NIETZ

Making Efficient Start

BROCHURE

Low and Medium Voltage Soft Starter

Since
2005

NIETZ

Innovation +
Driving Tomorrow

WHO WE ARE

NIETZ is one Leading Manufacturer of industrial automation products, with more than millions units sold worldwide, established 2005 Shanghai, China. We are committed to building long-lasting and successful business relations with our partners, has gained good reputation and deep influence.

We aim to provide the best quality, unmatched reliability and low price in our services and our products. We aim to reduce your costs, streamline manufacturing, to improve productivity.

The products of NIETZ are Variable Frequency Inverters, AC Servo System, Soft Starter, Planetary Gearboxes and Complete Device,The products NIETZ are technological advanced products and it has quite wide product range and already used widely in various applications such as textile machine, air compressor, hoist, packing machine, printing machine, electronic machine and other industries, which exported to over 40 countries and regions such as Europe, South America, Southeast Asia, Middle East and so on.

NIETZ always aims to be the professional driving solution provider and your mutual-benefit partner.


Factory View

Receiption


Production Workshop


PCB Lines


Assembly Workshop


Testing Lines

CONTENTS

ESR Series with Bypass

ESR Soft Starter provides a cost effective solution for small to medium size motors. It is designed with a simple interface for easy installation; Compact & easy to Install; Built-in Bypass, motor protection and standard MODBUS RS485 that allows for remove monitoring and efficiently improved productivity.

Basic Functions

- Start/stop slope and initial voltage set by 3 different potentiometers built-in
- Bypass relay built-in, No need for extra contactor
- Voltage slope with current limit mode.
- △ and Y Wiring mode
- MODBUS RS485 is Selectable and can be
- reading current and fault data.
- Overcurrent, Overload, Max. start time, phase missing and sequence protection, SCR Overtheating protections.
- 1 start/stop Digital Input.
- Selectable a Buit-in Start/Stop isselectable
- 2 Output relay - Runing and Trip

Technical Data

Rated main voltage	200-525 VAC, 50/60Hz
Control source voltage	100-240 VAC, 24 VDC
Rated main current	1.5A - 150A
Initial voltage	30% - 70%
Start slope	1 - 30 sec.
Stop slope	0 - 30 sec.
Overload	3xle, 7 sec.
Times of start per hour	< 5, 5-10 (light load or no-load)
Overload grade	10 A

Enviromental temp.	0.....+50℃
Store temp.	-40.....+70 ℃
Max. altitude	1000m / 3280 ft
Protection class	IP21

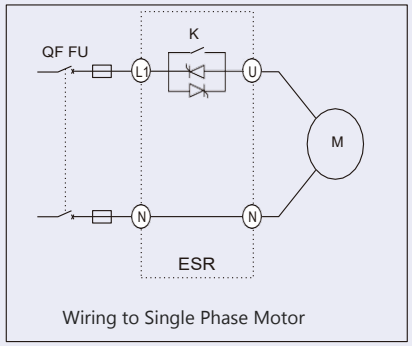
Power Supply	Soft Starter Rated Current, A	Motor, kW Rated Power	Weight, Kg
220V±15% 1 Phase Input, 3 Phase output	2.0	0.37	1
	3.0	0.55	1
	4.0	0.75	1
	6.0	1.1	1
	9.0	1.5	1
	12	2.2	1
	20	3.7	1
	30	3.7	2.4
	45	3.7	2.4

Advantage

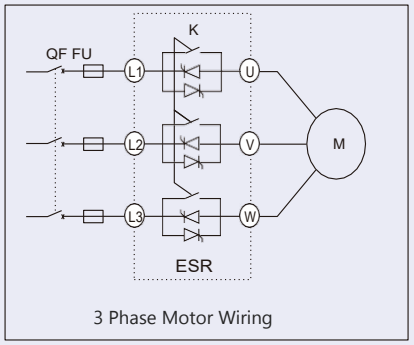
- ✓ Small Dimension, Low Cost
- ✓ Easy to Use and Wiring, DIN-Rail Mount
- ✓ Buit-in Bypass; Modus RS485 is selectable
- ✓ Various Protection Function
- ✓ Wide Operating Voltage 200-525 VAC
- ✓ Power Range 0.4 - 75 kW

Soft Starter Rated Current, A	220 VAC 3 Phase Rated Power, kW	380 VAC Motor Rated Power, kW	500 VAC Motor Rated Power, kW	Weight, Kg
1.5	0.37	0.75	1.1	1
2.2	0.55	1.1	1.5	1
3.0	0.75	1.5	2.2	1
4.5	1.1	2.2	3.7	1
7.5	1.5	3.7	5.5	1
11	2.2	5.5	7.5	1
15	3.7	7.5	11	1.4
22	5.5	11	15	1.4
30	7.5	15	18.5	2.4
37	11	18.5	22	2.4
45	15	22	30	2.4
60	18.5	30	37	2.4
75	22	37	45	2.4
90	25	45	55	5.0
110	30	55	75	5.2
150	37	90	90	5.2

Electrical Connection Diagram



Wiring to Single Phase Motor

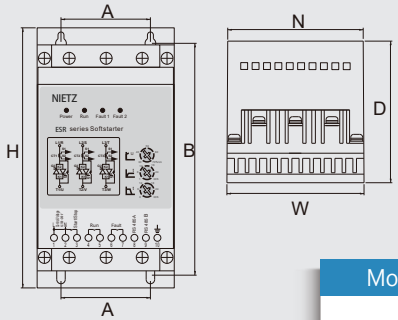


3 Phase Motor Wiring

Applications

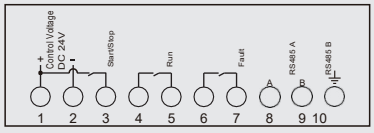
- Fan, pumps
- Conveyors, Packing machines
- City Electrical Network
- Petrol, Chemical industrilal

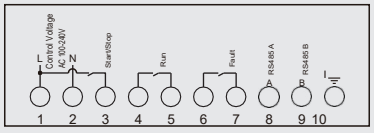
Dimension, mm



	A	B	H	W	N	D
1.5 - 11 Amps	60	156	175	92	91	95
15 - 22 Amps	68	182	200	108	105	105
30 - 75 Amps	80	208	222	125	124.8	135
90 - 150 Amps	110.3	293	310	155	129.2	160

Terminal Diagram





Model Code Description

ESR – 40 – 1R5 – □ – □ – □

- ESR — Product Series
- 40 — Voltage Supply: 220 VAC =20; 400 VAC = 40; 500 VAC = 50
- 1R5 — Rated Current: 1.5 A = 1R5; 22 A = 22
- □ — Control Source Voltage: 100-240 VAC = A; 24 VDC = B
- □ — Input Phase: 1P1 = Single phase; 3P3 = 3 phase
- □ — Optional: R - RS485 Modbus; S = Start Button on panel

SSN / SSA Robust & Reliable

SSN and SSA series AC motor soft starter is new type starting equipment with advanced features. This equipment designed and manufactured by the technique of power electronics microprocessor and modern control theory. Its can limit the start current efficiently when the asynchronous motor starts.

Basic Function

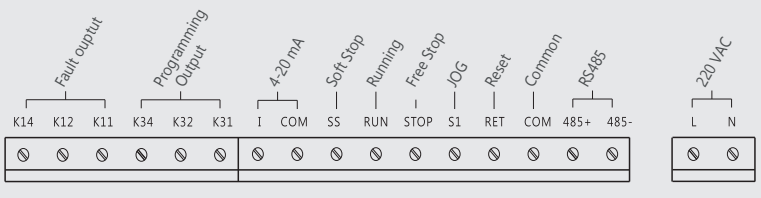
- ✓ Reduce the starting current of motor, capacity of power distribution and the investment cost
- ✓ Reduce the start stress; prolong the operation lifetime of the motor and correspond equipment.
- ✓ Smooth and steady starting and soft stopping; The Water hammer and surge can be avoid.
- ✓ Several sorts of starting mode, wide range setting of the current and voltage. It can be used in a lot of load conditions, so the technic can be improved
- ✓ Perfect and reliable protection; The safe-guard of the motor and relative device can be achieved effectively.
- ✓ It can be used in the state in which motor should star and stop frequently.

Technical Features

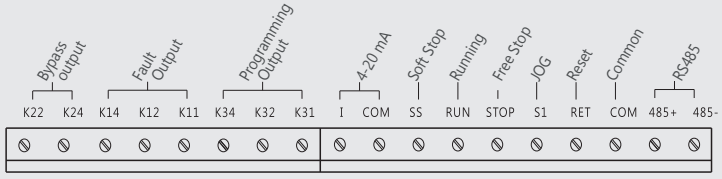
- Various Operating Voltage AC 380-1140; Powerfull load characteristics.
- The higher performance microprocessor and software are used, so the control circuit is simplified. The best perform speed can gained without the adjustment of the circuit parameters
- The modularization structure and up-in-down-out wiring mode are adopted. It is easy to used and integrated.
- Multi-Protection saving reduced cost and circuit has simplified.
- Analog output 4-20mA;
- Modbus RS485 Buit-in SSA series (SSN without it)
- Remove Keypad LCD, easy to Setup

Model	Apm	kW
SSN (A)-015-3	30	15
SSN (A)-022-3	45	22
SSN (A)-030-3	60	30
SSN (A)-037-3	75	37
SSN (A)-045-3	90	45
SSN (A)-055-3	110	55
SSN (A)-075-3	150	75
SSN (A)-090-3	180	90
SSN (A)-110-3	220	110
SSN (A)-132-3	260	132
SSN (A)-160-3	320	160
SSN (A)-187-3	375	187
SSN (A)-200-3	400	200
SSN (A)-250-3	480	250
SSN (A)-280-3	550	280
SSN (A)-320-3	620	320
SSN (A)-400-3	800	400
SSN (A)-450-3	900	450
SSN (A)-500-3	1000	500
SSN (A)-600-3	1200	600

Terminals

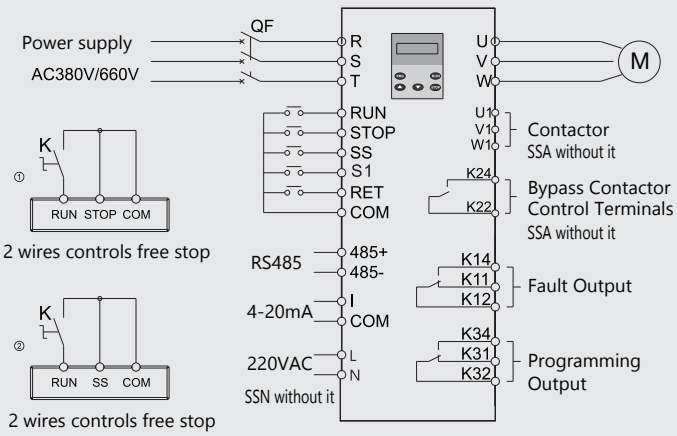


Terminals of SSA series

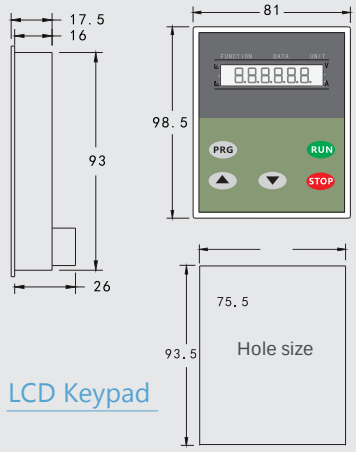


Terminals of SSN series

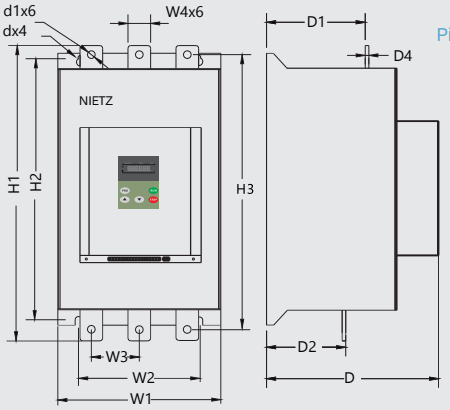
Connection



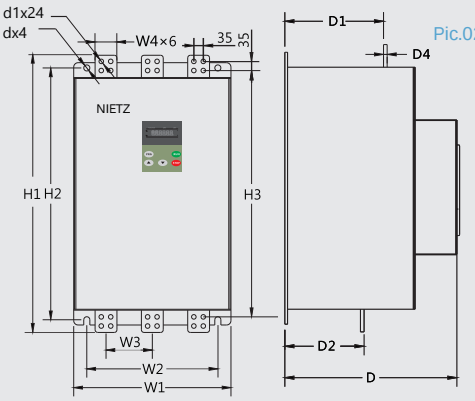
NIETZ



LCD Keypad



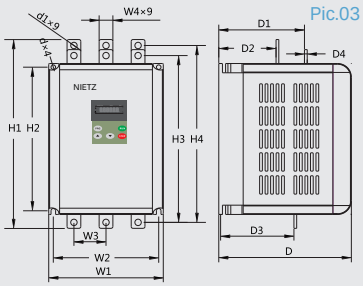
Pic.01



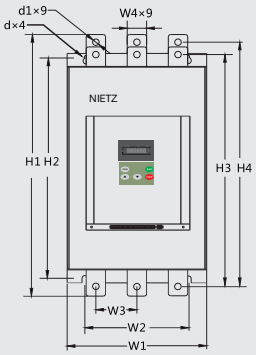
Pic.02

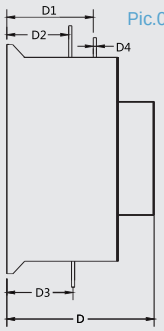
SSA series Soft Starter

SSA Model	Frame size	Dimensions (mm)			Install size (mm)						Sheet Copper size (mm)				Mass (kg)	Mount Method
		W1	H1	D	W2	H2	D1	D2	d	W3	W4	H3	D4	d1		
SSA-015-3 ~ SSA-030-3	F1	188	343	215	125	320	102	91	Ø6.5	62.5	15	323	3	Ø8.5	8	
SSA-037-3 ~ SSA-075-3											20					
SSA-090-3											25					
SSA-110-3 ~ SSA-187-3	F2	236	490	216	182	440	119.5	98.5	Ø8	74.6	30	456	5	Ø10.5	22	Pic.01
SSA-200-3 ~ SSA-280-3	F3	299	592	225	245	518	137.5	103.5	Ø8	96	40	552	5	Ø14	36	
SSA-320-3 ~SSA-400-3											50					
SSA-450-3 ~ SSA-500-3	F4	435	817	264	360	687	80	106	Ø11	131	60	722	13	Ø9	60	Pic.02

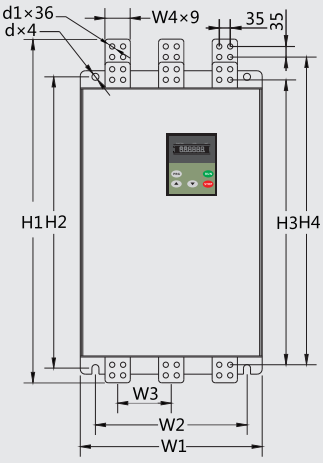


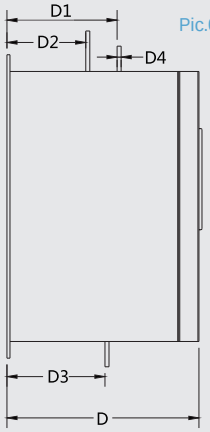
Pic.03





Pic.04





Pic.05

SSN series Soft Starter

SSN Model	Frame size	Dimensions (mm)			Install size (mm)						Sheet Copper size (mm)						Mass (kg)	Mount Method
		W1	H1	D	W2	H2	D1	D2	D3	d	W3	W4	H3	H4	D4	d1		
SSN-015-3 ~ SSN-030-3	F1	188	240	196	165	224	122	92	125	Ø5	653	15	262	282	3	Ø6	7	Pic.03
SSN-037-3 ~ SSN-075-3												20				Ø8		
SSN-090-3 ~ SSN-200-3	F2	236	414	216	182	343	125.5	70.5	59	Ø8	74.6	30	353	380	5	Ø10.5	16	
SSN-250-3 ~ SSN-280-3	F3	299	498	225	245	404	137.5	75.5	64	Ø8	96	40	438	458	5	Ø14	24	Pic.04
SSN-320-3 ~SSN-400-3												50						
SSN-450-3 ~ SSN-700-3	F4	435	613	264	360	586	191	123	77	Ø11	131	60	678	723	8	Ø12	80	Pic.05

SSM Medium Voltage Soft Starter Heavy Duty

- Modular structure, modular installation and easy maintenance.
- Adopt 32-bit digital signal processor and high-performance programmable controller PLC, real-time and high-efficiency, reliability and stability controls device.
- With voltage, kick + voltage, current limit, voltage ramp + current limit, inching and other starting methods, flexible setup start time interval;
- Choose free parking or soft parking according to load conditions;
- Strong anti-interference ability, complete isolation of high voltage control parts, safe and reliable operation;
- Current, voltage, zero-sequence current measure functions.
- HMI screen , easy operation, more humane;
- MODBUS Communication. The upper computer can be used for centralized control.

Operation Voltage	3 KV, 6 KV, 10 KV -15% ~ +10%; 50 Hz ±2
Power Range	200 to 22 000 kW

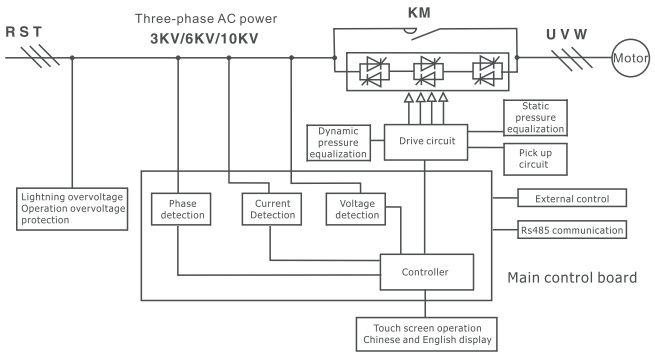
FEATURES AND ADVANTAGE

SSM medium pressure solid state soft starter is a new soft starter developed by NIETZ. This device is a new intelligent device with high performance, versatility, and high security that is designed and developed using DSP technology and modern advanced control theory. It is mainly used for the starting ,running,control and protection of parking for medium voltage motors.

The SSM medium voltage soft starter adopts high speed digital signal processor as carrier, integrates modern advanced control methods, and is equipped with multiple dynamic and static protection measures to achieve high performance of the device. The device can dynamically, in real time and efficiently limit that current during startup is within the set value, so as to avoid that the current during startup is too large and the voltage of the power grid drops sharply. So the start'up is smooth, the capacity of the power distribution equipment is reduced and the investment cost of the project is saved. This device has reliable and accurate overcurrent, overload, current imbalance, phase loss, thyristor failure and other comprehensive protection functions for motor.

WORKING PRICINPLE

SSM medium voltage motor solid state soft starter uses multiple thyristors connected in series between three-phase AC voltage and three-phase motor to adjust the delay conduction angle of multiple independent anti-parallel thyristor valve components to change AC input voltage of three-phase motor.So it achieves the purpose of constant current starting or voltage starting with a certain slope change. When the start is completed, the three-phase bypass contactor KM automatically pulls in and the electric motor is put into the grid operation (see the figure below).



Load type	three-phase medium voltage asynchronous motor, synchronous motor
Voltage and frequency	3kV, 6kV, 10kV; 50 / 60 Hz
Control signal	6 chanels pulse control
Thyristor protection	Static and dynamic voltage equalization, dynamic voltage equalization, RC protection, strong trigger protection
Peak voltage of Thyristor	VDRM= VRRM= 6500V
Overload capacity	125% full load current continous 400% full load current 60s 500% full load current 30s
Frequency	50Hz(±2Hz)
Main circuit composition	3KV:12SCRS 6KV:18SCRS 10KV:30SCRS
Instantaneous overvoltage protection	dv/dt absorption network, composite overvoltage protector
Cool down	Natural cooling
bypass contactor	With direct start capacity
Control method	The user provides 2 or 3 wire 220VAC

Features	Protection of the soft starter itself
Protection of too long time starting time	Start overload (inverse time) protection
Input phase loss	Three phase power supply can not start without any phase
Thyristor over temperature	Thyristor over-temperature cannot start
The times of starts per hour	The start time interval can be set, and the number of load starts per hour does not exceed 10 times

Features	Protection of the motor
Current	Start overcurrent protection Overcurrent protection Three-phase current imbalance protection
Voltage	low voltage protection; overvoltage protection
Overload	Overload protection (inverse time characteristics)

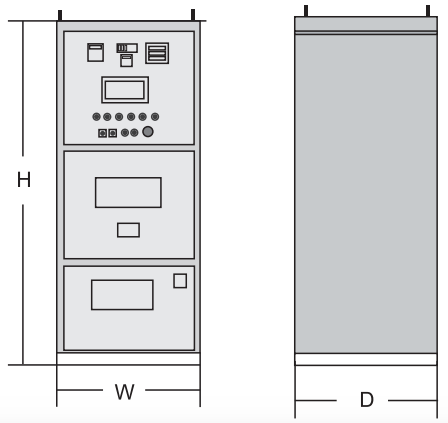
Operation interface and communication interface	
Operation panel HMI	Set parameters, control start and stop for the soft starter, touch screen operation of large screen , Chinese and English display
Communication Interface	Rs485 communication interface

TYPICAL APPLICATIONS

- Pump load
- Pumping unit
- Conveyor belt
- Mixer
- Centrifuge, blower, induced draft fan and other fan loads
- Air compressor, refrigeration compressor
- Lifts, cranes, tractors
- Ball mill, Crusher

NIETZ

Dimension



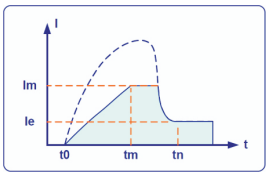
Nominal voltage (kV)	Model	Nominal current (A)	Rated power (kW)	Dimensions (mm)		
				W	H	D
3	SSM-620-3	150	620	800	2300	1500
	SSM-830-3	200	830			
	SSM-1100-3	270	1100			
	SSM-3500-3	850	3500			
6	SSM-500-6	63	500	800	2300	1500
	SSM-800-6	100	800			
	SSM-1000-6	125	1000			
	SSM-1400-6	175	1400			
	SSM-2150-6	270	2150			
	SSM-3400-6	400	3400			
	SSM-4500-6	500	4500	1200	2300	1500
	SSM-5600-6	630	5600			
	SSM-7700-6	900	7700			
10	SSM-500-10	38	500	800	2300	1500
	SSM-800-10	60	800			
	SSM-1000-10	76	1000			
	SSM-1650-10	120	1650			
	SSM-2000-10	145	2000			
	SSM-3500-10	255	3500			
	SSM-4500-10	350	4500			
	SSM-5600-10	405	5600	1200	2300	1500
	SSM-6650-10	480	6650			
	SSM-7100-10	520	7100			
	SSM-8000-10	600	8000			
	SSM-9300-10	670	9300	Customized		
	SSM-12000-10	880	12000			
	SSM-15000-10	1100	15000			
	SSM-19000-10	1370	19000			
	SSM-22000-10	1600	22000			

Model Code Description

SSM – 2000 – □ – LT

- SSM: Medium Voltage Soft Starter Series
- 2000: 2000 kW =2000, 620 kW = 620 | Adapt Motor Power, kW
- □: Medium Voltage Soft Starter Series — 3 kV = 3, 6 kV = 6, 10 kV = 10
- LT: Non is standard type; LT is Integrated type

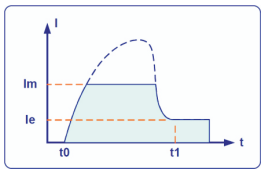
SSM medium voltage soft starter has a variety of starting methods:Voltage ramp, kick + voltage ramp, current limit, jog, etc. Parking modes are: free stop and soft stop. Users can choose different start and stop modes according to different loads and specific conditions of use;



- Voltage ramp start mode

The soft start output voltage rises exponentially with the set initial voltage and set start time, while the output current increases at a constant rate until the start is completed.

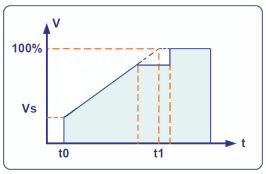
Name	Range	Factory default
Current limiting multiple	50~500%Ie	300%
Starting voltage	5~100%Ue	30 %
Starting time	5~200S	30S



- Current limiting start mode

After the soft start gets the start command, the output voltage increases rapidly until the output current reaches the set current limit value of 1 yang, the output current no longer increases, the current starts to decrease after the motor runs for a while, and the output voltage increases rapidly until the full voltage Output, start process is completed.

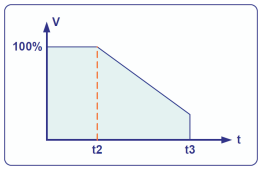
Name	Range	Factory default
Current limiting multiple	50~500%Ie	300%



- Jog mode

In this mode, the soft-start outputs voltage and rapidly increases to the inching voltage U1 and remains unchanged. This function is suitable for judging the direction of motor steering or load when the device is commissioned.

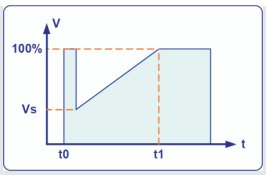
Name	Range	Factory default
Jog voltage	5~100%Ue	30%



- Soft parking mode

When the soft stop time is not set to zero, the stop in the full pressure state is the soft stop. In this mode, the soft starter first turns off the bypass contactor, and the output voltage of the soft starter is soft in the setting. It gradually decreases during the stop time until the motor stops.

Name	Range	Factory default
Soft stop time	0 ~100S	0S



- Jump + voltage ramp start mode

In the initial stage of start-up, a large pulse torque is applied to the load motor. Its amplitude and hold time are determined by the parameters "kick-off voltage" and "kick-off time", and then start the motor in the manner of a voltage ramp.

Name	Range	Factory default
Jump voltage	5~100%Ue	5%
Bounce time	0~5000mS	0
Starting voltage	5~100%	30%
Starting time	0~200S	30S

Application Conditions

Power supply:	Three-phase AC3KV, AC6KVAC10KV, (-15%~10%) 50HZ
Control power supply:	AC220V (+10%, -15%), 50HZ
Applicable motor:	Medium voltage three-phase asynchronous motor, synchronous motor
Starting frequency:	10 times/hour
Cooling method:	Natural cooling
Protection class:	Ip20 (it can be customized according to user's requirements
Altitude:	No more than 2000 meters.if it exceeds,it will be required derating
Ambient temperature:	-25°C~+40°C
Relative temperature:	95% non-condensing
Other conditions:	No corrosive gas, no conductive dust, no violent vibration (less than 0.5G) well evntilated.




NIETZ

OPTIMIZE MOTOR CONTROL

NIETZ ELECTRIC CO,.LTD

No.988, Fulian Rd. Gucun Industry, Baoshan District. Shanghai, China

Tel/Fax: +86 21 336 346 49
E-mail: info@nietz.cn
Website: www.nietz.cn

DISTRIBUTORS