



### **Product Overview**

Sckr1-3000 series intelligent motor soft starter is a new type of motor starting equipment developed and produced by power electronic technology, microprocessor technology and modern control theory technology, which can be widely used in heavy load equipment such as fans, pumps, conveyors and compressors.



### Product details

Sckr1-3000 series intelligent soft starter motors are widely used in power, metallurgy, petroleum, petrochemicals and mines.

- Water pump use soft stop function to alleviate water hammer phenomenon of the pump when stopped.
- ► Ball mill use voltage slope to start, reduce wear of gear torque.
- > Fan reduces belt wear and initial impact, saving maintenance costs;
- Compressor by limiting current, realize smooth start and reduce motor heating.

### Product technical features

- Main loop operating voltage : AC380~1140V(- 10%~+15%);
- Main loop operating current : 11A ~ 1500A;
- The phone will automatically : 50Hz/60Hz(±2%);
- Soft start rise time : 2 ~ 60s ;
- ► Soft stop time : 2 ~ 60s;
- Current limiting factor : 1.5 ~ 5.0le;
- ▶ initial voltage : 30%~70%Ue ;
- Cooling mode: natural cooling;
- Communication mode: RS485 serial communication;
- ► Starting times: ≤10 times/hour

### > The relation between altitude and output derating

Altitude C	Output current derating rate
2000 below	1.00
2000- 2500m	0.91
2500- 3000m	0.88

### Technical feature

- > One motor soft starter starts motor loads of different power;
- Dynamic fault memory function, easy to find the cause of the fault;
- Overcurrent, overheat, missing phase, motor overload and other
- comprehensive motor protection functions;
- Powerful software functions to meet the changing needs of industry
- occasions;
- Compact structure design, easy to install, easy to use;
- User-friendly operation mode, display interface can be flexible choice :LED or LCD display.
- > Profibus/Modbus two conmunication for you choice.

### Model selection definition



#### Notes for model selection

- The soft starter must provide a torque greater than the load resistance torque to complete starting
- If the cold state with 3 times the limit current, allow to start 40 seconds;.
- When cycle starting, start 10 times per hour, 3 times current is allowed to start for 25 seconds,
- For heavy load, such as ball mill, fan and so on, it is allowed to start 5 times per hour.Current limit as above, protectionThe level is set to 20.



# SCKR1-3000 series Motor soft starter

### **•** Envirment condition

Product grade	IP20
Resistance	IEC 68- 2- 6
Pollution	Comply with IEC 68-2-27:15g,11ms
Luncidity	Class 3,IEC947- 4- 2
Humidity	93%, IEC68-2-3
Temperature	-25°Cto+70°C
Service altitude	2000
Installation	Vertical install

### **Operating principle**

The soft starter of sckr1-3000 motor USES the electronic switch of the thyristor to change the conduction Angle of the thyristor by controlling the change of its trigger Angle through the microprocessor, thus changing the input voltage, so as to control the soft start of the motor. control the motor. the microprocessor.







# The graph on the left gives the output voltage waveform for voltage ramp starting. The U1 is the initial voltage value when starting, when the motor starting, within the scope of the electric current shall not exceed the rating of 400%, the soft starter output voltage rise rapidly to the U1, then output voltage according to the starting parameters set by gradually increases, the motor with the smooth acceleration, the rise of the voltage when the voltage at rated voltage Ue, motor to achieve rated speed, the bypass contactor and, starting process is complete.

### Current-limiting starting

The left figure shows the current waveform of the motor in the limited current starting mode.Including 1 I starting current limit value for setting, when the motor starting, the rapid increase of the output voltage until the motor current to achieve the current limit value I 1 set, rapid drop in output current to the rated current of motor or below, le starting process is complete.





Trip time curve of motor thermal protection (thermal state)

# SHCKELE

### SCKR1-3000 series Motor soft starter

### Key function description

- PRG/ENTER Program/confirm: press confirm to save
  New data and exit the Settings state
  Setting: enter the setting menu and modify the parameters
- RUN Start: to start the motor, the control source must be set
- STOP Stop: to stop the motor,
- 🐕 Add key: menu and setting parameters to add or decrease key
- Decrease key: menu and setting parameters to increase the

decrease key

## ● 参数设置代码如下



Setup code description Code factory default explain setting range name 30% 30-70% Voltage ramp mode is effective;Current mode starting voltage is 40% FO The starting voltage 16S Current limiting mode is invalid F1 2- 60S Soft starting time 0S F2 0-60S When set as 0, free parking;Please set it as 0 when connecting the first tow Soft stop time 0S 0-999S Delay with countdown mode, no delay when set to 0, start immediately F3 Starting time delay 0- 999S 0S Set to 0 for immediate suction when starting, for programmable relay output F4 Programming time delay 280% 50- 500% Current limiting mode is effective; Voltage ramp mode current limit is 400% F5 Starting limiting current 50-200% 100% F6 Maximum working current 80% 40-90% Protection below the set value F7 Under voltage protection 120% 100- 130% Protection above the set value F8 Over voltage protection 0-5 1 0 primary;1 light load;2 standard;3 overloading;4 senior F9 Starting mode 0-4 4 FA Output protection permit 0-7 If set to 7, start or stop operation is prohibited FB Operation control mode 0-2 0: it is forbidden to modify parameters; FC Parameter modification allowed 0-63 0 modification of parameters FD Correspondence address 0-19 FE Programming the output 80% 20- 100% Soft stop current limit FF Used for communication between multiple soft starters and upper computer Motor rated current FP 99S 5 Bypass switching time FU 0-1 1 Used for input motor nominal rated current FL Three phase smoothing allowance 50-150% 100% 0 forbids 1 The current coefficient FM 50-150% 100% Show slant big, coefficient is adjusted small, otherwise adjust big Voltage coefficient FN



### • Product appearance and terminal description





SCKR1–3000 series Motor soft starter

### • Soft starter appearance and mounting dimensions

















Specifications	Outline dimention			Installation dimention			Net
	W1	H1	D	W2	H2	D	( kg )
SCKR1- 3000- 5.5-75-Z	143	270	160	129	247	M6	< 3.5
SCKR1- 3000- 75- 200- Z	260	560	200	230	440	M8	< 20
SCKR1- 3000- 250- 320- Z	260	560	200	260	470	M8	< 23
SCKR1- 3000- 400- 450- Z	260	630	200	370	525	M8	< 31
SCKR1- 3000- 500- 630- Z	400	700	260	370	525	M8	< 40



### • Apply wiring diagram for external connection



### • Basic wiring diagram of soft starter



Squirrel-cage three-phase asynchronous motor