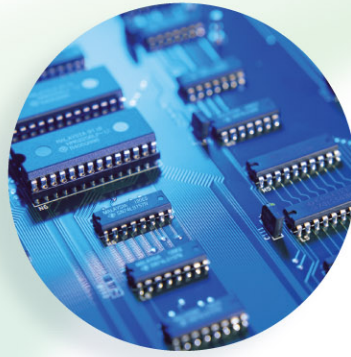


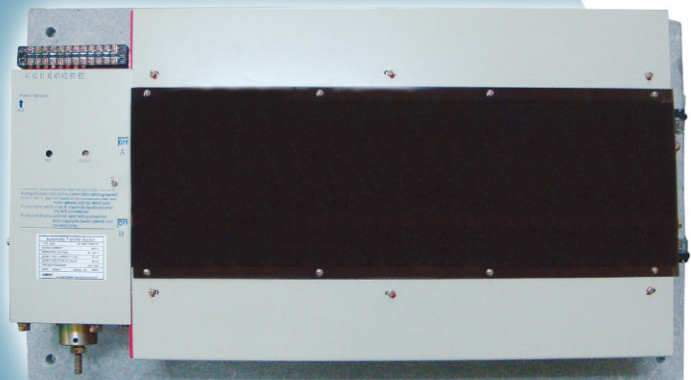
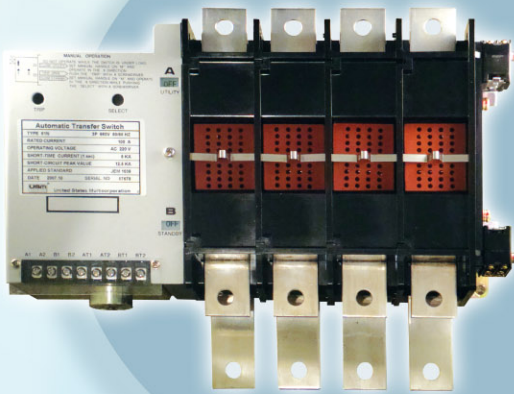


United States Multicorporation



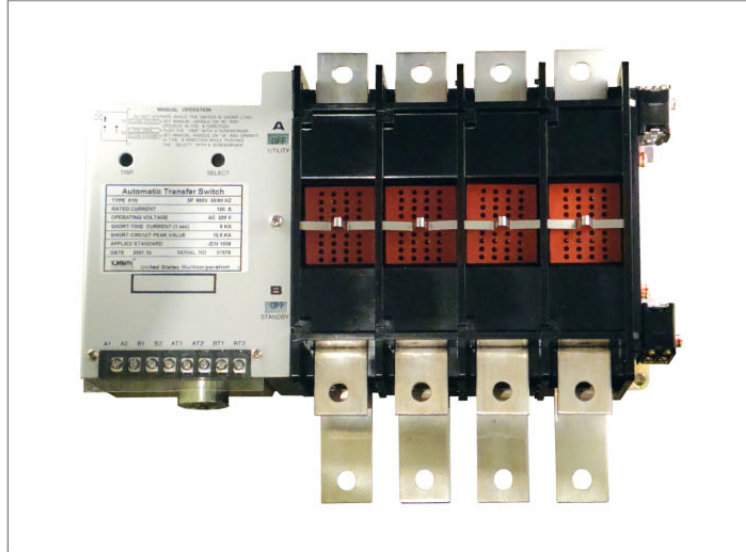
Automatic Transfer Switch

Low voltage transfer switches



Automatic Transfer Switches

Automatic Transfer Switches are electrical and manual control units that can automatically transfer the electrical load from the utility power lines to the emergency generator set, whenever a utility power failure occurs, and to transfer back to the utility when utility power returns to normal.



Features :

- Both circuit of transferring shall be controlled by one coil of circuit switching.
- Contact compartment completely molded.
- Saving operating power with the instantaneously excited solenoid.(electro-magnetic, mechanical latch)
- Enough transferring interval time, which are provide perfect arc quenching of occurred.
- NE-type shall have a tripping mechanism and neutral (OFF) position, which shall be capable of A-off-B and B-off-A also A-off-A and B-off-B operating.
- N type : small type of one-coil transfer switch.
- Interlock : Electrical and Mechanical interlock shall be designed to prevent energizing controlling power source A and B at the same time. (NE type shall be closing and tripping)
- Both operation power AC and DC shall be available.

Type	Rated Voltage	Pole	Rated Current (A)	Remarks
ATS(NE)	AC660V DC125V	2P/3P/4P	100/200/400/600/800/1000/1250 1600/2000/2500/3000/3200	Air extinction
ATS(N)	AC660V DC125V	2P/3P/4P	100/200/400	Air extinction

Automatic Transfer Switches

Outline:

USM can provide all specs of ATS of low-voltage

N Type AC660V 100-400A

NE Type AC660V 100-3200A

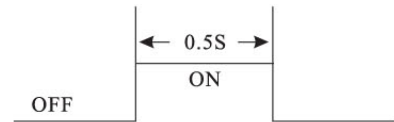
Features:

- Small size and light weight Neutral stop possible
- Control circuit and main circuit housed in a casing
- Terminal covers provided for control circuit and main circuit (Terminal cover for main circuit: Front type only)
- Environment friendly contacts free of cadmium
- A wide range of models to select from for your applications
- The control circuit pickup voltage range is as follows:
AC control 80~120% of rated voltage.
DC control 80~130% of rated voltage.
- Standard: JEM1038(1990), UL1008, CSA, ANSI, IEC

Instructions on Use:

Control circuit

- Although the switching operation is completed within 0.3 seconds, give a signal of 0.5 seconds of longer so as to ensure reliable operation.
- The transfer switch is of such design that on completion of operation the control current is turned off by the internal contact. Use of any external auxiliary contact can cause failure of the operation.



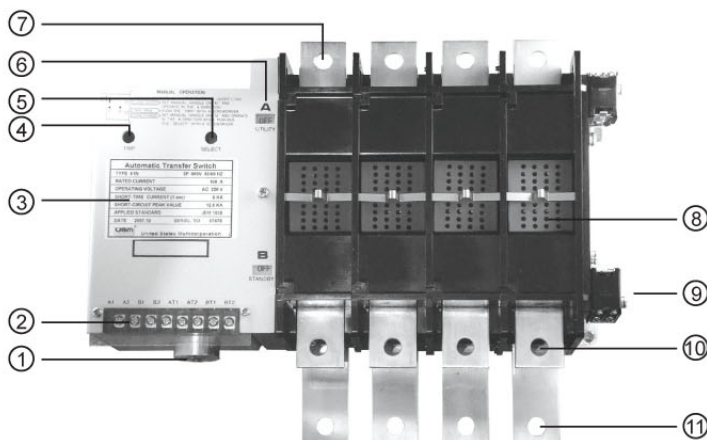
Capacity of control transformer

The capacity of the control transformer must be equal to or larger than the value calculated by the following equation: $VA = \text{Control voltage} \times \text{Control current} \times 0.6$

Control unit

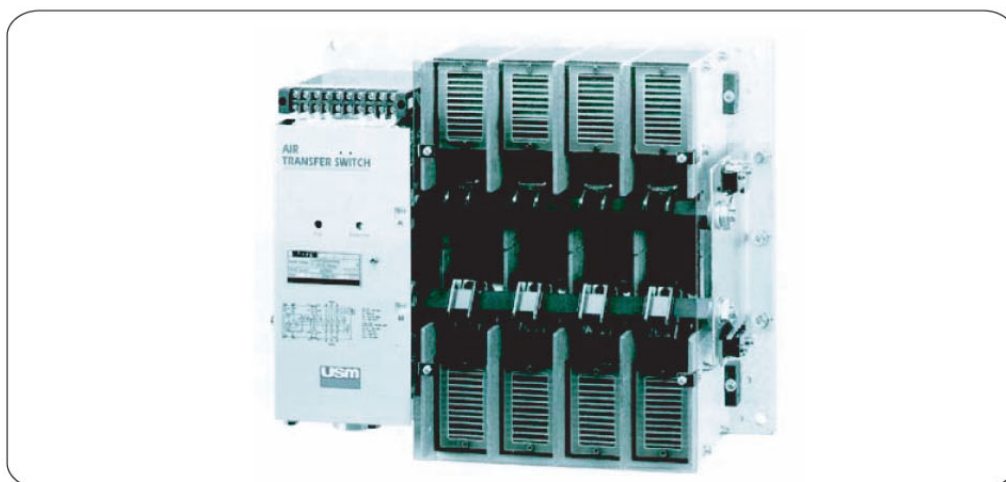
- The ATS is operated by electrical power and later will maintain normal operating mode by mechanical means.
- The unit is fitted with a full phase voltage monitor with readings either side of normal power (UV/OV/phase-sequence protection).
- The ATS is fitted with an adjustable time delay for the engine start(TDES).
- The ATS is fitted with an adjustable time delay when unit switches from normal to emergency in the event of a power failure (TDNE).
- An adjustable time delay is also fitted to operate when unit switches from emergency to normal on return of main utility power (TDEN).
- The ATS is fitted with an adjustable time delay for engine cool down (TDEC).

NE Type A-OFF-B



- ① Operating Coil
- ② Control Circuit Terminal Block
- ③ Name Plate
- ④ Trip Button
- ⑤ Selective Button for " B " Power-Closing
- ⑥ On/Off Indicator
- ⑦ Circuit Terminal for " I " Power
- ⑧ Arc-Extinguishing Chamber
- ⑨ Aux Switch
- ⑩ Circuit Terminal for " II " Power
- ⑪ Main Circuit Terminal for Load

NE Type (AC660V 100-3200A)



Technical Data (NE)

Type		61NE			62NE			64NE			66NE		
Rated Voltage		AC 660V DC125V											
Rated Current		100A			200A			400A			600A/630A		
Connection		Front or Back											
Number of Poles		2P	3P	4P	2P	3P	4P	2P	3P	4P	3P	4P	
Weight (kg)		4.5	6	8	6	8	10	11	14	18	33 (43)	42 (51)	
Operating Current (A)	DC 110V	4A	4A	5A	5A	5A	7.2A	6.4A	6.4A	9A	7A	8A	
	AC 100V/110V	4A	4A	5A	5A	5A	7.2A	6.4A	6.4A	9A	7A	8A	
	AC 200V/220V	2A	2A	2.5A	2.5A	2.5A	3.6A	3.2A	3.2A	4.5A	3.5A	4A	
	Trip coil Current	DC110V/1.4A AC110V/1.4A AC220V/0.7A						DC.AC110V/2A AC220V/1A					
Rated Short-time Current		5kA			10kA			12kA			15kA		
Short Circuit Peak Value		12.5kA			25kA			30kA			37.5kA		
Switching Capacity		AC 3 class (10Ie making, 8Ie breaking $\cos\phi=0.35$) DC 1 class (1.1Ie making, 1.1Ie breaking L/R=1ms)											
Features	Operating Time	Source A	Closing	$\leq 55\text{ms}$			$\leq 55\text{ms}$			$\leq 60\text{ms}$			$\leq 100\text{ms}$
			Tripping	$\leq 20\text{ms}$			$\leq 20\text{ms}$			$\leq 25\text{ms}$			$\leq 30\text{ms}$
	Time	Source B	Closing	$\leq 80\text{ms}$			$\leq 80\text{ms}$			$\leq 90\text{ms}$			$\leq 135\text{ms}$
			Tripping	$\leq 20\text{ms}$			$\leq 20\text{ms}$			$\leq 25\text{ms}$			$\leq 30\text{ms}$
Life Expectancy		Electrical:50,000times, Mechanical:250,000times											
Switching Frequency		150times/hour											
Auxiliary Switch		1C for power source A, 1C for power source B (110Vac/5A 220Vac/2.5A, 110Vac/0.5A Switching capacity)*											
Accessories		Protective cover(Front)					Manual handle						

* Auxiliary switch is optional according to your request.

Specifications for Automatic Transfer Switch

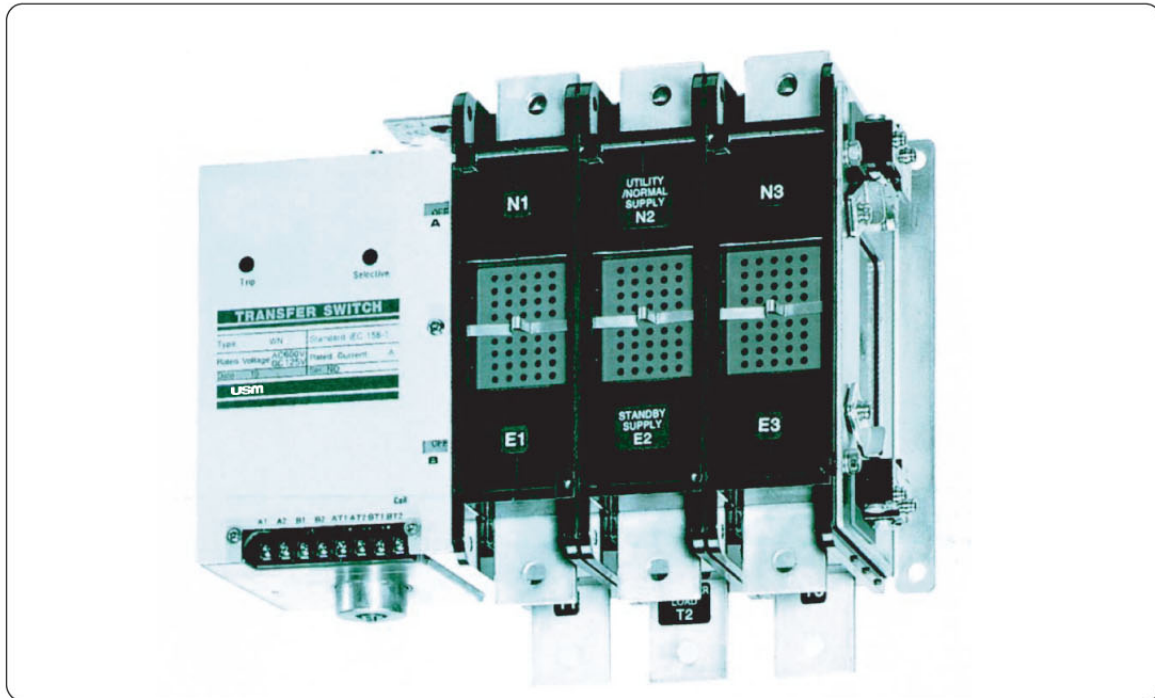
- The ATS is operated by electrical power and later will maintain normal operating mode by mechanical means.
- The unit is fitted with a full phase voltage monitor with readings either side of normal power (UV/OV/phase-sequence/frequency protection).
- A light on the front of the enclosure indicated the state of the power supply.
- The ATS is fitted with an adjustable time delay for the engine start (TDES).
- The ATS is fitted with an adjustable time delay when unit switches from normal to emergency in the event of a power failure (TDNE).
- An adjustable time delay is also fitted to operate when unit switches from emergency to normal on return of main utility power (TDEN).
- The ATS is fitted with an adjustable time delay for engine cool down (TDEC).
- Plant exercise (no load): Automatically starts the generator to run unloaded at selected internals (day / week / month clock operation).
- In phase monitor: Prevents transfer until two sources are in relative synchronism.

■ Technical Data (NE)

610NE		616NE		620NE		632NE	
AC 660V DC125V							
800A/1000A		1250A/1600A		2000A		2500A/3000A/3200A	
Front or Back				Back			
3P	4P	3P	4P	3P	4P	3P	4P
40kg (56)	51kg (66)	47kg (62)	59kg (74)	115kg	135kg	150kg	190kg
8A	10A	10A	13A	13A	16A	16A	18A
8A	10A	10A	13A	13A	16A	16A	18A
4A	5A	5A	6.5A	6.5A	8A	8A	9A
DC110V/2A AC110V/2A AC220V/1A				DC110V/4A AC110V/4A AC220V/2A			
22kA		25kA		35kA		50kA	
50kA		55kA		60kA		80kA	
AC 3 class (10Ie making, 8Ie breaking $\cos\phi=0.35$) DC 3 class (1.1Ie making, 1.1Ie breaking L/R=1ms)				AC 2 class (4Ie making, 4Ie breaking) $\cos\phi=0.65$			
$\leq 115\text{ms}$		$\leq 115\text{ms}$		$\leq 180\text{ms}$		$\leq 140\text{ms}$	
$\leq 30\text{ms}$		$\leq 30\text{ms}$		$\leq 30\text{ms}$		$\leq 35\text{ms}$	
$\leq 145\text{ms}$		$\leq 150\text{ms}$		$\leq 220\text{ms}$		$\leq 190\text{ms}$	
$\leq 30\text{ms}$		$\leq 30\text{ms}$		$\leq 30\text{ms}$		$\leq 35\text{ms}$	
Electrical:10,000times Mechanical:50,000 times				Electrical:5,000times, Mechanical:10,000 times			
150times/hour				30times/hour			
1C for power source A, 1C for power source B (110Vac/5A 220Vac/2.5A 110Vac/0.5A Switching capacity)*							
Protective cover(Front)				Manual handle			

* Auxiliary switch is optional according to your request.

N Type (AC660V 100-400A)



■ Technical Data(N)

Type		61N			62N			64N		
Rated Voltage		AC 660V DC125V								
Rated Current		100A			200A			400A		
Connection		Front or Back								
Number of Poles		2P	3P	4P	2P	3P	4P	2P	3P	4P
Weight(kg)		4.5	6	8	6	8	10	11	14	18
Operating Current (A)	DC 110V	3	3	4	3	4	5	7	7	8
	AC 100V/110V	3	3	4	3	4	5	7	7	8
	AC 200V/220V	1.5	1.5	2	1.5	2	2.5	3.5	3.5	4
Features	Rated Short-time Current (1sec)	5kA			10kA			12kA		
	Short Circuit Peak Value	12.5kA			25kA			30kA		
	Switching Capacity	AC 3 class (10Ie making, 8Ie breaking $\cos\phi=0.35$) DC 3 class (1.1Ie making, 1.1Ie breaking L/R=1ms)								
	Life	Electrical:50,000times, Mechanical:250,000times								
	Switching Frequency	150times/hour								
	Switching Time	Opening \leq 0.06s Closing \leq 0.25s								

Double throw with two separate contacts

Is equipped with a tripping mechanism and has neutral (OFF) position, therefore such operation sequences as

A → OFF → A and B → OFF → B

Are possible as well as

A → OFF → B and B → OFF → A

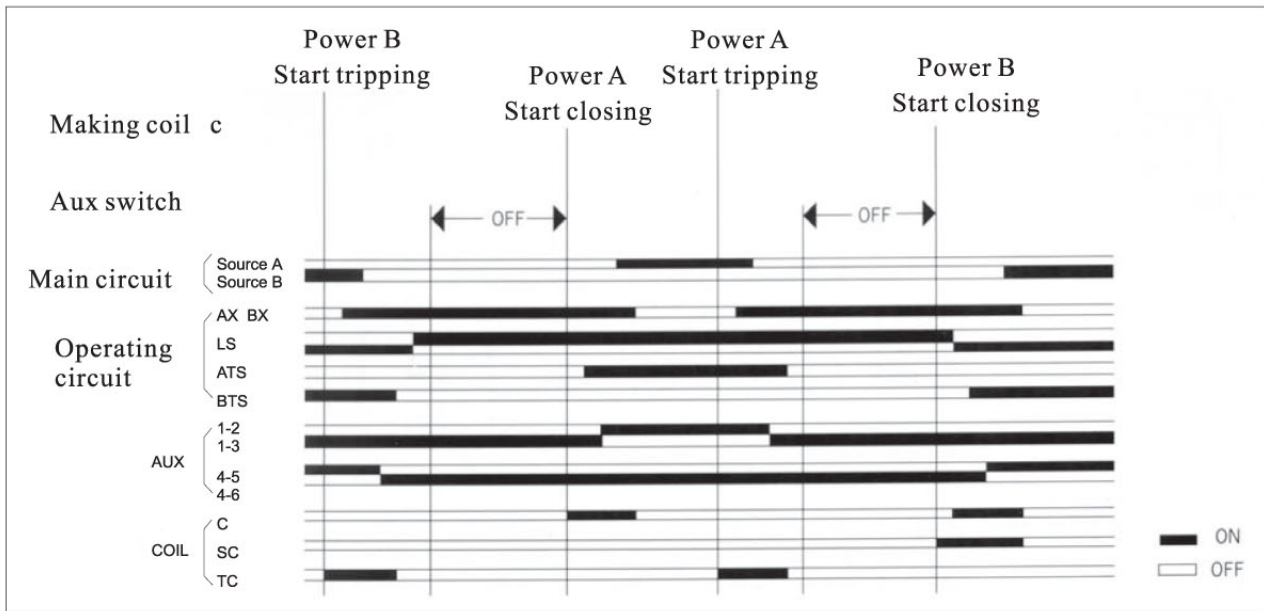
Current-breaking characteristics

Offers constant breaking characteristic by spring force irrespective of operating voltage.

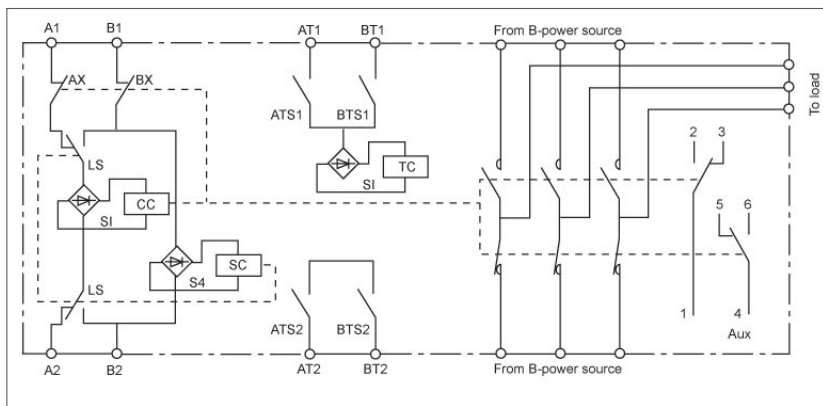
Safety design

Dust-proof and molded-resin enclosures.

• Time chart of Contacts



NE Type Circuit Diagram

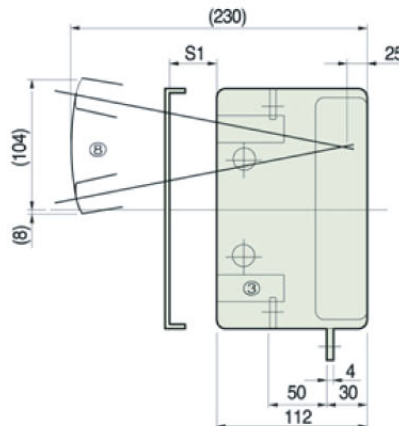
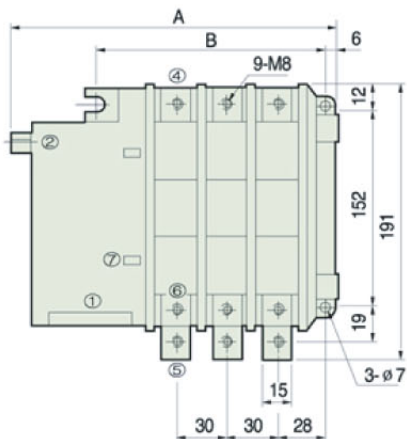


CC=Closing Coil
 SC=Selecting Coil
 TC=Tripping Coil
 SI=Silicon Rectifier
 LS=Limit Switch

ATS1, ATS2=Tripping control switch
 BTS1, BTS2=Tripping control switch
 AX, BX=Control Switch
 AUX=Auxiliary Switch
 A1-A2=Power A
 B1-B2=Power B
 AT1-AT2=Tripping for Power A
 BT1-BT2=Tripping for Power B

● Overall Dimensions(NE-TYPE)

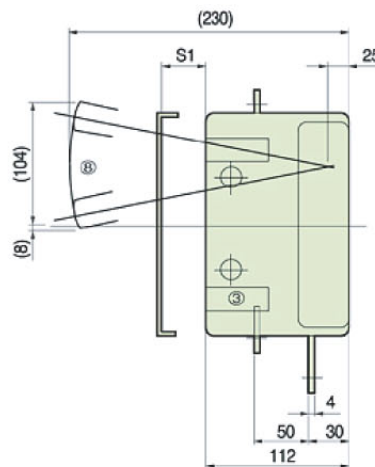
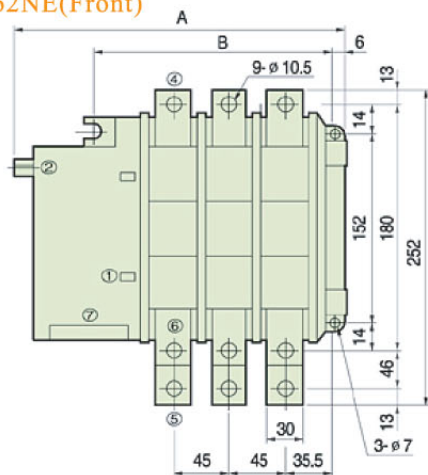
61N-61NE(Front)



	A	B
2P	204	103
3P	234	133
4P	264	163

Arc space, S1 is 30mm for 220V and 60mm for 600V

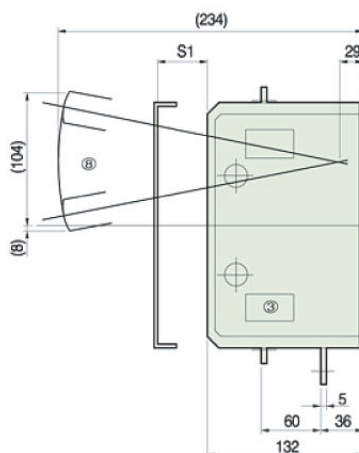
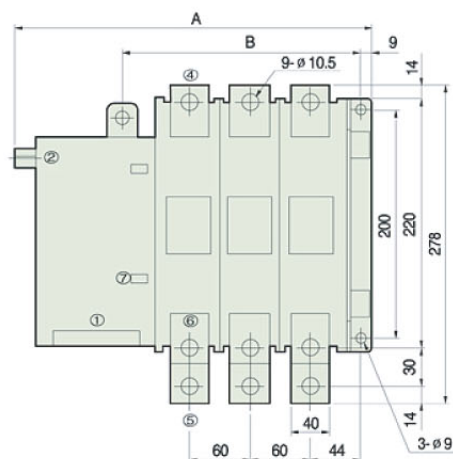
62N-62NE(Front)



	A	B
2P	234	133
3P	279	178
4P	324	223

Arc space, S1 is 30mm for 220V and 60mm for 600V

64N-64NE(Front)

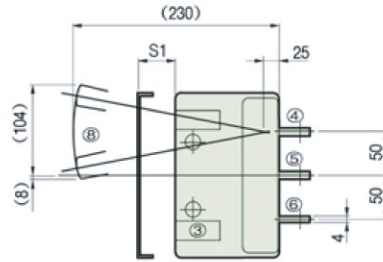
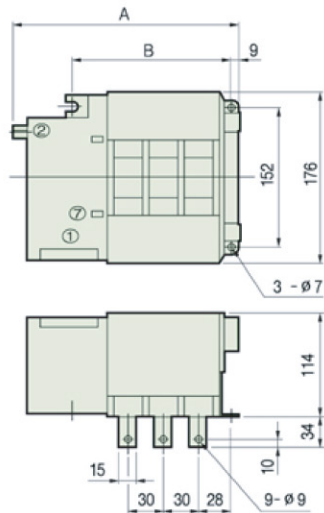


	A	B
2P	280	164
3P	340	224
4P	400	284

Arc space, S1 is 30mm for 220V and 60mm for 600V

- (1) Control terminal
- (2) Manual operating socket
- (3) Auxiliary switch
- (4) Terminal to Power A
- (5) Terminal to customer load
- (6) Terminal to Power B
- (7) ON/OFF indication
- (8) Manual operating handle

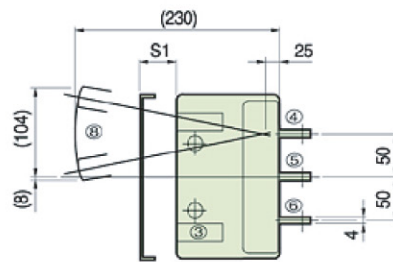
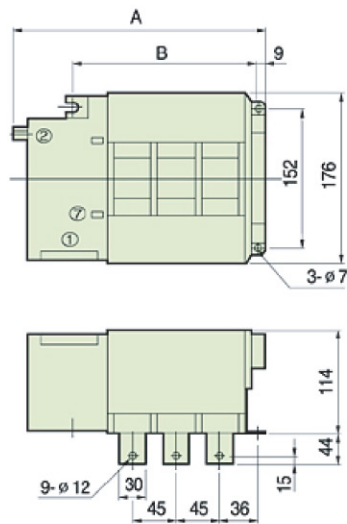
61N-61NE(Back)



	A	B
2P	204	103
3P	234	133
4P	264	163

Arc space, S1 is 30mm for 220V and 60mm for 600V

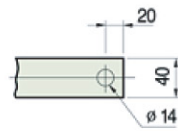
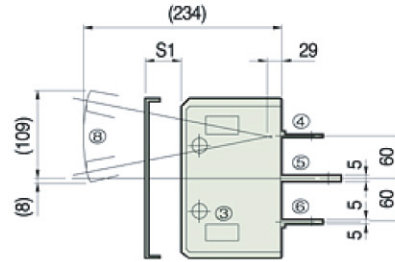
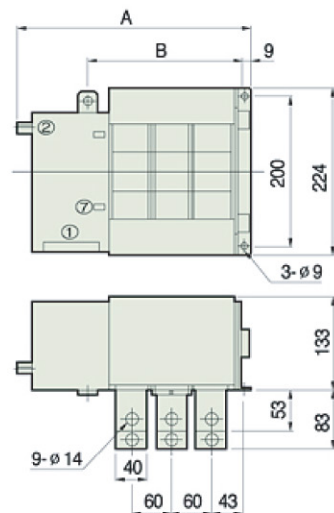
62N-62NE(Back)



	A	B
2P	234	133
3P	279	178
4P	324	223

Arc space, S1 is 30mm for 220V and 60mm for 600V

64N-64NE(Back)

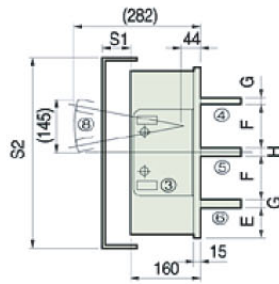
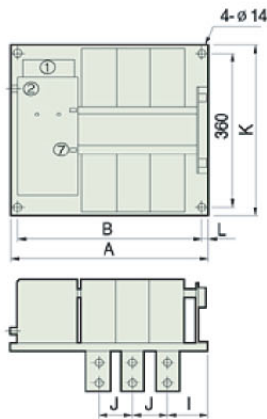


	A	B
2P	280	164
3P	340	224
4P	400	284

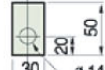
Arc space, S1 is 30mm for 220V and 60mm for 600V

- (1) Control terminal (2) Manual operating socket (3) Auxiliary switch
- (4) Terminal to Power A (5) Terminal to customer load (6) Terminal to Power B
- (7) ON/OFF indication (8) Manual operating handle

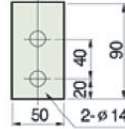
66N-616NE(Back)



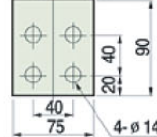
600A/630A



800A/1000A



1250A/1600A

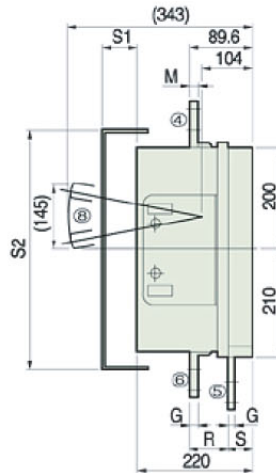
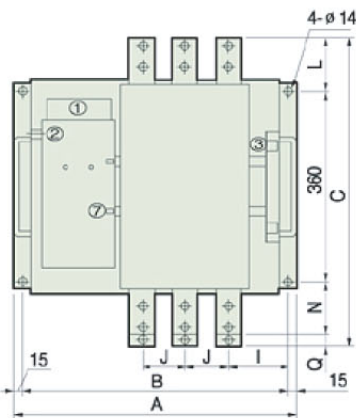


The measure of Arc space

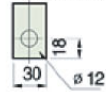
Rated Voltage	S1	S2
200V	45mm	430mm
660V	90mm	450mm

Type	66NE	610NE	616NE
A	3P	405	510
	4P	470	610
B	3P	365	480
	4P	440	580
E	75	74	71
F	117.5	116.5	
G	10	12	15
H	15		
I	80	88	97.5
J	65	80	100
K	3P	410	410
	4P	410	410
L	3P	20	15
	4P	15	15

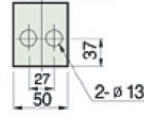
66N-616NE (Front)



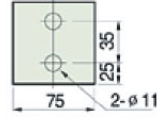
600A/630A



800A/1000A



1250A/1600A

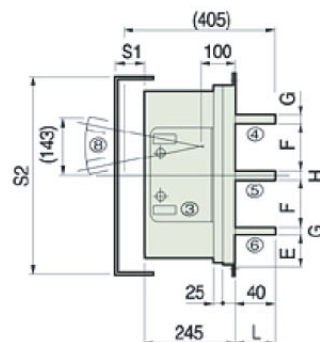
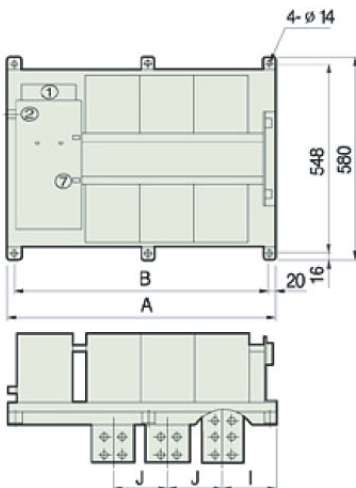


The measure of Arc space

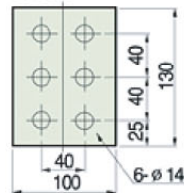
Rated Voltage	S1	S2
200V	45mm	430mm
660V	90mm	450mm

Type	66NE	610NE	616NE
A	3P	465	570
	4P	530	670
B	3P	435	540
	4P	500	640
C	545	608.5	645
G	10	12	15
I	95.7	101.6	112.4
J	65	80	100
L	73	91	111
M	15	15	15
N	68	79.5	109
Q	44	78	65
R	65	74	76
S	55	55	57

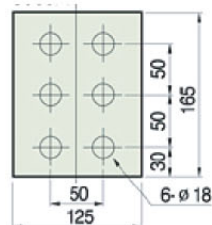
620N,632NE(Back)



2000A



2500A/3000A/3200A



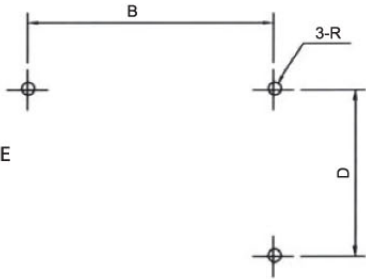
The measure of Arc space

Rated Voltage	S1	S2
200V	50mm	560mm
660V	100mm	600mm

Type	620NE	632NE
A	3P	675
	4P	810
B	3P	635
	4P	770
E	119	114
F	132.5	130
G	15	20
H	15	20
I	121	146
J	135	185
L	90	125

Panel Cutting Size(Front)

61N-64N
61NE-64NE

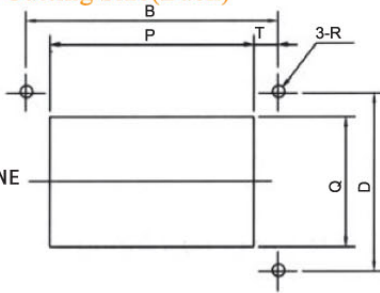


N, NE Type

Type	61N, NE	62N, NE	64N, NE	
B	2P	103	133	164
	3P	133	178	224
	4P	163	223	284
D	152	152	200	
R	M5		M8	

Panel Cutting Size(Back)

61N-64N
61NE-64NE

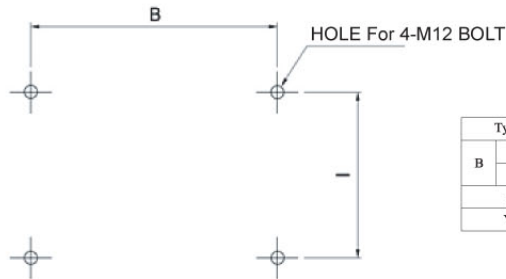


N, NE Type

Type	61N, NE	62N, NE	64N, NE	
B	2P	103	133	164
	3P	133	178	224
	4P	163	223	284
D	152	152	200	
P	2P	85	110	135
	3P	115	155	195
	4P	145	200	255
Q	140		180	
T	7.5		9	
R	M5		M8	

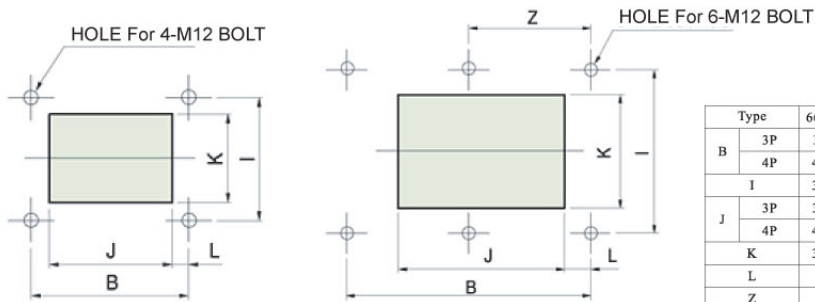
Panel Cutting Size(Front)

66-616NE



Type	66NE	610NE	616NE	
B	3P	435	480	540
	4P	500	560	640
I	360	360	360	
Y	M12	M12	M12	

Panel Cutting Size(Back)



Type	66NE	610NE	616NE	620NE	632NE	
B	3P	360	410	480	635	785
	4P	440	500	580	770	970
I	360	360	360	548	548	
J	3P	335	380	440	420	545
	4P	400	460	540	555	730
K	330	330	330	460	460	
L	20	20	20	28	40	
Z	-	-	-	-	485	



United States Multicorporation
632 New York Drive. Pomona, CA91768. USA
E-mail: usm@california.usa.com