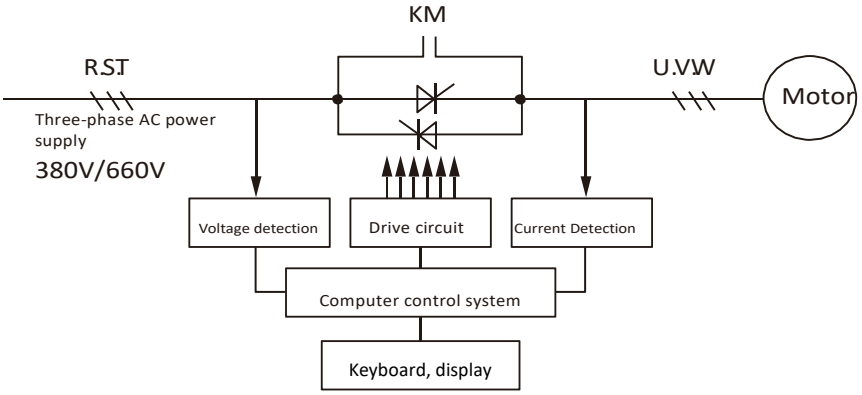
Protection class: IP20 (55kW and below)/IP00 (75kW and above);

Environmental conditions: below 2000 meters above sea level, corresponding to more than 2000 meters Reduce capacity usage; environment

The temperature is between -25°C and +40°C; the relative humidity does not exceed 95% (20°C ±5°C) without condensation; no flammable, explosive, corrosive gas, and conductive dust. Install indoors with good ventilation. Vibration is less than 0.5G.

4. Working principle

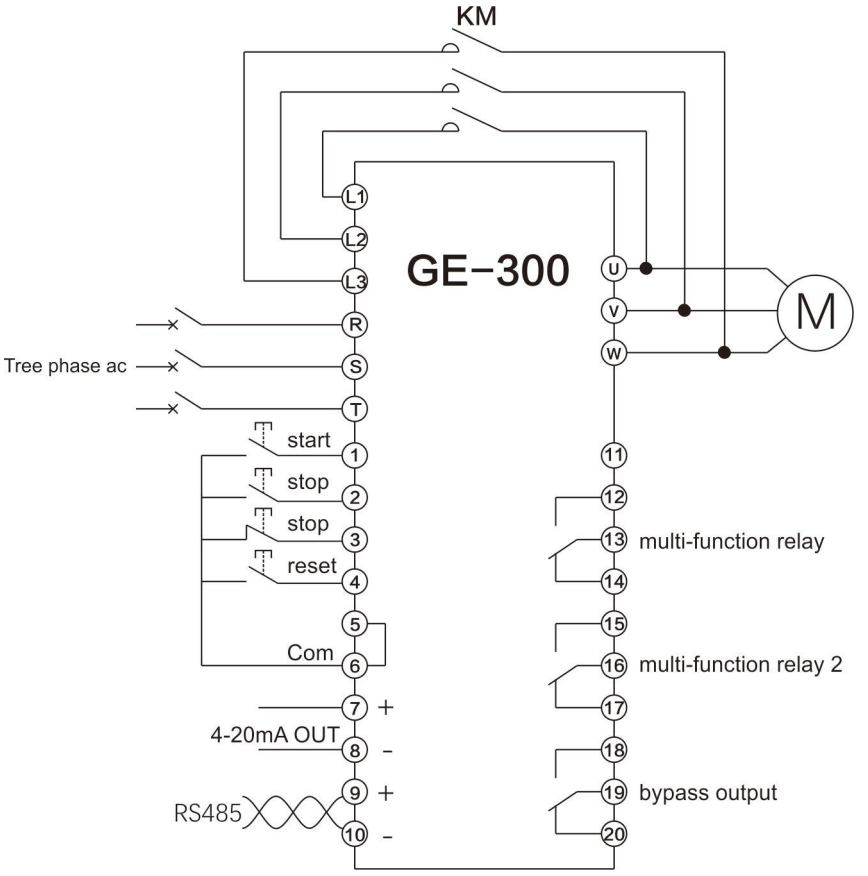
The GE300 series intelligent AC motor soft starter uses three pairs of anti-parallel thyristors connected in series to the AC motor stator circuit. Using the electronic switch function of the thyristor, the trigger angle of the thyristor is controlled by the microprocessor to change the opening degree of the thyristor, thereby changing the motor input voltage to achieve the purpose of controlling the soft start of the motor. When the start is completed, the output of the soft starter reaches the rated voltage. At this time, the bypass control signal will be used to automatically control the three-phase bypass contactor KM to pull in and put the motor into power grid operation, as shown in Figure 4-1.


KM
R.S.T
U.V.W
Motor
Three-phase AC power supply
380V/660V
Voltage detection
Drive circuit
Current Detection
Computer control system
Keyboard, display

Picture **4-1**

5. Basic wiring and external terminals

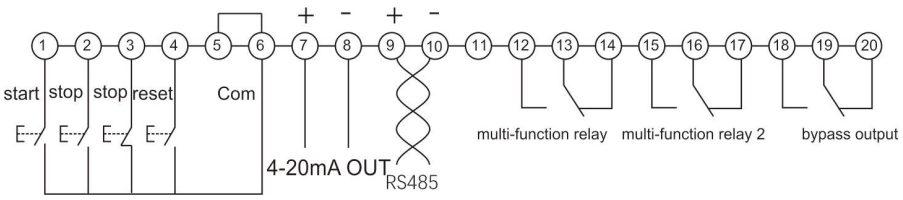
5.1 Schematic diagram of soft starter terminal wiring



Picture 5-1

Note: The online soft starter does not have L1, L2, L3 terminals, and no external AC contactor KM is required.

5.2 Sequence diagram of secondary terminals of soft starter



Picture 5-2

Note 1: The terminals ①-⑩ provide internal power supply, only need to connect the switch value externally, and do not need to connect to the power supply.

Note 2: 12 to 20 need to provide external power supply and load connection indicator circuit diagram, etc.

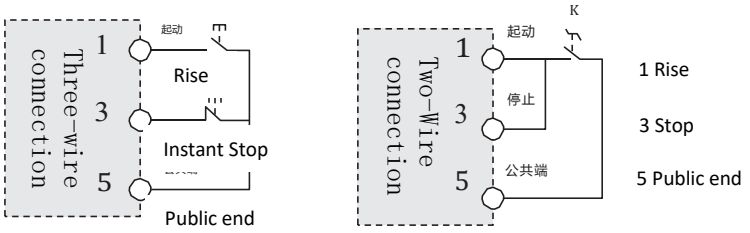


图 5-3

Note: It means that the external control start-stop signal has two wiring methods. When the two-wire control is adopted, the stop terminal is connected with the start terminal.

5.3 Description of external terminals of soft starter

Terminal type		Terminal number	Terminal name	Description
Main loop		R,S,T	power input	Soft starter three-phase AC power input
		U,V,W	Soft starter output	Connect three-phase asynchronous motor
		L1,L2,L3	Bypass contactor terminal	Used to connect the bypass contactor. Only external bypass type soft starters have this terminal, built-in bypass type and thyristor on-line soft starters do not have this terminal
	Digital input	1	External control start	Short-circuit with common terminals (5, 6) to start the soft starter
		2	External control stop	Disconnect from the common terminal (5, 6) to stop the soft starter
		3	External control jog	Short-circuit with common terminals (5, 6) to start the soft starter
		4	External control fault reset	Short-circuit with the common terminal (5, 6) in the event of a fault can clear the fault state
		5	Digital input common terminal	Digital input terminal common
		6		
	Analog output	7	4-20mA output positive	4-20mA output, 20mA corresponding current can be adjusted by parameter C26, C27, C28
		8	4-20mA output positive	
	Communication	9	RS485+	For ModBus RTU communication
		10	RS485-	
	spare	11	spare	No function, reserved

Programming relay 1	12	Programming relay 1 normally open	Programmable output, you can choose from the following functions: 0. No action 1. Power-on action 2. Soft start action 3. Bypass action 4. Soft stop action 5. Action during jog 6. Runtime actions 7. Standby action 8. Fault action 9. Thyristor breakdown action 10. The current is greater than the reached value 1 11. The current is greater than the reached value 2 12. The current is less than the reached value 1 13. The current is less than the reached value 2
	13	Programming relay 1 common	
	14	Programming relay 1 normally closed	
Programming relay 2	15	Programming relay 2 normally open	
	16	Programming relay 2 common	
	17	Programming relay 2 normally closed	
Bypass relay	18	Bypass relay normally open	Pull-in during bypass operation
	19	Bypass relay common	
	20	Bypass relay normally closed	

6. Keyboard function and operation

The soft starter uses a large-screen liquid crystal display module and micro-keys to form an operation display keyboard. 6 micro-keys can realize the start and stop operations, parameter equipment, modification, fault query, fault reset and other operations of the soft starter. See Figure 6-1 for details

Picture 6-1

Online soft start cabinet door opening size: 120x75mm

Door opening size of bypass soft start cabinet ：110x88mm

1. Press the "Program" key to enter the parameter group, and press the "△▽" key to switch the parameter group.

2. To modify the parameter, press the first step to enter the corresponding parameter, press the "program" key to enter the parameter, press the "△▽" key to modify the parameter value, after the modification is completed, press the "confirm" key to save the parameter, and press the "confirm" key again to return Go to the main interface.

3. Press the "Run" key to start the soft starter.

4. Press the "Stop" button to stop.

5. In the standby state, press the "OK" button to view the fault record.

6. Long press the "△" key to clear the fault record.

7. Long press "▽" to restore factory settings.

7. Soft starter parameter list

Main	Dependent	Parameter range	Defaults	Remarks	Attribut
A Basic para mete rs	A00 way to control	0: Prohibit start and stop 1: The keyboard is individually controlled 2: External control alone control 3: Keyboard + external control 4: Communication is controlled separately 5: keyboard + communication 6: External control + communication 7: keyboard + external control + communication	3: Keyboard + external control		◎
	A01 Starting method	0: Current limit start 1: Voltage ramp start 2: reserved 3: Sudden jump	0: Current limit start		◎

	A02 Starting current limit percentage	50%~600%	300%		◎
	A03 Percentage of starting voltage	10%~80%	35%		◎
	A04 Voltage ramp start time	1s~120s	15s		◎
	A05 Kick voltage	10%~95%	80%		◎
	A06 Jump time	10ms~2000ms	500ms		◎
	A07 Stop mode	0: Free parking 1: Soft parking	0: Free parking		◎
	A08 Soft stop time	1s~60s	5s		◎
	A09 Soft starter type	0: Online 1: Bypass type	1: Bypass type		◎
B Protection parameter	B00 Starting overload level	0~30	10	0：close	◎
	B01 Operation overload level	0~30	10	0：close	◎
	B02 Operating overcurrent multiple	0%-600%	0%	0：close	◎
	B03 Running overcurrent protection time	0s-6000s	5s		◎
	B04 Overvoltage protection value	100%~140%	120%	100：close	◎
	B05 Overvoltage protection time	1s~60s	5s		◎
	B06 Undervoltage protection value	60%-100%	80%	100：close	◎
	B07 Undervoltage protection time	1s~60s	5s		◎

	B08 Three-phase unbalance	20%~100%	40%	100：close	◎
	B09 Three-phase unbalance time	0.1s~60.0s	10.0s		◎
	B10 Start timeout	0s~150s	60s	0：close	◎
	B11 Jog timeout	0s~150s	0s	0：close	◎
	B12 Underload protection value	0%~100%	0%	0：close	◎
	B13 Underload protection time	1s~60s	10s		◎

Main	Dependent	Parameter range	Defaults	Remarks	Attri
C Advanced function	C00 Programmable relay 1	Features: 0: No action 1: Power-on action 2: Soft start action 3: Bypass action 4: Soft stop action 5: Action during jog 6: Action at runtime 7: Standby action 8: Fault action 9: Thyristor breakdown action Delay: 0-600s	8: Fault action		◎
	C01 Programmable output delay 1		0s		◎
	C02 Programmable relay 2		6: Action at runtime		◎
	C03 Programmable output delay 2		0s		◎
	C04 mailing address	1-127	1		◎
	C05 Communication baud rate	0:2400 1:4800 2:9600 3:19200	2:9600		◎
	C06 Phase A current calibration value	10%~1000%	100%		◎
	C07 Phase B current calibration value	10%~1000%	100%		◎
	C08 C-phase current calibration value	10%~1000%	100%		◎

	C09 Input voltage calibration value	10%~1000%	100%		◎
	C10 4-20mA lower limit calibration	0%~150.0%	20.0%		◎
	C11 4-20mA upper limit calibration	0%~150.0%	100.0%		◎
	C12 4-20mA upper limit current	50%~500%	200%		◎
D Status information	D00 Soft start rated current				
	D01 Soft start rated voltage				
	D02 Motor rated current				◎
	D03 Number of soft starts				
	D04 Cumulative operating hours				
	D05 Main control software version				
E Display parameter	E00 Standby display mode	0: Mode 0 1: Mode 1	0: Mode 0		
	E01 Run display mode	0: Mode 0 1: Mode 1	0: Mode 0		
	E02 Operating language selection	0: English 1: Chinese	1: Chinese		
	E03 Screen saver time	0s~1800s	120s	0: no protection	
	E04 Keyboard software version				
	E05 Screen contrast				

Note: ○: means that the parameter value can be modified when the soft starter is in stop and running state.

◎: Indicates that the parameter value cannot be modified when the soft starter is in the running state.

●: Indicates that the parameter value is a read-only parameter and cannot be modified.

8. Soft starter parameter description

8.1 Starting method

The intelligent AC motor soft starter has the following 6 starting methods, and users can choose according to their own load conditions.

0: Current limit start

1: Voltage ramp start

2: Sudden jump current limit start

3: Sudden jump voltage ramp start

4: Jog start

5: Swing start

Except for jog starting, all starting modes are limited by B10. Starting overtime. When the starting time exceeds the starting overtime limit value, the soft starter will report a starting overtime fault and stop. When B10 is set to 0, it means that the starting overtime protection is turned off. Household.

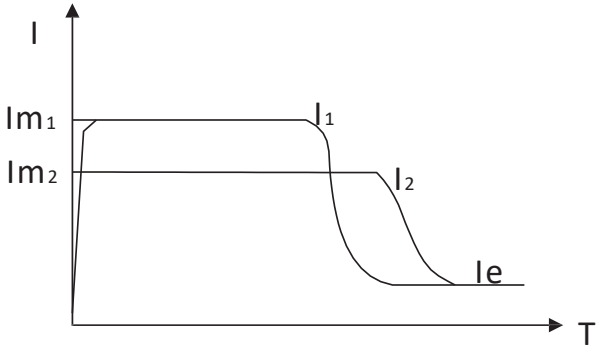
8.1.1 Current limit start

After starting, the motor current quickly rises to the set current limit value Im, and the output current is kept not greater than this value, so that the motor is gradually accelerated and the voltage gradually rises. When the motor is close to

the rated speed, the motor current quickly drops to the rated speed. The current Ie completes the starting process, as shown in Figure 8-1.

The current-limiting starting method is generally used in occasions that have strict requirements on the starting current, especially when the grid capacity is too small. When the starting capacity is to be limited, the current-limiting multiple can be set according to the requirements, generally between 2.5 and 3 times. Small can also cause failure to start normally. When using current-limiting starting, the starting time is related to the current-limiting multiple. The larger the current-limiting multiple is, the shorter the starting time, and vice versa.

Parameters related to "current limit start": A01. Start mode, A02. Start current limit percentage



Picture 8-1

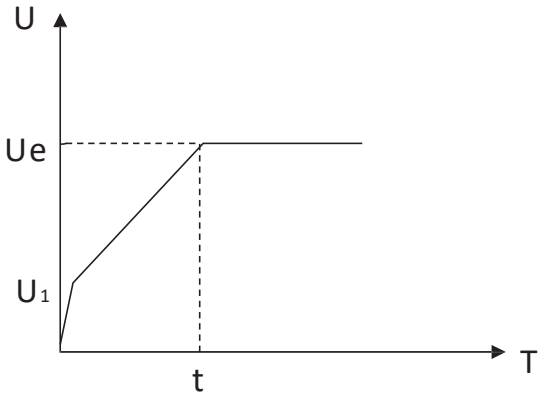
8.1.2 Voltage ramp start

After starting, the output voltage of the soft starter quickly rises to the "initial voltage" value U1, and then gradually increases the output voltage according to the "voltage ramp start time" until the start is completed, as shown in Figure 8-2.

The voltage ramp starting method is suitable for large inertia loads or occasions where the starting current is not strict but the starting stability is high. This starting method can greatly reduce starting shock and mechanical stress. The greater the value of the initial voltage U1, the greater the initial starting torque, but the greater the impact at the moment of starting. The voltage ramp start is also controlled by the current limit start multiple, that is, the starting current will not exceed the start current limit value during the voltage ramp start process. This measure is to prevent improper parameter settings from causing damage to the system, so when using the voltage ramp mode The starting current limit value should be appropriately increased. The length of the starting process is related to the setting value of the starting time and the weight of the load.

Parameters related to "voltage ramp start":

A01. Starting mode, A03. Initial voltage percentage, A04. Voltage ramp starting time, A02. Starting current limit percentage



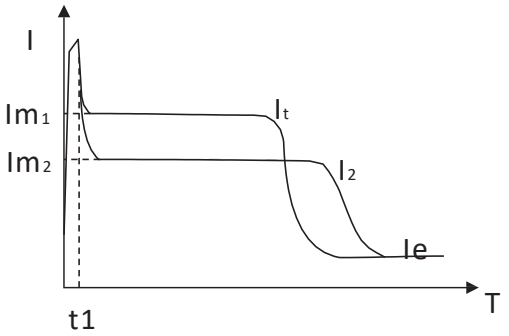
Picture 8-2

8.1.3 Sudden jump current limit start

For some loads with relatively large static resistance, a relatively large torque is required at the moment of starting, and it can also be started normally. This starting mode can be selected. When starting, the soft starter instantly outputs a higher voltage (time can be set) to make the motor rotate, and then start in the current limiting starting mode until the starting is completed, as shown in Figure 8-3.

Parameters related to "sudden jump voltage ramp start":

A01. Starting mode, A02. Starting current limit percentage, A05. Sudden jump voltage, A06. Sudden jump between



Picture 8-3

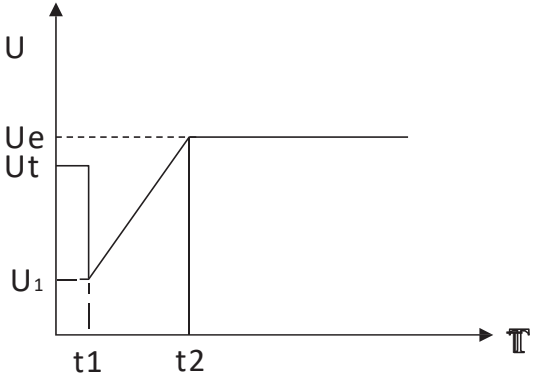
8.1.4 Kick voltage ramp start

For some loads with relatively large static resistance, a relatively large torque is required at the moment of starting, and it can also be started normally. This starting mode can be selected. When starting, the soft starter instantly outputs a higher voltage (time can be set) to make the motor rotate, and then start according to the voltage ramp start mode until the start is completed, as shown in Figure 8-4.

Parameters related to "sudden jump voltage ramp start":

A01. Starting mode, A03. Initial voltage percentage, A04. Voltage ramp starting time, A02. Starting current limit percentage

A05. Sudden jump voltage, A06. Sudden jump time



Picture 8-4

8.2 Stop mode

The soft starter has the following three stop modes, namely:

0: Free parking

1: Soft parking

2: DC braking to stop

8.2.1 Free parking

After receiving the stop command, the soft starter controls the bypass contactor to open, and at the same time, blocks the output voltage of the main circuit thyristor and the motor stops gradually according to inertia.

8.2.2 Soft parking

In this shutdown mode, the power supply of the motor is switched from the bypass contactor to the main circuit thyristor, and the control output voltage is gradually reduced until the motor stops smoothly. This mode is generally used to prevent the water hammer phenomenon that occurs when the equipment of the vertical water supply pipeline stops horizontally, and to extend the service life of the pipeline valve.

Parameters related to soft parking are:

A10. Stop mode, A11. Soft stop time

8.2.3 DC braking to stop

In this shutdown mode, the power supply of the motor is switched from the bypass contactor to the main circuit thyristor, and the soft starter controls the output DC voltage for the motor to brake and stop, shortening the running time of

the motor from rotating to stationary. This mode is generally used in occasions where the motor stopping time is required, and it can make the large inertia load completely stop to a standstill in a short time.

C04. DC braking force is used to control the magnitude of DC braking torque. The larger the value of this parameter, the greater the braking torque and braking current, and the shorter the braking time. C05. DC braking time is used to adjust the time for applying braking current. The longer the time, the lower the remaining speed of the motor after braking.

The parameters related to DC braking stop are:

A10. Stop mode, C04. DC braking force, C05. DC braking time

8.3 Type selection of soft starter

Parameter A12. Soft starter type is used to select the soft starter type, which can be selected between online type and bypass type. The on-line soft starter saves the triggering state of the thyristor in the running state, which is used for the online work of the soft starter. In the bypass type (including built-in bypass and external bypass), the thyristor stops triggering in the running state, and the bypass contactor is responsible for the full-voltage operation of the motor when the main circuit is connected.

8.4 Overload protection

Overload protection adopts inverse time limit control

Guard time： $$t = \frac{35 * T_p}{(I / I_p)^2 - 1}$$

Among them: t represents the action time, Tp represents the protection level, I represents the operating current, and Ip represents the motor rated current.

Motor overload protection characteristic curve: Figure 8-5

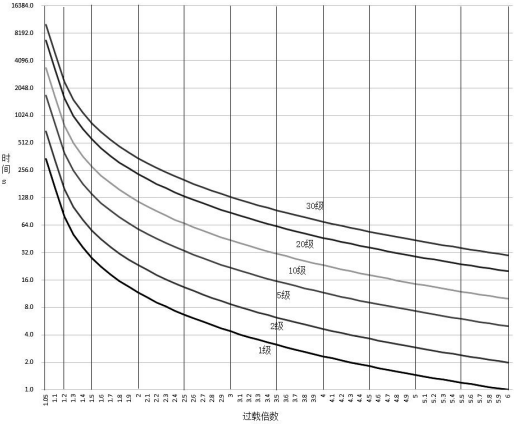


图 8-5

Motor overload protection characteristics

Overload multiple	1.05Ie	1.2Ie	1.5Ie	2Ie	3Ie	4Ie	5Ie	6Ie
1	∞	79.5s	28s	11.7s	4.4s	2.3s	1.5s	1s
2	∞	159s	56s	23.3s	8.8s	4.7s	2.9s	2s
5	∞	398s	140s	58.3s	22s	11.7s	7.3s	5s
10	∞	795.5s	280s	117s	43.8s	23.3s	14.6s	10s
20	∞	1591s	560s	233s	87.5s	46.7s	29.2s	20s
30	∞	2386s	840s	350s	131s	70s	43.8s	30s

∞: means no action

8.5 Current reach function

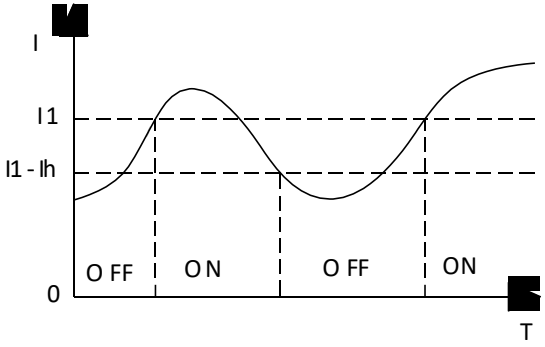
The current arrival function is used in conjunction with two multi-function relays, which can be divided into two modes: the current is greater than the reached value and the current is less than the reached value.

In the action mode where the current is greater than the reached value, the relay will act when the running current is greater than the current reaching the set value, and the relay will recover when the running current is less than (current reaching value-current reaching hysteresis value), as shown in Figure 8-6.

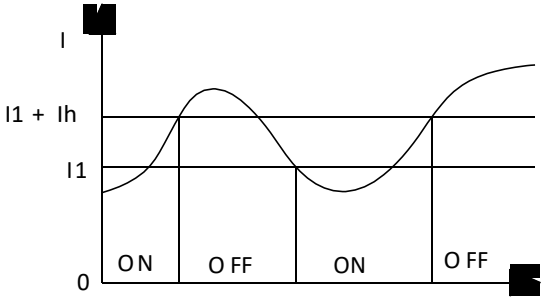
In the action mode where the current is less than the reached value, the relay will act when the running current is less than the current reaching the set value, and the relay will recover when the running current is greater than (the current reaching value + the current reaching the hysteresis value), as shown in Figure 8-7.

The parameters related to the current arrival function are:

C00. Programmable relay 1, C01. Programmable output delay 1, C02. Programmable relay 2, C03. Programmable output delay 2, C06. Current reaches 1, C07. Current reaches hysteresis 1, C08. Current reaches 2. C09. Current arrival hysteresis 2



Picture 8-6



Picture 8-7

In the figure: I1 represents the current reached value, Ih represents the hysteresis current,

ON means that the relay is activated, and OFF means that the relay is restored.

8.6 Drive mode

Parameter C10. Drive mode is used to select the drive mode of the soft starter, 0 torque mode and 1 smooth mode can be selected. Among them, the torque mode motor has a large starting torque, but there may also be large current fluctuations during the starting process. It is mainly used in situations where starting is difficult and a large starting torque is required; while the smooth mode motor has a smooth starting current and more control. Accurate, the starting process has less impact on the mechanical load and the power grid, and it is suitable for most occasions.

8.7 Analog current output function

The analog current output function can realize analog 4-20mA, 0-20mA and other current output functions. C28.4-20mA upper limit current: used to set the soft starter corresponding to the upper limit of analog current output Current.

C27.4-20mA upper limit calibration: used to set the upper limit of analog current output, 100% means20mA.

C26.4-20mA lower limit calibration: used to set the upper limit of analog current output, 20% means4mA. Example of analog current output parameter setting:

Example 1. 20mA corresponds to twice the rated current of the motor, 4mA corresponds to 0A C28 = 200%, C26 = 20%, C27 = 100%

Example 2. 20mA corresponds to 1 times the rated current of the motor, 0mA corresponds to 0A C28 = 100%, C26 = 0%, C27 = 100%

Note: If there is deviation in the analog current output, the parameters C26 and C27 can also be used for fine adjustment.

8.8 Screen saver time

The screen saver time is used to set the screen backlight lighting time. After the last time the keyboard is operated, E03. After the screen saver time, the screen backlight is turned off to save energy and prolong the life of the screen backlight. Set E03. Screen saver time to 0 to turn off this function, and the screen always saves the on state.

8.9 Screen contrast

If the screen display is too light or too dark, you can use parameter E05. Screen Contrast to adjust the screen contrast
degree.

8.10 Communication function

The soft starter can be built-in Modbus RTU communication function (please specify when ordering), please refer to the communication manual for the communication protocol.

9. Fault protection function and solution

Serial numbe	Fault name	Possible cause of failure	Solution
1	Input phase loss	Incoming power supply phase loss	Check whether there is a lack of phase in the three-phase power supply of the mouth, whether the incoming line of the mouthpiece power supply is well connected, and whether the mouthpiece circuit breaker is in good condition
2	Output phase loss	Undercut phase	Check whether the wiring of the lower motor is good and whether the motor is faulty

3	Running overload	1. Motor overload operation 2. The rated current of the motor is not set correctly 3. The operating overload level selection is inappropriate 4. The current display is not accurate	1. Check the load condition and see if there is excessive load 2. Check whether the parameter D02 is set correctly 3. Check whether the setting of parameter B01 is appropriate 4. Adjust the parameters C22, C23, C24 to make the soft starter three-phase display Show current is equal to actual current

4	Starting overload	1. Motor overload start 2. The rated current of the motor is not set correctly 3. The operating overload level selection is inappropriate 4. The current display is not accurate	1. Check the load condition and see if there is excessive load 2. Check whether the parameter D02 is set correctly 3. Check whether the setting of parameter B00 is appropriate 4. Adjust the parameters C22, C23, C24 to make the soft starter three-phase display Show current is equal to actual current
5	Soft start	Incorrect setting of motor underload parameters and inaccurate current display	Adjust parameters B12 and B13 to appropriate values Adjust parameters C22, C23, C24 to make the soft starter three-phase display The current is equal to the actual current
6	Current unbalance	There is a problem with the motor coil. The	Replace or repair the motor and re-tighten the terminals
7	Overheated	The soft starter starts too frequently. The external ambient	Increase the start interval time, wait for the soft starter to cool down before proceeding to the next start, or add a cooling device to make the soft starter cool down more

8	Overvoltage failure	The power supply voltage is too high The voltage display is not accurate	Adjust the transformer power supply voltage Adjust parameter C25 to make the soft starter display voltage consistent with the actual voltage
9	Undervoltage fault	The power supply voltage is too low The voltage display is not accurate	1. Adjust the voltage of the transformer power supply; check whether the incoming cable is too small Check whether the power margin of the transformer is too small 2. Adjust parameter C25 to make the soft starter display voltage consistent with the actual voltage
10	Thyristor breakdown	Two-phase thyristor breakdown, the soft starter has current flowing in the stop state	If there is current in the shutdown state, the fault will be reported, and the power will be cut off, and check whether there is a breakdown of the two-phase thyristor.
11	Start timeout	Starting time exceeds B10 setting value	Check whether the setting of parameter B10 is appropriate. Check whether the load is too heavy and the starting time is too long. Adjust the starting parameters appropriately to shorten the starting time.
12	Jog timeout	Jog time exceeds B11 setting value	Check whether the setting of parameter B10 is appropriate to shorten the jog operation time

13	Running over current	The running current is too large The rated current of the motor is not set correctly The setting of the running overcurrent value is not correct The current display is not accurate	1. Check the load condition and see if there is excessive load 2. Check whether the parameter D02 is set correctly 3. Check whether the parameters B02 and B03 are properly set 4. Adjust the parameters C22, C23, C24 to make the soft starter three-phase display Show current is equal to actual current
14	Internal failure	The soft starter sends an internal hardware fault	Try to re-power on to see if it is resolved, if not resolved, please contact the manufacturer

10. Precautions for test run and routine maintenance of the soft starter

10.1 Trial run checks and precautions

In order to operate safely, check the following terms before powering on.

Does the soft starting power match the motor power? Available through D02. Motor current rating item, set according to the motor nameplate current value.

Does the motor insulation meet the requirements?

Is the main circuit input and output wiring correct?

Are all wiring nuts tightened?

Check the three-phase feed power supply (R, S, T) with a meter for short circuits?

After powering up, the display of "standby" indicates that it is in a normal ready-to-start state, and the motor steering can be checked by means of "dotting" to check that the steering is correct, and if not correct, any two phases of the motor end can be adjusted.

During the commissioning process, if the motor starting state is not ideal, the start and stop parameters can be set according to the parameter table, and the starting mode and current, voltage, time and other parameters can be modified accordingly.

If there is fault protection throughout the power-up and operation, the fault status will be displayed, please follow the instructions in Chapter 9.

Do not open the cover to avoid electric shock after the soft starter is energerized.

During the trial run, if abnormal phenomena, such as abnormal

sounds, smoke or odors, should be shut down quickly, cut off the power supply, check the cause.

In the case of the soft starter output without the motor, then U, V, W three-phase inductive voltage, is a normal phenomenon, after connecting the motor, this induction voltage can disappear.

10.2 Precautions for daily maintenance

※ Induced voltage: After the intelligent AC motor soft starter is connected to the power supply at the input, when the load is open, even in the stopped state, there will be an induced voltage at the output, which is caused by the leakage current of the thyristor, which is a normal phenomenon; This induced voltage can disappear after the motor is on. Therefore, you should pay attention to the risk of electric shock when using it.

.※ Reactive power compensation: If a reactive power compensation circuit that improves the power factor needs to be installed in the power distribution circuit, the reactive power compensation capacitor should be connected to the input end of the soft starter, not its output end, otherwise it will cause The power device of the soft starter is damaged.

※ Insulation test: It is strictly forbidden to measure the insulation resistance between the input and output of the motor soft starter with a megger, otherwise the power device and control board of the soft starter may be damaged due to overvoltage.

※ Circuit wiring: Do not connect the input and output of the motor soft starter in reverse, otherwise the soft starter or the motor may be damaged.

※ Bypass contactor wiring: when the motor soft starter is

equipped with a bypass contactor, the phase sequence of the soft starter output U, V, W and the bypass output L11, L21, L31 must be consistent.

※ External control terminal: the external control terminal of the intelligent AC motor soft starter. Start, stop, jog, reset, and public. No external power supply shall be introduced, otherwise the soft starter control board will be damaged.

※ In dusty working conditions, regular dust cleaning should be carried out, otherwise the insulation grade and heat dissipation effect of the soft starter will be reduced, causing malfunction or damage.

※ In a humid environment, if the soft starter is not used for a long time, it must be dehumidified before use (such as drying with a hair dryer or electric furnace), otherwise the insulation level of the soft starter will be reduced due to moisture or condensation, resulting in Creepage, short circuit, damage to the soft starter.

Ordering Instructions

※ When ordering, please inform the supplier of the product model, specification, load situation and usage conditions so that the product can be selected correctly.

※ The external product of the intelligent AC motor soft starter should be equipped with a bypass contactor when in use.

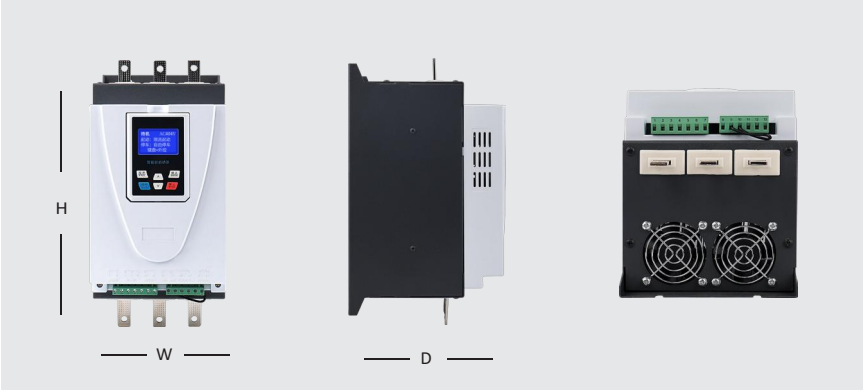
※ For users who have special conditions or requirements for this product, please explain to the supplier when ordering, we will provide comprehensive services.

※ If the load is a wire-wound motor, please specify when ordering.

※ For RS485 communication, please specify when ordering.

11.The structure and dimensions of the GE300 online intelligent soft starter

① 5.5kW~55kW



② 75kW-630kW

Specification	Dimensions (mm)			Installation (mm)			Weight (kg)
	H	W	D	H1	W1	Φ	
Online 5.5KW-55KW	320	155	190	285	85	M6	6
Online 75KW-115KW	380	210	255	325	150	M8	12.5
Online 132KW-350KW	530	390	260	430	330	M8	29
Online 400KW-450KW	645	495	287	527	335	M10	35
Online 500KW-800KW	780	605	335	620	395	M10	75

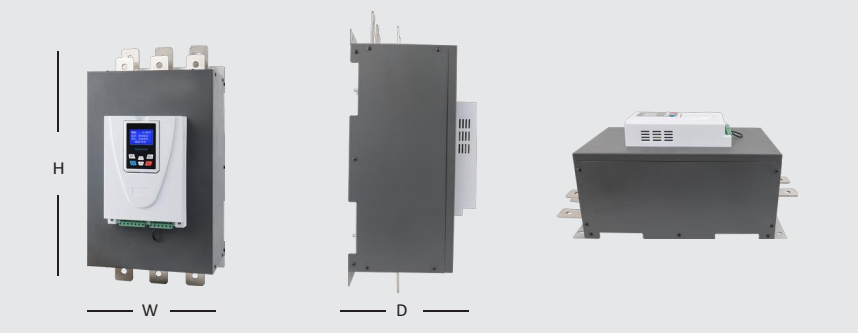
12. The structure and dimensions of the GE300-S online intelligent soft starter cabinet

Specification	Dimensions (mm)		
	H	W	D
Online cabinet 22KW-90KW	1000	420	380
Online cabinet 115KW-1160KW	1100	450	450
Online cabinet 185KW-280KW	1270	600	450
Online cabinet 320KW-450KW	1520	700	500
Online cabinet 500KW-630KW	1800	700	500

13. The structure and dimensions of the GE300 bypass intelligent soft starter

① 5.5kW-75kW

② 90kW-630kW



Specification	Dimension (mm)			Installation (mm)			Weight
	H	W	D	H1	W1	d	
5.5kW-75kW	272	146	160	247	133	M6	4kg
90kW-115kW	300	146	170	252	100	M6	12kg
132kW-250kW	470	260	245	440	210	M8	23kg
280kW-400kW	490	290	245	470	260	M8	32kg
450kW-630kW	585	410	245	535	345	M8	48kg

14. The structure and dimensions of the GE300-S bypass intelligent soft starter cabinet

Specification	Dimension (mm)		
	H	W	D
Bypass cabinet 22KW-75KW	1000	420	380
Bypass cabinet 90KW-250KW	1270	600	450
Bypass cabinet 280KW-450KW	1520	700	500
Bypass cabinet 500KW-630KW	1800	700	500

15. Peripheral accessories specification parameter list

Soft starter model	rated power	Rated current	Circuit Breaker	Matching bypass	Primary wire specification (mm
GE300-005	5.5	11	32	CJ20-16	Copper Wire & Cable 2.5
GE300-007	7.5	15	40	CJ20-16	Copper Wire & Cable 4
GE300-011	11	23	63	CJ20-25	Copper Wire & Cable 6
GE300-015	15	30	63	CJ20-40	Copper Wire & Cable 10
GE300-018	18.5	37	100	CJ20-40	Copper Wire & Cable 10
GE300-022	22	45	100	CJ20-63	Copper Wire & Cable 16
GE300-030	30	60	100	CJ20-63	Copper Wire & Cable 25
GE300-037	37	75	100	CJ20-100	Copper Wire & Cable 35
GE300-045	45	90	100	CJ20-100	Copper Wire & Cable 35
GE300-055	55	110	160	CJ20-160	Copper Wire & Cable 35
GE300-075	75	150	250	CJ20-160	Copper wire 35/ Aluminum wire 50
GE300-090	90	180	250	CJ20-250	Copper wire 50/ Aluminum wire 70
GE300-110	110	230	350	CJ20-250	Copper wire 70/ Aluminum wire 95
GE300-132	132	260	400	CJ20-400	Copper wire 95/ Aluminum wire 120
GE300-160	160	320	400	CJ20-400	Copper wire 95/ Aluminum wire 150
GE300-185	185	370	400	CJ20-400	Copper wire 120/ Aluminum wire 185
GE300-200	200	400	400	CJ20-400	Copper wire 150/ Aluminum wire 185
GE300-250	250	500	630	CJ20-630	Copper wire 185/ Aluminum wire 240
GE300-280	280	560	630	CJ20-630	Copper wire 240/ Aluminum wire 300
GE300-320	320	640	630	CJ20-630	Copper wire 240/ Aluminum wire 400

Warranty Card

Customer Information	Unit address:	
	company name :	Contact:
	Postal Code:	contact number :
product information	Product number :	
	Serial number :	
	Agent name:	
Fault Information	(Maintenance time and content): Repair man :	

Please read the Manual carefully and understand the contents so as to be able to correctly install, connect the circuit, operate and maintain it.

※ The technical specifications of this product may change without notice

※ This instruction manual should be kept until the product is scrapped;

※ This instruction manual should be kept in the hands of the actual end user.