AUTOMATIC TRANSFER SWITCHES

ATS

AUTOMATIC TRANSFER SWITCH

Intelligent Dual Power Automatic Transfer Switch

Wide Range & Perfect Function

AISIKAI Automatic Transfer Switch (Chang Over Switch) consists of SKT, SKQ and ASKQ series. We provide perfect solution with product from general performance CB class to high performance PC class, from none-frequently transfer to frequently transfer. Our product covers a wide current range from 6A to 6300A innovatively, and easily meets the various requirements of load in civil, industrial and commercial fields. Our product is suitable for 1, 2, 3 classes of low voltage power distribution system. Our perfect feature configuration satisfies the power switching between utility-utility, utility-generator, generator-generator and more load's uninterruptible backup power supply. Our product is in compliance with related IEC/GB technical standards, is manufactured according to international standards, and has obtained Chinese compulsory certificate (CCC) and European certificate CE . ( )

Application field

Civil Commercial Industrial

Applicable standard

GB10963.1-2005
IEC60898-1-2002

ATS product line

Class PC

SKT1/2 series
Motor driven type
20A-3200A

SKT3 series
Motor driven type
20A-100A

ASKQ series
Electromagnetic driven type
6A-63A

ASKQ series
Electromagnetic driven type
32A-1600A

ASKQ series
Electromagnetic driven type
3200A-6300A

Class BC

SKQ1 series
Motor driven type
6A-63A

SKQ1 series
Motor driven type
125A-630A

High Technology Product

SKT series ATS with leading structural design and innovative patented technology, has obtained the National High-Technology Product Certificate (Reference Number 141081G0537N), is in accordance with the standards of IEC60947-1/ IEC60947-3/ IEC60947-6-1/GB14048.1/GB14048.3/ GB14048.11, follows international production standards and has obtained Chinese compulsory certificate (CCC) and European certificate (CE).

Ultra-thin Volume, Residential Star Product

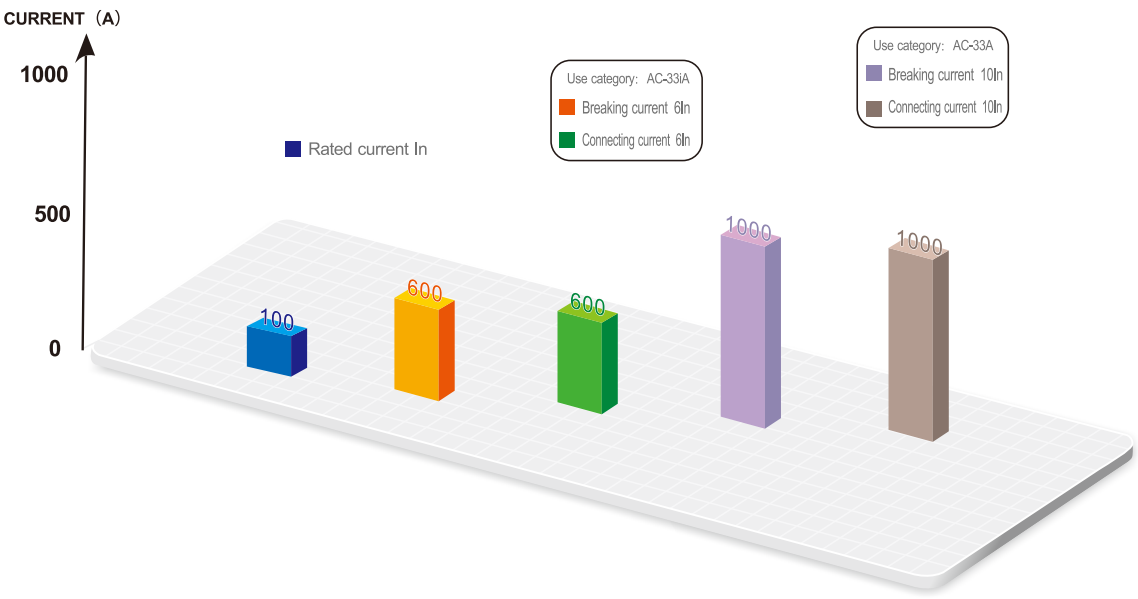
ASKQ series (6A~63A) ATS is our new product developed according to the international residential demand. It has four working modes: Automatic, Remote control, Manual and Lock. When companied with mini-type generator, ASKQ satisfies the uninterruptible backup power supply requirements of places like family residence, villa, private club and etc.

Ultra-high Current, Industrial Specialized Product

ASKQ (3200A~6300A) series ATS is one high performance product developed for the low voltage high current special industrial equipment. It is suitable for industries like mining, oil exploitation and so on, and also works as main power switch in the civil/commercial primary distribution system.

Highest Grade Usage Category AC-33A

SKT series automatic transfer switch(ATS) reaches the highest AC-33A, covers most of the mixed loads requirements in areas like civil, industry, aviation, traffic, etc. ATS can be operated frequently. Its breaking and connecting capacity is up to 10 times the rated current, which is 67% higher than the Grade AC-33iA ATS.



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SKT1, SKT2 series PC class intelligent ATS (motor driven type) quick selection table

Function code
M1: Terminal type (Automatic switch* and automatic recovery*)
M2: Terminal type (Automatic switch* but not automatic recovery* with controller)
X: Fire-fighting type (fire-fighting 0 position)
WA: Intelligent type (fire-fighting type+ SKR2-A LED controller)
WB: Intelligent type (fire-fighting type+ SKR2-A LCD controller)
N: Intelligent type (Built-in MCU program control panel)

Poles code
2P: 2Poles
3P: 3Poles
4P: 4Poles

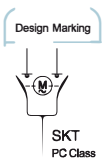
Design code
1.Standard Shell Type (current range: 20A-3200A)
2.Ultra-thin Shell Type (current range: 10A-100A)

Drive type of ATS
T: Motor driven

SK	T	1	—	100A	/	4P	/	M1

Company Name
AISIKAI ELECTRIC

Rated operational current (A)
10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A, 125A, 140A,150A, 160A, 180A, 200A, 225A, 250A, 400A, 500A, 630A, 800A, 1000A, 1250A, 1600A, 2000A, 2500A, 3200A



Model Description 1:

SKT2–100A/4P/M1:
1. PC class motor driven type automatic transfer switch
2. ultra-thin frame,rated working current 100A
3. 4 poles of copper bars
4. end type automatic switch to standby and automatic return to main

Model Description 2:

SKT1–800A/3P/X:
1. PC class motor driven type automatic transfer switch
2. standard frame, rated current 800A
3. 3 poles of copper bars
4. fire-fighting type

Qualification documents

CCC（...） ZL（...） ISO CE

OVERVIEW

- SKT series double power automatic transfer switch is the most advanced third generation product. It is PC class and AC-33A use category can be frequently operated electric transfer switch. Switches are suitable for the reliable conversion of two power sources in 50/60Hz 1 0A -32 00A low-voltage AC power distribution system. There are four working modes: automatic, electric, emergency manual and lock.

CLASSIFICATION

- **Classified by volume**

  Standard type: Type 1, 20A-3200A, 5 kinds volume specification

  Ultra-thin type: Type 2, 10A-100A, 1 kind volume specification

  Note: Ultra-thin type is 50% smaller than the standard type.

- **Classified by functions**

  M1:end type(automatic switch to standby and automatic return to main)

  M2: end type[automatic switch to standby but not automatic return to main(need controller)]

  X: fire-fighting type (have fire-fighting ZERO position)

  WA: intelligent type (fire-fighting type+ external LED controller SKR2-A)

  WB: intelligent type (fire-fighting type+external LCD controller SKR2-B) N: intelligent type(built-in MCU program control board)

- **Classified by poles**

  2P: 2 poles, 1 phase and 2 lines

  3P: 3 poles, 3 phases

  4P: 4 poles, 3 phases and 4 lines

APPLICATIONS

Civil Commercial Industrial

NORMAL OPERATIONAL CONDITIONS AND INSTALLATION METHODS

Category	Requirement
Operational temperature	Between -20'C and 45'C. The average value in 24 hours does not exceed +35"C
Operational humidity	The average humidity at +40'C shall not exceed 50% without condensation
Altitude	Lower than 2000 meters. Operation at altitude above 2000 meters requires derating
Vibration and gas	Use environment should be without strong vibration and shock, and without harmful gases that corrode metals and destroy_I_nsulation
Ambient substance	Without heavy dust, conductive partides and explosive hazardous substances
Pollution level	III
IP rating	IP 20
Storage requirements	Storage environment should be between -30 C and 70 C, dry, non-corrosive and non-saline. The maximum storage time is 1 year
Packaging	Carton packaging for 630A and below; wooden crate packaging for 800A and above
Stacking	No more than 5 layers for 630A and below； no more than 3 layers for 800A and above
Installation method	Install vertically or horizontally. Upside down installation is prohibited
Wiring method	Standard is top inlet and bottom outlet. Bottom inlet and top outlet can be customized

STANDARDS

GB/T14048. 11 IEC60947-6-1

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ADVANTAGE OF RAW MATERIALS

99.9% High Purity T2 Copper Material

- 99.9% High Purity T2 Copper Material

The moving and fixed contacts are manufactured with T2 copper material. The surfaces are processed with pure silver electroplating technology, achieving a much higher breaking capacity than the wielding silver-point switches.

- Main Body Made of DMC

The main body is made of glass fiber reinforcing unsaturated polyester material(DMC), which has extremely high mechanical strength and insulation performance. Compared with the ordinary ABS, DMC has advantages in high strength, corrosion resistance and fire retardancy.

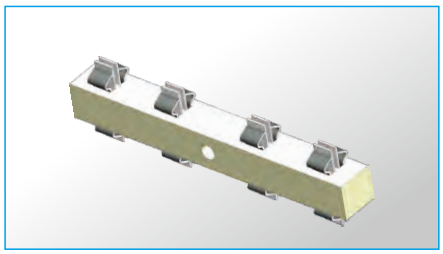
- Self-restoring Drive Motor

Select polychloroprene rubber insulation damp & heat type motor or permanent-magnet synchronous motor (patent technology), which is large in torque, low in noise, long in service life. Motor is provided with overheating and over-current self-restoring protection, and is better than that of the electromagnet in the comprehensive performance.

- Components Brand Assurance

The electronic components adopted are those of the well-known brands. The master control boards are produced in the domestic first-tier electronic OEM factory. The boards are treated with three-proofing process, thus making them reliable in use, high in performance and long in service life.

STRUCTURAL DESIGN



Double-row composite contacts

- Double-row composite contacts

A double-row composite design is adopted for the moving contacts, the conductive area of which is twice as much as that of the single-sided contact switches.

- Transverse-pull moving mechanism

The moving contact makes reciprocating motion in the transverse direction, which has the advantages of zero arc and high safety factor as compared with the longitudinal separation type switches.

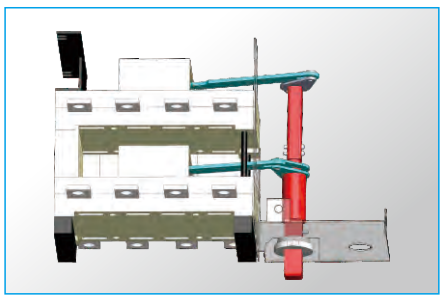
- Double interlocking mechanically and electrically

The precise mechanical design ensures complete separation between the two power supplies and the logical management of the control circuit board achieves the electrical interlocking.

- Safety zero position

AIIthe products of this series have a safety zero position, which is used to cut off both the two power supplies simultaneously, thus making them better than the two-stage switches in the safety performance.

FUNCTIONAL ADVANTAGES



Mechanical interlocks

- Prevention of early failure and damage to equipment

In each piece of the moving contact, a high strength spring leaf made of the silicon manganese steel is fixed reliably in the base and the pressure between the moving and the fixed contacts is kept constant during the transfer process and after the closing of the switch.

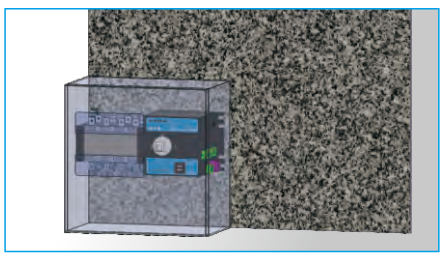
- Load isolation function

The precise safe distance can isolate effectively the power supply from the load and meet the creepage requirements, is provided with the obvious on-off position display and can be operated under a load.

- Zero line overlapping switching

This patented function is used to prevent the equipment from being damaged caused by the zero line potential drift, when the switch is switching (optional function)

PERFORMANCE ADVANTAGES



Ultra-thin design

- Service life

Mechanical life: ≥12000 times; Electrical life: ≥7500 times

- High breaking and making capacity

10 times rated current breaking capacity, 10 times rated current making capacity, 8kV rated withstand impulse voltage, 75kA rated limit short-circuit current

- High-grade use category

AC-33A use category, can be frequently operated, has a much wider scope of application than AC-33B none-frequently operable type.

- Meeting Grade Ⅰ and Ⅱ power distribution requirements

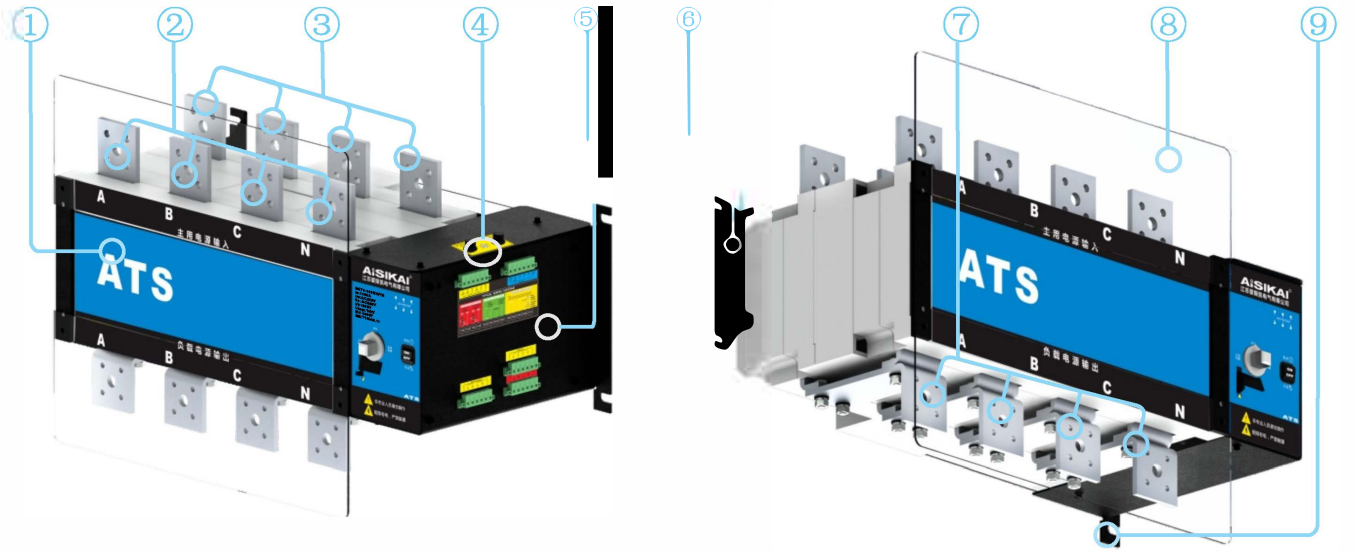
The good electrical properties can meet the technical requirements of the Grade Ⅰ and Ⅱ power distribution systems and have a higher impact resistance than that of the circuit breaker type ATS to avoid the master switch from tripping caused by the short-circuit of a single load.

- Ultra-thin volume (20A-100A)

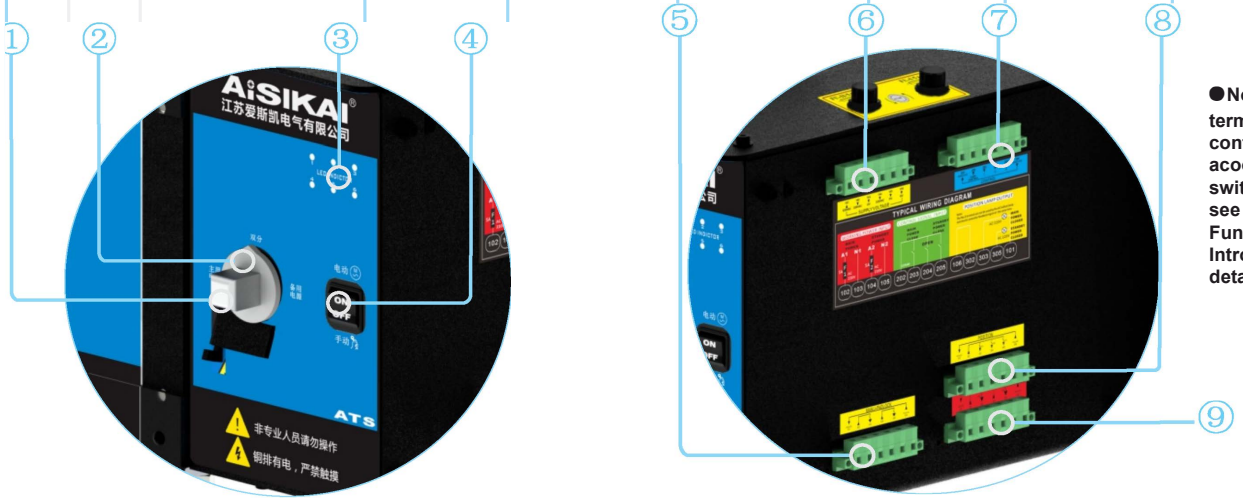
The precise mechanical design achieves an ultra-thin volume and the volume of an electrical box assembled is only 25% of a floor tile (60*60) in size.

STRUCTURE INTRODUCTION

1. Switch body: the standard type is equipped with upper incoming lines and lower outgoing lines
2. Main power input copper bar Used for fixing the main power cable or busbar
3. Standby power input copper bar Used for fixing the main power cable or busbar
4. Electronic control unit of transfer switch: including main control circuit board and driving motor Patent No. ZL 2011 2 0161985.8 ZL 2012 2 0263204.1
5. Left installation bracket: Matched with the right installation bracket and used for fixing switches
6. Load power output integrated copper bars, used for fixing the load cables or busbars Patent No. ZL 2010 3 0242257.0 ZL 20102 0664285.6
7. Safety guard plate installation hole, used for fixing the safety guard plate
8. Right installation bracket: Matched with the left installation bracket and used for fixing switches



1. Manual emergency handle interface: used to turn the switch manually to switchover the power supply at an emergency situation
2. Switch position status indicator
3. For LED indicators, see ATS-14 for details
4. Electric/emergency manual mode selection button
5. Terminal No.5: Expansion port, no signal output for standard type, optional to install self-startup signal output and locking-up indication and so on.
6. Terminal No.1: Electronic control unit power supply input
7. Terminal No.2: Transferring control signal input (passive control)
8. Terminal No.3: Position feedback signal output 1 (active output for M type and passive output for other types)



●No.1-Swiring terminals are configured acoording to the switch model. see the Terminal Functions Introduction for details.

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FUNCTION CODE TABLE

Application type	Terminal type	Fire-fighting type	Intelligent type	
Function Code	M	X	W(External controller type)	N(Built-in MCU program control panel)
Structure				
Electrical two-Stage type	Y			
Electrical three-Stage type		Y	Y	Y
Manual three-Stage type	Y	Y	Y	Y
Control mode				
Controller manual/ automatic control			Y	Y
Remote electric control (external control)		Y		
Emergency manual	Y	Y	Y	Y
Fully automatic switching	Y(without fault detection)	External control	Y(with three phases fault detection)	Y(with three phases fault detection)
Locking mode	Optional	Optional	Optional	Optional
Fire-fighting signal (forced to zero)		Passive closed signal	See ATSC-03 for details	Active DC24V signal
Main/standby power monitoring and protection				
Overvoltage protection	Single phase (optional)	Single phase (optional)	Three phases (adjustable range)	Three phases (adjustable range)
Undervoltage protection	Single phase (optional)	Single phase (optional)	Three phases (adjustable range)	Three phases (adjustable range)
Lost phase protection			Y	Y
Frequency protection			See ATSC-03 for details	Y
Phase angle detection				Y
N-phase fault alarm				Y
Phase sequence inconsistency alarm				Y
Application function				
Automatic switch* and automatic recovery*	M1 (Standard products)	External control	Y	Y
Automatic switch but not automatic recovery	M2 (Customized)	External control	See ATSC-03 for details	Settable
Main power supply is priority	Y	External control	Y	Y
Standby power supply is priority	0s或2s(Undervoltage optional)	Optional	Settable	Settable
Generator self-start signal (passive)		Optional	Y	Y
Transfer delay		External control	Adjustable	Adjustable
Power failure delay setting			Y	Y
Power recovery delay setting			Y	Y
Alarm records storage			See ATSC-03 for details	Y
Communication			See ATSC-03 for details	Y
Feedback signal	AC220V(Ⅰ、Ⅱ)	Passive(Ⅰ、Ⅱ、0)	DC5V(Ⅰ、Ⅱ、0)	
Display function				
Switch position status display	External indicator light	External indicator light	Y	Y
Voltage display			See ATSC-03 for details	Y
Frequency display			See ATSC-03 for details	Y
Current display			See ATSC-03 for details	Y

Note: The W-type is composed of a controller of corresponding functions and an X-type switch.

Y means having this function.

Automatic switch means automatic switch to standby power when main power fails.

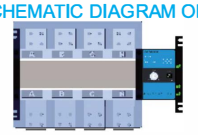
Automatic recovery means automatic switch back to main power when main power recovers.

MAIN TECHNICAL PARAMETERS

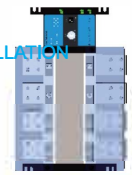
		SKT2 Series	SKT1 Series				
Frame rating current (Inm)		100A	160A	250A	630A	1600A	3200A
Pole		3 , 4	3 , 4	3 , 4	3 , 4	3 , 4	3 , 4
Rated current (In)		100	125A 160	250	400 630	800 1000 1250 1600	2000 2500 3200
Thermal current rating (Ith)		10,16,20,25,32,40, 50,63,80,100A	63,80,100,125, 140,150,160A	125,140,160, 180,200,225, 250A	160,180,200, 225,250,315, 350,400,500,630	800,1000,1250,1600A	2000,2500,3200A
Rated insulation voltage of copper bar (Ui)		1000V					
Rated impulse with stand voltage (Uimp)		12V					
Rated operational voltage copper bar (Ue)		AC400					
Use category		AC-33B					
Rated operational current of copper bar (Ie)		10,16,20,25,32,40,50,63,80,100,125,140,150,160,180,200,225, 250,315,350,400,500,630				800,1000,1250,1600,2000,2500,3200	
Rated making capacity		10Ie					
Rated breaking capacity		10Ie					
Rated limit short circuit current(Iq)	Fusefor protection	100kA	100kA	100kA	120kA	120kA	120kA
	Short time current(1s)	14kA	25kA	35kA	50kA	50kA	65kA
Transferring time I-II or II-I		0.8S			0.4S	0.5S	0.6S

Note: The parameters of SKT1 20A-100A are exactly same as the SKT1 125A product

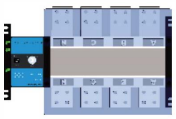
SCHEMATIC DIAGRAM OF CORRECT INSTALLATION



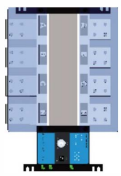
Best (front)



Right (vertical)

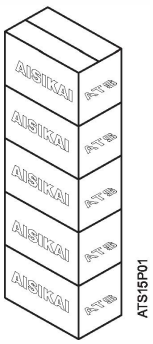


Right (upside-down)

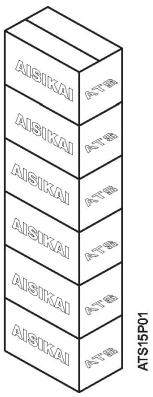


Wrong (inverted)

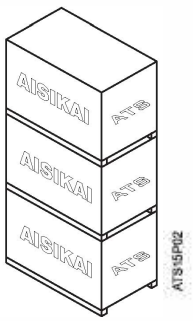
PRODUCTS STACKING REQUIREMENTS



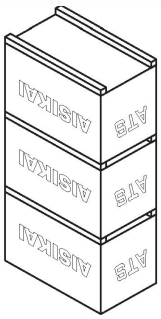
Stack at most 5 layers



Stacking more than 5 layers is strictly prohibited



Schematic diagram of wooden box package stacking



Upside-down stacking is strictly prohibited

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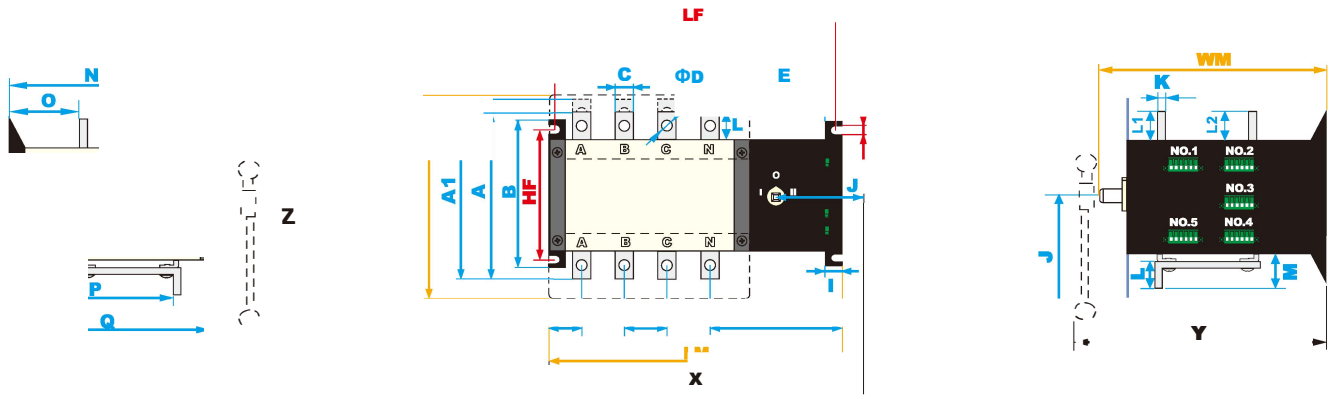
OUTLINE DRAWING 1

20A-1600A outline dimensions



ATS

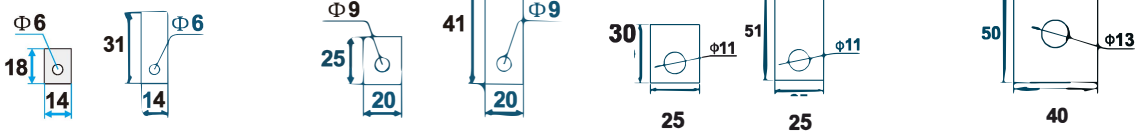
20A-1600A outline and installation dimensions table

Series	Current range	Installation data			Maximum size of the body			Other detailed dimensions of switch						
		LF	WF	HF	LM	WM	HM	A	A1	B	C	ΦD	E	F
SKT2	20–100A	225	6.5	84	244	138	136	126	115	106	14	6	103	20
	125–160A	271	6.5	110	290	188	180	155	140	130	20	9	103	30
	250A	334	6.5	110	348	194	216	192	166	130	25	11	103	38
	400A	416	8.5	180	435	262	324	270		200	40	13	125.5	48
	630A	416	8.5	180	435	262	324	270		200	40	13	125.5	48
SKT1	800A	608	11	220	633	321	451	350		250	63	15	120	72
	1000A	608	11	220	633	321	451	350		250	63	15	120	72
	1250A	608	11	220	633	320.5	451	350		250	63	16	120	72
	1600A	608	11	220	633	320.5	451	392		250	80	13	120	72

Note: X, Y and Z are the maximum width, depth and height of the switch assembled with a manual emergency handle. Depending on the angle of the handle when installing or the difference of positions of the slider moving, the corresponding dimensions will be smaller than the data listed in the table above, which are listed for reference only.

The parameters of SKT1 series 20A-100A is exactly same as the SKT1 125A product.

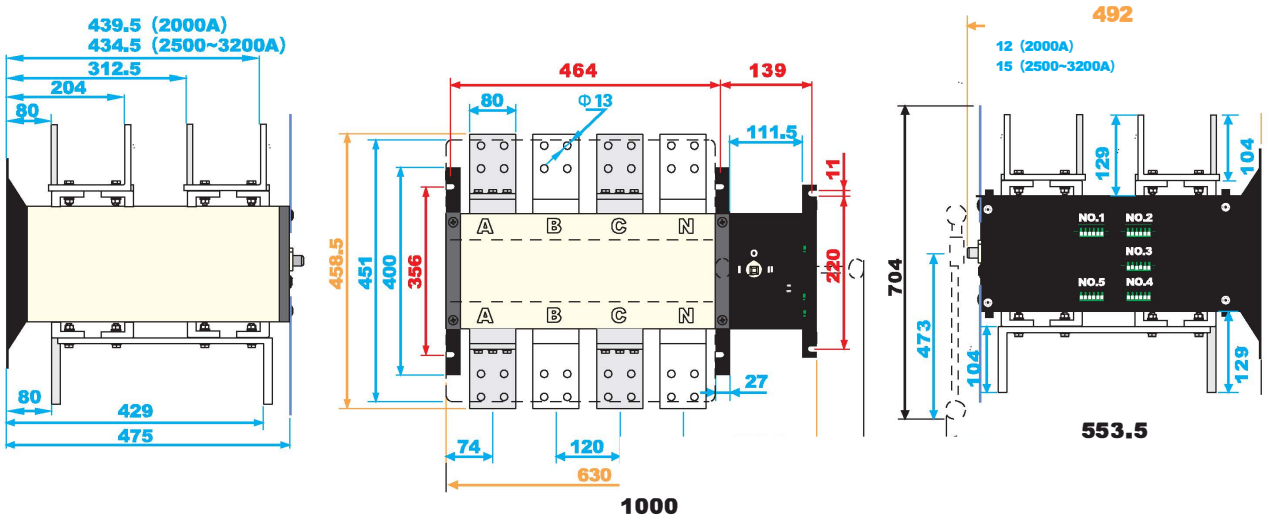
Input and output copper bar dimensions chart



20A–100A　　125A–160A　　250A　　400A-630A

OUTLINE DRAWING 2 (AUXILIARY DIMENSIONS)

2000A-3200A auxiliary outline dimensions

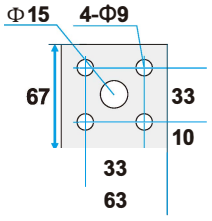


Other detailed dimensions of switch

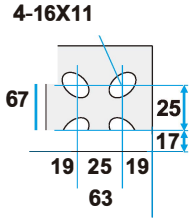
Reference dimensions

G	H	I	J	K	L	L1	L2	M	N	O	P	Q	X	Y	Z
30	134	16	142	2. 5	20	18	31	26	87.5	37.5	89	114	303.5	173	210
36	152	18	188	3. 5	25	25	41	31	133	56	133.5	167	392.5	220	279
50	160	18	188	3. 5	28. 5	30	51	36	136	56	138	171	460	227	303
64	195	24	188	5	45	51	51	59	187	77	205	237	522	293	365
64	195	24	188	6	45	51	51	59	187	77	205	237	522	293	365
120	201	27	473	7	72	66	66	88	247	103	254	298.5	1000	381	704
120	201	27	473	7	72	66	66	88	247	103	254	298.5	1000	381	704
120	201	27	473	7	72	66	66	88	247	103	254	298.5	1000	381	704
120	201	27	473	10	100	80	80	125	247	103	254	298.5	1000	381	704

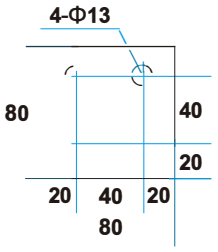
Input and output copper bar dimensions chart



800A–100A



1250A



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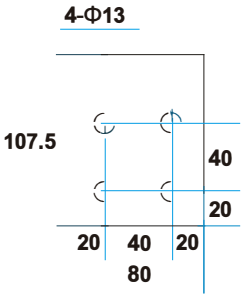


2000A–3200A

AUTOMATIC TRANSFER SWITCH CONTROLLER

AiSIKAI®

ATSC

AiSIKAI
Professional manufacture

SKR2-A Series automatic transfer switch controller

Product overview

- SKR2-A automatic transfer switch controller is based on the micro-processor core. It can accurately detect the three phases/ single phase voltage of the dual power supplies, make accurate judgement of voltage anomalies (power loss, over voltage, under voltage, phase missing, over frequency, under frequency), and control the switching of ATS after delay. It is suitable for the ATS with one breaking position or no breaking position. Controllers have the function of sending generator start signal after delay when power 1# becomes abnormal.Using RS485 communication interface, controllers realize functions of remote measurement, remote communication and remote control.

Performance Feature

- Collect and display the 3 phases voltage and frequency of dual power supplies:
- Through panel keys users can set the parameters like “1# power has transferring priority”, “2# power has transferring priority”, “no priority”, “automatic/manual”, etc.
- Breaking and closing output is pulse output.
- Dual N lines are separated in design.
- Have automatic/manual mode switching function. In manual mode, pressing the keys on panel to control the switching of ATS.
- Panel LED can display the ATS working status clearly.
- Have the force open input port. When it's active, ATS is forced to the breaking position (only effective for the ATS with breaking position).
- Equipped with programmable relays (AUX.OUTPUT1, AUX.OUTPUT2), which can control the switching of the power supply of ATS.
- 1#, 2# power switching relays (1#COLSE, 2#CLOSE, OPEN) output contacts capacity is 5A AC25V. All contacts are passive contacts and can be used to drive the ATS switching.
- Generator start relay (GENS START) output contact capacity is 7A AC250V / 7A DC28V ant it's passive closing contact.
- Modular structure design. Flame-retardant ABS shell. Pluggable wiring terminal. Embedded installation method. Compact structure. Easy installation.

Application area

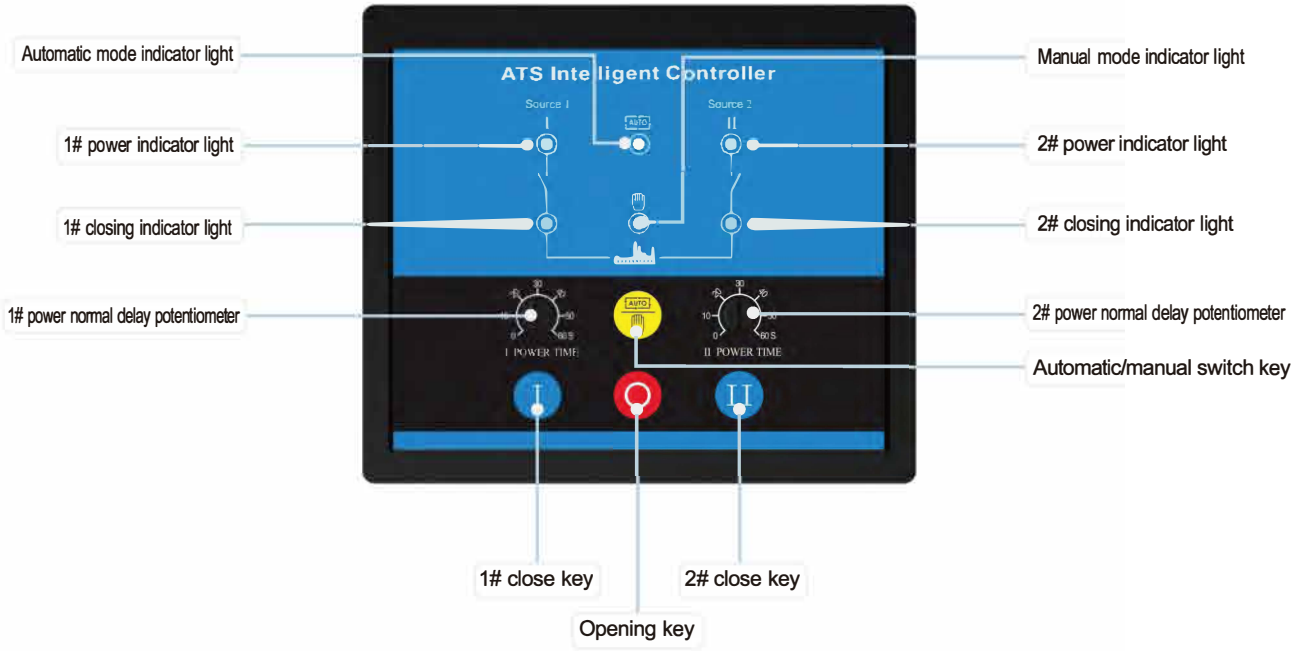
Civil Commercial Industrial

Working conditions and installation modes

Category	Description
Working conditions	Temperature: （-25+70）℃ Wumidity: （20~90）%；
Storage conditions	Temperature: （20~90）%；
Protection level	Ip55: When the waterproof rubber ring is strengthened between the controller and the control panel IP42: When the waterproof rubber ring not strengthened between the controller and the control panel
Insulation strength	Object: Between Input/Output/Power Supply
	Reference standard: IEC688-1992;
	Test method: AC 1.5KV/1min leakage current 5mA
Installation mode	Installed in non-vibration electric cabinet

SKR2-A Series automatic transfer switch controller

Operation panel description



Specification

Item	Content	
Working voltage	AC power L1N1/L2N2 supply, voltage rangeAC170V~277V.	
Overall power consumption	≤3W (Standby mode: ＜1W)	
AC voltage input	3 phases 4 lines(ph-N)	AC170V~AC277V
	Single phase 2 lines(ph-N)	AC170V~AC277V
	2 phases 3lines(ph-N)	AC170V~AC277V
Rated frequency	50/60Hz	
1# closing relay output port	5A AC250V Passive output	
2# closing relay output port	5A AC250V Passive output	
Breaking relay output port	5A AC250V Passive output	
Relay output 1	10A AC250V Passive output	
Relay output 2	10A AC250V Passive output	
Generator start relay	7A AC250V Passive output	
1# closing input port	Effective when connect with COM2	
2# closing input port	Effective when connect with COM2	
Force open input port	Effective when connect with COM2	
Communication	RS485 interface, MODBUS protocol	
Outline dimensions	139mm×120mm×48mm	
Hole dimensions	130mm×111mm	
Working conditions	Temperature: (-25~+70℃) Relative humidity: (20~93)%RH	
Storage conditions	Temperature: (-25~+70℃)	
Protection level	IP55 when waterproof rubber ring is mounted between controller and control panel.	
Insulation strength	AC2.2kV voltage is applied between AC high voltage terminal and low voltage terminal, the leakage current is no larger than 3mA in 1 minute.	
Weight	0.51kg	

Panel operation of parameters setting

1. Entering and exiting parameters setting mode

Press ⑨ key and hold, after 3s, controller all LED lights are on and controller enters light-test mode. Keep pressing ⑨ key, after 7s, controller all LED lights flash(500ms one time) and controller enters parameter setting mode.Release ⑨ key, if you want to cancel the setting, press ⑨ key, controller all LED lights flash 5 times (200ms one time) and controller returns normal test mode.In light-test mode, release ⑨ key, controller returns normal test mode. In parameters setting mode, if no parameters are set, controller automatically returns normal test mode after about 1´ 30 ´´.

2. Transferring priority setting

Firstly enter the parameter setting mode before setting transferring priority.

The procedure of setting "1# power has transferring priority", "2# power has transferring priority" and "no priority":

a.Press and hold ① key, ⑨ key and ⑪ key simultaneously. Release ① key, ⑨ key and ⑪ key when 1# power indicator light, automatic mode indicator light and 2# power indicator light come on simultaneously. Automatic mode indicator light and 2# power indicator light go out, 1# power indicator light is on, then controller enters transferring priority setting mode.

b.Press ① key can set controller in 3 power supply modes circularly.
When 1# power indicator light is on and 2# power indicator light is off, 1# power has transferring priority.
When 2# power indicator light is on and 1# power indicator light is off, 2# power has transferring priority.
When both 1# and 2# power indicator lights are on, there's no transferring priority.

c.After setting, press ⑪ key, when 1# power indicator light, automatic mode indicator light and 2# power indicator light are on, means the transferring priority setting value is saved successfully. All lights on panel flash 5 times quickly and controller returns normal test mode. The controller will operate according to the just set priority.

Every time turn on the controller power, the current transferring priority setting can be judged according to the 3 conditions below.
——If 1# power indicator light flashes 3 times quickly, 1# power has priority.
——If 2# power indicator light flashes 3 times quickly, 2# power has priority.
——If both 1# and 2# power indicator lights flash 3 times quickly, there's no priority.

3. AC wiring system setting

Firstly enter the parameter setting mode before setting the AC wiring system.

The procedure of setting AC wiring systems (single phase 3 lines, 3 phases 4 lines, 2 phases 3 lines):

a.Press down ① ⑨ ⑪ simultaneously. Release ① ⑨ ⑪ when 1# power indicator light, automatic mode indicator light and 2# power indicator light come on simultaneously. Automatic mode indicator light and 2# power indicator light go out, 1# power indicator light is on.

b.Press ⑨ key. Release ⑨ key when 1# power indicator light, automatic mode indicator light and 2# power indicator light come on simultaneously. 1# power indicator light, automatic mode indicator light and 2# power indicator light go out simultaneously, then controller enters AC wiring system setting mode.

c.Press ① key can set controller in 3 AC wiring systems circularly.
When 1# close indicator light is on, the setting is 2 lines system;
When 1# close indicator light, manual mode indicator light and 2# close indicator light are on, the setting is 3 phases 4 lines system;
When 1# close indicator light and manual mode indicator light are on, the setting is 2 phases and 3 lines system.

d.After setting, press ⑪ key, when 1# power indicator light, automatic mode indicator light and 2# power indicator light come simultaneously, means the AC wiring system setting is saved successfully. All lights on panel flash 5 times quickly and controller returns normal test mode. The controller will operate according to the just set wiring system.

Every time turn on the controller power, the current wiring system setting can be judged according to the 3 conditions below.
——If 1# close indicator light is on, it's single phase 2 lines
——If 1# close indicator light, manual mode indicator light and 2# close indicator light are on, it's 3 phases 4 lines.
——If both 1# and manual mode indicator lights are on, it's 2 phases 3 lines.

4. Delay setting

Adjust "1# power normal delay" potentiometer, can set the output delay after 1# power getting normal (potentiometer is at the side of the back-panel terminal).
Adjust "2# power normal delay" potentiometer, can set the output delay after 2# power getting normal (potentiometer is at the side of the back-panel terminal).
Firstly enter the parameter setting mode before setting the delay.

The procedure of setting "1# power abnormal delay", "2# power abnormal delay":

a.Press down Ⅰ key, Ⅱ key simultaneously. Release Ⅰ key, Ⅱ key when 1# power indicator light, automatic mode indicator light and 2# power indicator light come on simultaneously. 1# power indicator light, automatic mode indicator light and 2# power indicator light go out simultaneously, then controller enters delay setting mode.
1# power abnormal delay: adjust the "1# power normal delay" potentiometer.
2# power abnormal delay: adjust the "2# power normal delay" potentiometer.

b.After setting, press Ⅱ key, when 1# power indicator light, automatic mode indicator light and 2# power indicator light come on simultaneously, means the value set by potentiometer is saved successfully. All lights on panel flash 5 times quickly and controller returns normal test mode. The controller will operate according to the just set delay value.

Note: 1# power normal delay value should be no less than 1# power abnormal delay value, otherwise 1# power normal delay value will be forced to the value of 1# power abnormal delay. 2# power normal delay value should be no less than 2# power abnormal delay value, otherwise 2# power normal delay value will be forced to the value of 2# power abnormal delay.

5. Restore the factory delay value

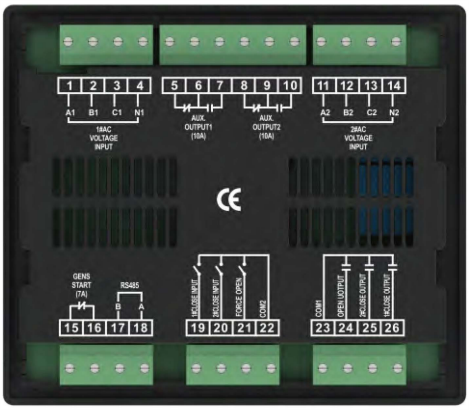
Firstly enter the parameter setting mode.

a.Press down Ⅰ Ⅱ key simultaneously. Release Ⅰ Ⅱ key when 1# power indicator light, automatic mode indicator light, and 2# power indicator light come on simultaneously. 1# power indicator light, automatic mode indicator light and 2# power indicator light go off simultaneously, then controller enters the delay value setting mode.

b.Press ⑤ key, when 1# power indicator light, automatic mode indicator light and 2# power indicator light come on simultaneously, means delay value is restored to factory setting. All indicators on panel flashes 5 times and controller return to normal test mode. Controller will work according to the factory setting delay value.

Note: 1#, 2# power abnormal delay factory setting value is 5 seconds. Generator shutdown delay factory setting value is 90 seconds.

Input/output interface diagram



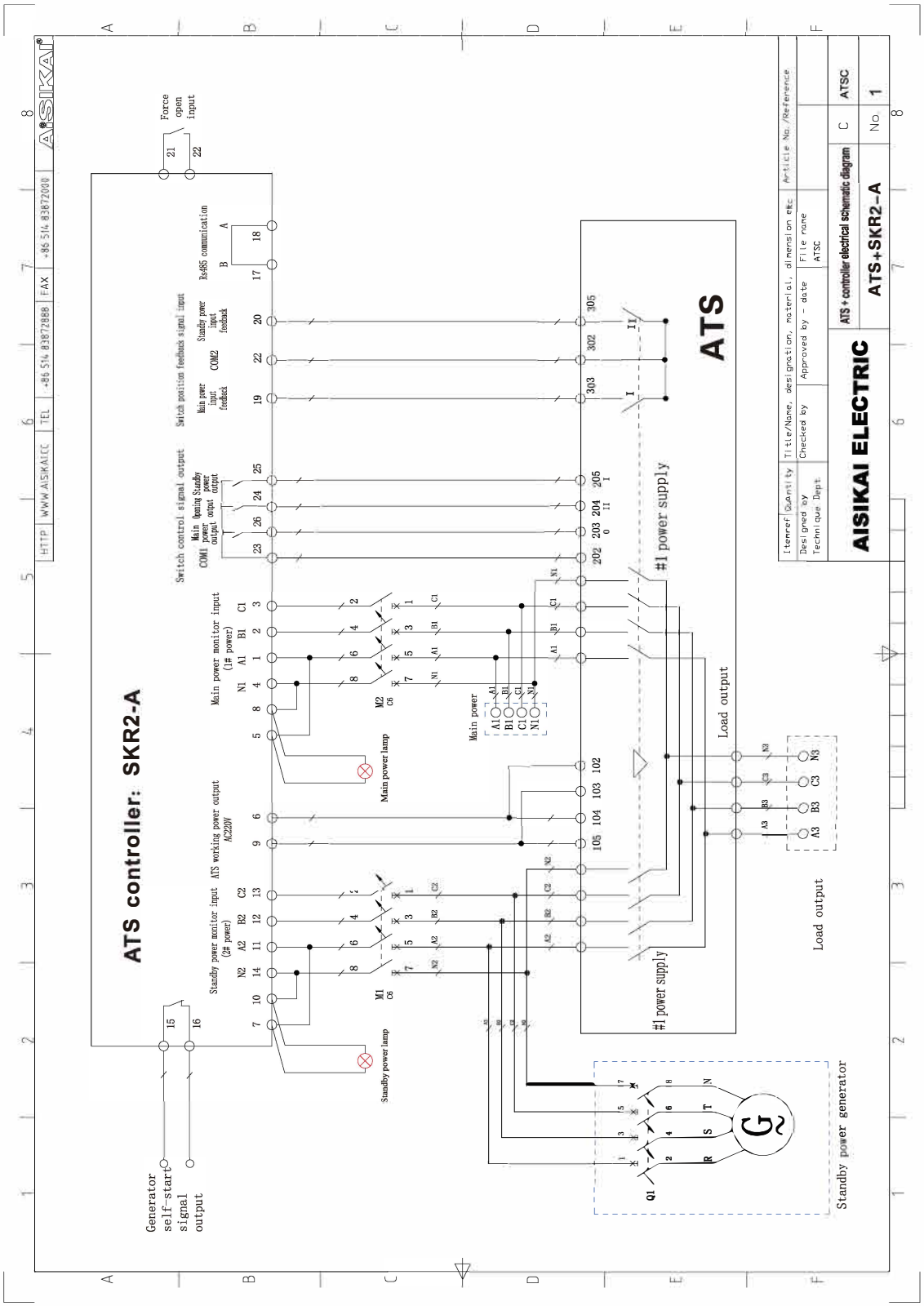
SKR2-A controller input output interface diagram

Wiring terminal function description

Terminal number	Item	Function description		Remark
1	A1	1# AC 3 phases 4 lines voltage input		If single phase input, only A1 and N1 are used
2	B1			
3	C1			
4	N1			
5	Output port 1	Normally close	ATS power phase A	Passive relay contact output, rated 10A
6		Common terminal		
7		Normally open		
8	Output port 2	Normally close	ATS power phase N	Passive relay contact output, rated 10A
9		Common terminal		
10		Normally open		
11	A2	2# AC 3 phases 4 lines voltage input		If single phase input, only A2 and N2 are used
12	B2			
13	C2			
14	N2			
15	Start output	Passive relay contact output		Normally close output, rated 7A
16				
17	B	RS485 communication interface		
18	A			
19	1# close input	Detect 1# closing state,auxiliary contact input		Effective when connect with COM2
20	2# close input	Detect 2# closing state,auxiliary contact input		Effective when connect with COM2
21	Force open	Make ATS transfer to the open position when effective		Effective when connect with COM2
22	Common terminal	Input common terminal		COM2
23	Output common terminal	COM1		Close, Opening output common terminal
24	Opening output	Passive relay contact output		Normally open contact output, rated 5A
25	2# close output	Passive relay contact output		Normally open contact output, rated 5A
26	1# close output	Passive relay contact output		Normally open contact output, rated 5A

Note: COM1 is output common terminal, COM2 is input common terminal, they cannot be connected with each other.

SKR2-A controller Wiring schematic diagram(1)



SKR2-A controller Wiring schematic diagram(1)