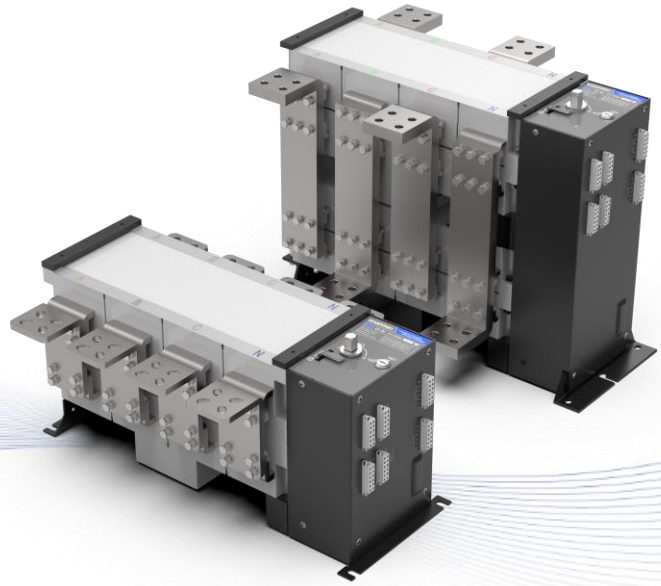
SmartGen

MAKING CONTROL SMARTER

SGMA800-3200A SERIES

DUAL POWER AUTOMATIC TRANSFER SWITCH

USER MANUAL



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SmartGen **Registered trademark**

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Table 1 Software Version

Date	Version	Content
2024-03-07	1.0	Original release.
2024-06-03	1.1	Update the ATS controller application diagram of Fig.6.
2025-12-23	1.2	Update the content of preface and revise the inappropriate translation.

1 OVERVIEW

SGMA800~3200A series dual power ATS applies to the system which requires AC400V 50/60Hz below, rated working current 800A~3200A. Its structure is motor driven type, and there are three positions for the switch: normal (Ⅰ), spare (Ⅱ) and off (0). It can be used in the occasions where power failure is not allowed, such as high-rise buildings, medical heath, post and telecommunications, coal mine and ships, rail traffic, military and fire facilities.

This series products comply with the standard of GB GB/T 14048.11 ”Low-voltage switchgear and controlgear --- part 6-1: Multiple function equipment ----Transfer switching equipment”.

2 STRUCTURE AND CHARACTERISTICS

SGMA800~3200A series dual power ATS adopts two-in and one-out structure, with electric key lock and mechanical padlock. Electric key lock: control the internal power supply of the switch, when the electric lock is open, the switch acts the automatic and remote operations; when the electric lock is closed, the switch only acts the manual operation. Mechanical padlock: during maintenance, pulling up the mechanical padlock to cut off the internal power supply of the switch, so the electric and manual operations of the switch will be disabled, which ensures the personal safety.

3 OVERALL DIMENSIONS AND CATEGORY

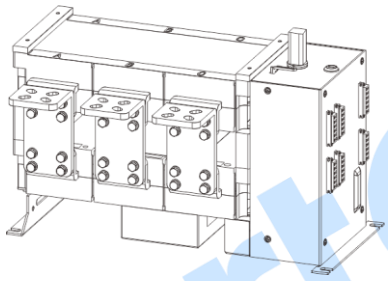
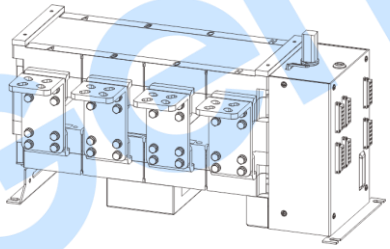
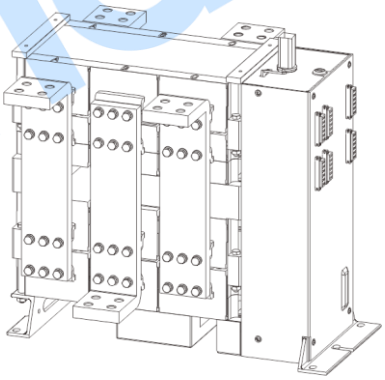
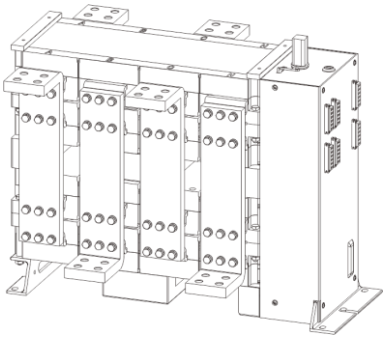
3.1 INSTRUCTION

SGMA800~3200A series dual power ATS can be divided into two types according to their shell frames: SGMA-1600A/4P, SGMA-3200A/4P, three-pole and four-pole switches can be provided by each type, which are suitable for both genset control and ATS control.

The rated current sequence of the switch includes: 800A, 1000A, 1600A, 2000A, 2500A, 3200A.

The shapes of the switches are as follows:

Table 2 The Shapes of Switches

<table>
<tr><th>Classification</th><th>Shell Frame Model</th><th>3-pole</th><th>4-pole</th></tr>
<tr><td rowspan="4">SGMA800-3200 Series</td><td rowspan="2">SGMA-1600A</td><td>  </td><td>  </td></tr>
<tr><td colspan="2">800A，1000A，1250A，1600A</td></tr>
<tr><td rowspan="2">SGMA-3200A</td><td>  </td><td>  </td></tr>
<tr><td colspan="2">2000A，2500A，3200A</td></tr>
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3.2 SGMA800A-1600A OVERALL DIMENSIONS AND TECHNICAL DATA

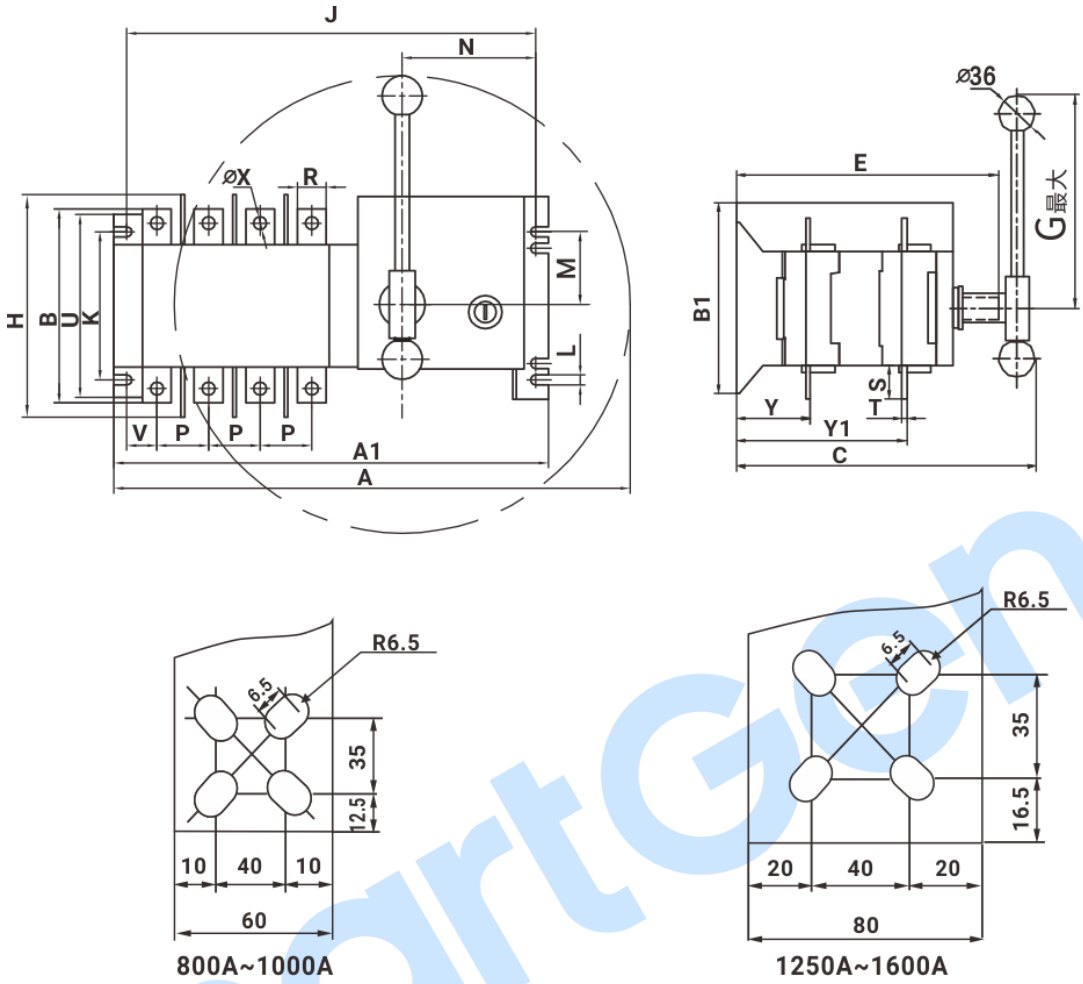


Fig.1 – SGMA800A-1600A Shell Frame

Table 3 SGMA800A-1600A Overall Dimensions

Model (SGMA)	Dimensions (mm)							ATS Installation (mm)											Terminals (mm)				
	A	A1	B	B1	C	E	G	J	K	L	M	N	P	R	S	S1	T	U	V	φX	Y	Y1	Y2
800A/3P	785	520	352	250	390	326	360	496	220	11	115	84	120	60	64	88	8	250	56.5	13	109	254	254
800A/4P	1080	635	352	250	390	326	540	610	220	11	115	84	120	60	64	88	8	250	60.5	13	109	254	254
1000A/3P	785	520	352	250	390	326	360	496	220	11	115	84	120	60	64	88	8	250	56.5	13	109	254	254
1000A/4P	1080	635	352	250	390	326	540	610	220	11	115	84	120	60	64	88	8	250	60.5	13	109	254	254
1250A/3P	785	520	368	250	390	326	360	496	220	11	115	84	120	80	68	100	8	250	56.5	13	109	254	254
1250A/4P	1080	635	368	250	390	326	540	610	220	11	115	84	120	80	68	100	8	250	60.5	13	109	254	254
1600A/3P	785	520	376	250	390	326	360	496	220	11	115	84	120	80	68	108	10	250	56.5	13	110	255	255
1600A/4P	1080	635	376	250	390	326	540	610	220	11	115	84	120	80	68	108	10	250	60.5	13	110	255	255

Table 5 SGMA800A-1600A Technical Parameter

Model	SGMA-800A/XP	SGMA-1000A/XP	SGMA-1250A/XP	SGMA-1600A/XP
Poles(P)	3P, 4P	3P, 4P	3P, 4P	3P, 4P
Rated Current	800A	1000A	1250A	1600A
Rated Working Volt.	AC400V			
Motor Working Volt.	AC220V (175-277)V			
Rated Insul. Volt. Main Circuit	AC800V			
Rated Impulse Volt. Main Circuit	8 kV			
Category	AC-33iB			
Short-time Withstand Current	32 kA/60ms			
Rated SC Ability	67.5 kA			
Transfer Time I-II or II-I	1.2s			1.8s
Mechanical Life	3000 times			
Electrical Life	500 times			
Weight (4P)	36kg	36kg	37kg	38.6kg

3.3 SGMA2000A-3200A OVERALL DIMENSIONS AND TECHNICAL DATA

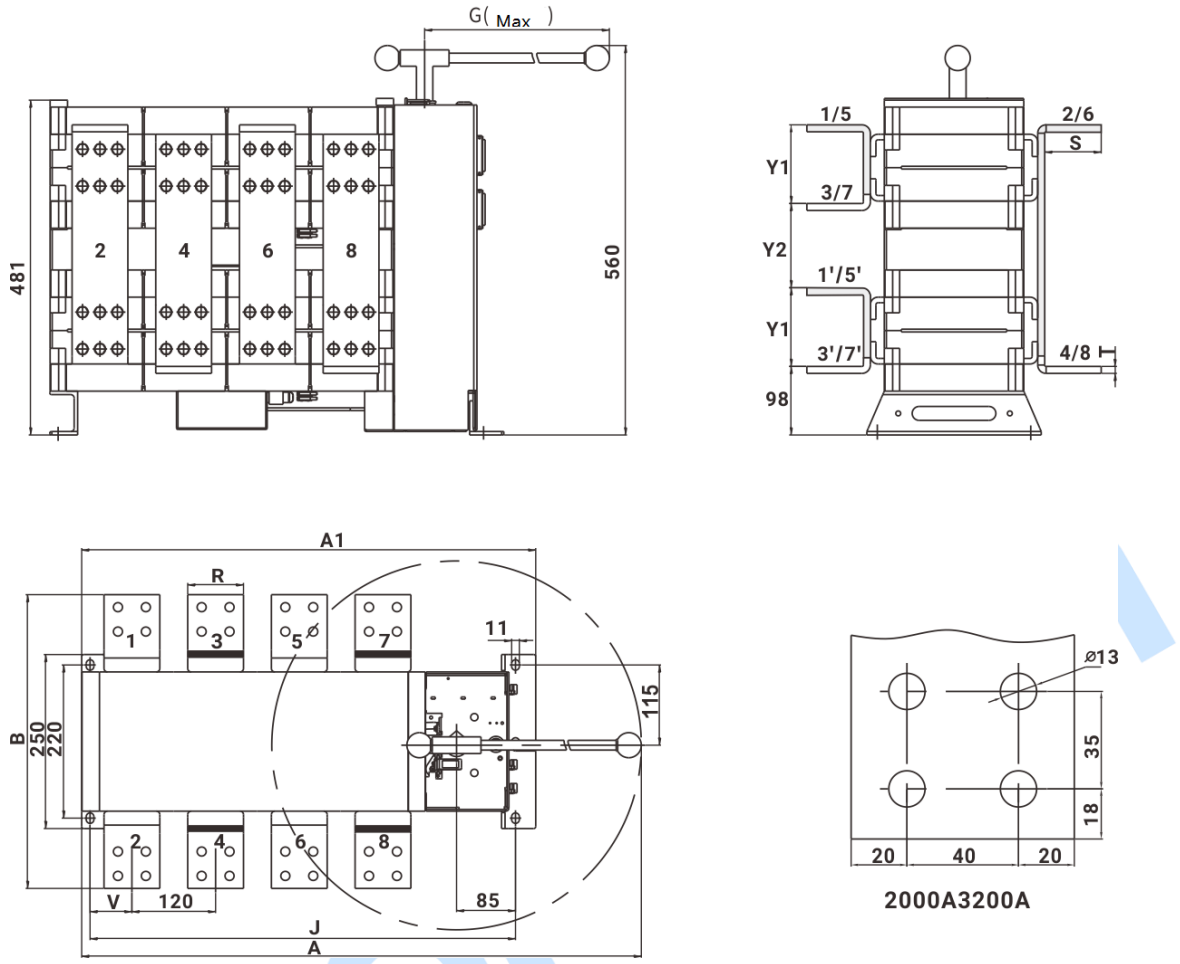


Fig.2 – SGMA2000A-3200A Overall Dimensions

Table 5 SGMA2000A-3200A Overall Dimensions

Model (SGMA)	Dimensions（mm）				Switch Mounting (mm)				Terminals (mm)		
	A	A1	B	G	J	R	S	T	V	Y1	Y2
2000A/3P	785	537	423	360	496	80	81	10	56	113	121
2000A/4P	1080	651	423	540	610	80	81	10	60	113	121
2500A/3P	785	537	433	360	496	80	81	15	56	118	116
2500A/4P	1080	651	433	540	610	80	81	15	60	118	116
3200A/3P	785	537	443	360	496	80	81	20	56	123	111
3200A/4P	1080	651	443	540	610	80	81	20	60	123	111

Table 6 SGMA2000A-3200A Technical Parameter

Model	SGMA-2000A/XP	SGMA-2500A/XP	SGMA-3200A/XP
Poles(P)	3P, 4P	3P, 4P	3P, 4P
Rated Current	2000A	2500A	3200A
Rated Working Volt.	AC400V		
Motor Working Volt.	AC220V (175-277)V		
Rated Insul. Volt. Main Circuit	AC800V		
Rated Impulse Volt. Main Circuit	8 kV		
Category	AC-33iB		
Short-time Withstand Current	32 kA/60ms		
Rated SC Ability	67.5kA		
Transfer Time I-II or II-I	1.8s		2.4s
Mechanical Life	3000 times		
Electrical Life	500 times		
Weight (4P)	55kg	61kg	67kg

3.4 WIRINGS

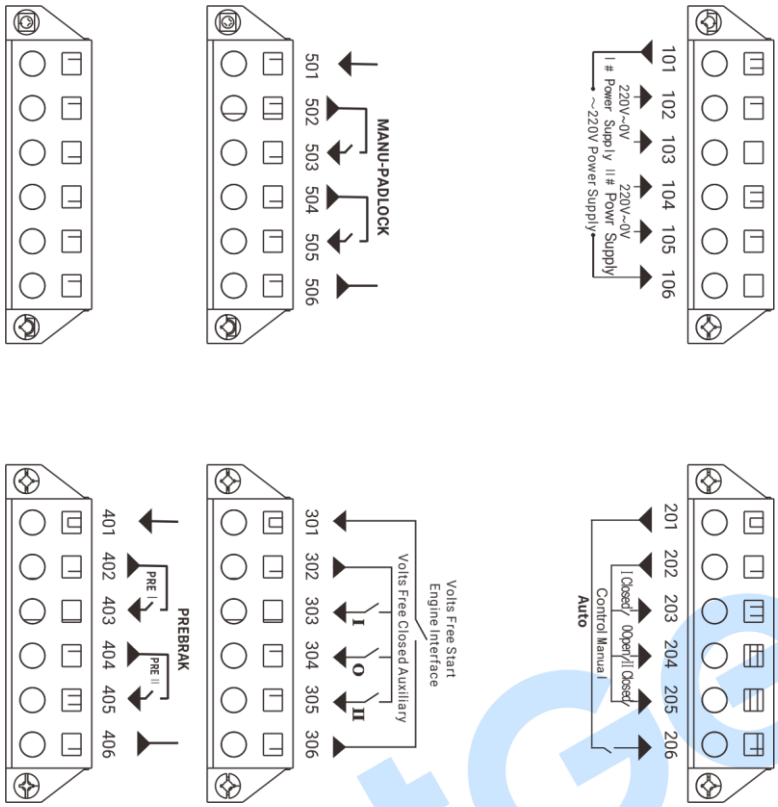


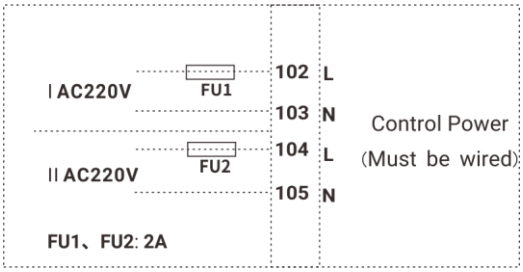
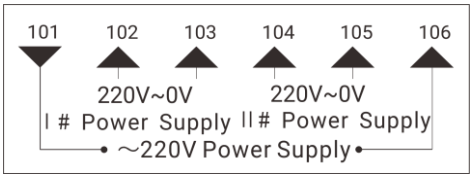
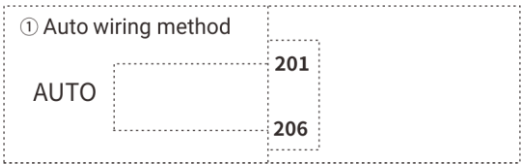
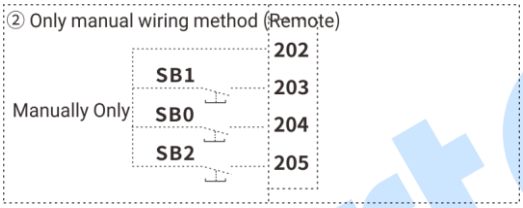
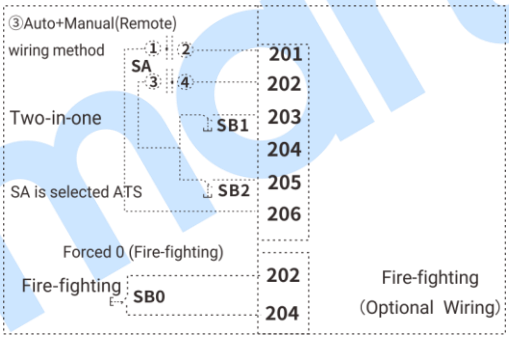
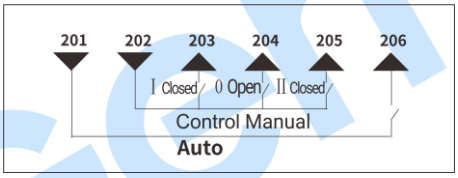
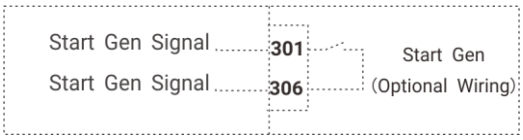
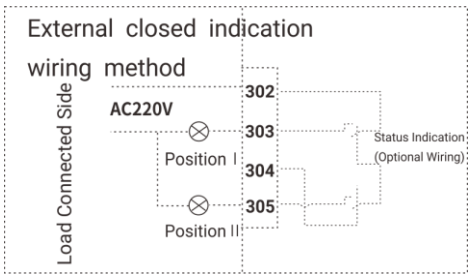
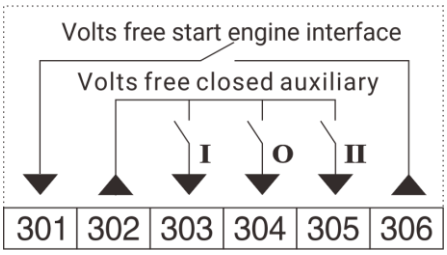
Fig.3 - Terminals

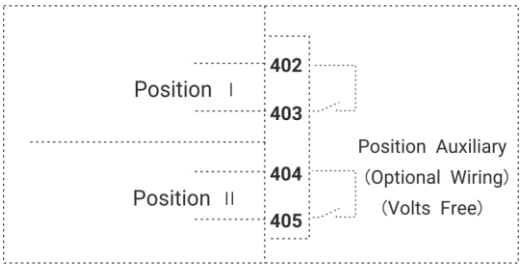
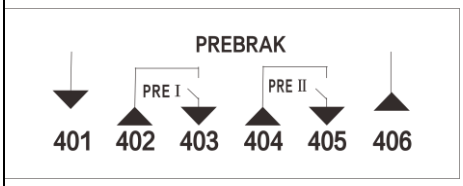
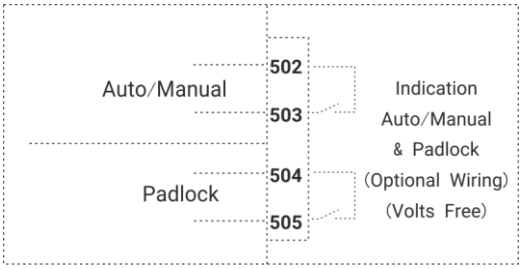
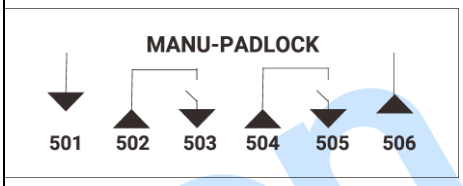
Table 7 Terminals and Descriptions

No.		Function	Remark
Power Terminal	101	AC220V Power L Output	101 106 are only used as signal to control power supply. 101, 106 cannot be used to mix connected with any external circuit.
	102	I# L-phase LW Input	I# control power AC220V
	103	I# N-phase NW Input	
	104	II# L-phase LW Input	II# control power AC220V
	105	II# N-phase NW Input	
	106	AC220V Power N Output	101 106 are only used as signal to control power supply. 101, 106 cannot be used to mix connected with any external circuit.
Control Terminal	201	Auto mode via short connection with 206	The automatic mode is controlled by ATS, the normal power is preferred. Normal power is on, spare power is on, ATS I# is power-on. Normal power is off, spare power is on, ATS II# is power-on. Normal power is on, ATS I# is power-on.
	202	COM	Closed/Open control common port.
	203	I# Normal Power Closed	Close I# by connection with 202.
	204	Open	Open by connection with 202.

No.		Function	Remark
	205	II# Spare Power Closed	Close II# by connection with 202.
	206	Auto mode via short connection with 201	The automatic mode is controlled by ATS, the normal power is preferred. Normal power is on, spare power is on, ATS I# is power-on. Normal power is off, spare power is on, ATS II# is power-on. Normal power is on, ATS I# is power-on.
Indication Terminal	301	Gen Start Signal Output (NO)	When detecting I# normal power is power-off, closed with 306. (Start/Stop delay cannot be set, start immediately and stop for 5s delay).
	302	Closed/Open Indication COM	Externally connect to AC220V power indicator to display the closed/open status.
	303	I# Closed Indication	
	304	Open Indication	
	305	II# Closed Indication	
	306	Gen Start Signal Output (NO)	When detecting I# normal power is power-off, closed with 301. (Start/Stop delay cannot be set, start immediately and stop for 5s delay).
Position Auxiliary Terminal	401	NC	
	402	I# Closed Output (Volts free)	I# closed volts free feedback output, then 402, 403 are closed.
	403	I# Closed Output (Volts free)	
	404	II# Closed Output (Volts free)	II# closed volts free feedback output, then 404, 405 are closed .
	405	II# Closed Output (Volts free)	
	406	NC	/
Key & Padlock Auxiliary Terminal	501	NC	/
	502	Remote Control/Manual Status Indication Output (Volts free)	When the key is in Manual position, 502, 503 are closed. When the key is in Remote position, 502, 503 are disconnected.
	503	Remote Control/Manual Status Indication Output (Volts free)	
	504	Padlock Indication Output (Volts free)	When the padlock is pulled up, 504 505 are closed (cut off the internal power of ATS, the ATS cannot act electric and manual operations, then the maintenance is available. When the padlock is pulled down, 504 505 are disconnected.
	505	Padlock Indication Output ((Volts free)	
	506	NC	/

Table 8 Wiring Description

Functions	External Wiring Introduction	Internal Principle	ATS Terminal
Power Supply Terminal			
Control Terminal	  		 Control (must be wired) Choose only one wring method between ①, ②, ③. SB0 is forced 0 (Fire-fighting), SB1 is normal power closed, SB2 is spare power closed.
Indication Terminal	 		

Functions	External Wiring Introduction	Internal Principle	ATS Terminal
Position Auxiliary Terminal			
Key & Padlock Auxiliary Terminal			

4 WORKING CONDITION

Table 9 Working Condition

Item	Requirements
Working Temperature	(-25~+70)°C
Working Humidity	(20~90)%RH
Installation Height	≤2000m
Pollution Degree	3-level

5 WIRING CONNECTION DIAGRAM

5.1 GENSET CONTROLLER APPLICATION DIAGRAM

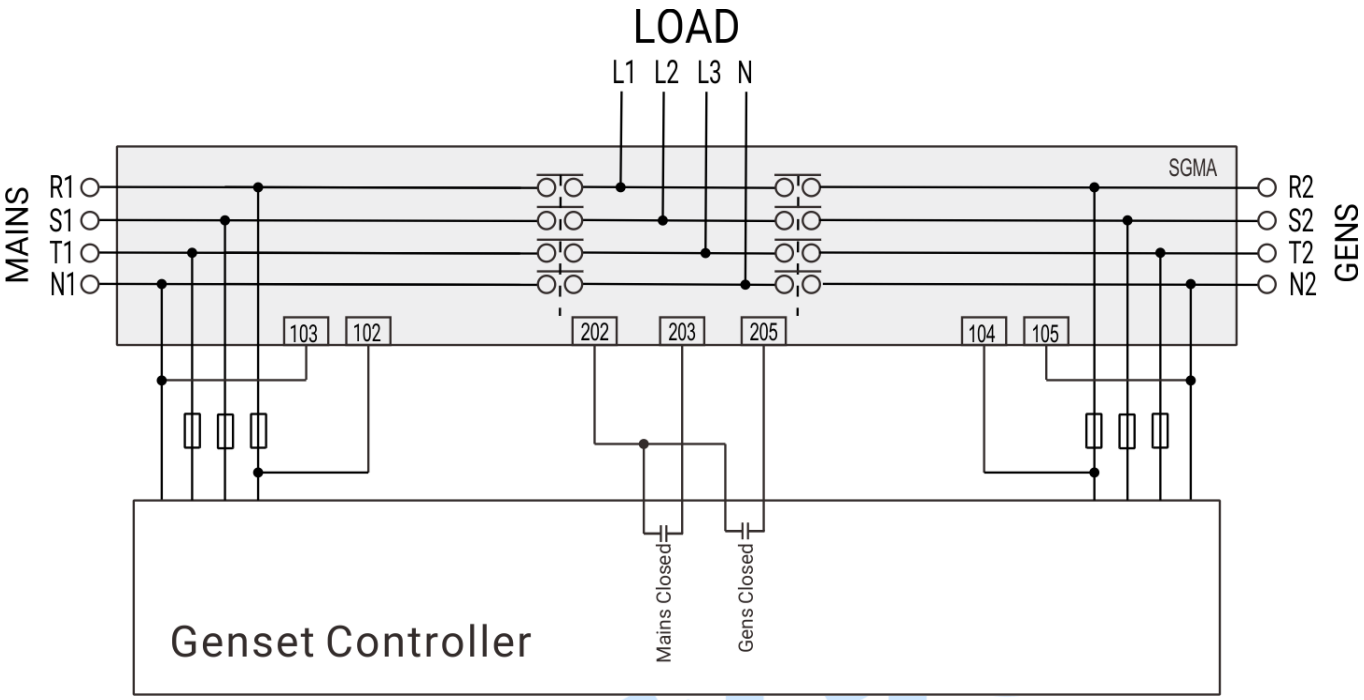


Fig.4 – Genset Controller Application

5.2 ATS CONTROLLER APPLICATION DIAGRAM

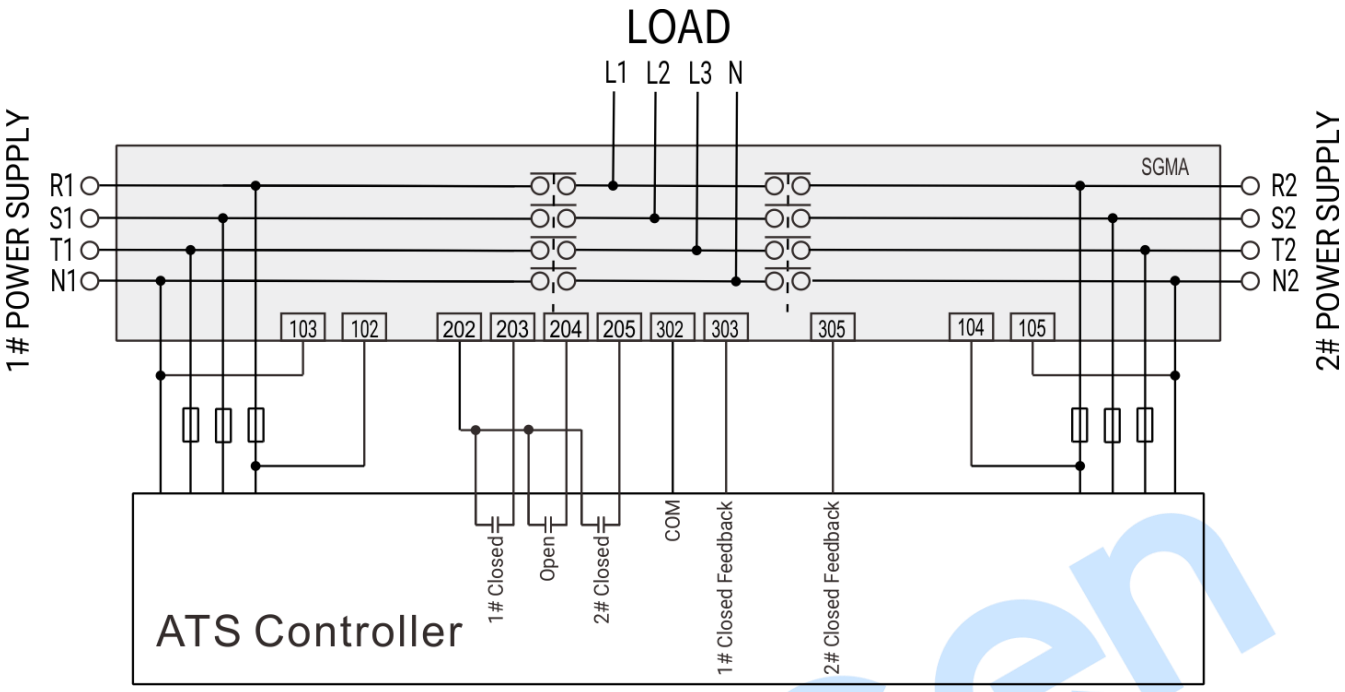
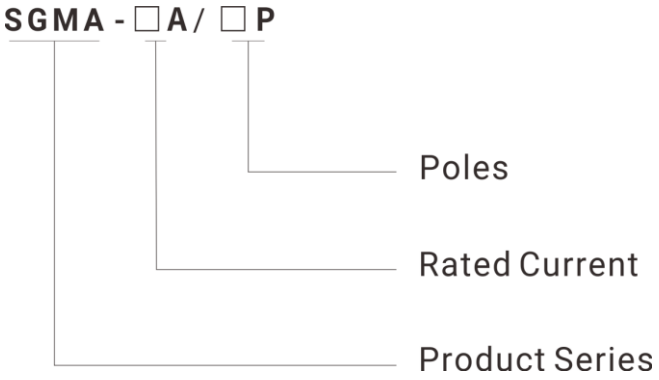


Fig.6 – ATS Controller Application

6 INSTALLATION AND DEBUGGING

The installation and debugging of ATS should be carried out by professionals and person who knows the switchgear, the related protections and preventive measures must be considered during operating. The wirings of main circuit must be in a way that the leads are not subjected to any pressure or force. Before installation and debugging, firstly check if the switch is damaged or has any harmful effects, meanwhile, check for loose wires may be caused in transportation; clean up the dirt, especially the dirt on the surface of insulation parts, which may be caused by package materials during transportation or storage. When connecting the primary circuit, pay attention to the phase sequence of the two power supplies that should be consistent, while connecting the secondary circuit, it should be strictly in accordance with the wiring diagram listed on the user manual, at the same time, notice that the voltage level of power supply; switch must be well grounded during installation. Considering in personal safety and the quickness of transferring, the handle is only used for debugging, users should not use the handle to operate with load. During debugging, firstly use handle to operate, then perform the electrical operation by manual button if there is nothing abnormal, finally go to the formal running.

7 ORDERING MODEL



NOTE: The ordering models are based on the actual product models of SmartGen.

Fig.7 - Ordering Model

Table 10 Packing List

No.		Item	Qty.	
			4P	3P
1		ATS	1	
2		Installation Instructions	1	
3		Operating Handle	1	
4		Electrical Key	2	
5		Nut M12	48	36
6		Spring Washer M12		
7		Flat Washer M12		
8	800A-1600A	Hex Head Bolt/12*40 4.8		
	2000A	Hex Head Bolt /12*45 4.8		
	2500A	Hex Head Bolt /12*45 4.8		
	3000A	Hex Head Bolt /12*60 4.8		