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Dual-power

Automatic Transfer Switches



Conditions for Normal Installation and Operation

The series is in compliance with the GB14048.11 and the IEC60947-6-1 *Low-voltage switchgear and controlgear—Part 6-1: Multiple function equipment – Transfer switch equipment*

1) Ambient air temperature

The temperature should be no higher than +40°C and no lower than -5°C, with a 24-hour average value of no more than +35°C.

2) Elevation

The altitude of the installation site should not be above 2000m.

3) Atmospheric conditions

The relative humidity of the air at the installation site should not exceed 50% at a maximum temperature of +40°C, and higher relative humidity is only allowed at lower temperatures. The average lowest temperature in the most humid month should not be above +25°C, while the average maximum relative humidity should not exceed 90%. Action should be taken to deal with dew condensation on the product surfaces resulting from temperature changes.

4) Pollution level

The pollution level conforms to Level 3 in the GB/T14048.1.

5) Installation category

The switch equipment installation complies with Category III as defined in GB/T14048.1

The transfer controller installation complies with Category II as defined in GB/T14048.1

6) Installation

Switching devices and transfer controllers can be installed vertically or horizontally in special control or distribution cabinets.

7) Use category

Table 1

Main circuit	AC-33B (infrequent operation)	Motor load or composite load inclusive of resistance load and incandescent lamp load of lower than 30%
Auxiliary circuit and transfer controller	AC-15	Load of controlling alternating electromagnet
	DC-13	Load of controlling electromagnet

8) Control circuit

The rated voltage of control power U_s for the control device and the transfer controller is AC 220V/230V/50Hz, and the operating condition is a control power voltage of $\geq 85\%U_s$ and $\leq 110\%U_s$. In the absence of special requirements with the customer order all the transfer controllers have a preset undervoltage value of ~180V and an overvoltage value of ~250V.

9) Auxiliary circuit

The auxiliary contact circuit has a separate electrical structure of 4 normally open and 4 normally closed contacts. Refer to Table 2 for the rated values of auxiliary contacts.

Table 2

Conventional thermal current I_{th} (A)	Rated isolation voltage U_i (V)	Rated operating current I_e (A)	
		AC220V	DC200V
10	300	3	0.2

Refer to Table 3 for the connection and disconnection capacity of auxiliary contacts.

Table 3

Use category	Connection			Disconnection			Operation frequency and cycle times		
	I/I_e	U/U_e	$\cos \phi$ or T0.95	I/I_e	U/U_e	$\cos \phi$ or T0.95	Cycle times	Operation frequency (cycles/min)	Conduction time (s)
AC-15	10	1.1	0.3	10	1.1	0.3	10	2	≥ 0.05
DC-13	1.1	1.1	6Pe	1.1	1.1	6Pe			

Note: Upper limit of T0.95 $\approx 6Pe \leq 300ms$. The power time of DC-13, if T0.95 is greater than 0.05s, should be T0.95 minimum.

W Series Dual-power Automatic Transfer Switches

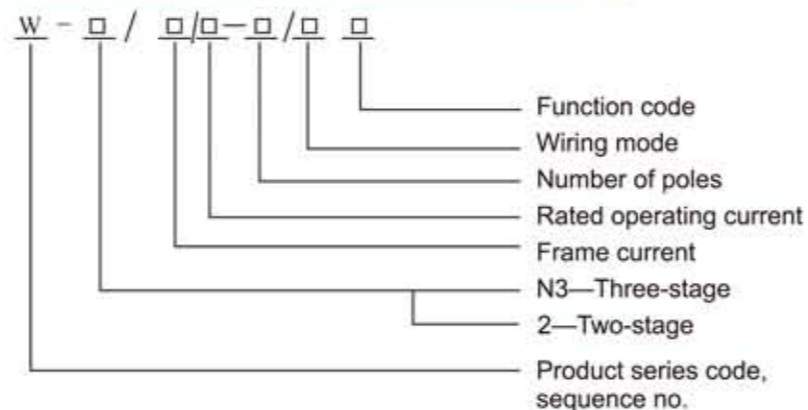
W Series Dual-power Automatic Transfer Switches

The W Series belong to the PC level, and include the types of W2 and W-N3.

W-2 is a two-stage automatic transfer switch. After a switching signal is received the switch transfers power immediately from one source to the other without stopping at an OFF position in the middle. The rated current is 20A~500A.

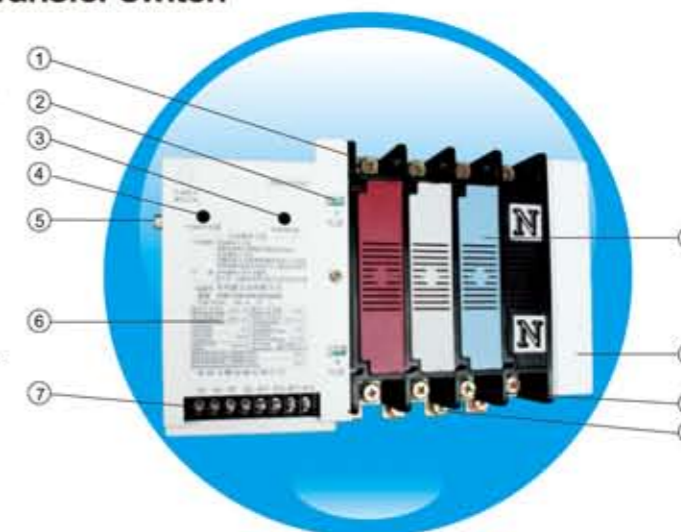
The W-N3 is a three-stage automatic transfer switch. After a switching signal is received the switch may transfer from one power source to another immediately, or after a preset delay, or stop at an OFF position in the middle. The rated current is 20A~5000A.

I. Product codes and meaning



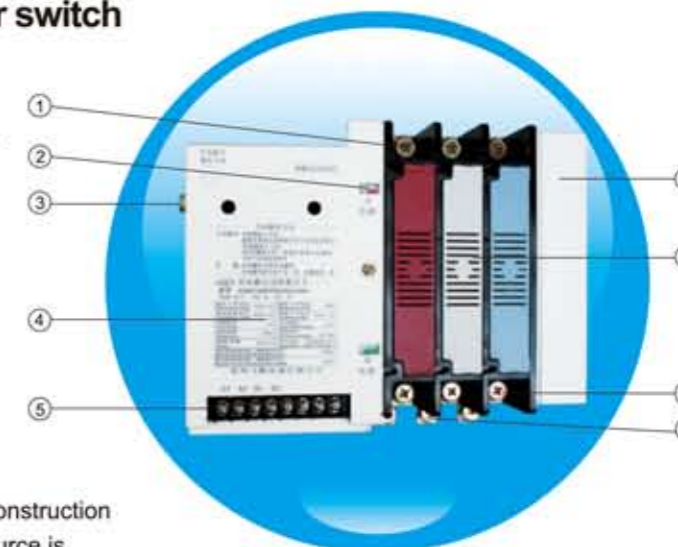
W-N3 three-stage automatic transfer switch (20-5000A)

1. Main circuit terminal on A power side
2. Power connection/break indicator window
3. Selection button
4. Release button
5. Square shaft for manual operation
6. Name plate
7. Control power terminal
8. Main circuit terminal on load side
9. Main circuit terminal on B power side
10. Auxiliary contact cover
11. Protective cover



W-2 two-stage automatic transfer switch (20-500A)

1. Main circuit terminal on A power side
2. Power connection/break indicator window
3. Square shaft for manual operation
4. Name plate
5. Control power terminal
6. Main circuit terminal on load side
7. Main circuit terminal on B power side
8. Protective cover
9. Auxiliary contact cover



Characteristics of ATS switches:

Reliable mechanical interlock: Special eccentric selection construction to ensure only one power source is connected.

High arc-quenching performance: Extinguishes abnormal electrical arcing, short duration of electric arcing and low contact loss.

Multi-disc main arc contract: Enhances the contact area and pressure of contact surfaces, eliminating overheating and contact welding and extending contact lifespan.

High transfer speed: Rapid transfer between the active power and standby power, allowing a customized transfer delay for an ATS with a controller.

Simple construction and small volume: Have reliable operation, a low failure rate and are convenient to install and maintain. Allow rotation with a handle during repair for convenient error detection and troubleshooting. The ATS of the W series are at PC level, are smaller than those of CB level, but have a higher current rating.

OFF position: The W-N3 three-stage transfer switch can be moved conveniently from ON to a disconnected OFF position, while the W-2 two-stage transfer switch does not have an OFF position.

Table 1

Product series code, sequence no.	Rated operating current (A)	Number of poles (P)	Wiring mode	Function code
W-N3 W-2	20、40、63、 80、100、 . . .	2、3、4	F、B	I Standard type
Frame grading current Inm A	63	20、40、63	F: Board front wiring B: Board back wiring	
	125	80、100、125		
	250	160、200、225 250		
	500	350、400、500		
	800	630、800		
	1250	1000、1250		
	1600	1600		
	2500	1600、2000、2500		
	4000	3150、4000		
5000	5000			
		2: Grade 2 3: Grade 3 4: Grade 4		II Automatic type

- Note: 1) Switch equipment has rated operating voltage of AC660V/690V and DC125V/250V, and control voltage of AC100V, 110V and DC110V, 1250V. Other voltage specifications can be provided to special order.
- 2) The communication from the back of the board. This is s interface details need to be specified with the order.
- 3) Switches of 500A or below are typically connected from the front of the board, while that of 500A and above are typically connected considered a special order.

II. Parameters of W-2 stage transfer switch

Table 2

Type	W-2												
Isolation voltage	AC800V												
Impulse withstanding	8kV												
Rated voltage	AC400V (AC660V/690V、DC125V/250V)												
Rated current (A)	20、40、63	80、100、125	160、200、225、250	350、400、500									
Number of throws	dual throw												
Wiring mode	board front												
Number of poles	2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P	
Weight (Kg)	4.5	5	5.5	5	6.3	6.8	6	6.6	7.3	11	15	18	
Operating current (A)	DC110V/125V	6	6	8	6	6	8	6	8	10	10	10	14
	AC100V/110V	6	6	8	6	6	8	6	8	10	10	10	14
	AC200V/220V/230V	3	3	4	3	3	4	3	4	5	5	5	7
Performance	Short-time withstanding current	10kA						15kA			20kA		
	Rated limited short-circuit current	50kA						65kA					
	Rated limited short-circuit current	100kA						120kA					
	Connection/disconnection capacity	AC-33B (10le connected, 10le disconnected) $\cos \phi=0.35$ (When $I \leq 100A$, $\cos \phi=0.45$) DC-33B(4le connected, 4le disconnected)L/R=2.5ms											
	Transfer time	Power A→ Power B	$\leq 0.2s$										
		Power B→ Power A											
	Lifespan	Electrical lifespan 6,000 cycles, mechanical lifespan 20,000 cycles											
Operating cycle frequency	120 cycles/hour												
Auxiliary switch	2 normally open and 2 normally closed on power sides A and B; contact capacity: AC 110V 5A/ AC 220V 3A, DC 200V 0.2A												
Accessory	Operating handle												

Note: See notes 1) ~ 3) in Table 1.