



SmartGen[®]
ideas for power

SGQ_ATS Automatic Transfer Switch

USER MANUAL



ZHENGZHOU SMARTGEN TECHNOLOGY CO.,LTD



Chinese trademark

SmartGen[®] English trademark

SmartGen — make your generator *smart*

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If there are any differences between the contents of the instruction and the product, please regard the actual product as the truth.

Software Version log

Version	Date	Note
1.0	2006-03-18	Original release
2.0	2010-10-19	Revision
2.1	2011-06-08	Modify the wiring diagram of N type, T type and M type.
2.2	2011-11-22	Modify the technical data of N type, T type and M type.
2.3	2012-06-29	Lines of wiring diagram are bold.
2.4	2012-11-08	Format Modification
2.5	2014-05-30	Add terminal number in wiring connection diagram.
2.6	2015-03-30	Modify some details.

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1 SUMMARY

SGQ Automatic Transfer Switch (ATS) is used in conditions from AC660V 50/60HZ to DC250V which under electromagnetism drive structure and two-stage PC class type. SGQ ATS can make fast load transfer (transfer time $\leq 80\text{ms}$) of two ways power supply. Also ATS can be widely used in high buildings, post, telecommunications, coal mines, ships, industry, health care, military facilities and so on. 2-way power supply can be grid, auto start genset, storage battery and etc..

2 STRUCTURE AND CHARACTERISTICS

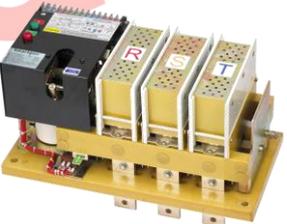
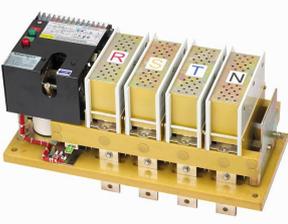
SGQ Automatic Transfer Switch (ATS) adopts structure of magnet coil driving and interlocking of electric and mechanical. The structure of major loop contact terminal consists of one dynamic and two static contacts. And the dynamic contact is in “V” type design, in order to ensure there is no short circuit of the 2-way power supply. “N” and “T” type use structure of double coils while “M” type use single coil operation. The coil only energized while it is transferred which can extremely extend the using life of switch. The control power of coil is supplied from priority AC/DC power, so there is no use to add another control power. The switch has electrical and mechanical close indication by itself and also offers 2 way NO/NC voltage free auxiliary contacts at the same time.

3 APPEARANCE AND CLASSIFICATION

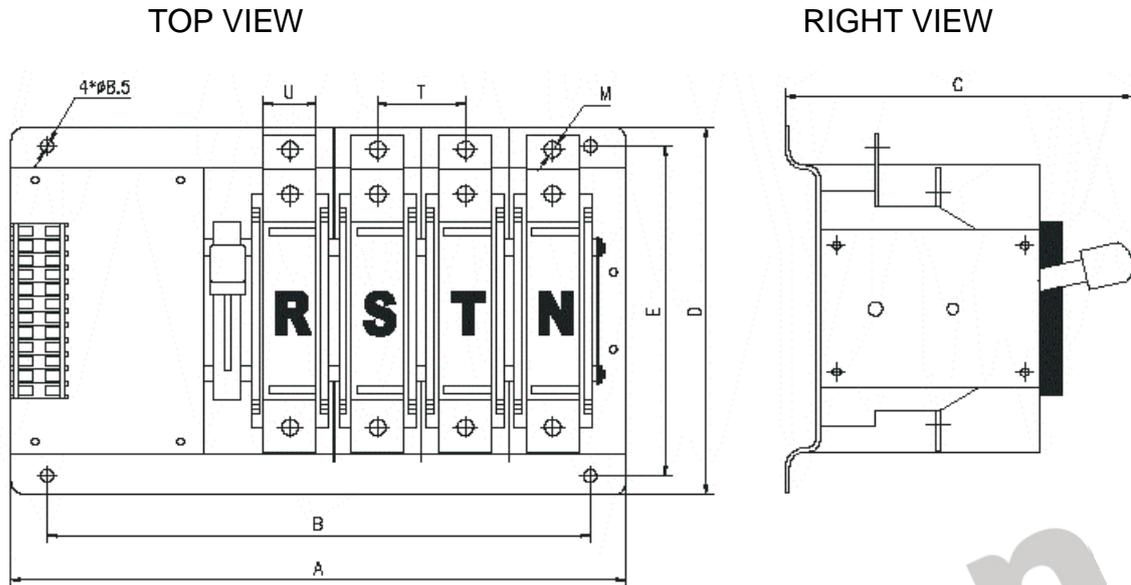
SGQ ATS can be classified into 3 types by appearance, N type, T type and M type. Each type has 3P and 4P, meanwhile N type still has 2P.

The rated current series has 63A, 125A, 160A, 200A, 250A, 400A, 630A, 800A, 1000A and 1250A.

Appearance as following,

Type	2P	3P	4P
N Type			
	63A, 125A		
T Type	Nil		
	160A, 200A, 250A, 400A, 630A		
M Type	Nil		
	630A, 800A, 1000A, 1250A		

3.1 N TYPE CASE DIMENSIONS AND TECHNICAL DATA



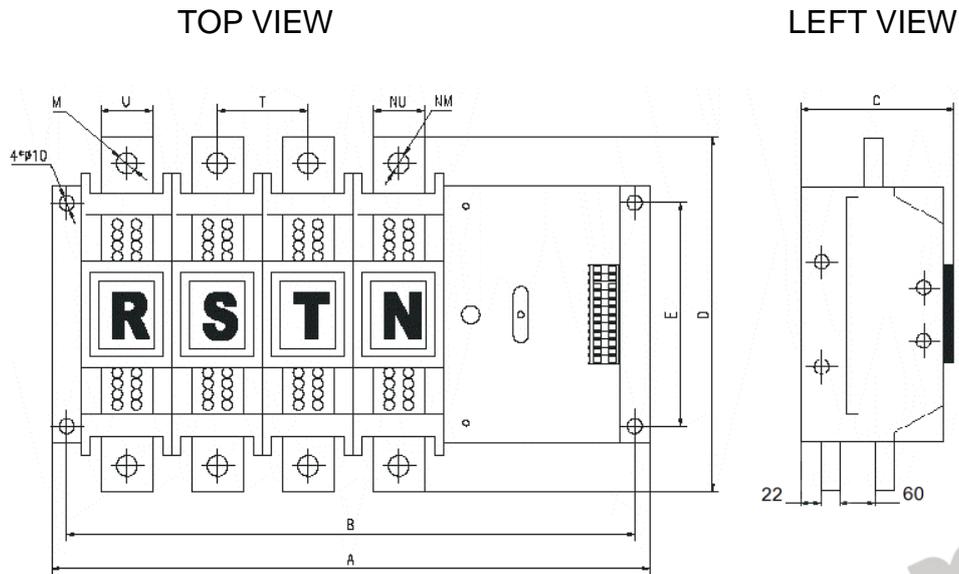
N type Case dimensions

Model	Overall size(mm)					installation size(mm)				Cooper bar and location hole (mm)		
	A			D	C	B			E	M	U	T
	2P	3P	4P			2P	3P	4P				
SGQ63N	172	200	228	186	155	139	167	195	165	5	12	27
SGQ125N	192	228	265	186	155	159	195	232	165	7	20	37

N type technical data

Type		SGQ63N	SGQ125N				
Rated current		63A	125A				
Rated limited short-circuit current		35kA					
Coil operating voltage		AC220V(176~265)V					
Coil operating current		3.5A					
Secondary contact		1A 250VAC, N/O, FREE VOLTAGE, EACH SIDE HAS 2PCS					
OPERATION TIME	Mechanical	10000 TIMES					
	Electrical	4000 TIMES					
Number of poles		2P	3P	4P	2P	3P	4P
Net weight (kg)		3.5	4	4.5	4	4.5	5.5
Operation cycle		15 seconds/ time					

3.2 T TYPE CASE DIMENSIONS AND TECHNICAL DATA



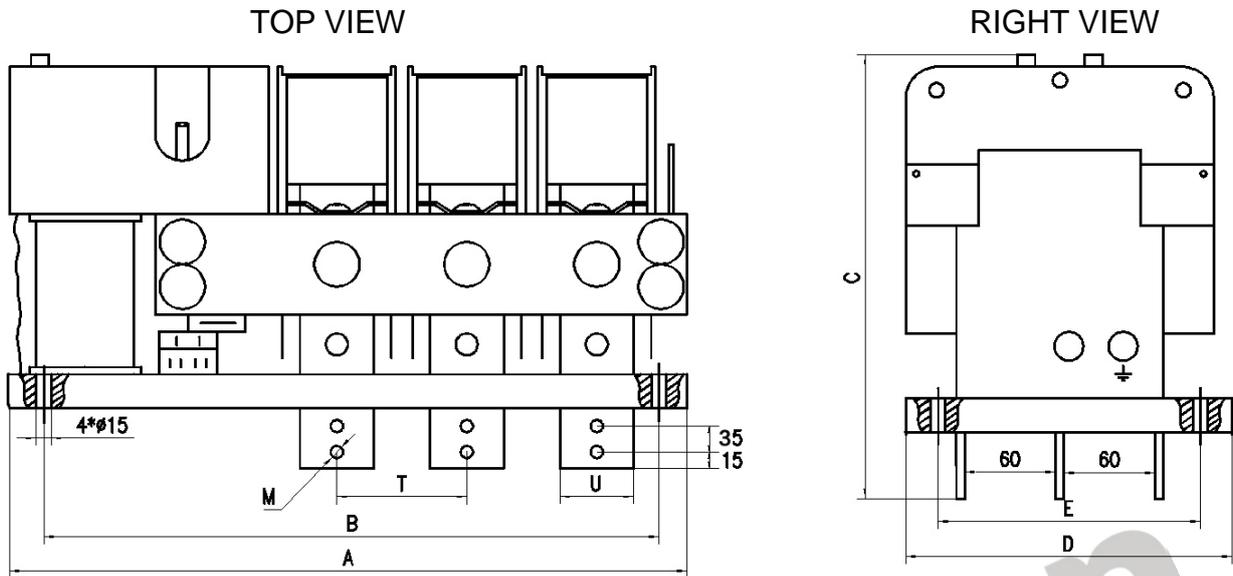
T type case dimensions

Model	Overall size(mm)				installation size(mm)			Cooper bar and location hole (mm)				
	A		D	C	B		E	M	NM	U	NU	T
	3P	4P			3P	4P						
SGQ160T	326	375	292	146	307	356	200	9	9	20	20	49
SGQ200T	326	375	292	146	307	356	200	9	9	20	20	49
SGQ250T	326	375	292	146	307	356	200	9	9	20	20	49
SGQ400T	356	405	292	146	337	386	200	11	9	30	20	59
SGQ630T	368	427	310	146	349	408	200	14	14	40	30	63

T type Technical data

Type		SGQ160T	SGQ200T	SGQ250T	SGQ400T	SGQ630T					
Rated current		160A	200A	250A	400A	630A					
Rated limited short-circuit current		35kA									
Coil operating voltage		AC220V (176~265)V									
Coil operating current		7A									
Auxiliary contact		1A 250VAC, N/O, FREE VOLTAGE, EACH SIDE HAS 2PCS									
OPERATION TIME	Mechanical	8000 times									
	Electrical	3000 times									
Number of poles		3P	4P	3P	4P	3P	4P	3P	4P		
Net weight (kg)		18	20	18	20	18	20	19	21	20	22
Operation cycle		10 seconds/ time									

3.3 M TYPE CASE DIMENSIONS AND TECHNICAL DATA



Case dimensions of "M" type

Models	Overall size(mm)				Installation size(mm)			Cooper bar and location hole (mm)		
	A		D	C	B		E	M	U	T
	3P	4P			3P	4P				
SGQ630M	510	600	280	340	470	560	210	12	30	90
SGQ800M	510	600	280	340	470	560	210	14	40	90
SGQ1000M	510	600	280	340	470	560	210	14	45	90
SGQ1250M	510	600	280	340	470	560	210	14	55	90

M type Technical data

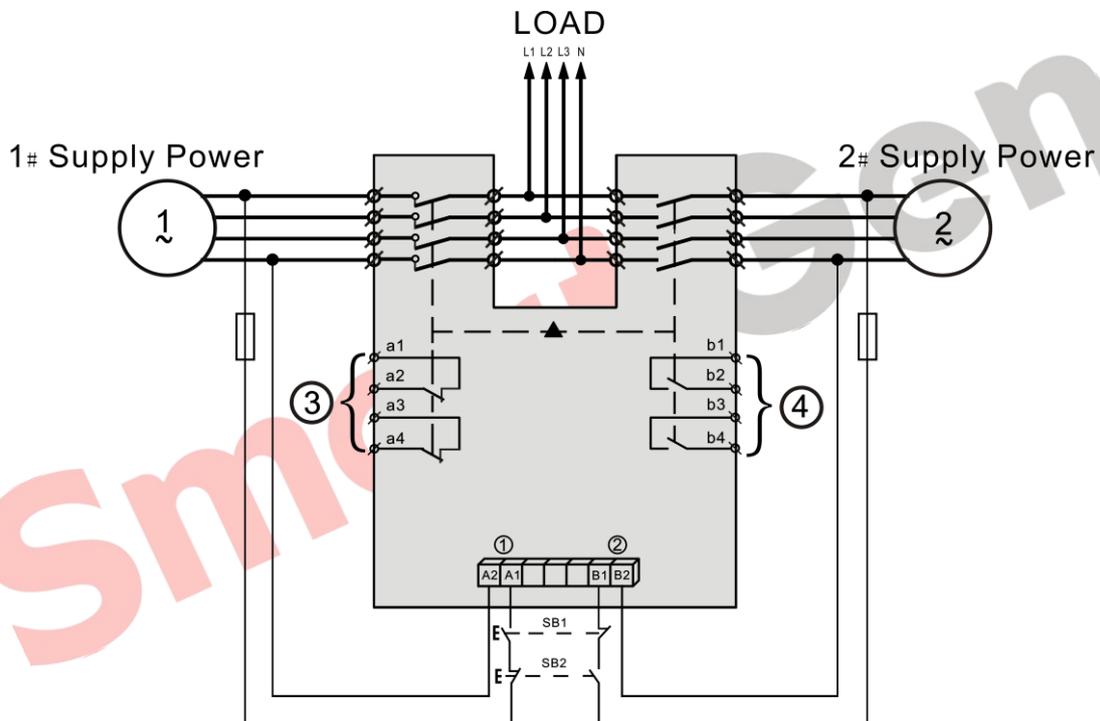
Type	SGQ630M	SGQ800M	SGQ1000M	SGQ1250M				
Rated current	630 A	800 A	1000 A	1250 A				
Rated limited short-circuit current	50 kA							
Coil operating voltage	AC220V (176~265)V							
Coil operating current	16A							
Secondary contact	1A 250VAC, N/O, FREE VOLTAGE, EACH SIDE HAS 1 PC							
OPERATION TIME	Mechanical	3000 times						
	Electrical	1000 times						
Number of poles	3P	4P	3P	4P	3P	4P	3P	4P
Net weight (kg)	37	43.5	39	46	41	48	48	57
Operation cycle	15 s/ time		20 s/time		25 s/time		25 s/time	

4 WORKING REQUIREMENTS

Item	Requirements
Ambient temperature	(-40~+70)°C
Humidity	(20~90)%
Installation elevation	≤5000 m
Pollution class	III
Installation type	IV

5 ATS WIRING CONNECTION DIAGRAM

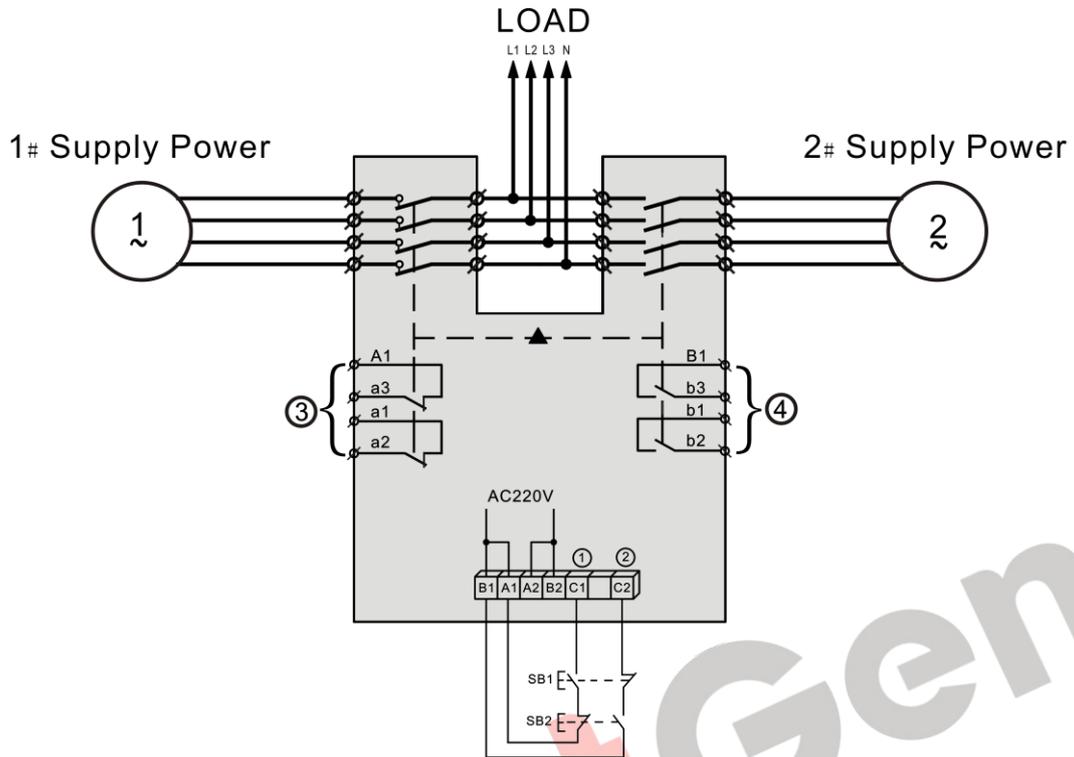
5.1 “N” AND “T” TYPE WIRING CONNECTION DIAGRAM



Note:

- | | |
|-------------------------------|--------------------------------|
| 1. Position control I | 2. Position control II |
| 3. Aux. contact of position I | 4. Aux. contact of position II |
| SB1 is #1 power close button | SB2 is #2 power close button |

5.2 “M” TYPE WIRING CONNECTION DIAGRAM



Note:

- | | |
|-------------------------------|--------------------------------|
| 1. Position control I | 2. Position control II |
| 3. Aux. contact of position I | 4. Aux. contact of position II |
| SB1 is #1 power close button | SB2 is #2 power close button |

6 INSTALLATION AND DEBUGGING

The installation and debugging of ATS must be operated by experts and people who knows well about switching device. Protective and preventive measures must be considered during the operation. The connection of switch major loop must make its down-lead away from any pressure and strong force. Before installation and debugging, it is necessary to check if there is any damage to switch or it is in any harmful condition. Meanwhile, check if the wire connection is loose during transportation. Also clean the smudge, especially any smudge on the surface of insulation parts. The smudges could be caused from the packing materials during transportation or storage. When connecting main loop, make sure that phase sequences of 2 way power are as same. Also should strictly follow to wiring diagram in the manual when connect to second loop and pay attention to control the voltage class of power. Switch must be grounded while installation. Considering of personal safety and rapidity of switch transfer, the debugging handle should only used for testing and user should never operate it with load. While debugging, use the handle to operate the switch firstly. If everything goes well, user can start the power-driven operation with manual button. ATS enters into normal running when there is no error.

7 PURCHASE MODEL EXPLANATION

