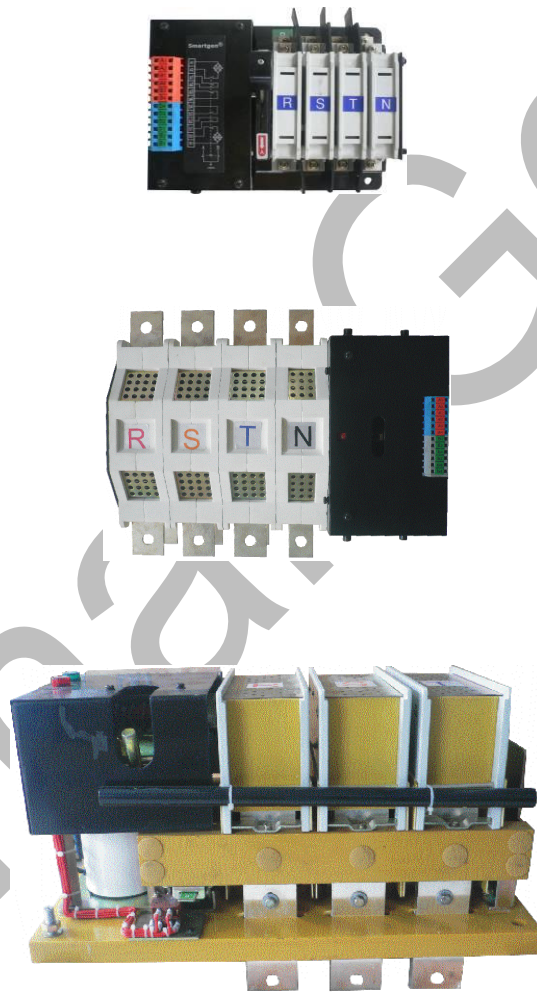


# Smartgen<sup>®</sup>

## SGQ Automatic Transfer Switch



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## Software Version

Version	Date	Note
1.0	2010-02-03	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.

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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. SGQ ATS can make fast load transfer (transfer time  $\leq 80\text{ms}$ ) of 2 way power supply. Also ATS can be widely used in high buildings, post, telecommunications, mines, ships, industry, health care, military facilities and so on. 2-way power can be grid, auto start genset, storage battery and etc..

## 2 OPERATING CONDITIONS

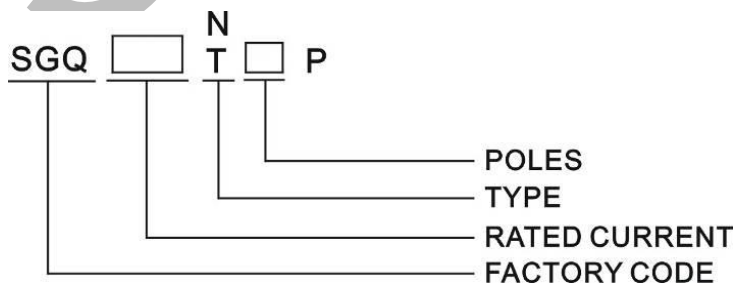
Item	Specification
Operating Voltage	AC220V (176~265)V
Ambient Temperature	(-40~+70) $^{\circ}\text{C}$
Humidity	(20~90)%
Installation Altitude	$\leq 5000\text{m}$
Pollution Class	3
Installation Category	IV
Installation Gradient	$\leq 22.5^{\circ}$

## 3 CLASSIFICATION

Type	Capacity	Specification
N	$\leq 125\text{A}$	63A, 125A
T	160A~630A	160A, 200A, 250A, 400A, 630A
M	630A~1250A	630A, 800A, 1000A, 1250A

**Note:** All types of ATS series have 3 poles and 4 poles (only 63A and 125A have 2-pole switch).

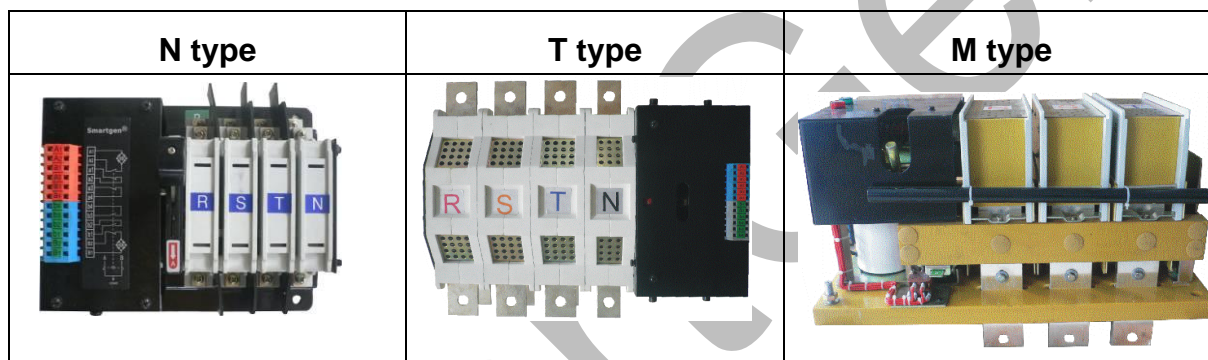
## 4 TYPE INSTRUCTION



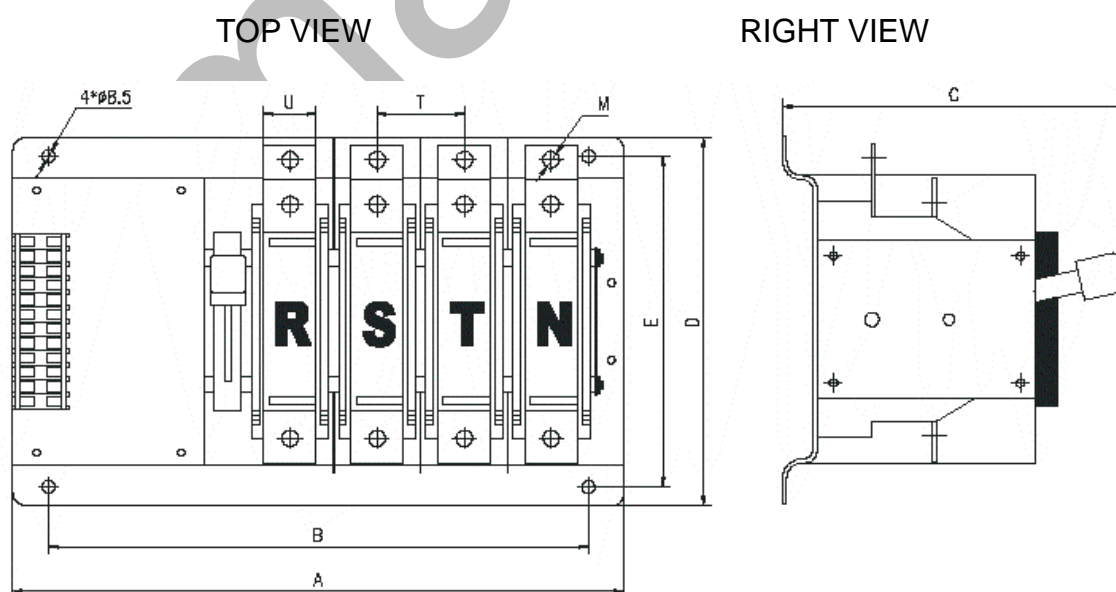
## 5 STRUCTURE

SGQ Automatic Transfer Switch (ATS) adopts structure of magnet coil driving and interlocking of electric and mechanical. The structure of major loop contact 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. That only energize the coil while it is transferred can extremely extend the using life of switch. The control power of coil is supplied from priority AC power, so there is no use to add another control power. The switch has electric and mechanical close indication by itself and also offers 2 way NO/NC voltage free auxiliary contacts at the same time.

## 6 CASE DIMENSIONS



### 6.1.CASE DIMENSIONS AND TECHNICAL DATA OF “N” TYPE



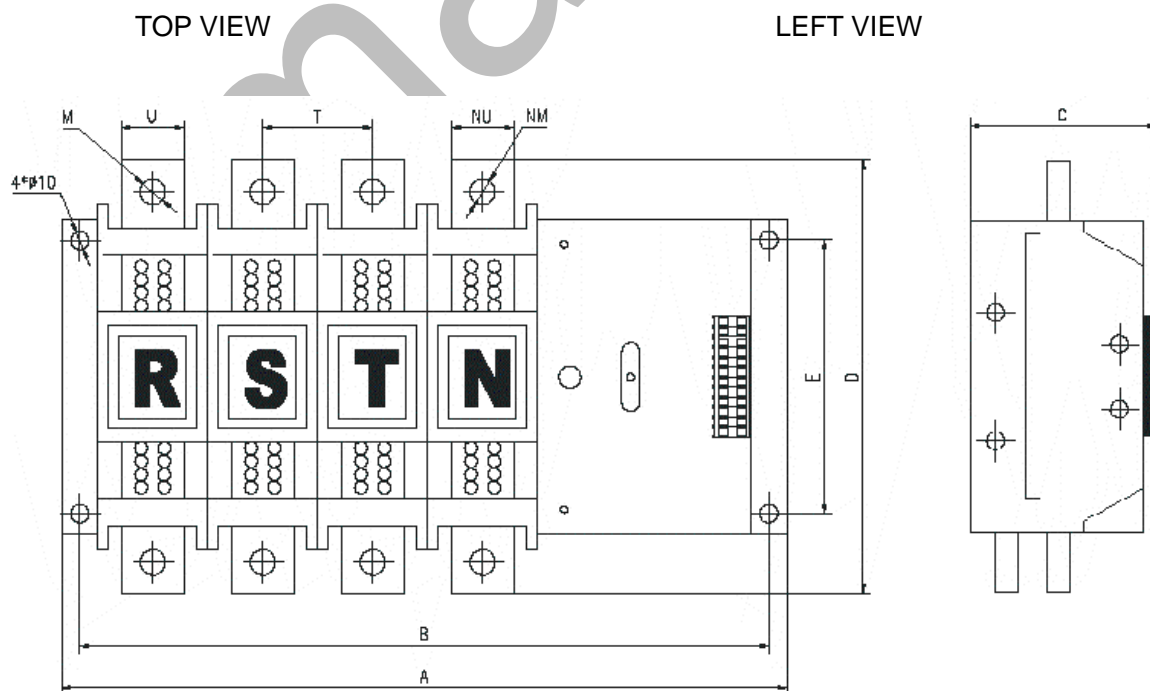
## Case dimensions of "N" type

Specification	Case size					Installation size				Copper bar		
	(A)	A2P	A3P	A4P	D	C	B2P	B3P	B4P	E	M	U
Q63N	172	200	228	186	155	139	167	195	165	5	12	27
Q125N	193	228	265	186	155	159	195	231	165	7	20	37

## Technical data of "N" type

Type		Q63N			Q125N		
Rated current(A)		63			125		
Operating current(A)					3.5		
Rated short-time withstand current (KA)					5		
Working time(times)	Mechanical				5000		
	Electric				1000		
Number of poles		2P	3P	4P	2P	3P	4P
Net weight (kg)		4	4.5	4.7	4.5	5	5.65
Operation cycle (second / times)					15		

## 6.2.CASE DIMENSIONS AND TECHNICAL DATA OF "T" TYPE



## Case dimensions of "T" type

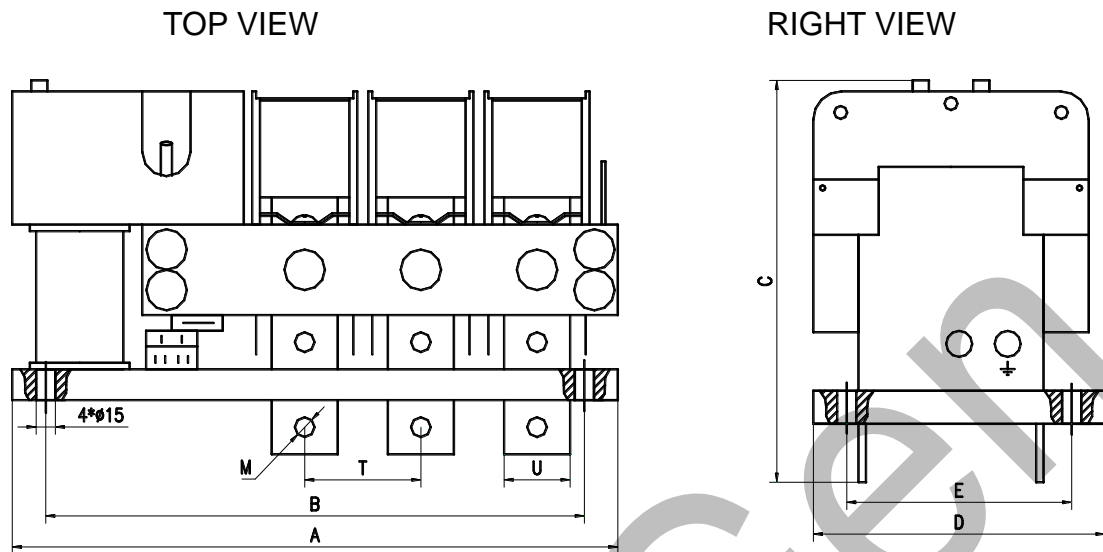
Type	Case size				Installation size			Copper bar				
	(A)	A3P	A4P	D	C	B3P	B4P	E	M	NM	U	NU
Q160T	326	375	292	150	309	357	200	9	9	20	20	50
Q200T	326	375	292	150	309	357	200	9	9	20	20	50
Q250T	326	375	292	150	309	357	200	9	9	20	20	50
Q400T	355	406	292	150	337	387	200	11	9	30	20	60
Q630T	364	424	310	150	345	408	200	15	15	40	30	64

(NU and NM are dimensions of N bar corresponded to 4P switch)

## Technical data of "T" type

Type		Q160T	Q200T	Q250T	Q400T	Q630T					
Rated current(A)		160	200	250	400	630					
Operating current(A)		7									
Rated short-time withstand current(KA)		10									
Working time (times)	Mechanical	5000			3000	2500					
	Electric	1000			1000	500					
Number of poles		3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Net weight (kg)		16.5	18.5	16.5	18.5	16.5	18.5	18	20	20	22
Operation cycle (second / times)		15									

### 6.3. CASE DIMENSIONS AND TECHNICAL DATA OF “M” TYPE



Case dimensions of “M” type

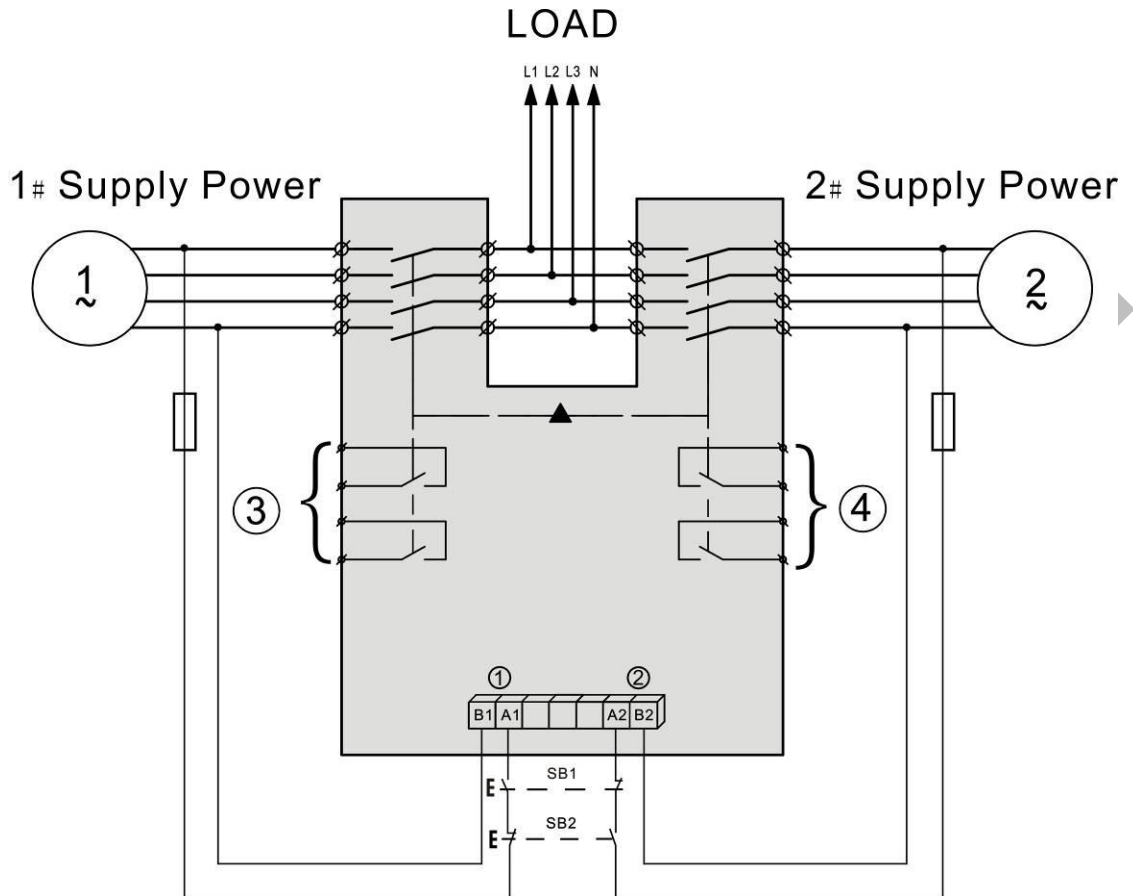
Specification	Case size				Installation size			Copper bar		
	(A)	A3P	A4P	D	C	B3P	B4P	E	M	U
Q630M	510	600	260	340	470	562	210	12	30	90
Q800M	510	600	260	340	470	562	210	15	40	90
Q1000M	510	600	260	340	470	562	210	15	45	90
Q1250M	510	600	260	340	470	562	210	15	55	90

Technical data of “M” type

Type		Q630M	Q800M	Q1000M	Q1250M				
Rated current(A)		630	800	1000	1250				
Operating current(A)		16							
Rated short-time withstand current(KA)		15	18	20	25				
Working time(times)	Mechanical	2500							
	Electric	500							
Number of poles		3P	4P	3P	4P	3P	4P	3P	4P
Net weight (kg)		42.3	49.7	45.3	54.4	48.3	59.4	51.3	64.5
Operation cycle (second / times)		15	20	25	25				

## 7 ATS WIRING DIAGRAM AND WORKING PRINCIPAL

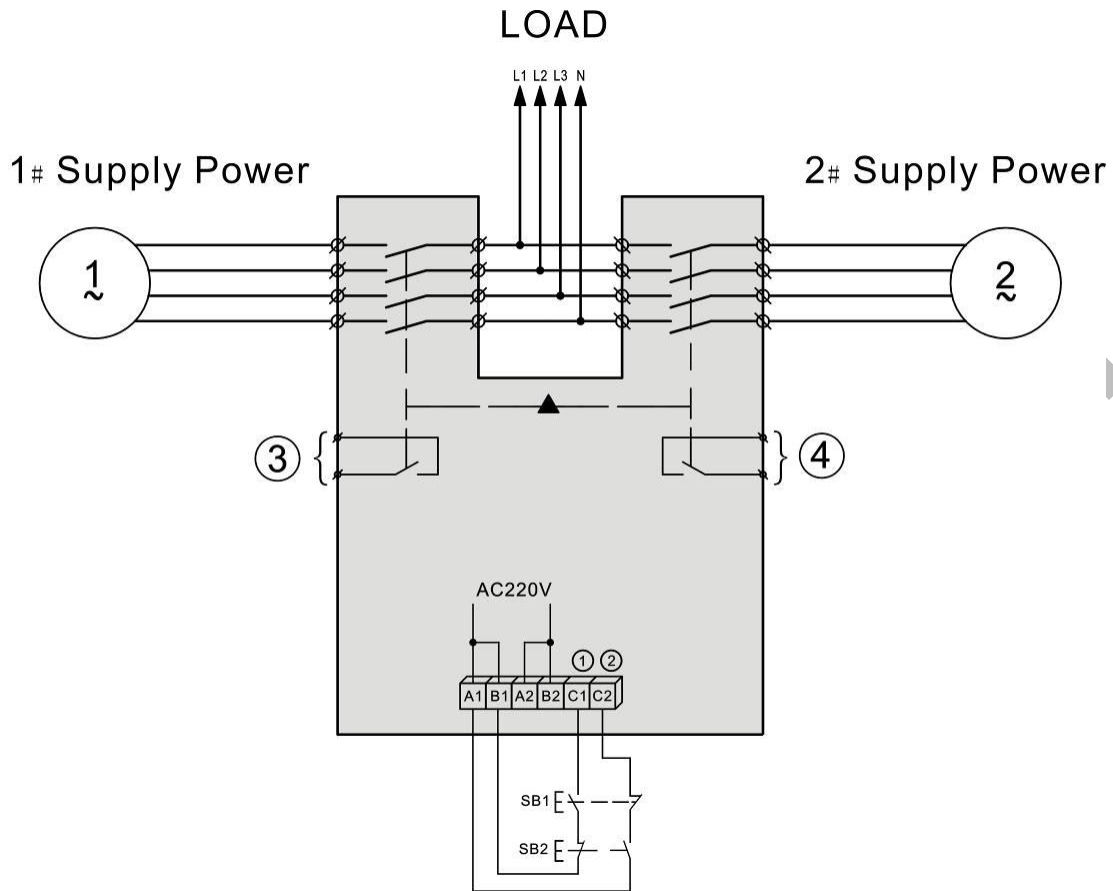
### 7.1. WIRING DIAGRAM OF "N" TYPE AND "T" TYPE



**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  | SB1 is #2 power close button   |

## 7.2.WIRING DIAGRAM OF “N” TYPE AND “M” TYPE



### 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   |

## 8 INSTALLATION AND DEBUGGING

The installation and debugging of ATS must be operated by experts and people who know well about switching device. Protection 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 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 when 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. When 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.

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