



NJR2-D Soft-Starter

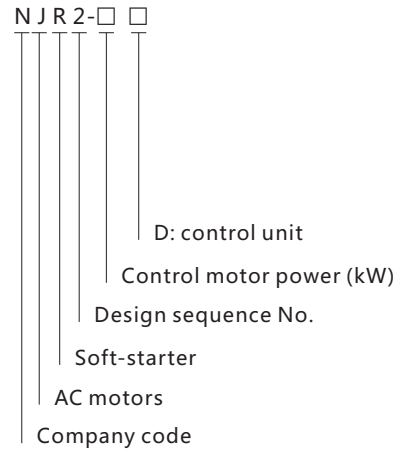
1. General

NJR2-D series soft-starter is cored on advanced dual-CPU control technology. It controls SCR module, realizes soft starting & stopping of three-phase AC induction motor, and has wide range of protection functions e.g. overload, input phase failure, output phase failure, load short-circuit, starting limiting overtime, over-voltage, and under-voltage.

NJR2-D series soft-starter requires external bypass contactor with voltage range of 380V, power specifications for 7.5KW to 500KW; has characteristics of good load adaptability, stable and reliable operation, and widely used in electrical drive equipment in the fields of metallurgy, petroleum, fire, mining, water supply, municipal, food, cement and petrochemical. It is an ideal updated product of traditional star - delta starter, and self-coupling voltage starting.

Standard: GB 14048.6 IEC 60947-4-2.

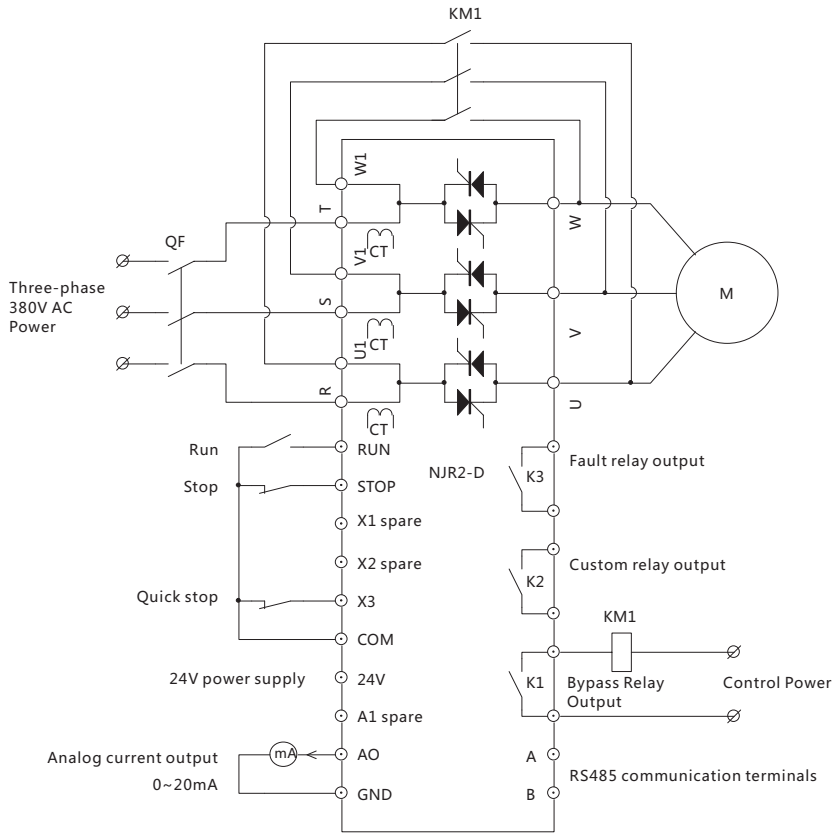
2. Type designation



3. Technical data

- 3.1 Mains voltage: Three-phase AC 380V (± 15%)
- 3.2 Mains frequency: 50Hz/60Hz (± 2%)
- 3.3 Applicable motor: three phase squirrel cage induction motor
- 3.4 Pollution degree: 3
- 3.5 Protection class: IP20
- 3.6 Rated insulation voltage: 660V
- 3.7 Rated impulse withstand voltage: 2kV
- 3.8 Cooling: Natural cooling
- 3.9 Starting frequency: Recommended no more than 10 times per hour, the heavier the load, the less the starting frequency;
- 3.10 Shock resistance: shock less than 0.5g;
- 3.11 Environmental conditions: When the altitude is more than 1000m, used at reduced capacity, current is reduced by 0.5% for each additional 100m above 1000m;
- 3.12 When ambient temperature is between (-10 ~ 40) °C, current is reduced by 2% for each 1°C more than 40 °C;
- 3.13 Relative humidity less than 95% (20 ~ 65) °C;
- 3.14 No condensation, no flammable gas, no conductive dust, well ventilated.
- 3.15 Soft starting time
Soft stopping time
Starting delay
Starting interval delay
Programmable Output Delay
- 3.16 Startup mode: six kinds
Shutdown mode: two kinds
- 3.17 Initial voltage for soft starting
Soft-starting current limiting scope
Soft stopping current limiting scope

4. Wiring diagram



External terminal wiring instructions

B	RS485 communication terminals	When RS485 communication is required, please contact the manufacturer.
A	RS485 communication terminals	
GND	Analog ground	As the reference ground for A0 output
AO	(0 ~ 20) mA current output	GND as reference ground
A1	Spare terminals	
24V	+24 V output	Reference ground of COM, maximum output of 100mA
COM	Common terminal	Reference ground of +24 V
X3	Quick stop terminal	Connecting with COM when factory default , once disconnect , output will be stopped with an "open circuit" fault
X2	Spare terminals	
X1	Spare terminals	
STOP	Stopping terminal	Can realize "two wire" and "three wire" control with COM
RUN	Running terminal	Can realize "two wire" and "three wire" control with COM
K3	Fault relay output, normally open Contact capacity (5A/250VAC)	When there is a fault, the relay picks up (0.2s pick-up time during power-up instant).
K2	Programmable relay outputs, normally open Contact capacity (5A/250VAC)	The relay function can be defined programmatically, when effective, the relay picks up.
K1	Bypass relay output, normally open; Contact capacity (5A/250VAC)	Control bypass contactor.

5. Features

5.1 Perfect Human Design:

5.1.1 The wide-body large LCD, the Chinese and English display, parameter setting, and equipment operation and control are made easier and simpler;

5.1.2 Advanced diverse soft starting mode can adapt to various types of starting demands of load devices;

Voltage starting mode

Current-limiting starting mode

Step voltage + current limiting starting mode

Step voltage + voltage starting mode

Current ramp starting mode

Double-loop starting mode

5.1.3 Enable online display of the current operating voltage and current signals, and have fault name and memory function to facilitate commissioning and maintenance of equipment;

5.1.4 full aluminum radiator patented design, better cooling effect, and natural ventilation, saving installation space;

5.1.5 Unique soft start master-slave linkage function, conducive to the production process control of equipment;

5.1.6 RS485 communication function, easy to control and automation networking engineered (to be customized).

5.2 Reliable Quality Assurance

5.2.1 Intelligent dual-CPU optimized design, so that the system operation is more stable and reliable;

5.2.2 SMT chip production process, reducing the failure rate of the circuit board;

5.2.3 Excellent Electromagnetic Compatibility;

5.2.4 High temperature aging test and load test of the machine ensure high reliability of manufactured products.

5.3 Perfect and Reliable Protection

5.3.1 Soft starter under-voltage, overvoltage protection;

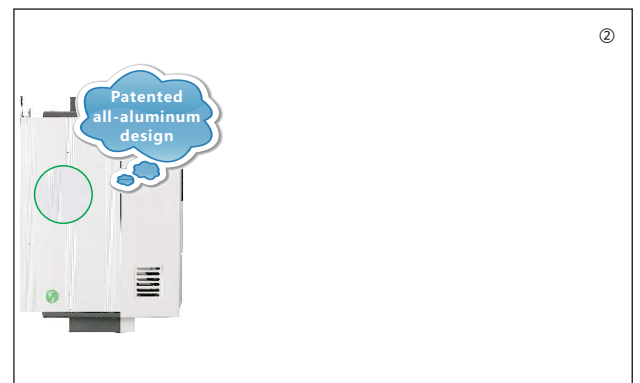
5.3.2 Soft starter overheating, starting timeout protection;

5.3.3 Starting over-current, operating overload, load short circuit protection;

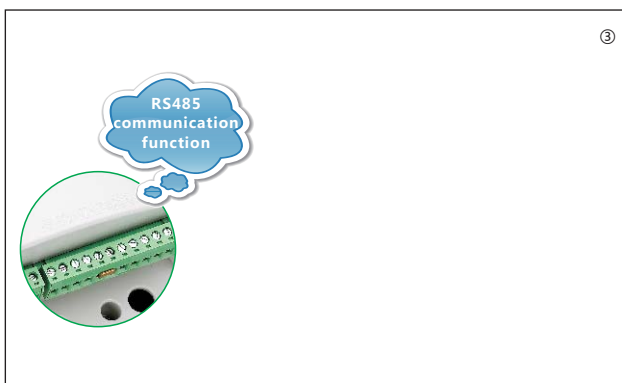
5.3.4 Input phase failure, output phase failure, and phase imbalance protection.



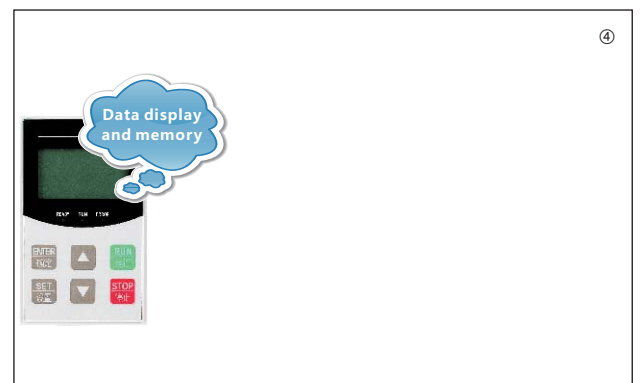
5.4 Removable keyboard, easy to operate outside remote operation control. (see ①)



5.5 all-aluminum design patent (75kW and below) gives better heat dissipation, natural air cooling, and saves space (see ②)



5.6 RS485 communication function (requiring extended RS485 communication module), facilitating networked control and automation engineered; providing three relay outputs: operation, ramp-top and failure for external linkage control. (See ③)

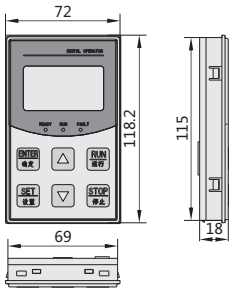


5.7 Display of operating voltage and current; fault description code display and memory function (see ④)

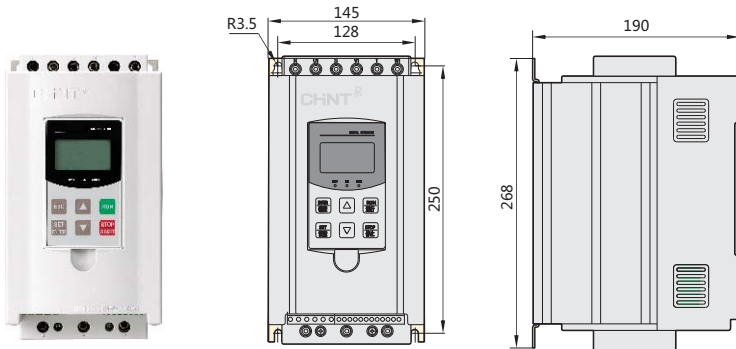
5.8 Unique master-slave linkage soft starting function, beneficial to production process control.

6. Overall and mounting dimensions (mm)

Display box

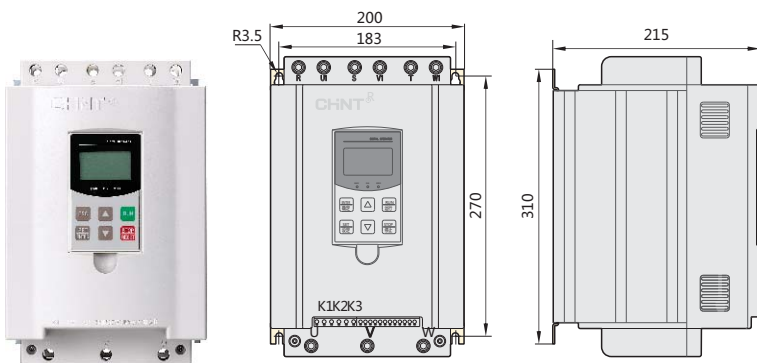


NJR2-7.5D~45D



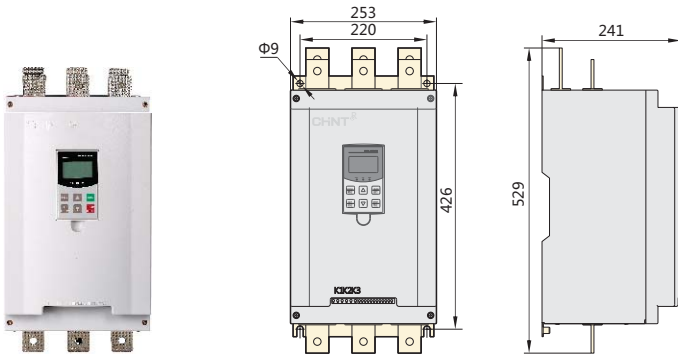
Model	Rated Current (A)	Power of controlled motor(kW)	Weight (kg)
NJR2-7.5D	15	7.5	5
NJR2-11D	22	11	
NJR2-15D	29	15	
NJR2-18.5D	36	18.5	
NJR2-22D	42	22	
NJR2-30D	57	30	
NJR2-37D	70	37	
NJR2-45D	84	45	

NJR2-55D~75D



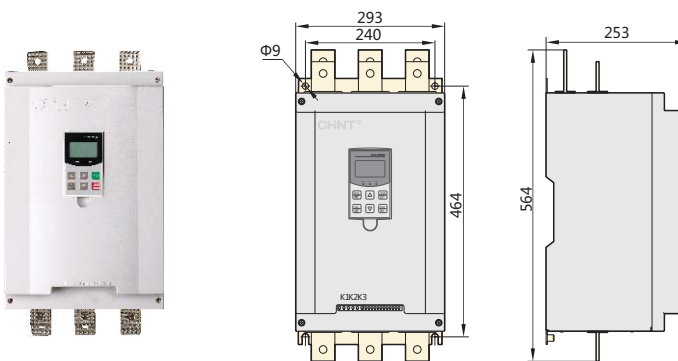
Model	Rated Current (A)	Power of controlled motor(kW)	Weight (kg)
NJR2-55D	103	55	8
NJR2-75D	140	75	

NJR2-90D~185D



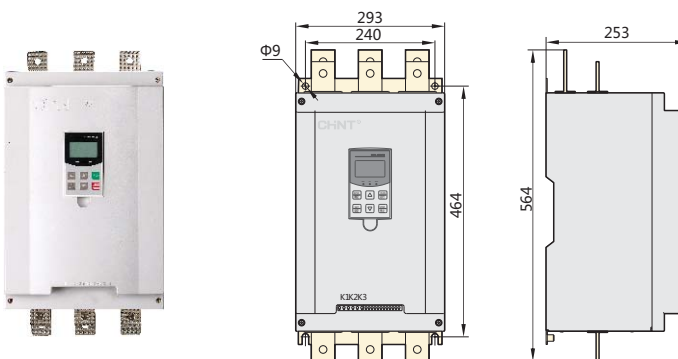
Model	Rated Current (A)	Power of controlled motor(kW)	Weight (kg)
NJR2-90D	167	90	20
NJR2-110D	207	110	
NJR2-132D	248	132	
NJR2-150D	280	150	
NJR2-160D	300	160	
NJR2-185D	349	185	

NJR2-220D~315D



Model	Rated Current (A)	Power of controlled motor(kW)	Weight (kg)
NJR2-220D	404	220	25
NJR2-250D	459	250	
NJR2-280D	514	280	
NJR2-315D	579	315	

NJR2-355D~500D



Model	Rated Current (A)	Power of controlled motor(kW)	Weight (kg)
NJR2-355D	634	355	52.5
NJR2-400D	720	400	
NJR2-450D	810	450	
NJR2-500D	900	500	

7. Ordering information

- 7.1 Please select the required model and specification according to the instructions on model and meaning when ordering.
Example: The controlled motor power of 45kW is installed and used with soft starting cabinet or matching distribution cabinet.
Ordering model: NJR2-45D (to be connected with the bypass contactor with corresponding specifications)
- 7.2 When motor with more than 4 poles is used with soft starter, recommend to select one size larger.
Example: the controlled motor power 75kW is installed and used with soft starting cabinet or matching distribution cabinet. Ordering model: NJR2-90D (to be connected with the bypass contactor with corresponding specifications)
- 7.3 When bipolar motor is used with soft starter, as the starting current is large, please set the parameters correct as per the instruction manual before use.
- 7.4 For heavy load application, recommend the use of soft starter one grade larger.