Automatic Transfer Switch (ATS)
YES1 series GA model
Instruction Book

Contents Index

1、 Types and Meanings----------04
2、 Main Technology Parameters ----------04
3、 Products Structure instruction----------05
4、 Outline Overall and installing dimensions----------06
5、 Usage Method----------08
6、 DC24V/DC48V----------14
7、With Controller use explain----------15
8、Method of terminal connection----------19
9、Correct installation method for switch----------19
10、 wiring methods of switch----------20
11、Note of debug switch----------20

Notice

Before you operate this Automtic transfer switch (hereinafter ATS), please read and understand these instructions carefully.

⚠ Dangerous

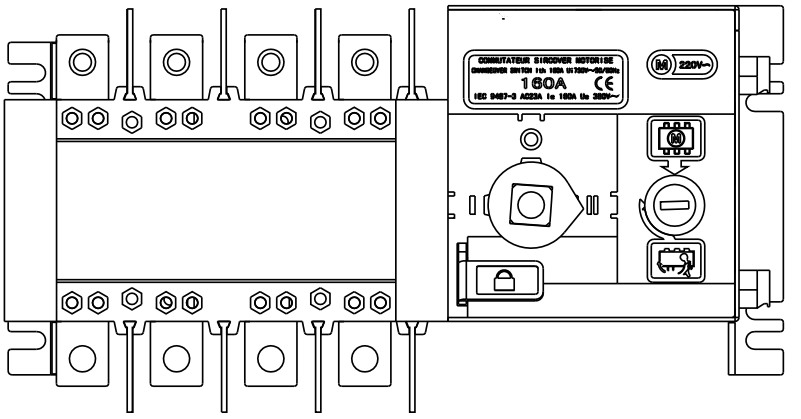
- ▲ Before you install or operate the ATS,please read and understand these instructions carefully.Only professional ATS personnel can carry out this installation,adjustment, repair and maintenance.
- ▲ Many parts of the ATS, including printed circuit boards, when it work on-line voltage, can not touch these parts. Use insulated tools only.
- ▲ Do not touch the components which not protected.
- ▲ Before maintenance the line of ATS, we should take the following preventive measures:
- – Disconnect all power.
- – Put a "prohibited closing" signs before the locate of the switch
- – switch to "0" position and then hang padlock.

Warning

Inconsistent with the line voltage

Before Power and configuration for the ATS , we must ensure the line voltage is in the scope of the power supply voltage in the name plate of the ATS If the line voltage and power supply voltage range is different ,it is possible to damage ATS.

Not in accordance with the instructions will result in the damage of the equipment.



■ ATS delivery

○ Check to make sure the product is the same as ordering product.

○ Remove the ATS package, check whether there is any damage in the transit.

■ Check the voltage

○Check to make sure voltage and operating voltage of the ATS

○whether in the scope of the voltage

■ Install the ATS

○According to this instructions document, then install the ATS.

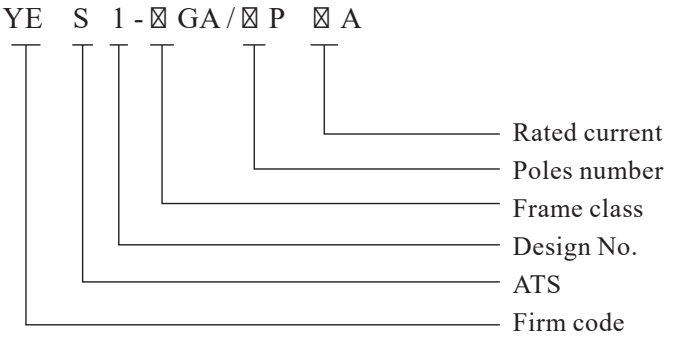
○Install all of the external Accessories 。

■ Wiring the ATS

○Connect the bus line of the switch which coincide with the rated current.

☒ According to the wiring diagram in the Manual,then connect the line of the control with the line of external instructions.

1、Types and Meanings

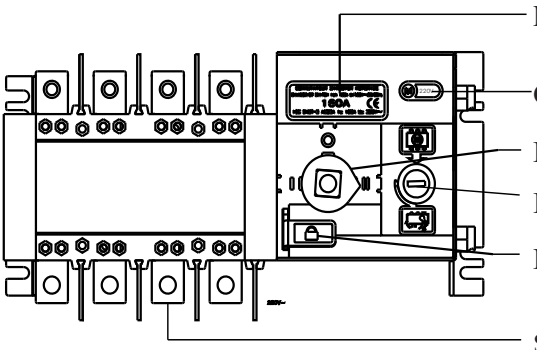


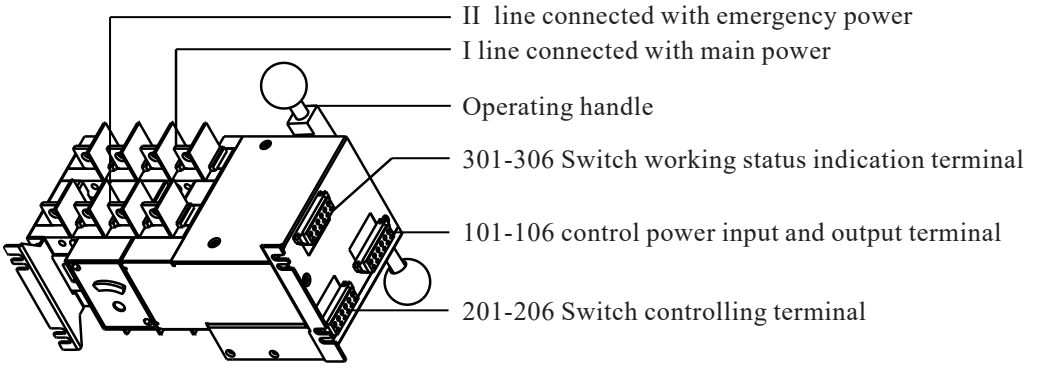
2、Main Technology Parameters

According to the Standard：IEC 60947-2-1/GB 14048.11

Rated Current Ith		20A	40A	63A	80A	100A	125A	160A	250A	400A	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A
Rated isolation voltage Ui		750V								1000V								
Rated shock withstand voltage Uimp		8kV								12kV								
Rate working voltage Ue		AC440V																
Rated working current Ie	AC-31A	20	40	63	80	100	125	160	250	400	630	800	1000	1250	1600	2000	2500	3200
	AC-33A	20	40	63	80	100	125	160	250	400	630	800	1000	1000	1600	1250	1250	1250
	AC-35A	20	40	63	80	100	125	160	250	400	400	630	800	800	1000	2000	2500	3200
Rated making capability		10Ie																
Rated breaking capability		8Ie																
Rated limited short-circuit current		50KA								70kA				100kA	120kA			
Rated short-time withstand current 1s		7kA						9kA		13kA		26kA		50kA		50kA		55kA
Change-over time I- IIor II- I		2s					0.6s			0.6s		1.2s				1.8s		2.4s
Control power supply voltage		DC24V、48V、110V AC220V																
Power consumption of electrical machine																		
Rated Power	Start	300W						325W		355W		400W	440W			600W		
	Normal	55W						62W		74W		90W	98W			120W		
Weight (kg) 4Pole		7.0	7.2	7.2	7.2	7.5	7.5	8.8	9.0	16.5	17	32	36	40	43	50	53	75

3、Switch structure explain





1、Electric key lock:Control switch inside controlling line power supply,when the electric lock open,the switch could be operated automatically and remotely,then the electric lock closed,the switch could be only operated by handle.

2、Operating handle:When opertate the switch by operating handle,the electric lock must be closed.

3、Mechanic padlock:When inspection,firstly the switch turned into the position of 0 by operation handle,then pull the padlock mechanism and close the padlock,then the inspection could be arranged:(Pull the mechanism padlock will cut off the inside controlling power supply of the switch.The switch couldn't be in electromotion position and also couldn't be manual drive.

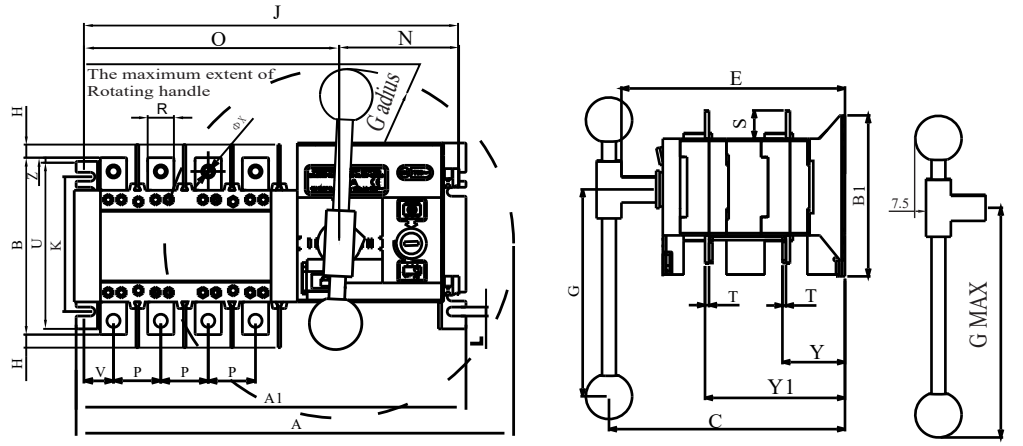
4、Position indication:Indicate the position of the switch working estate(I,0,II)

5、Controlling voltage:Switch controlling voltage grade 220VAC

6、Switch main body:The front part is I line,connecting to "Normal power";the rear part is II line,connecting to "Emergency power.

4、Outline Overall and installing dimensions

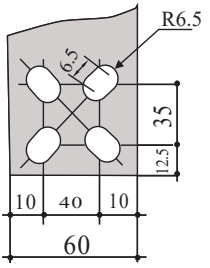
20A~1600A Installation diagram



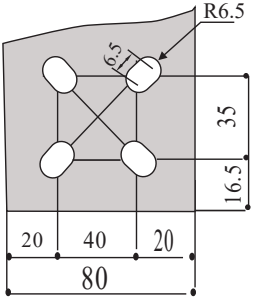
20A~1600A Installation dimension

Specification	Total dimension								Switch Installation										Terminal				
	A	A1	B	B1	C	E	G	H	J	K	L	N	O	P	R	S	T	U	V	ϕX	Y	Y1	Z
20A~100A	280	244	107	103	150	140	115	19	226	84	7	83.5	142.5	30	14	18	2.5	103	13	6	41.5	93	2
125A~160A	360	303	135	142	213	200	145	10	285	117	7	93	192	36	20	25	3.5	127	21	9	55.5	127.5	4
250A	420	362	159	142	213	200	145	6	343	103	7	93	250	50	25	28	3.5	141	29	11	58	131.5	9
400A/3P	530	370	234	222	286	275	245	20	365	179	9	97	268	65	32	37	5	222	38	11	83	193	6
400A/4P	590	430	234	222	286	275	245	20	425	179	9	97	328	65	32	37	5	222	38	11	83	193	6
630A/3P	530	370	250	222	286	275	245	20	365	179	9	97	268	65	40	45	6	222	38	11	83.5	193.5	14
630A/4P	590	430	250	222	286	275	245	20	425	179	9	97	328	65	40	45	6	222	38	11	83.5	193.5	14
800A~1000A 3P	785	520	328	250	351	340	360	20	503	220	11	88	415	120	60	64	8	250	59	13	109	254	39
800A~1000A 4P	1080	634	328	250	351	340	540	20	617	220	11	88	529	120	60	64	8	250	59	13	109	254	39
1250A/3P	785	520	336	250	351	340	360	20	503	220	11	88	415	120	80	68	8	250	59	13	109	254	43
1250A/4P	1080	634	336	250	351	340	540	20	617	220	11	88	529	120	80	68	8	250	59	13	109	254	43
1600A/3P	785	520	336	250	351	340	360	20	503	220	11	88	415	120	80	68	10	250	59	13	110	255	43
1600A/4P	1080	634	336	250	351	340	540	20	617	220	11	88	529	120	80	68	10	250	59	13	110	255	43

20A~1600A Installation diagram

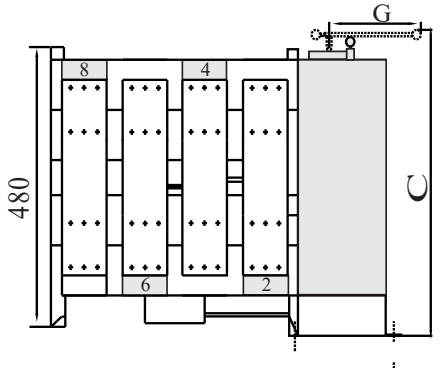


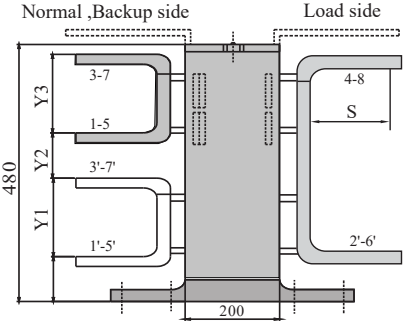
800A~1000A



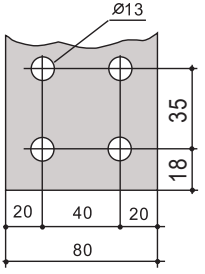
1250A~1600A

2000A~3200Atwo way input one way output(common busbar)installation diagram

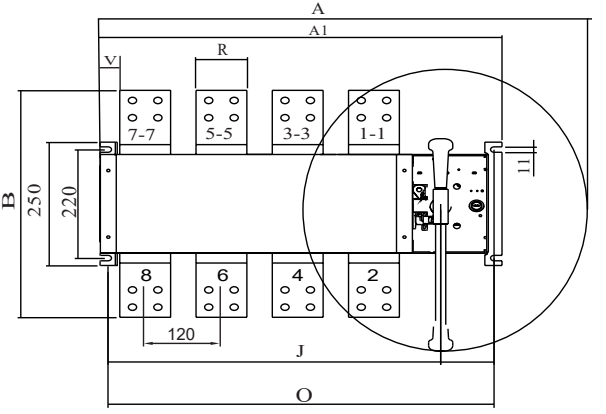




Two way input two way output in load connection port as same as normal ,backup side



2000A~3200A



2000A~3200A Installation diagram

2000A~3200A

Specification	A	A1	B	C	G	J	O	R	S	T	V	Y1	Y2	Y3
2000A/3P	785	535	423	560	360	408	490	80	81	10	30	113	121	113
2000A/4P	1080	650	423	560	540	523	605	80	81	10	30	113	121	113
2500A/3P	785	535	433	560	360	408	490	80	81	15	30	118	116	118
2500A/4P	1080	650	433.	560	540	523	605	80	81	15	30	118	116	118
3200A/3P	785	535	443	560	360	408	490	80	81	20	30	123	111	123
3200A/4P	1080	650	443	560	540	523	605	80	81	20	30	123	111	123

5、Usage method

Note:The users can choose one of the following 6 kinds of wiring methods,The users of economic types can only simply supply the copper power,no need do the secondary connection. The 302-305 terminal are the switch status indications,When the users demand,can be connected by themselves.

1: Economy Connection (only 100A below)

▲100A economy type Automatic transfer switch,the user simply connect the Main power and Back-up power to the copper busbar,then it can work.When the two-way power supply are both in normal,the main power will access to the load of the power source .If the normal power is failed,it will transfer to the Back-up power(Back-up power must be normal).However,when the mainpower is normal,it will automatic transfer to the Main power.

▲100A and below is economic tye ,its control power are directly pull in by the manufacture from the inside of the Main power.If the users need the main power and back-up power close indication, wiring methods are belows:

Terminal wiring method:

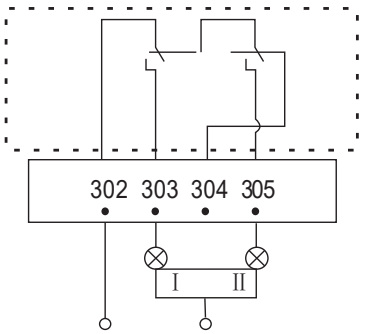


Fig.a:4P switch connection diagram

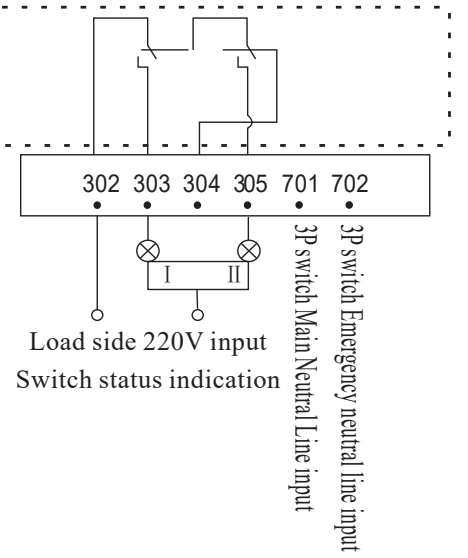


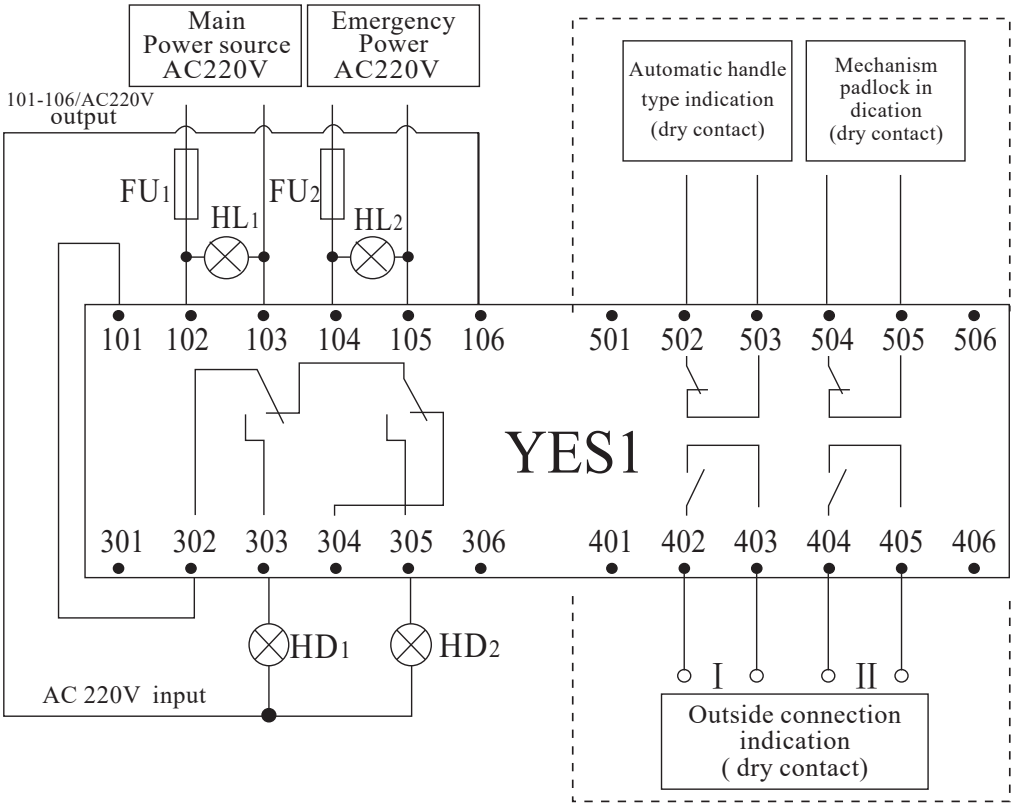
Fig.b:3P switch connection diagram

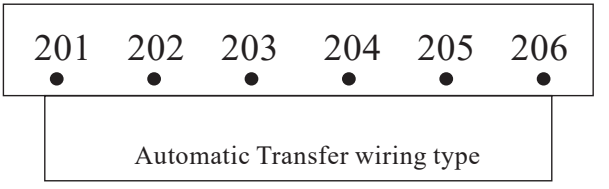
Note: The dashed box for internal auxiliary contact of swith.

I: the instructions for the Normal power(Main) supply

II: the instructions for the Back-up(Emergency) power supply

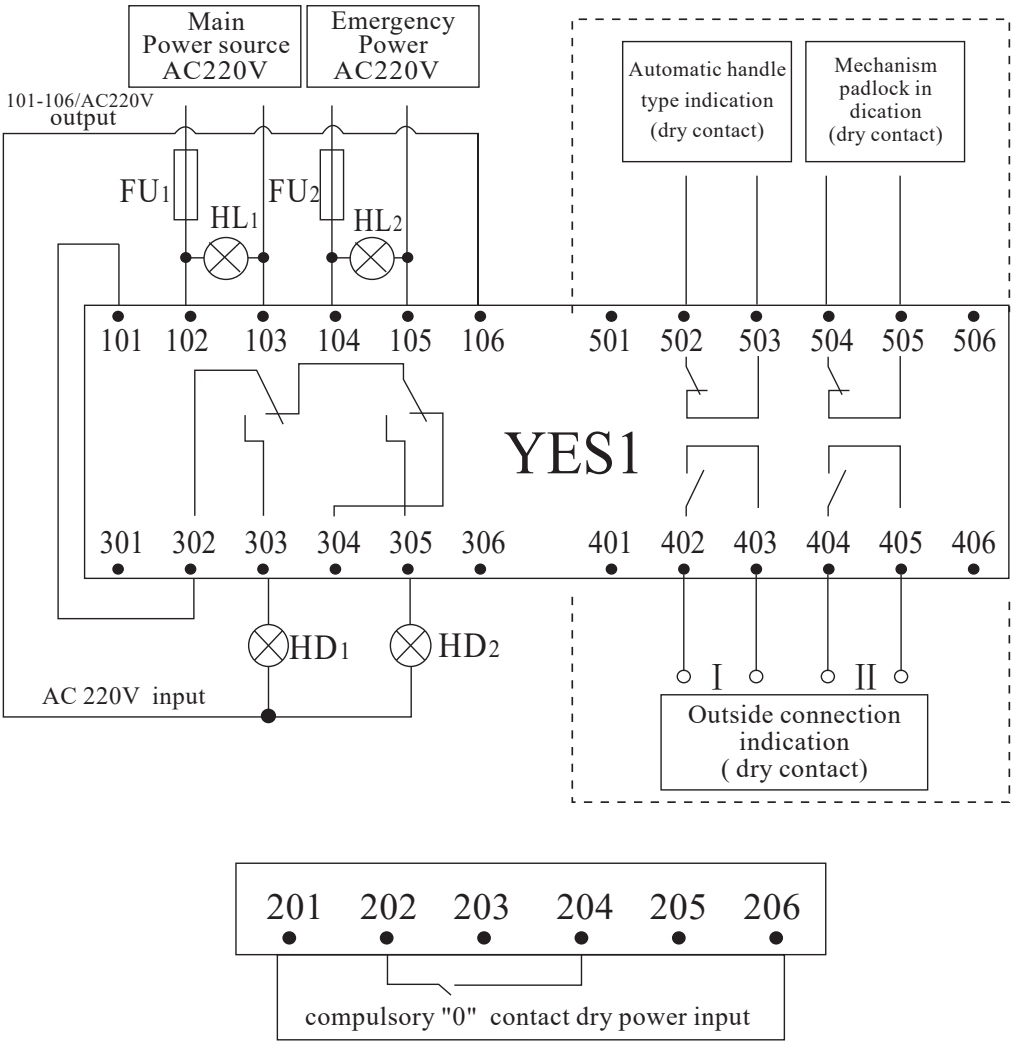
2.Automatic wiring method (for rated current 20A ~ 3200A)





- Hl1 is the indication for normal power incoming telegram；
- HL2 is the indication for emergency power incoming telegram;
- HD1 is the indication for normal power devotion;
- HD2 is the indication for emergency power devotion;
- FU1,FU2 are the fuse for 2A
- 101~106，201~206，301~306 is the switch terminal for ats.
- 401~406，501~506 the switch terminal could be choosed if thecurrent up to 630A.

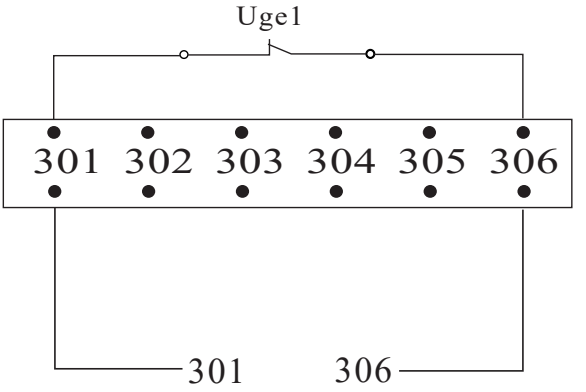
3.Automatic + compulsory purchase "0" (for rated current 20A ~ 3200A)
(Fire fight / dual power supplies are disconnected) wiring method.



- Hl1 is the indication for normal power incoming telegram；
- HL2 is the indication for emergency power incoming telegram;
- HD1 is the indication for normal power devotion;
- HD2 is the indication for emergency power devotion;
- FU1,FU2 are the fuse for 2A
- 101~106, 201~206, 301~306 is the switch terminal for ats.
- 401~406, 501~506 the switch terminal could be choosed if thecurrent up to 630A.

4.Generator wiring method (for rated current 20A ~ 3200A)

1):have the interface of start generator(301-306,also charactor of Uge1)wiring diagram is as follows:



Uge1 Interface of dry contact to start the generator

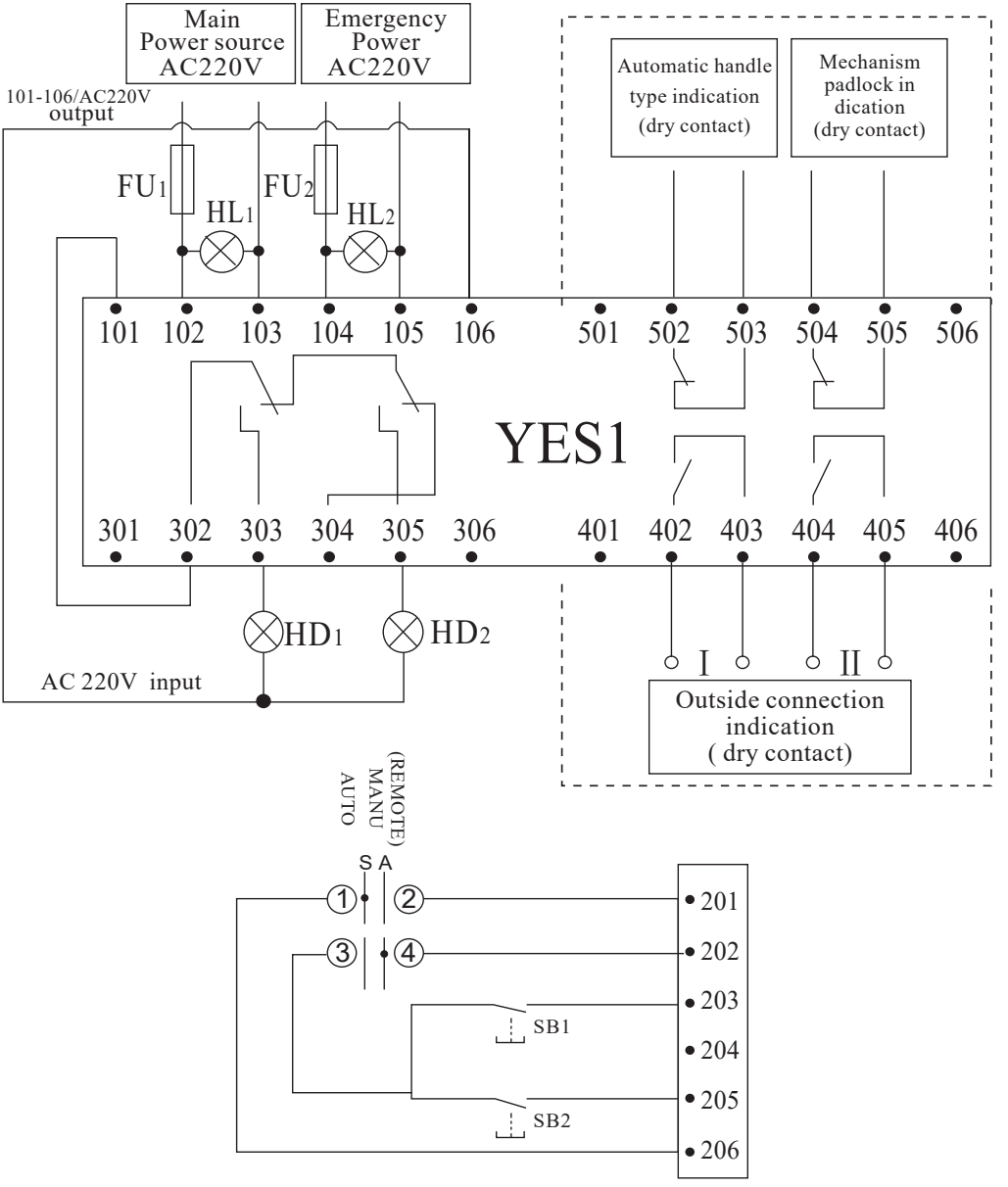
Description:

- Uge1 is the relay of AC220V in the internal of the switch.
- 301 ~ 306 is the interface of starting generating.

Note: The contact output capacity: 250VAC/5A, 380VAC/3A.

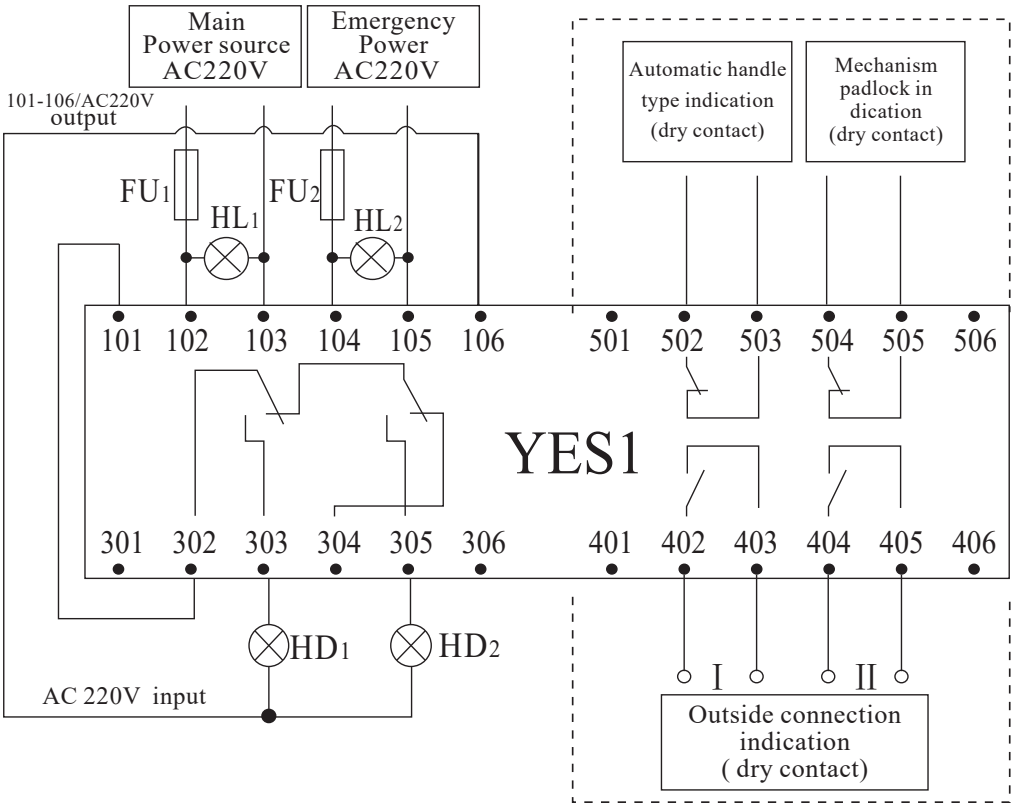
5.Automatic + Manual (Remote Control) wiring method

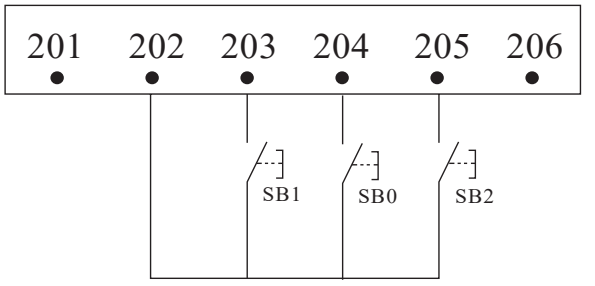
(for rated current 20A ~ 3200A)



- SA: Auto/Manualfunction selection switch
- SB1,SB2:are respective for normal power,emergency power manual input button (dry contact)
- 401~406, 501~506: the 630A above switch`s terminal could be choosed.

6. Remote Control (for manual operate)wiring method (for rated current 20A ~ 3200A)

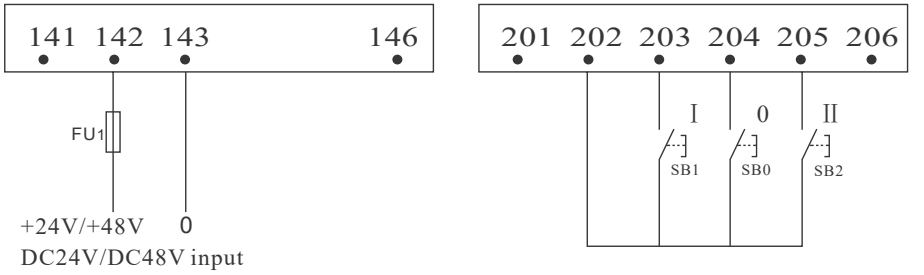




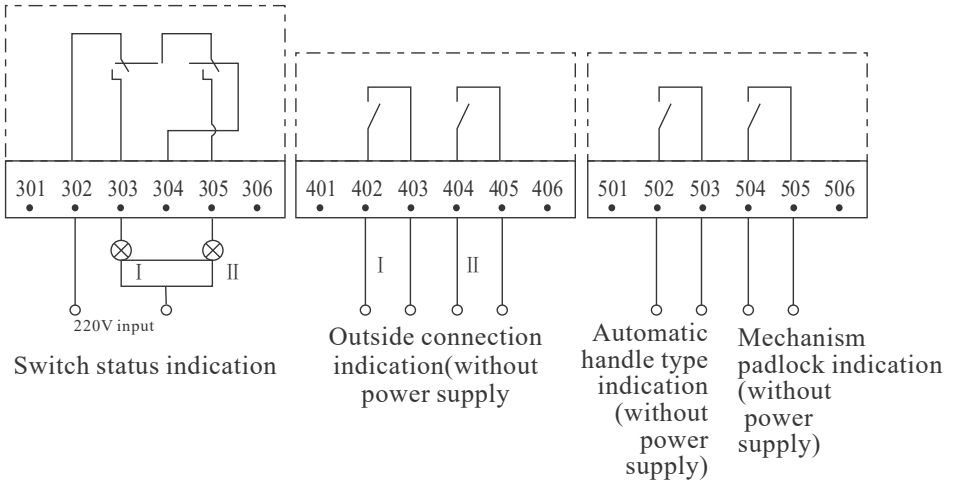
- SB0、SB1、SB2 are respective for compulsary position"0",normal power,emergency power input control button (only connect dry contact)
- 401~406, 501~506 the switch terminal could be choosed
- Rated Current 20A ~ 630A compulsory "0" function can be selected.

6、DC24V/DC48V

1.Basic Connection



2.Other terminal wiring



Note：Within the dashed border for the auxiliary contact of switch

7、With Controller use explain

1、 YCU-C intelligent controller operation profile

1. Automatic and manual conversion:

The panel is provided with an automatic and manual conversion button and the button is self-locking type. Press MANUAL and the manual indicating lamp turns on; press the AUTO and the automatic indicating lamp turns on.

YCU-C intelligent controller

2. Automatic mode operation:

The controller automatically completes the conversion between the two powers according to the power supply situation and the conversion time is set on the panel by the operator within the range of 0~30s.

① When the two powers are both normal, convert to the main power.

② When the main power is abnormal but the standby power is normal, cut off the main power and convert to the standby power; when the main power recovers, cut off the standby power and convert to the main power.

③ When the main power is abnormal, the generator startup signal will be delayed about 3s to send; when the generator output is normal, cut off the main power and convert to the standby power; when the main power recovers, cancel the generator startup signal, then cut off the standby power and convert to the main power.

3. Manual mode operation:

① Press REST MANUAL and send the action of cutting off the two powers, thus breaking and locating in the middle position no matter in the main power state or in the standby power state;

② When the main power is normal, press A-POWER MANUAL, then cut off the standby power and convert to the main power.

③ When the standby power is normal, press B-POWER MANUAL, then cut off the main power and convert to the standby power.

2 YCU-H LCD display controller operation profile

1) Controller parameter in factory：

Detail parameter info as following :

1、Main Power,Emergency Power Over Voltage transfer value:270V
（varible range ：200~400V）

2、Main Power,Emergency Power Under Voltage transfer value:150V
（varible range ：100~200V）

3、A⊠ B，B⊠ A conversion delay time: 5seconds
（varible range：0~240S）

4、Conversion model:AUTO/MANUAL

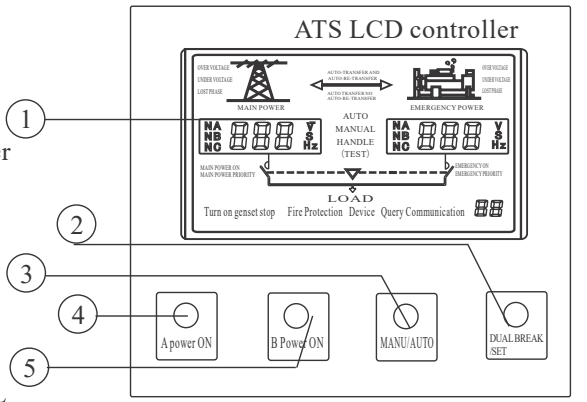
5、Working model:Generator model

6、Generator start and stop time:5 seconds（varible range：0~240S）

7、Main ,Emergency Power over voltage restore value:：10V（varible range：5~50V）

8、Voltage calibration value：220V（Set by manufacturer only.）

9、LCD bright adjust：8（range：0~10）



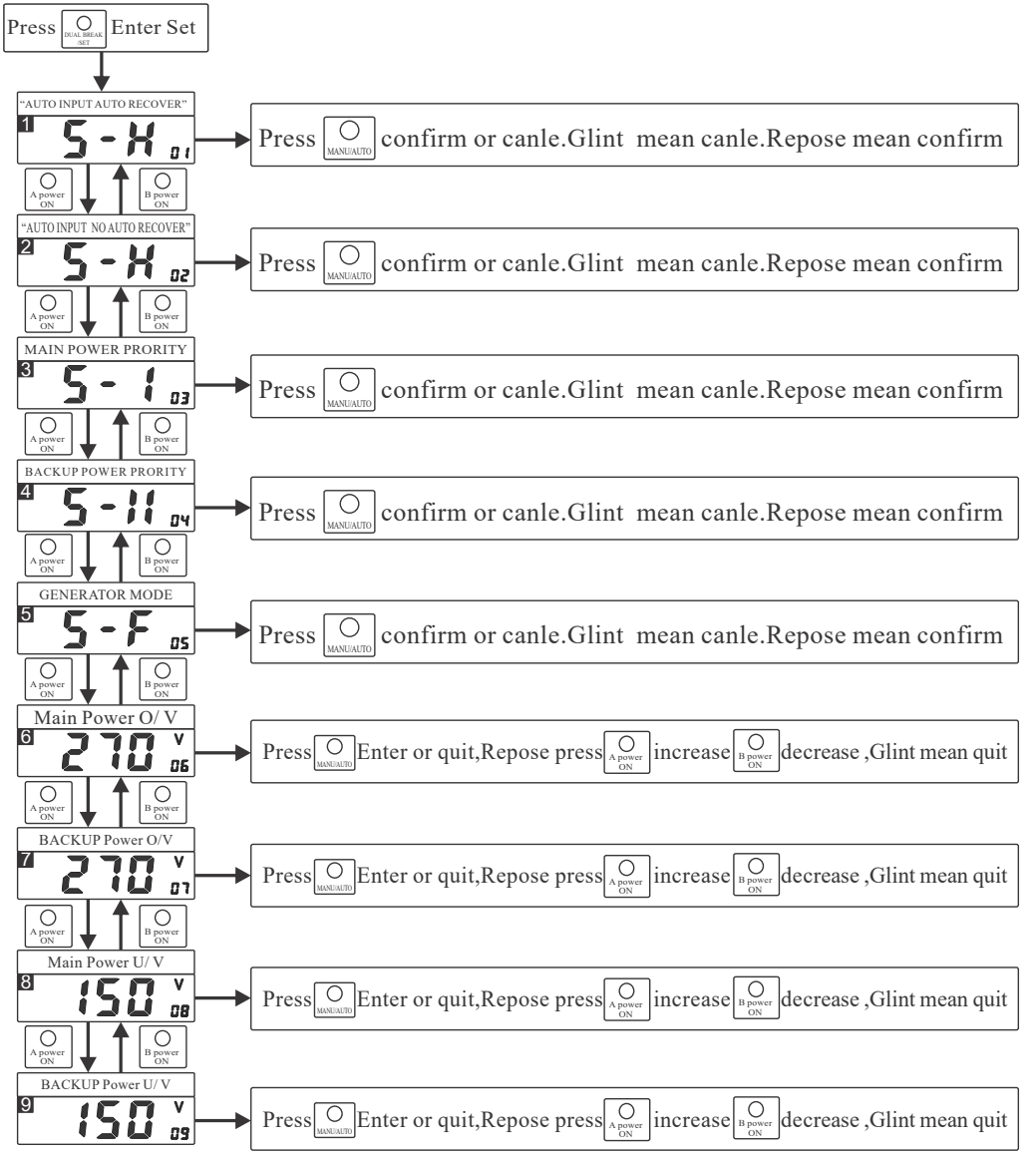
2)User set controller parameter

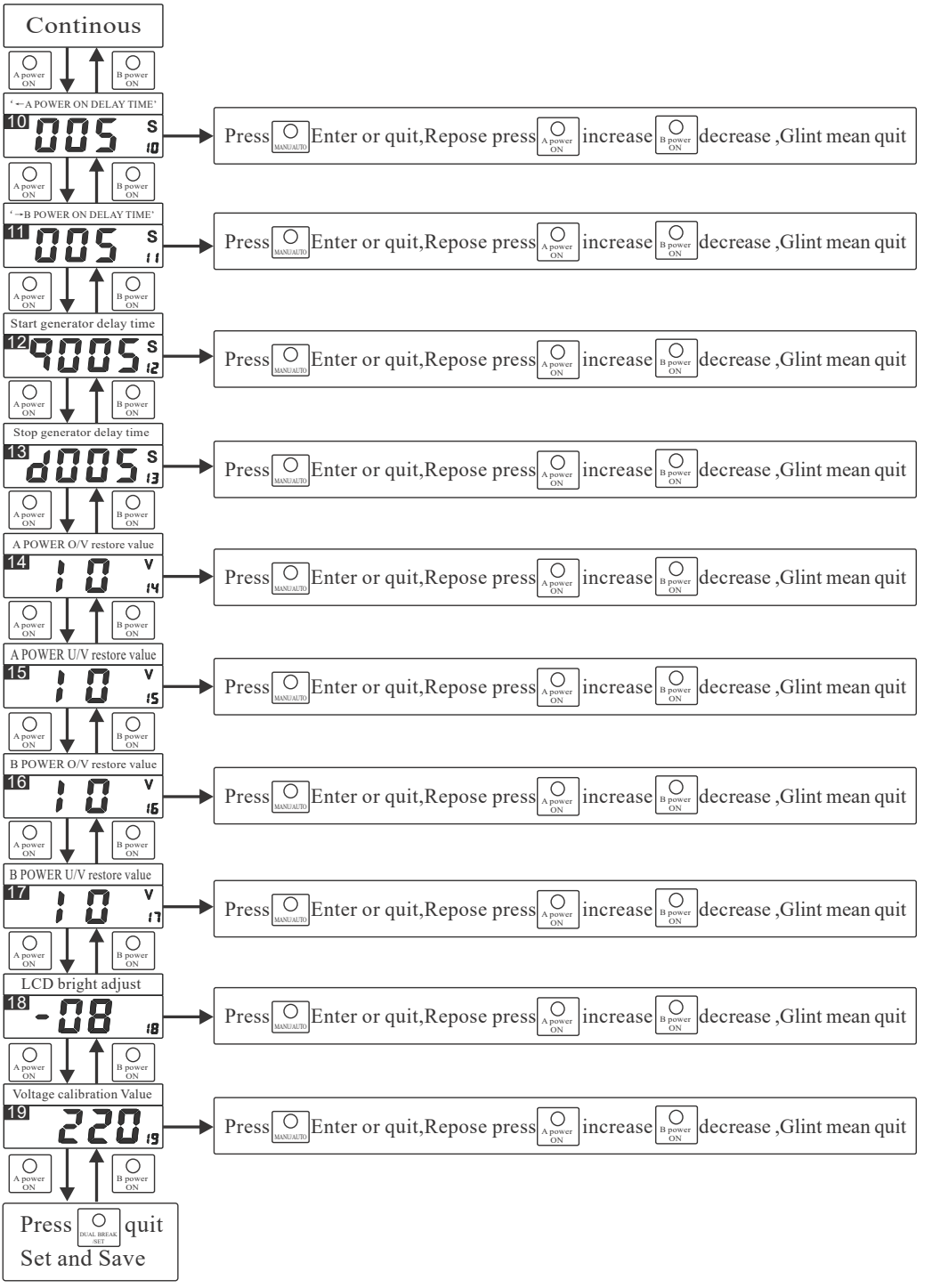
Enter method and operation instruction：

When user select one kind mode,the others mode was

be cancle automatically."Generator" word reposed mean Utility to Generator mode,

Glint mean Utility to Utility Mode.




Continous
A power ON
B power ON
'←A POWER ON DELAY TIME'
10 005 S 10
'→B POWER ON DELAY TIME'
11 005 S 11
Start generator delay time
12 0005 S 12
Stop generator delay time
13 d005 S 13
A POWER O/V restore value
14 10 V 14
A POWER U/V restore value
15 10 V 15
B POWER O/V restore value
16 10 V 16
B POWER U/V restore value
17 10 V 17
LCD bright adjust
18 -08 18
Voltage calibration Value
19 220 19
Press MANU/AUTO Enter or quit,Repose press A power ON increase B power ON decrease ,Glint mean quit
Press DUAL BREAK SET quit
Set and Save

3、YCU-C/YCU-H controller wiring terminal

YCU-C Controller wiring terminal diagram

R1	R2	F1	F	F2	L1	L2

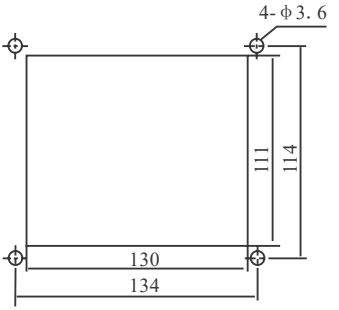
F2, F and F1, which is used to start up and close the generator.F is the common point, when mainly power in normal,F and F2 is closed,F and F1 is break;when main power in abnormal and Backup power source no power,F and F1 delay about 3 seconds then closed,meanwhile F and F2 is break.

R1,R2 turn on,controller will bring ATS switch changeover to double break position (fire fight input)

L1,L2 according user requirement to additional(standby).

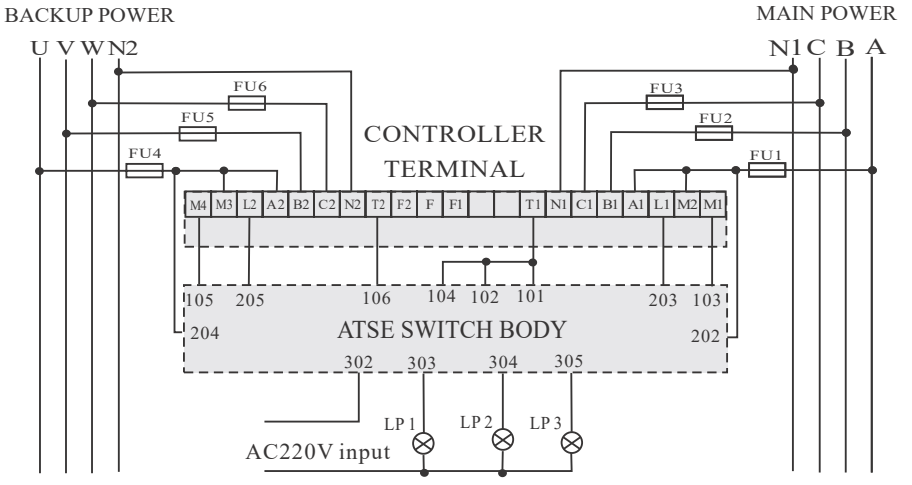
4、YCU-C/YCU-H Controller installation and outline dimension

YCU—C intelligent controller installation bore hole diagram(Total depth: 76mm, inner depth of the installed cabinet: 65mm)



5、Controller and switch connection diagram

YCU-C、H type controller connect with GA diagram



Wiring explain:

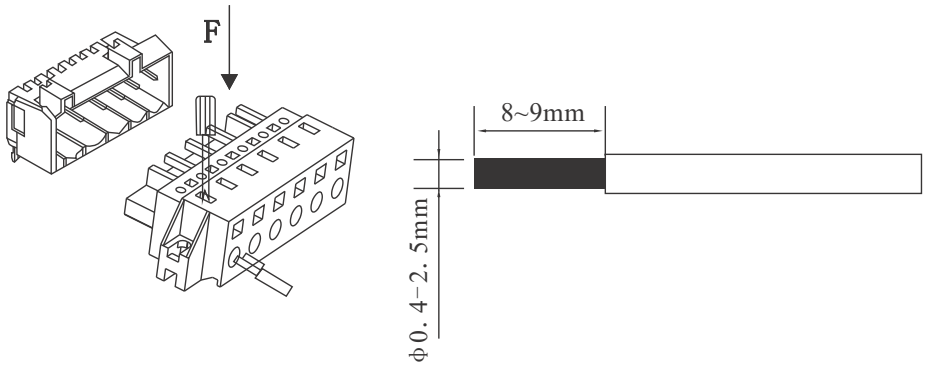
LP 1：Main Power Source exterior closing indication

LP 2：Switch dual break indication

LP 3：Backup Power Source exterior closing indication

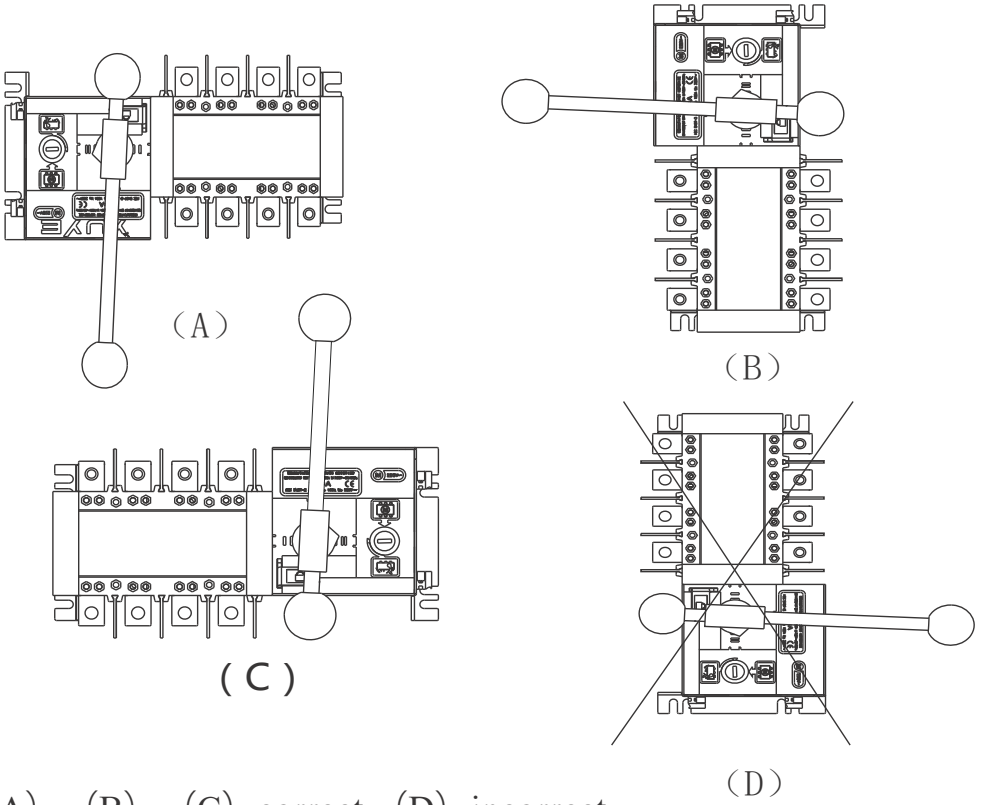
FU 1 - 6 FUSE 6A

8、Method of terminal connection



Use the screw driver use force downwards as the picture indicated direction,the line imbedding as the picture shows.

9.Correct installation method for switch



（A） （B） （C）correct （D）incorrect

10、wiring methods of switch

（Please refer to the right installation method for switch A)

1.The switch from left to right,I and II connection copper lines conn ected with normal power (front) and emergency power(behind) respectively with A,B,C phases

2.Controlling power origin from normal power and emergency power respectively with C and N phases.

3.I and II line controlling power AC220V connected with terminal 102~103,104~105 respectively,therein 102 and 104 are normal power and emergency power live line respective.

4.Terminal 101,106 are act as signal lamp to control power supply,therein 106 is the live line.

Note:101 and 106 couldn't be connected with any other lines.

5.When above(under) input line,above(under)terminal I and II line A,B,C phases will be connected with copper lines or lines acting as output.

11、Note of debug switch

1.Connect the normal power(I),emergency power(II) with the corresponding connecting board copper lines respectively;

①Automatic debugging

Normal power supply with electric,emergency power supply with electric,switch I line switch on

Normal power supply without electric,emergency power supply with electric,switch II switch on

Normal power supply with electric,switch I line switch on

(Refer to the switch panel white indicating arrowhead)

②Remote debugging

Press bush putton SB1,then the switch I line switch on

Press bush putton SB2,then the switch II line switch on

③Automatic/Remote(handle)debugging

When dial the function selection switch into the automatic position: the switch should act according to the ① item requirement;when dial the function selection switch into the remote (handle) position: the switch should act according to the ② item requirement;

2.When the switch in the position of switch on I line or II line,the signal lamp on the panel should indicate correspondingly.

3.After finished the debugging,close the power supply firstly,and circumgyrate the switch into"0 position" by handle.(Middle position , refer to the switch panel white indicating arrowhead).