<Read the operating manual carefully before installation>

Automatic Transfer Switch

Operating Manual

Suggest send the instruction to final user

No.ZXS1GNEN19101003

DIRECTORY

I. Overview

This series of double power automatic transfer switch is suitable for automatic transfer between two power sources in emergency power supply system with rated working voltage of 400V and below, rated frequency of 50/60Hz and rated current of 16A to 3200A, to ensure continuous, safe and reliable operation of important loads (such as fire fighting load). It is widely used in hospitals, shopping malls, banks, chemical industry, high-rise buildings, military facilities, fire protection and other important places where power cuts are not allowed.

This product conforms to GB/T 14048.11 Low-voltage switchgear and controlgear-part 6-1: multi-functional electrical switch appliances-switching device, which is equivalent to IEC 60947-6-1: conforms to "high-rise civil building fire code", "building design fire code", "emergency lighting design guide", "civil building electrical design code", etc.

II.Performance and characteristics

Built-in sampling line is adopted for export products, so there is no need to add additional sampling line when customers use them.

External safety seat for easy maintenance.

The intelligence type with full functions, the anti-interference ability strong cent shape and the economical reliable basic type are optional.

Full functions, with overvoltage, undervoltage and open phase switching function.

The intelligent controller adopts IC microcontroller as the control core, which has powerful function, easy expansion and strong anti-interference ability.

Double breakpoint horizontal pull mechanism is adopted in the mouth switch, which is safe and reliable in switching on and off.

The actuating load disconnecting switch is equipped with mechanical interlock device to ensure reliable operation of normal and standby power sources.

It adopts the zero-position technology, which can be set to zero compulsivly in case of emergency (at the same time cut off the two standing power sources), and both meet the requirements of fire linkage.

It has obvious on - off position indication, padlock and other functions, which can reliably realize the isolation of power supply and load.

Four operating functions: emergency manual operation, electric remote control operation, automatic control state emergency disconnect operationAutomatic control operation.

Three stable working states (Ⅰ-O-Ⅱ): common closing and standby opening; commonly opening, standby closing; common and standby power sources are both disconnected.

III. Normal working conditions

☐The operating environment temperature range is −25℃−+70℃, and the storage environment temperature range is −55℃−+85℃.

☐The elevation of the installation site shall not exceed 2000m.

☐The relative humidity of the air at the installation site should not exceed 50% when the ambient air temperature is +40℃. The relative humidity can be higher at a lower temperature. For example, when the average minimum temperature of the wettest month is +20℃, the average maximum relative humidity of that month can reach 90%. Appropriate measures should be taken to prevent condensation caused by temperature change.

☐Pollution level 3.

☐ATSE can be installed vertically or horizontally in the cabinet. Special orders are required for special requirements.

☐It should be installed in a medium without explosion risk, and there is no enough gas and conductive dust in the medium to corrode the metal and damage the insulation.

☐It should be installed in no rain and snow attack place.

☐Installation category (overvoltage category).

☐Installation category of switchgear for main circuit: III.

☐Conversion controller and auxiliary circuit installation class: II.

IV. Model and its meaning

☐ ☐ ☐ − 100 ☐ / ☐ ☐ R ☐

- Controller type:
  - Y−701 type(LED indicator light controller)
  - Y−702 type (LCD liquid product display control brush)
- Working mode
  - R: self−throw self−restore
  - S: self−throw non self−restore
  - Note: factory default self−throw self−restore
- Rated current
- Poles: 3P, 4P
- Product code
  - GN: three−phase sampling intelligent type
  - GNF: three−phase sampling type
- Frame size: 100,160,250,630,1600,3200
- Design number
- PC double power automatic switch
- Enterprise code

V. Main technical parameters

Frame size	100	160	250	630	1600	3200
Rated operating current Ie (A)	16,20,25,32,40 50,63,80,100	125,160	200,225,250	315,350,400 500,630	800,1000 1250,1600	2000,2500 3200
Rated insulation voltage	690V			800V		
Rated impulse withstand voltage	8KV			12KV		
Rated working voltage	AC400V/50Hz					
Use category	AC−33iB					
Rated short circuit making capacity	8KA	17KA		26KA	67.5KA	
Rated short time withstand current	5kA/30ms	10kA/60ms		12.6kA/60ms	32kA/60ms	
Switching time	2.5s			1.2s/2.5s	1.2s	1.8s 2.4s
Rated short circuit pulse current	Front fuse 50KA				Front fuse 90KA	
Note. 630 frame production t operation time is divided into 1.2s(series motor), 2.5s(synchronous motor)						

VI. Switch structure description

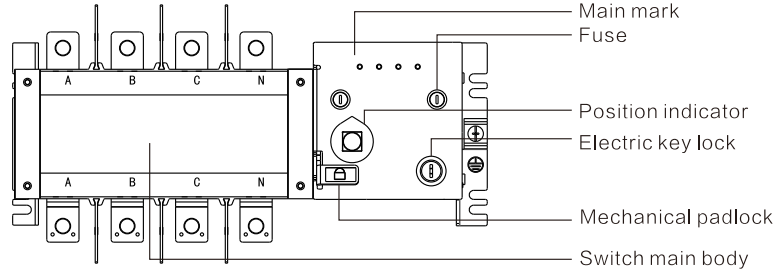


Figure 2

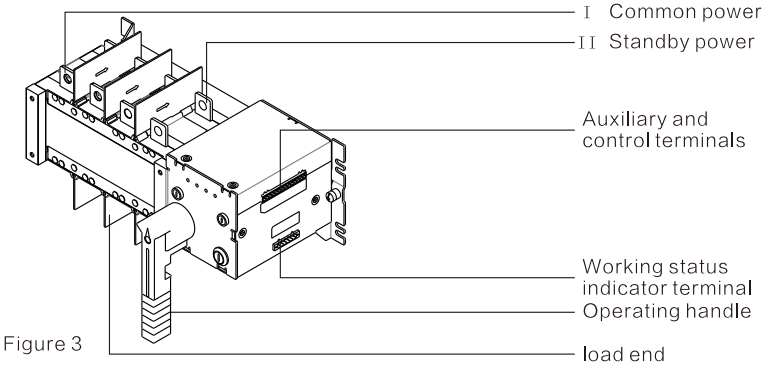


Figure 3

(1)Electrical key lock: electrical key lock control circuit power, open, the switch to achieve automatic and remote operation, closed, the switch can only be manually operated.

(2)Operating handle: the electrical lock must be closed when operating the switch with operating handle.

(3) Mechanical padlock: when maintenance, first use the operating handle to make the switch in the state of "O off" state, then pull up the mechanical hang.

(4) Position indication: mark the working position of the switch (I common use, O power off, II standby).

VII. Appearance and installation dimensions

☐ 16A–250A mounting dimensions (two in and one out)

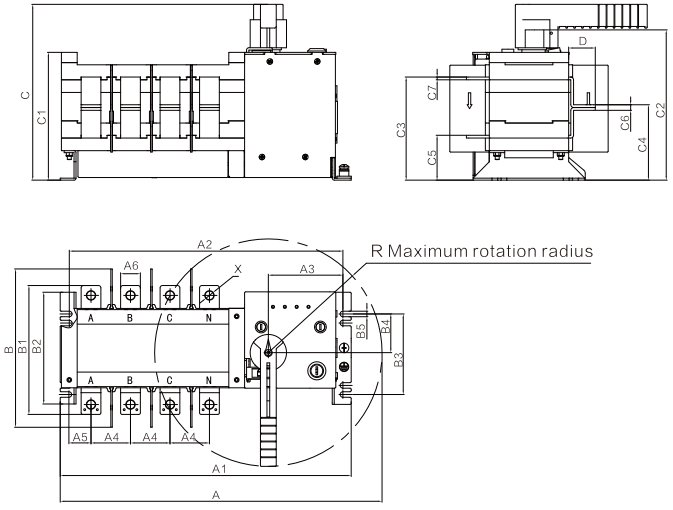


Figure4

☐ 400~1600AInstallation size (two in and one out)

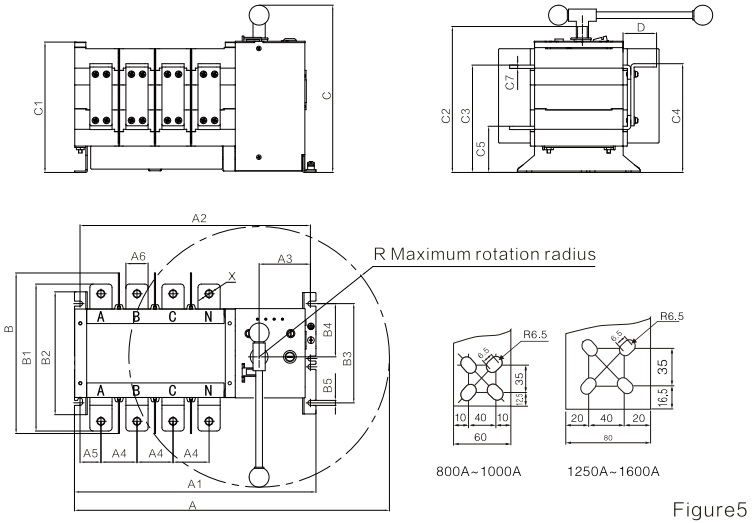
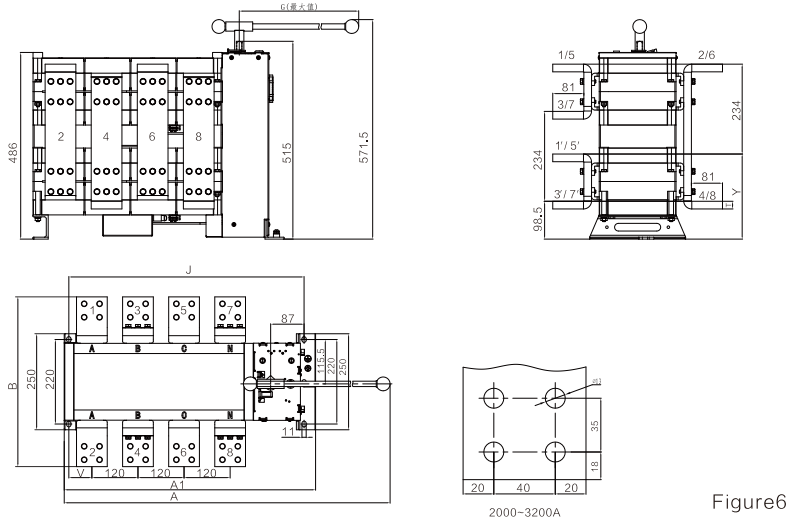


Figure5

☐ 16A–1600A mounting size (two in and one out)

Specifications	Shape and mounting dimension																						
	A	A1	A2	A3	A4	A5	A6	B	B1	B2	B3	B4	B5	C	C1	C2	C3	C4	C5	C6	C7	D	X	R
16–100A	268	260	241	96	30	12	14	145.5	110.5	103	84	44	7	170	118	143	92	67.5	40.5	5	2.5	22.5	6.7	115
125–160A	344	304	283.5	94.5	36	19.3	20	185.5	140	127.5	102	49	7	223	163	187	129	94	56.5	7	3.5	30	9	144
200–250A	408	368.5	347	94.5	50	28	25	200.5	163	141.5	102	106.5	7	223	162	186	130.5	97	56.5	7	3.5	34	11	144
400/3P	510	375.5	355.5	92.5	65	38	32	289.5	248.5	221.5	179	96	9	303	235	266.5	192.5	193	82.5	–	5	52	11	235
400/4P	570	435.5	415.5	92.5	65	38	32	289.5	248.5	221.5	179	96	9	303	235	266.5	192.5	193	82.5	–	5	52	11	235
630/3P	510	375.5	355.5	92.5	65	38	40	289.5	265	221.5	179	96	9	303	235	266.5	193.5	196	83.3	–	6	60.5	12.5	235
630/4P	570	435.5	415.5	92.5	65	38	40	289.5	265	221.5	179	96	9	303	235	266.5	193.5	196	83.3	–	6	60.5	12.5	235
800–1000/3P	785	524	499	87	120	56	60	–	352	250	220	115.5	11	395	309	338	254	254	109	–	8	88	–	360
800–1000/4P	1080	638	613	87	120	60	60	–	352	250	220	115.5	11	395	309	338	254	254	109	–	8	88	–	540
1250A/3P	785	524	499	87	120	56	80	–	368	250	220	115.5	11	395	309	338	254	254	109	–	8	100	–	360
1250A/4P	1080	638	613	87	120	60	80	–	368	250	220	115.5	11	395	309	338	254	254	109	–	8	100	–	540
1600A/3P	785	524	499	87	120	56	80	–	376	250	220	115.5	11	395	309	338	255	255	110	–	10	108	–	360
1600A/4P	1080	638	613	87	120	60	80	–	376	250	220	115.5	11	395	309	338	255	255	110	–	10	108	–	540

☐ 2000A~3200A Installation size of 2000a-3200a (two in and one out)



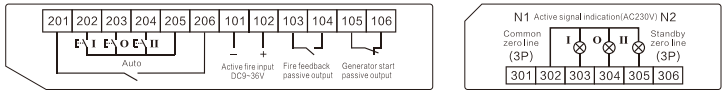
2000-3200A

Figure6

Specifications	Shape and mounting dimension							
	A	A1	B	G	J	T	V	Y
2000/3P	785	541	422	360	499	10	56	212
2000/4P	1080	655	422	540	613	10	60	212
2500A/3P	785	541	432	360	499	15	56	217
2500A/4P	1080	655	432	540	613	15	60	217
3200A/3P	785	541	442	360	499	20	56	222
3200A/4P	1080	655	442	540	613	20	60	222

VIII Usage method

1.Use method of GN single phase sampling basic auxiliary terminal



☐ The terminals of,201, 206 shall be short-connected with wires for remote control (cabinet door control conversion), and the disconnection shall be automatic;

☐ 205 is the remote COM port.

☐ When the closed signal is detected at port 202,205, the "II standby power" is normal, and the product is converted to the "II standby" position.

☐ When the closed signal is detected at ports 205 and 204, the product will switch to the "II standby" position if the "II standby power" is normal.

☐ When the closed signal is detected at ports 205 and 203, the product will switch to the "O power off "position if one or two of the "I common power supply "or "II backup power supply" are normal.

☐ Port 101,102 is the fire-fight power supply DC24V (9-36V, 101 is negative,102 is positive, polarity should not be reversed) input, the product will perform the fire linkage function.

☐ Port 103,104 is the feedback signal output after the product performs the fire linkage function, a group of passive signal dry contacts.

☐ Port 105,106 is the generator start signal. Connect this port to the generator controller to realize the generator start and stop control.

☐ The work zero line input of 3P: 301 is the common zero line, 306 is the standby zero line.

☐ 302 is the COM terminal of position indicating signal.

☐ 303 is "I common" position indication signal, active 220VAC.

☐ 304 is the "O power off" position indication signal, active 220VAC.

☐ 305 is "II standby" position indication signal, active 220VAC.

2.GN3 three-phase sampling intelligent auxiliary terminal usage

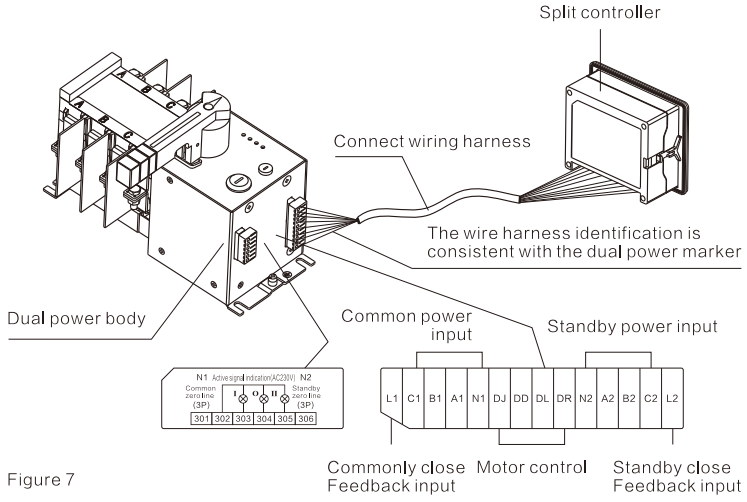


Figure 7

■ Usage of auxiliary terminal

☐Insert one end of the configured connection harness into the corresponding port of the dual power body terminal and the other end into the corresponding port of the controller in line sequence.

☐302 is the COM terminal of position indicating signal.

☐303 is the "I common" position indicator signal, active 220VAC.

☐304 is the "O power off" position indication signal, active 220VAC.

☐305 is the "II standby" position indicator, active 220VAC.

■ Controller description

Y-701 type
(LED indicator light controller)

Y-702 type
(LCD controller)

☐ Controller function

Product model	Y-701	Y-702
Installation	Split type	
Display mode	Indicator light	LCD
Rated duty	Interrupted work system	
Self-throw self-restore	●	●
Self-throw non self-restore	●	●
Alternate	●	●
Motor start function	●	●
Common power detection	Four-phase detection, three - phase voltage over-voltage detection	
Standby power detection		
Passive fire input	●	●
DC9-36V Active fire input DC9-36V	●	●
Conversion delay adjustable	●	●
Voltage real-time display	○	●
Common and standby electrical indication	●	●
Common and standby overvoltage and undervoltage adjustable	●	●
Generator start and stop time adjustable	●	●(F/F1)
Programmable outlet	○	●
RS485 communication function	○	●(Optional)

Note : ● it has this function. ○it has no this function

☐ Function introduction

A. Self-switching and self-restore: in case of power failure or failure (phase loss, over-voltage and long-term voltage) of the common power supply, ATS will be automatically converted to the standby switch, and ATS will be automatically converted to the common power supply after the restoration of the common power supply.

B. Self-switching without self-restore: in the case of "a", after the ATS is converted to the standby, the switch will not be converted to the common use if the common use is restored, and the standby will not be converted to the common use if the standby fails, only manual conversion is allowed.

C. Mutual backup: it means that after the ATS is converted to backup under the condition of 4.1, the switch will not be converted to common use if the common use is restored, but when the backup fails, the ATS will be converted to common use.

D. Double switching power failure: when in an instruction to the output, ATS can't complete the transformation task within the allotted time, the controller will stop the output instructions, and all the Y-701 will into running water detection, in the form of Y-702 will double jump, according to the press after the "automatic/manual switch button" to cancel failure marks.

☐ Y-701 controller settings

a.The setting of self-throw and self-reply, self-throw and non-self-reply and mutual standby in the automatic state, press and hold the "A power closing "and" B power closing "buttons to enter the setting. After entering the setting, click the "A power closing" button to switch between the three working modes, and click the "automatic/manual" button to save and exit the setting.

Self-throw self-restore mode

Self-throw non self-restore mode

Alternate mode

☐ Y-702 controller settings

a. Parameter setting menu

Click and press the button of "automatic/manual" for ten times continuously to enter the parameter setting menu, the parameter code is still displayed, click and press the menu of "A power ON" to turn down, and the menu of "B power ON" to turn up.

b. Parameter setting menu

Click "automatic/manual" button again to enter or exit the parameter modification menu, and the parameter code flashes. Click "A power ON" to increase the parameter, and click "B power ON" to reduce the parameter.

C. Save and exit:

Click "automatic/manual" button again to enter or exit the parameter modification menu, and the parameter code A, click "A power ON "to increase the parameter, click "B power ON" to decrease the parameter.

d. Y- 702的参数代码,范围及默认值

No.	Code parameters	Parameter name	Scope	Factory default
1	U270	Common overvoltage threshold	200-300	270
2	u165	Common undervoltage threshold	100-200	165
3	n270	Standby overvoltage threshold	200-300	270
4	n165	Standby undervoltage threshold	100-200	165
5	⌜	Delay time witching to the common	0-240	1
6	⌝	Delay time witching to the standby	0-240	1
7	q	Generator start time	0-240	5
8	d	Generator shutdown time	0-240	5
9	P	Backlight brightness adjustmentATS	0-10	8
10	E	ATS operating mode	0=Self-throw self-restore 1=Self-throw non self-restore 2=Alternate	0
11	□	Programmable outlet F1	0-8	0
12	J	Local address	1-32	1
13	b	Baud rate	1=2400, 2=4800 3=9600, 4=19200	3
14	H	Factory data reset	(0-3) 3=Restore factory value	0

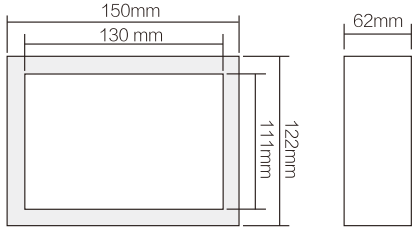
Note: please note that when H=003 is pressed to confirm to restore the factory default value, it will restore all the original data, including the sampling coefficient of the common and standby power voltage. After recovery, the voltage data collected by the controller may be ± 10V different from the actual normal input voltage.

f.Y-702 definition of programmable output F/F1:

Programmable outlet	Setting range (0-8)	Default output
F/F1	0=start generator normally closed output 1=fire control feedback output 2=abnormal output of common power supply 3= abnormal output of standby power 4= output in automatic state 5= output in manual state 6= output when ATS switch fails 7= output in normal close state 8= output in standby close state	0

g. Double power switch working mode
E-0: self-throw self-restore E-1: self-throw non self-restore, E-2: alternate

☐ Controller outline and installation size



Hole size: 130mm*111mm
Overall size: 150mm*122mm

IX. Correct installation method of switch

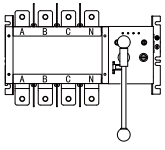


Figure 8 Right

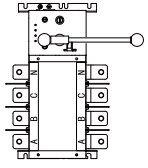


Figure 9 Right

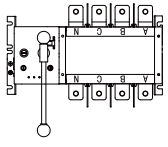


Figure 10 Right

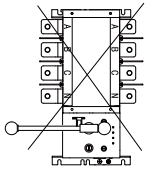


Figure 11 Incorrect

X. Switch wiring instructions

1.See figure 3 for primary wiring.

2.This series of dual-power transfer switches have built-in sampling lines, so customers do not need to sample from the main circuit.

3.this series of double power switch for two in one out, if the customer needs two in two out or one in two ready.

4.The left closing indicator terminal of this series of dual-power transfer switches is active 200VAC output, no need for the customer to report the power.

5.The standard connection harness of GN3F series dual-power transfer switch is 2m, and the customer can make remarks according to the need when placing an orderLonger.

XI. Common faults and troubleshooting

Fault	Reason	Processing method
Cannot transfer automatically	The neutral line is not connected for 3 poles	Corresponding position connection
	Abnormal voltage and open phase	Check and repair power supply
	The split-type controller connector is loose	Re-fit tight
	Wrong connection of common and standby power	Correct. Re-access correctly
	The electrical key is in manual mode	As for automatic position
	The mechanical padlock is lifted or not in place	Check and put in place
	The remote port 201 and 206 are in short-circuit condition	Check and disconnect

Common faults and troubleshooting methods that may be encountered in the process of debugging or use should be operated according to the above table. If the fault cannot be eliminated, please timely contact our after-sales service.

XII. Switch debugging description

1. The installation and debugging of the product shall be carried out by professionals and those who are familiar with the switch equipment operations.

2. The corresponding protection and preventive measures should be considered before debugging. The connection mode of the switch main loop must make the lead wire free from any pressure or strong action.

3. Before debugging, check whether the switch is not damaged or has any other harmful environmental impact, and check whether the wire head should be loose during transportation; Clean up dirt, especially on the surface of insulation.

4. When connecting the primary circuit, it should be noted that the phase sequence of the main and standby power must be consistent; when connecting the secondary control circuit, it should be operated strictly in accordance with the instructions; when the switch is installed, it must be well grounded.

5. After the product is installed, the power will be turned off. Take out the special operating handle supporting the product and turn it from the usual to the standby, and then from the standby to the three cycles in common use.

6. check the wiring and secondary loop at a time, after confirmed, the products are in a common location, were used and the standby power supply, and then disconnect common power supply, the product after a delay the transformation to the standby power, restore common power supply, then after time delay shall be returned to the common power supply (except since couldn't from complex), three loop operation and each time interval of more than 20s.