



CHINT

Please pay attention to the personal safety and read the manual carefully when installing and operating the product.

Please reserve the instruction manual

Applicable standard: IEC 60947-6-1

NH40SZ Series

Auto-converting Switch

Instruction Manual



The systems have passed ISO9001

1.Applications and operation environment

NH40SZ series auto-converting switch (hereinafter called switch) is applicable for AC 50Hz, rated voltage 380V, current to 3150A and three phase four wire power supply system. It is PC level TSE type. It can carry out the manual and autoconverting for the power in common use and the spare power. In the process of converting power, breaking off supplies power for load. It is fit for the location of requesting power supply of two-way power and requiring the high quality of the power.

Normal working conditions

1.1 Ambient temperature: $-5^{\circ}\text{C}\sim 40^{\circ}\text{C}$.

1.2 Altitude: shall not exceed 2000m.

1.3 The atmosphere condition

The relative humidity shall not exceed 50% when the environmental temperature is $+40^{\circ}\text{C}$ in installing place; And the relative humidity may be higher at the lower temperature condition. Such as when the humidity is 90% when the temperature is $+20^{\circ}\text{C}$. It shall take some special management to avoid the dew occurs on the product surface due to temperature change.

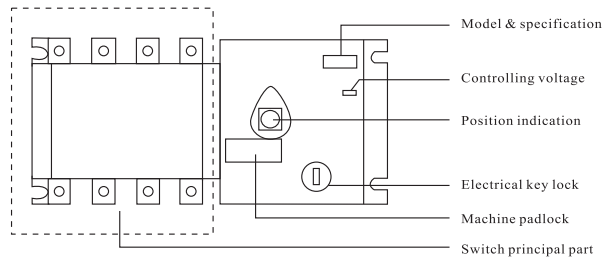
1.4 Pollution grade: III

1.5 The product shall be installed in the place without remarkable shake, strike and quiver, rain and snow, in the medium without danger of exploding, and in the places without gas and conductive dust, which can make the metal go rust and affect insulation performances.

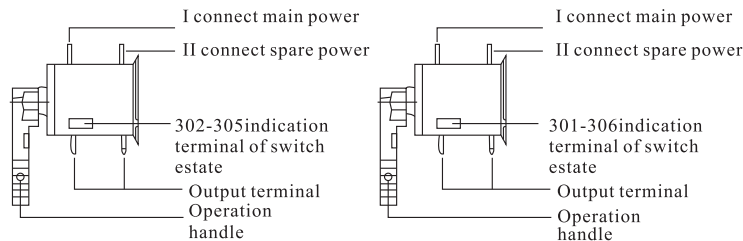
2.Structure and control characteristic

The switch is composed of NH40 switch disconnector and auto-converting operation framework. The shell of the switch main body is made from unsaturated polyester plastic resin.

2.1 Structure

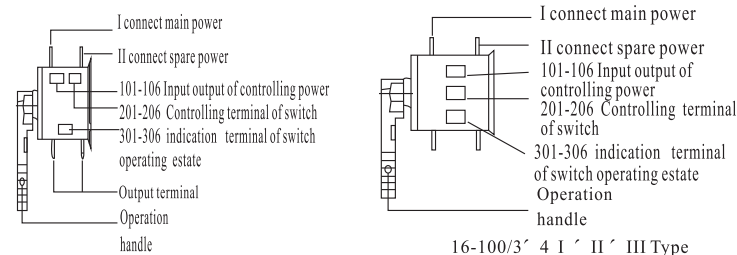


Correct installation method diagram for switch



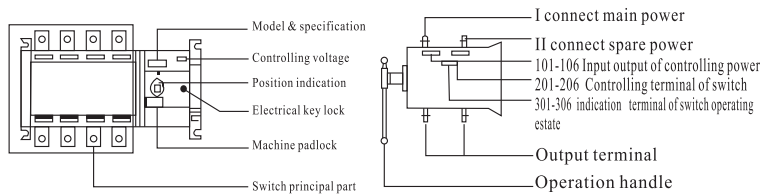
16-100/4 Normal

16-100A/3 Normal

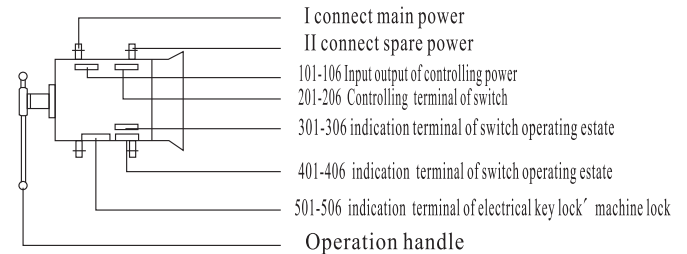


16-100/3 Normal+fire fighting

16-100/3' 4 I' II' III Type



125-250/3' 4 Normal' I' II' III type



315-3150A/3' 4 Normal' I' II' III Type

2.2 Controlling feature

Switches have 3 poles and 4 poles. They have four controlling types(normal' I' II' III), usually it is normal type.

Normal type switch controlling feature

The switch is applicable for self-sending and self-renewing of main power ---spare power double supplying systems.

I type switch controlling feature

The switch is applicable for self-sending and no self-renewing of normal power (main power) ---normal power (spare power) double supplying systems. Main power changeover to spare power,time-delay continuously adjustable time is 1s ~999 s. Spare power changeover to main power ,time-delay continuously adustable time is 1s ~999s. The switches have phase-lacking testing function. They have over-voltage protection' under-voltage protection function.

II type switch controlling feature

The switch is applicable for self-sending and self-renewing of normal power (main power) ---normal power (spare power) double supplying systems. Main power changeover to spare power,time-delay continuously adjustable time is 1s ~999 s. Spare power changeover to main power , time-delay continuously adjustable time is 1s ~999s.

The switches have phase-lacking testing function. They have over-voltage protection' under-voltage protection function.

III type switch controlling feature

The switch is applicable for self-sending and self-renewing of normal power ---generator power double supplying systems. When normal power changeover to generator supply system, the switch will make a generator starting signal first. It has starting time delay, continuous adjustable time is 0 ~ 180s.

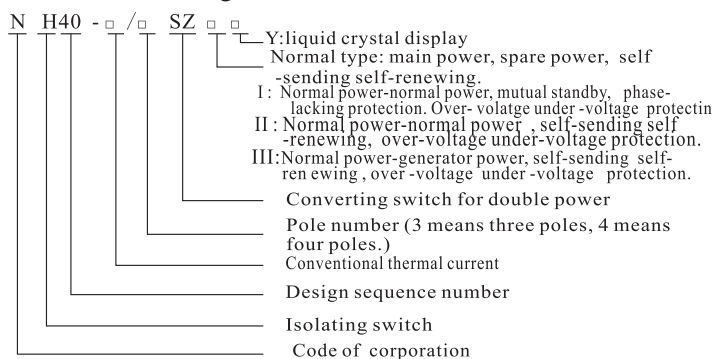
The switches have phase-lacking testing function. They have over-voltage protection´ under-voltage protection function.

The above mentioned I´ II´ III types switches are with the following function.

- 1)Automatic´ remote and manual controlling function.
- 2)Check signal with 0.5s time-delay, and prevent it from error operation.
- 3)Automatic state has fire control forced located in “0”
- 4)Select the operation made by key switch.

3.Main technical parameter

3.1 Model meaning



- Note: a) Normal type is replaced unletter sign. Protection type has I´ II´ III.
 b) Usually under-voltage magnitude of switch is 160V, over-voltage magnitude is 280V.
 c) Between 201 and 206 no connection is automatic, connection is remote controlling between 201 and 206

3.2 Main technical parameters

Conventional thermal current A	16 20	25 32	40	63	80	100	125	160	200 250	315 400	630	
Rated insulation voltage V	660											
Rated impulse withstand voltage kV	8											
Rated operational voltage V	AC380											
Rated operational current A	AC-33iB	16 20	25 20	40	63	80	100	125	160	200 250	315 400	630
Rated making capacity	6le											
Rated breaking capacity	6le											
Icw kA	5					10			12.6			
Icm kA	7.65					17			25.2			
Converting Time s	∞/1											
Voltage of controlling power voltage V	AC220											
Rated controlling capacity W	Startup	300					325			355		
	Natural	55					62			74		

Conventional thermal current A	800	1000	1250	1600	2000	2500	3150	
Rated insulation voltage V	800							
Rated impulse withstand voltage kV	8							
Rated operational voltage V	AC400							
Rated operational current A	AC-33iB	800	1000	1250	1600	2000	2500	3150
Rated making capacity	6le							
Rated breaking capacity	6le							
Icw kA	50							
Icm kA	105							
Converting Time s	∞/3							
Voltage of controlling power voltage V	AC220 or AC230							
Rated controlling capacity W	Startup	400	400			600		
	Natural	90	98			120		

4 Connecting terminal of controlling circuit

Connecting terminal of controlling circuit for Normal type 16-250A

Connecting terminal 2	<p>CONTROL I O II 201 202 203 204 205 206 Only applicable for 125-250/3</p>	Connecting terminal 3	<p>POSITION 301 302 303 304 305 306 Only applicable for 125-250/4</p>
Connecting terminal 3	<p>POSITION POS I POS 0 POS II 302 303 304 305 Only applicable for 16-100/4</p>	Connecting terminal 3	<p>POSITION N1 N2 301 302 303 304 305 306 Only applicable for 16-250/3</p>

Connecting terminal of controlling circuit for normal type 315-3150A

Connecting terminal 2	<p>CONTROL I O II 201 202 203 204 205 206</p>	Connecting terminal 3	<p>POSITION 301 302 303 304 305 306 Only applicable for 800-3150/4</p>
Connecting terminal 3	<p>POSITION N1 N2 301 302 303 304 305 306 Only applicable for 315-3150/3</p>	Connecting terminal 4	<p>Forejudge PREBREAK 401 402 403 404 405 406</p>
Connecting terminal 5	<p>MANU-PADLOCK 501 502 503 504 505 506 Only applicable for 315-3150/3</p>	Connecting terminal 3	<p>POSITION 301 302 303 304 305 306 Only applicable for 315-630/4</p>

Connecting terminal of controlling circuit for I II III type 16-630A

Connecting terminal 1	<p>Generator Fire fighting Communication 101 102 103 104 105 106</p>	Connecting terminal 4	<p>Forejudge PREBREAK 401 402 403 404 405 406 Only applicable for 315-630</p>
Connecting terminal 3	<p>POSITION N1 N2 301 302 303 304 305 306</p>		

Connecting terminal of controlling circuit for I II III type 800-3150A

Connecting terminal 1	<p>Generator INPUT DC24V Communication 101 102 103 104 105 106</p>	Connecting terminal 2	<p>CONTROL I O II 201 202 203 204 205 206</p>
Connecting terminal 3	<p>POSITION N1 N2 301 302 303 304 305 306</p>	Connecting terminal 4	<p>Forejudge PREBREAK 401 402 403 404 405 406</p>
Connecting terminal 5	<p>MANU-PADLOCK 501 502 503 504 505 506</p>		

Connecting terminal of controlling circuit for normal type

Connecting terminal 2

202' 203----I circuit remote control closing switch

202' 204----0 circuit remote control closing switch

202' 205----II circuit remote control closing switch

201' 206----Open for remote controlling ,close for automatic

Connecting terminal 3

302' 303----I circuit signal indication

302' 304----0 circuit signal indication

302' 305----II circuit signal indication

Connecting terminal 4

402' 403----I circuit reserve indicating switch of working state

404' 405----II circuit reserve indicating switch of working state

401' 406----They are superfluity

Connecting terminal 5

502' 503----Electrical key lock indicate automatic and manual operation mode

504' 505----Padlock indication,all can be locked at any position (I' 0' II)

501' 506----They are superfluity

Connecting terminal of controlling circuit for protection I' II' III

Connecting terminal 1

101' 102----Output signal of generator starting(NOTE: applicable for III type)

103' 104----Fire fighting (24V) input ,forced on "0" , both switches are all off

101' 106----They are superfluity(can not meet communicating requirement)

Connecting terminal 2

202' 203----I circuit remote control closing switch

202' 204----0 circuit remote control closing switch

202' 205----II circuit remote control closing switch

201' 206----They are superfluity(can not connect)

Connecting terminal 3

301' 302----I circuit signal indication

301' 303----0 circuit signal indication

301' 304----II circuit signal indication

305 ----Connect negative line N1 of input circuit of switch I (only applicable for 3 poles)

306 ----Connect negative line N2 of input circuit of switch II (only applicable for 3 poles)

Connecting terminal 4

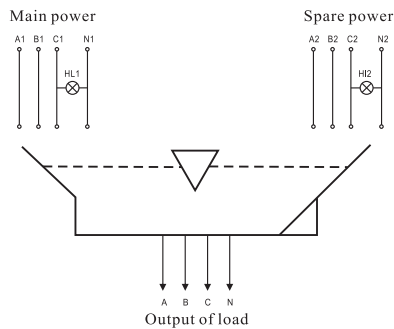
402' 403----I circuit reserve indicating switch of working state
 404' 405----II circuit reserve indicating switch of working state
 401' 406----They are superfluity

Connecting terminal 5

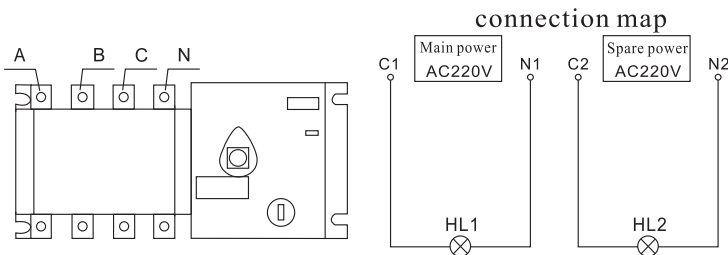
502' 503----Electrical key lock indicate automatic and manual operation mode
 504' 505----Padlock indication,all can be locked at any position (I' 0' II)
 501' 506----They are superfluity

5.Using means

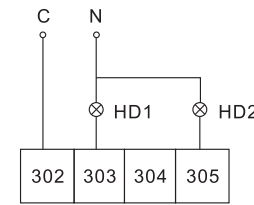
5.116A-100A/4 Sketch map of switch connection



Especoal note connection sequence

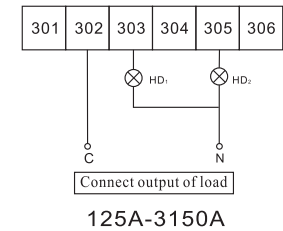
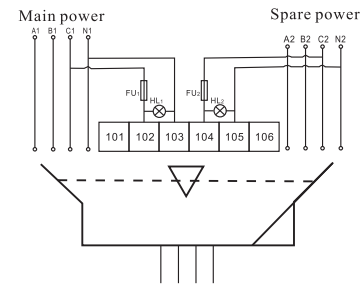


Connect output of load



- HL1 HL2' Indication of main' spare power incoming eletricity;
- HD1 HD2' Indication of main' spare power operate;
- 302 ~ 305 Switch terminal

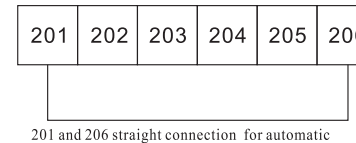
5.2 125A-3150A Sketch map of switch connection



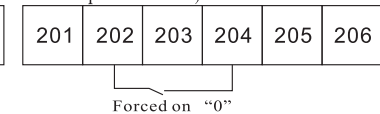
- HL1 Indication of main power incominy eletricity;
- HL2 Indication of spare power operation;
- HD1 Indication of main power incominy eletricity;
- HD2 Indication of spare power operation;
- FU1 FU2' 5A Fuse;

5.3 No.2 terminal material connection with different operational means when selecting normal type

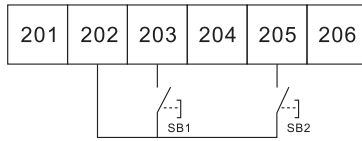
a. Automatic connection mean



b. Remote controlling forced on "0"(double circuit power break) connection mean.



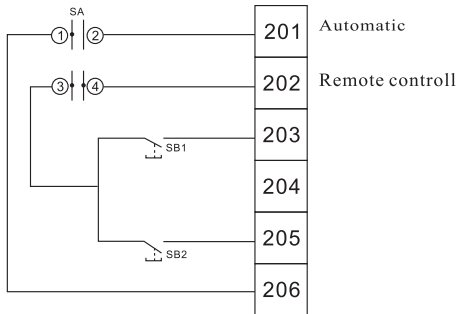
c. Remote controlling connection mean.



(NOTE: SB1, SB2 switches are other outside connection)

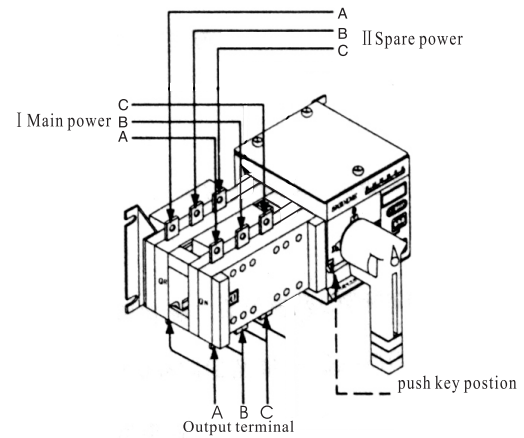
d. Automatic + Remote controlling connection.

(NOTE: SB1, SB2 switches are other outside connection)

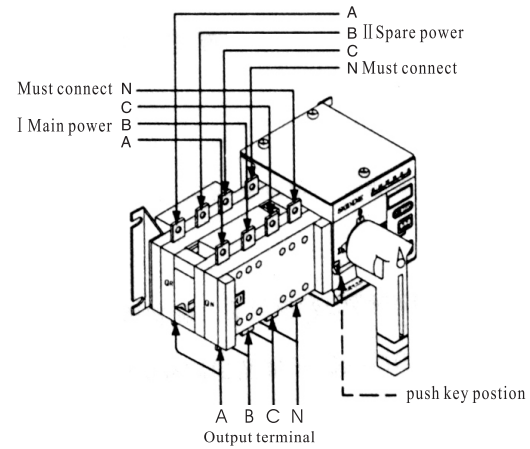


Note: (1) (2) make when SA switch is at the automatic position.
 (3) (4) make when SA switch is at the far controlling, but the switch SA must break.

5.4 Connection explanation



NH40-100/3 SZ connection sketch map



NH40-100/4 SZ connection sketch map

Structure switch principal part and correct installation method

1)Front part is I circuit ,connect main power; back part is II circuit ,connect spare power.

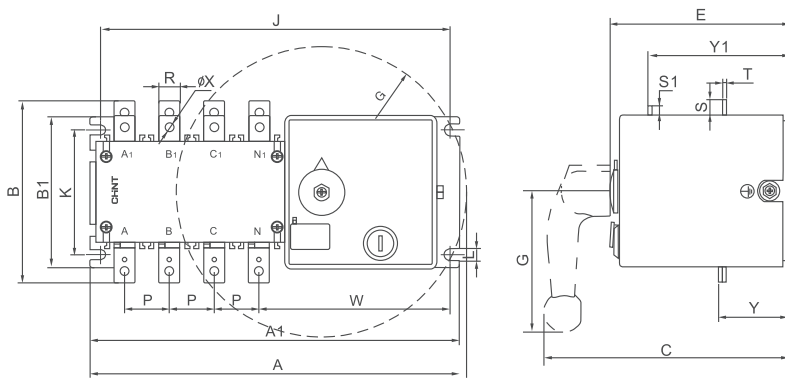
2)Operation system of automatic changeover select operating mode by key switch. It is kept in the position with padlock.

3)switch principal part from left to right connection copperplate separately is A、B、C、N poles.

4)The top of switch principal part is input terminals of I、II circuit, the bottom is output terminals of I、II circuit with copper plate or wire.

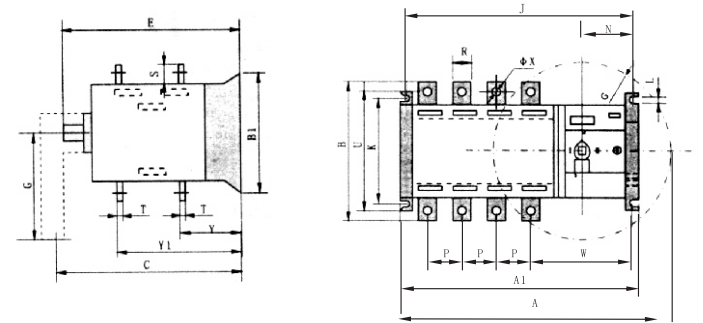
6.Overall and installation dimensions

6.1 NH40- 16~630/4SZ Overall and installation dimensions



Spec	Dimensions																		
	A	A1	B	B1	C	E	G	J	K	L	P	R	S	S1	T	W	φX	Y	Y1
16~100A	270	252	125	100	170	127	95	240	84	7	30	14	28	18	2.5	130	6	48	95
16~100A I II III	280	260	125	100	180	135	95	240	84	7	30	14	28	18	2.5	135	6	48	95
125~160/4	330	325	156	134	225	157	125	305	78/108	7	36	20	35	25	3	165	8.5	58	119
200~250/4	-	398	180	134	250	185	125	375	78/108	7	50	25	35	30	3	195	10.5	70	145
315~630/4	520	476	278	210	340	250	165	445	180	11	65	40	58	50	5	205	12.5	90	195

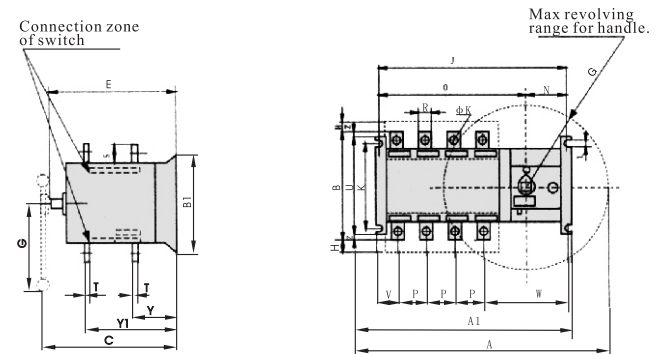
6.2 NH40-125 ~630/SZ Overall and installation dimensions



125A-630A

Spec	Dimensions																		
	A	A1	B	C	E	G	J	K	L	N	P	R	S	T	U	W	φX	Y	Y1
125A/3	377	292	135	261	208	230	275	78/108	7	102.5	36	20	25	3	134	161.5	8.2	57	141
160A/3	377	292	135	261	208	230	275	78/108	7	102.5	36	20	25	3	134	161.5	8.2	57	141
200A/3	417	330	170	261	208	230	312	78/108	7	102.5	50	25	30	3	134	164	10.5	60	145
250A/3	417	330	170	261	208	230	312	78/108	7	102.5	50	25	30	3	134	164	10.5	60	145
400A/3	453	382	240	333	270	230	365	180	11	122.5	65	35	40	5	208	197	12.5	83	197
630A/3	453	382	260	333	270	230	365	180	11	122.5	65	40	50	5	208	197	12.5	83.5	197.5

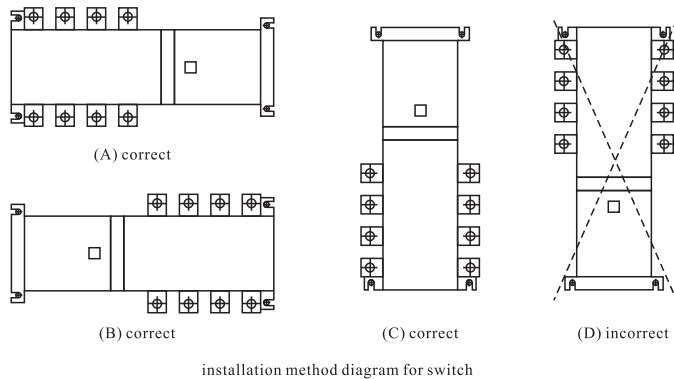
6.3 NH40-800 ~1600/SZ Overall and installation dimensions



7.2 Electric key is for controlling the control circuit power of the inside of the switch. When the electric lock performs, the switch carries out the automatic and long-distance operation. When the electric lock is closed, the switch just can be operated manually.

7.3 Must close the electric lock when operating switch by the operating handle.

7.4 When inspecting, firstly make the switch to be the position of “0” by the operating handle. Pull the padlock framework and hang the padlock, then inspection can be performed. (Pull the mechanical padlock, i.e. cut off the control power of the inside of the power to make the switch can't be motivated and can't perform manually.)



7.5 NOTE: It has two different operation mode when we select operating remotely.

a. Normal type: we can operate remotely when break 201 206 connection of NO.2 terminal.

b. I II III type: use the electrical key, change the position from automatic to manual, so it can operate remotely.

8 Debugging explanation of switch

1) Main power (I) and spare power (II) separate to apart connect to copperplate.

When the function choice switch is on the automatic position, switch can act according to following require.

Automatic debugging require

If main power income electricity, spare power income electricity, switch I is making.

If main power don't income electricity, spare power income electricity, switch II is making. Then when main power income electricity, switch I is making.

2) When the switch is on the making estate of I or II, we can see the indication of panel switch.

3) After debugging ending, first put off the power, then convert the switch on the position of “0” with handle.

9. Notice when ordering

Users should provide us with the following detailed data.

9.1 Name, model, specification and quantity of the product.

Generally, normal ordering product is B type with three connection terminals. For example: 10 sets of NH40-400/4SZ auto-converting isolating switch

9.2 If operating under the special installation condition or special site, should provide the corresponding technological files or negotiate with our company.

Respectable customers:

May you give us a favor: please carry out the callback operation of products and their spare parts when the service life of the product has come to the end. This is our duty for protection of environment. For those materials, which could not be reclaimed, please handle with them well, as well. Thank you very much for your cooperation and support.