NO:2020.04

CHINT ELECTRICS

NS2-80B
AC Motor Starter

User Instruction

Standard: IEC/EN 60947-2
IEC/EN 60947-4-1

⚠ Safety Warning

1. Only professional technicians are allowed for installation and maintenance.
2. Installation in any damp, condensed-phase environment with inflammable and explosive gas is forbidden.
3. When the product is being installed or maintained, the power must be switched off.
4. You are prohibited from touching the conductive part when the product is operating.

1 The Purpose of Use

NS2-80B AC motor starter is applicable to circuits with frequency of AC 50Hz or 60Hz, rated operating voltage up to 415V and current up to 80A. It is used for infrequent start control of 3-phase squirrel cage asynchronous motor and it can protect motor from short circuit, overload and loss of phase. The product can also be used for distribution line protection and infrequent load transfer or used as isolator.

NS2-80B AC motor starter can be added with a set of side mounted auxiliary contacts: AU11(1NO+1NC) or AU20(2NO). See product catalog or product itself for technical parameters of auxiliary contacts.

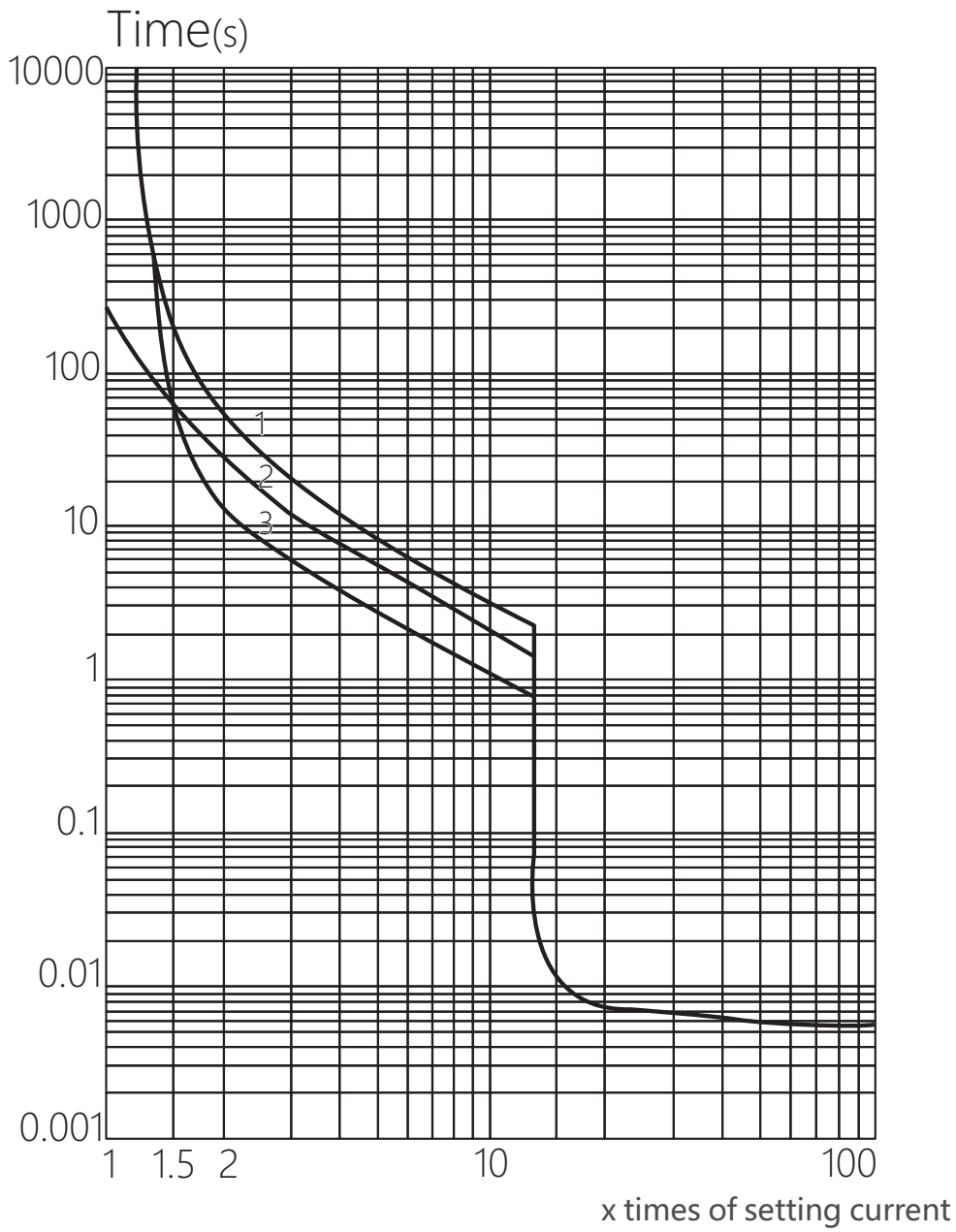
2 Main Technical Parameters

Table 1 Main technical parameters

<table>
<tr><th colspan="8">Environmental conditions</th></tr>
<tr><td colspan="3">Ambient temp. (℃)</td><td colspan="5">-5℃~+40℃, average temperature should not exceed +35℃ within 24h</td></tr>
<tr><td colspan="3">Hot and humid atmospheric conditions</td><td colspan="5">Relative humidity should not exceed 50% at +40℃; up to 90% at +20℃;</td></tr>
<tr><td colspan="3">Altitude</td><td colspan="5">No influence below 2000m,</td></tr>
<tr><td colspan="3">Pollution class/installation category</td><td colspan="5">Class 3/Ⅲ</td></tr>
<tr><th colspan="8">Main technical parameters</th></tr>
<tr><td rowspan="3">No</td><td rowspan="3">Frame size rated current I_{nm} A</td><td rowspan="3">Release rated current I_n A</td><td rowspan="3">Adjustment range of thermal element setting current A</td><td rowspan="3">Release setting current value for short circuit current I_r A</td><td colspan="2">Rated ultimate short circuit breaking capacity I_{cu}, Rated operating short circuit breaking capacity I_{cs} kA</td><td rowspan="3">Arcing distance mm</td></tr>
<tr><td colspan="2">400/415V</td></tr>
<tr><td>I_{cu}</td><td>I_{cs}</td></tr>
<tr><td>1</td><td rowspan="4">80</td><td>25</td><td>16-25</td><td>350</td><td>15</td><td>7.5</td><td rowspan="4">50</td></tr>
<tr><td>2</td><td>40</td><td>25-40</td><td>560</td><td>15</td><td>7.5</td></tr>
<tr><td>3</td><td>63</td><td>40-63</td><td>882</td><td>15</td><td>7.5</td></tr>
<tr><td>4</td><td>80</td><td>56-80</td><td>1120</td><td>15</td><td>7.5</td></tr>
</table>

Table 2 Technical parameters and performance

No.	Content	Parameters
1	Rated insulation voltage Ui(V)	690V
2	Rated voltage Ue(V)	400/415
3	Rated frequency (Hz)	50/60Hz
4	Rated impulse withstand voltage Uimp(kV)	6kV
5	Enclosure protection class	IP20
6	Rated duty system	Long term duty system
7	Conductor (wire/conducting bar) strip length before being inserted into terminal (mm)	15
8	Conductor (wire/conducting bar) sectional area mm^2	4~25
9	Allowable maximum number of conductor (wire/conducting bar) to be inserted	2
10	Size of fixing screws (or bolts) at wiring end	M8
11	Tightening torque for fixing screws at wiring end (N.m)	6
12	Operation frequency (times/hour)	≤25



(1) Start from cold state, 3-pole
(2) Start from cold state, 2-pole
(3) Start from thermal state, 3-pole

Figure 1 Time – current characteristic curve (20℃)

3 Installation

3.1 Installation

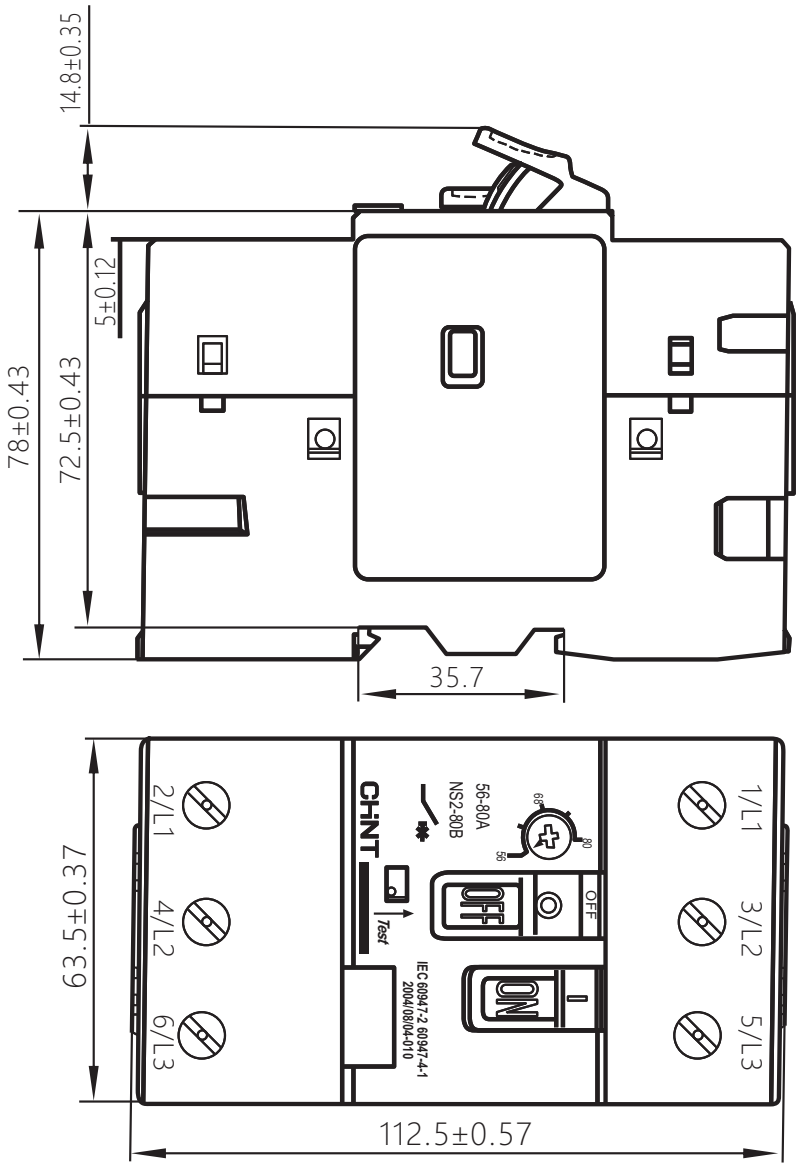


Figure 2 Overall and installation dimensions of NS2-80B

See Figure 3 for assembly procedure of starter and auxiliary contacts when the starter is disconnected:

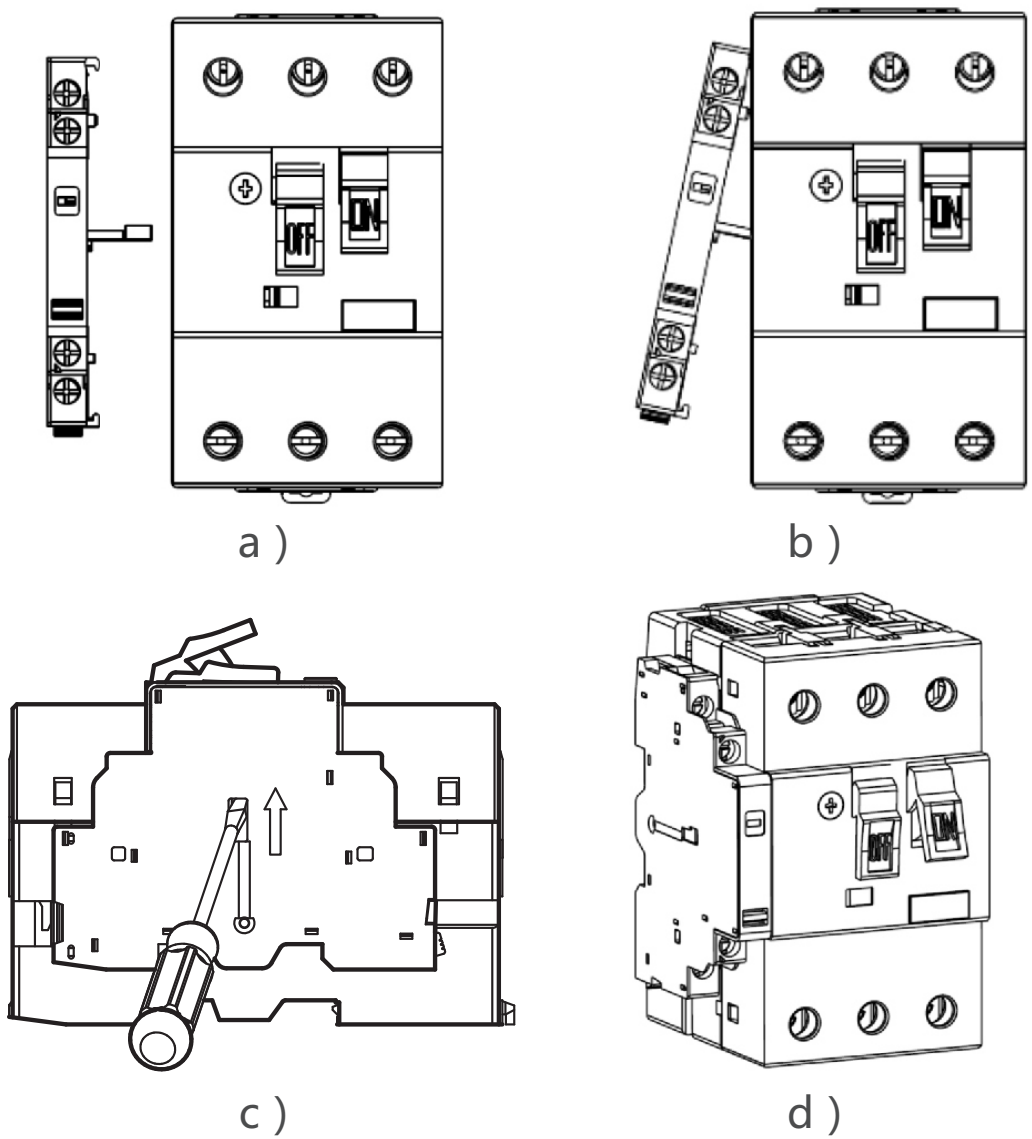
a) Confirm the starter is disconnected (the red OFF button is press down);

b) Hang the front end of the auxiliary contacts on the slot at the left front of the starter and move the auxiliary contacts towards the starter;

c) Before the extension bar at the center of the auxiliary contacts touches the starter, use a screwdriver to push the central slot of the auxiliary contacts so it stays at the top;

d) Push the auxiliary contacts towards the starter, press and hold the blue button at the end of the auxiliary contacts and fit it into the starter;

e) After fitting the auxiliary contacts, break and make the starter for 5 – 10 times, check if the slot at the center of the auxiliary contacts can move together with the starter reliably. In the meantime, check if the auxiliary contacts are powered-on normally; if there is any abnormality, repeat step a) – step d).



a) b)

c) d)

Figure 3 Assembley method for NS2-AU(80B)

3.2 Wiring

Use single core PVC insulated copper conductor for wiring, see Table 3 for sectional area of the wire.

Table 3 Connecting wire for operating current

Rated current (setting current value of thermal element) Ie A	Sectional area of connecting wire mm^2
12 < I≤20	2.5
20 < I≤25	4.0
25 < I≤32	6.0
32 < I≤50	10
50 < I≤65	16
65 < I≤80	25

3.3 Adjustment and inspection

3.3.1 Check if the rated voltage of the starter Ue is consistent with the actual control voltage of power.

3.3.2 Check if the rated operating current of the starter is within its setting current range.

3.3.3 Check if the starter can operate smoothly: press down the green button of the starter or turn the knob to ON position, flip the guide plate beside the TEST mark on the cover according to the direction shown by the arrow. You can hear the operation sound of the contact, and the green button will bounce back or the knob will be turned to OFF position. Replace the starter if there is any abnormality.

3.3.4 The operating current of the starter (setting current value of thermal element) should be determined by the rated current of the motor. If the setting current value between two scales is required, turn the cam slightly accordingly. User can make adjustment during operation.

3.4 Coordination of protection

If the short-circuit current is not bigger than the rated ultimate short circuit breaking capacity of the starter, the protection should be provided by the starter; if the short circuit current is bigger than the rated ultimate short-circuit breaking capacity of the starter, the protection should be provided by the fuse or circuit breaker. See Table 4 for model and melt current of the backup fuse of starter.

Table 4 Model and melt current of the backup fuse of starter

No.	Rated current In A	Rated operating current (adjustment range of thermal element setting current)	Melt current (backup fuse is only needed when Isc > Icu)	
			400/415V	
			aM A	gL/gG a
1	25	16-25	250	315
2	40	25-40	250	315
3	63	40-63	315	400
4	80	56-80	315	400

4 Maintenance

Clean the dust on the motor starter timely. Conduct product test and maintenance every half a year to ensure the smooth operation of the product and the good contact of NO and NC contacts. Tighten the terminal screws with specified torque and align the load protection capability of the motor starter according to commissioning requirements.

Be careful when handling and installing the starter. It is prohibited to move the product by crane with strong impact so that the product will not be damaged and its protection characteristics will not change.

Table 5 Analysis and Troubleshooting of Faults

Symptoms	Cause analysis	Troubleshooting method and precautions
Misoperation of starter	The setting current value of the starter is smaller than the actual operating current of the motor.	Fine tune the cam to match the set current matches the actual motor current.
	Strong shock or vibration	Check installation status and conduct troubleshooting. Do not place the product in environment with strong shock or vibration.
	Frequent start of motor	The start frequency of the motor should not exceed 25 times per hour.
	The sectional area of the connecting wire is too small.	Use standard wire according to Table 4.
Starter does not operate	The setting current value of the starter is bigger than the rated current value of the motor.	Fine tune the cam to match the set current matches the actual motor current.
	The sectional area of the connecting wire is too big.	Use standard wire according to Table 3.

5 Environmental Protection

In order to protect the environment, the product or product parts should be disposed of according to the industrial waste treatment process, or be sent to the recycling station for assortment, dismantling and recycling according to local regulations

CHINT

QC PASS

NS2-80B
AC Motor Starter
IEC/EN 60947-2
IEC/EN 60947-4-1

Check 28

Test date: Please see the packing

ZHEJIANG CHINT ELECTRICS CO.,LTD.

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AC Motor Starter
User Instruction

Zhejiang Chint Electrics Co., Ltd.

Add: No.1, CHINT Road, CHINT Industrial Zone,North Baixiang,
Yueqing, Zhejiang 325603,P.R.China

E-mail: global-sales@chint.com

Website: http://en.chint.com