



Safety

Each phase is enclosed separately to improve the breaking capacity and safety.

- Each phase is molded and enclosed individually to improve the breaking capacity and to increase the operational cycle of the product.
- The operational cycle is semi-permanent since the arc time generated during the switching is short and contact consumption is small.
- It ensures a steady and stable breaking capacity regardless of the operating voltage through an open operation using a separate breaking spring.

The safety of users has improved.

- It strengthened the main contact protection and breaking capacity using a 4-pole pre-closing and post-breaking structural design.
- The operational cycle of the product is long since it generates little arc due to a superior switching function.

Compact

It seems comfortable due to a compact design for the customers.

- It enhance the user-friendly image by adopting a volumized shape and creates the innovativeness by applying a simple, elegant and advanced product image.
- It stresses the reliability by adopting a streamlined form which is a simple and clean shape.
- The products inside the panel board are arranged neatly by applying a clear color.

Rating

Standard ATS WN Type

100A ~ 3000A



New model with improved insulated feature and safety
Neutral Point Mode added
A ↔ Neutral(off) ↔ B

Features

Full insulated feature

The breaking part is fully enclosed in a mold structure to completely prevent electrical accidents due to the insulation degradation resulting from an electric shock due to a physical contact or attachment of dust or foreign substances when used for a long time.

Safe Conduction

All phases are designed to have a certain contact pressure which allows them to maintain a safe conducting performance. It is protected by Latch device so the intensity of the over-current is high in case of a short circuit.

Sophisticated Design

Each phase is fully insulated and is in an independent 1-phase structure. According to the convenience of users, the conduction parts of 3-phase and 4-phase can be combined depending on the capacity and the number of phases.

One-coil Mode

It is a Compact Type where closing of commercial power and reserved power is possible with 1 closing coil.

Safe Open Feature

By adopting a unique-structured arc shute, the operational cycle is semi-permanent because the arc breaking time is short and the contact consumption is little. A stable breaking can always be implemented regardless of the operating voltage by applying a trip operation that uses a breaking spring.

Neutral Point Mode

After checking the stability and safety of the circuit, Neutral Point ["OFF" state] is possible due to the trip structure for the transfer mode.
That is, operation by A → off → B, B → off → A as well as A → off → A, B → off → B and instantaneous transfer are possible.

Saving Power

It is in an instantaneous excitation mode with very little power consumption. The contact pressure is protected by Latch device so the intensity of the over-current is high in case of a short circuit. By adopting a unique-structured arc shute, the operational cycle is semi-permanent because the arc breaking time is short and the contact consumption is little

Various Products

There are various products with the rated voltage and current up to 600V, 100-3000A and they are molded in a dust-proof structure. DC load switch is also possible.

Breaking Feature

A stable breaking can always be implemented regardless of the operating voltage by applying a trip operation that uses a breaking spring.

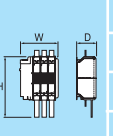
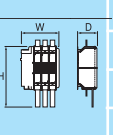
Type		61WN	62WN	64WN	66WN								
Rated Current (In)	AC33B	100	200	400	600								
	AC31B	150	300	600	800								
Rated Voltage (Ue)	V	AC600											
Poles	2	●	●	●	-								
	3	●	●	●	●								
	4	●	●	●	●								
Throw	T	Double Throw											
Connection Type	Front	●	●	●	●								
	Back	●	●	●	●								
Short Circuit Withstand													
With Circuit Limiting Fuses	kA	200	200	200	200								
With any Circuit Breaker	kA	10	10	35	35								
With Specific Circuit Breaker	kA	25	25	45	65								
Switch Capacity	Class	AC33B	AC33B	AC33B	AC33B								
Endurance	Electrical	Cycles	50,000	50,000	50,000	50,000							
	Mechanical	Cycles	250,000	250,000	250,000	250,000							
Transfer Sequence		A↔B, A↔Neutral(off)↔B											
Operation Time	A Source	Closing	ms	≤55	≤55	≤55	≤60						
		Trip	ms	≤20	≤20	≤20	≤20						
	B Source	Closing	ms	≤80	≤80	≤80	≤90						
		Trip	ms	≤20	≤20	≤20	≤25						
Auxiliary Voltage & Current		2P	3P	4P	2P	3P	4P	2P	3P	4P	3P	4P	
Closing	DC110V	A	4	4	5	4	4	5	5	5	7.2	6.4	9
	AC100/110V	A	4	4	5	4	4	5	5	5	7.2	6.4	9
	AC200/220V	A	2	2	2.5	2	2	2.5	2.5	2.5	3.6	3.2	4.5
Trip	AC/DC110V	A	1.4			1.4			1.4			3	
	AC220V	A	0.7			0.7			0.7			1.5	
Dimensions & Weightnt													
Front Size(mm)		H	192	192	192	192	192	192	254	254	254	278	278
		W	218	254	290	218	254	290	248	299	350	340	400
		D	118	118	118	118	118	118	119	119	119	143	143
		kg	4.5	6	8	4.5	6	8	7.5	9	10.5	15	18
Back Size(mm)		H	174	174	174	174	174	174	208	208	208	248	248
		W	218	254	290	218	254	290	248	299	350	340	400
		D	144	144	144	144	144	144	164	164	164	176	176
		kg	4.5	6	8	4.5	6	8	6	8	10	14	17
Additional Product Information													
Circuit Diagram		A6-19			A6-19			A6-19			A6-19		
Time Chart		A6-18			A6-18			A6-18			A6-18		
Drawing		A6-24			A6-24			A6-25			A6-26		
Precautions		A6-14			A6-14			A6-14			A6-14		

Additional Product Info's page needs to be confirmed

(1) AC33B: Motor load or total system load

(2) AC31B: Incandescent lamp control or resistive load

(2) Trip: A circuit is opened to the Neutral Position at OFF state in A or B power

Type			68WN	610WN	612WN	616WN	620WN	625WN	630WN							
Rated Current (In)	AC33B	A	800	1000	1200	1600	2000	2500	3000							
	AC31B		1000	1200	1400	1800	2500	3000	3500							
Rated voltage (Ue)		V	AC600													
Poles	2	P	–	–	–	–	–	–	–							
	3	P	●	●	●	●	●	●	●							
	4	P	●	●	●	●	●	●	●							
Throw		T	Double Throw													
Connection Type	Front		●	●	●	●	–	–	–							
	Back		●	●	●	●	●	●	●							
Short Circuit Withstand																
With Circuit Limiting Fuses		kA	200	200	200	200	200	200	100							
With any Circuit Breaker		kA	50	50	50	85	85	100	250							
With Specific Circuit Breaker		kA	65	65	65	85	100	100	100							
Switch Capacity		Class	AC33B	AC33B	AC33B	AC33B	AC33B	AC33B	AC33B							
Endurance	Electrical	Cycles	10,000	10,000	10,000	10,000	5,000	5,000	5,000							
	Mechanical	Cycles	50,000	50,000	50,000	50,000	10,000	10,000	10,000							
Transfer Sequence			A↔B, A↔Neutral(off)↔B													
Operation Time	A Source	Closing	ms	≤100	≤100	≤115	≤115	≤140	≤180	≤180						
		Trip	ms	≤30	≤30	≤30	≤30	≤35	≤35	≤35						
	B Source	Closing	ms	≤135	≤135	≤145	≤145	≤190	≤220	≤220						
		Trip	ms	≤30	≤30	≤30	≤30	≤35	≤35	≤35						
Auxiliary Voltage & Current			3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Closing	DC110V	A	8	10	8	10	8	10	8	10	13	16	13	16	16	18
	AC100/110V	A	8	10	8	10	8	10	8	10	13	16	13	16	16	18
	AC200/220V	A	4	5	4	5	4	5	4	5	6.5	8	6.5	8	8	9
Trip	AC/DC110V	A	3	3	4	4	4	4	4	4	4	4	4	4	4	
	AC220V	A	1.5	1.5	2	2	2	2	2	2	2	2	2	2	2	
Dimensions & Weightnt																
Front Size(mm)		H	298	298	298	298	535	535	535	535	–	–	–	–	–	–
		W	400	480	400	480	453	536	453	536	–	–	–	–	–	–
		D	143	143	143	143	228	228	228	228	–	–	–	–	–	–
		kg	20	24	21	25	52.5	63.5	58	69	–	–	–	–	–	–
Back Size(mm)		H	267	267	267	267	380	380	380	380	380	380	380	380	380	380
		W	400	480	400	480	453	536	453	536	528	636	603	736	603	736
		D	178	178	178	178	261	261	261	261	261	261	261	261	261	261
		kg	19	23	20	24	50	60	55	65	65	85	92.5	119	92.5	119
Additional Product Information																
Circuit Diagram			A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	A6-19	
Time Chart			A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18		
Drawing			A6-26	A6-26	A6-27	A6-27	A6-27	A6-27	A6-27	A6-27	A6-28	A6-28	A6-28			
Precautions			A6-14	A6-14	A6-14	A6-14	A6-14	A6-14	A6-14	A6-14	A6-14	A6-14	A6-14			

Additional Product Info's page needs to be confirmed

(1) AC33B: Motor load or total system load

(2) AC31B: Incandescent lamp control or resistive load

(2) Trip: A circuit is opened to the Neutral Position at OFF state in A or B power

Rating

Economic Type ATS W, WP Type

100A ~ 400A



W type Standard Type A ↔ B



WP type Pause Function
Additional Type A ↔ Pause ↔ B

Features

Safe Design

It provides a safe operation by adopting a dust-proof mold structure at the breaking part.

For both AC/DC

The operating circuit can use both AC/DC.

One Coil Instantaneous Excitation Mode

- It is a power saving structure with an instantaneous excitation mode in one coil.
- The voltage of operating coil is both AC110/220V. (※Refer to the instruction)

* It is an instantaneous operation type where the operation time cannot be adjusted. But, in case of WP Type, a Neutral position is added between A-power source and B-power source which enables it to provide a temporary pause function (pause in OFF state) within 30 seconds that is not connected to both A and B power sources in case of transfer operation.

[Ex When transferring from A-power to B-power

- ① A Opening → ② Pause for 3-30 seconds →
- ③ B Closing

This function is to prevent a short-circuit of load part and power source part by transferring to the other power after a residual voltage is extinct if the existing load is the same as the motor load that generates much residual voltage.

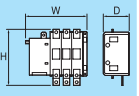
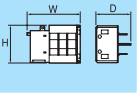
If a pause of more than 30 seconds or OFF status should be maintained, use a standard WN type.

Type			61W		62W	
Rated Current (In)	A		100		200	
			150		300	
Rated Voltage (Ue)	V		AC600			
Poles	2	P	-		-	
	3	P	●		●	
	4	P	●		●	
Throw	T		Single Throw			
Connection Type	Front		●		●	
	Back		-		-	
Short Circuit Withstand						
With Circuit Limiting Fuses	kA		200		200	
With any Circuit Breaker	kA		10		10	
With Specific Circuit Breaker	kA		22		22	
Switch Capacity	Class		AC33B		AC33B	
Endurance	Electrical	Cycles	50,000		50,000	
	Mechanical	Cycles	250,000		250,000	
Transfer Sequence			A ↔ B		A ↔ B	
Operation Time	open	ms	≤30		≤30	
	clos	ms	≤60		≤60	
	closing off	sec	-		-	
Auxiliary Voltage & Current			3P	4P	3P	4P
A ↔ B closing	DC110V	A	-	-	-	-
	AC100/110V	A	-	-	-	-
	AC200/220V	A	10	10	10	10
Dimensions & Weight						
Front Type (mm)		H	171	171	171	171
		W	219	219	219	219
		D	110	110	110	110
	Weight	kg	2,5	3	3,5	4
Back Type (mm)		H	-	-	-	-
		W	-	-	-	-
		D	-	-	-	-
	Weight	kg	-	-	-	-
Additional Product Information						
Circuit Diagram			A6-21		A6-21	
Contact Time Chart			A6-18		A6-18	
Drawing			A6-31		A6-31	
Precautions			A6-16		A6-16	

Additional Product Info's page needs to be confirmed

(1) AC33B: Motor load or total system load

(2) AC31B: Incandescent lamp control or resistive load

Type			64W			61WP			62WP			64WP		
Rated Current (In)	A		400			100			200			400		
			600			150			300			600		
Rated Voltage (Ue)	V		AC600											
Poles	2	P	●			●			●			●		
	3	P	●			●			●			●		
	4	P	●			●			●			●		
Throw	T		Double Throw											
Connection Type	Front		●			●			●			●		
	Back		●			●			●			●		
Short Circuit Withstand														
With Circuit Limiting Fuses	kA		200			200			200			200		
With any Circuit Breaker	kA		10			10			10			10		
With Specific Circuit Breaker	kA		42			42			42			42		
Switch Capacity	Class		AC33B			AC33B			AC33B			AC33B		
Operational Cycle	Electrical	Cycles	50,000			50,000			50,000			50,000		
	Mechanical	Cycles	250,000			250,000			250,000			250,000		
Transfer Sequence			A ↔ B			A ↔ B			A ↔ B			A ↔ B		
Operation Time	open	ms	≤60			≤30			≤30			≤60		
	clos	ms	≤200			≤200			≤200			≤200		
	closing off	sec	—			—			—			—		
Auxiliary Voltage & Current			2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P
A ↔ B closing	DC110V	A	7.5	7.5	11	5.4	5.4	7.5	7.5	7.5	11	11	11	12.8
	AC100/110V	A	7.5	7.5	11	5.4	5.4	7.5	7.5	7.5	11	11	11	12.8
	AC200/220V	A	3.8	3.8	5.5	2.7	2.7	3.8	3.8	3.8	5.5	5.5	5.5	6.4
Dimensions & Weight														
Front Size (mm)		H	254	254	254	191	191	191	252	252	252	254	254	254
		W	248	299	350	214	244	274	244	289	334	246	287	348
		D	119	119	119	112	112	112	112	112	112	119	119	119
	Weight	kg	7.5	8	10.5	4.5	6	8	6	8	10	11	14	18
Back Size (mm)		H	208	208	208	176	176	176	176	176	176	208	208	208
		W	236	287	338	214	244	274	244	289	334	246	287	348
		D	163	163	163	148	148	148	158	158	158	163	163	163
	Weight	kg	6	8	10	4.5	6	8	6	8	10	11	14	18
Additional Product Information														
Circuit Diagram			A6-21						A6-20					
Contact Time Chart			A6-18						A6-18					
Drawing			A6-31						A6-33					
Precautions			A6-16						A6-16					

Additional Product Info's page needs to be confirmed

[1] AC33B: Motor load or total system load

[2] AC31B: Incandescent lamp control or resistive load

Rating

Uninterruptible Transfer Type ATS CTTS

100A ~ 3000A

It is a Closed Transition Transfer Switch that automatically transfers without interruption to the control direction within 0.1 second (100ms) by detecting the voltage difference between both powers and frequency difference and checking the synchronizing condition after a simultaneous closing of commercial (A) power and emergency (B) power.



Uninterruptible Transfer Mode added
A ↔ Synchronizing ↔ B

Main Application

Main Plant

Lightning may generate voltage drop for the commercial power or power failure and for the load that requires a long-time recovery, it can be transferred to the emergency power in advance without interruption and back to the commercial power without interruption.

*In case of an uninterruptible transfer,

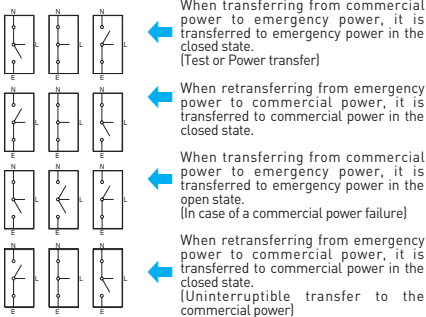
- ① Power failure notified by KEPCO
- ② When the power is recovered and transferred to power plant
- ③ When an instantaneous power failure is expected due to the weather
- ④ When testing a generator or equipments

Uninterruptible transfer is possible when performing the planned maintenance or repairing such as the regular inspection of electrical equipments installed at banks and stations.

UPS Power Transfer Equipments

By examining the phase of both UPS powers, if they are within the standard value, an uninterruptible transfer is possible.

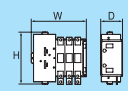
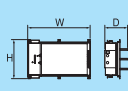
Explanation on Transfer Operation



Type		61CT	62CT					
Rated Current (In)	A	100	200					
Rated voltage (Ue)	V	AC600						
Poles	2	P	●	●				
	3	P	●	●				
	4	P	●	●				
Throw	T	Double Throw						
Connection Type	Front		●	●				
	Back		●	●				
Performance								
Short Time Current(1s)	kA	5	10					
Short Circuit Peak Current	kA	12.5	25					
Switch Capacity	Class	AC33B	AC33B					
Endurance	Electrical	Cycles	50,000	50,000				
	Mechanical	Cycles	250,000	250,000				
Transfer Sequence	A ↔ B, A ↔ Neutral (off) ↔ B, A ↔ Overlapping (overlapping) ↔ B							
Conditions of Uninterruptible Transfer		Phase difference : Within electrical angle 10°, Frequency difference : Within 0.2Hz, Voltage : Voltage difference with the commercial one is within 5%, Instantaneous Interconnection Time : Within 0.05 second						
Operation Time	A Source	closing	ms	≤55		≤55		
		Trip	ms	≤20		≤20		
	B Source	closing	ms	≤80		≤80		
		Trip	ms	≤20		≤20		
Auxiliary Voltage & Curren			2P	3P	4P	2P	3P	4P
Closing	DC110V	A	4	4	5	5	5	7
	AC100/110V	A	4	4	5	5	5	7
	AC200/220V	A	2	2	2.5	2.5	2.5	3.6
Trip	AC/DC110V	A	1.4			1.4		
	AC220V	A	0.7			0.7		
Dimensions & Weight								
Front Type (mm)		H	268	268	268	283	283	283
		W	211	241	271	241	286	331
		D	112	112	112	112	112	132
Weight	kg	6.5	8	10	8	10	12	
Back Type (mm)		H	-	-	-	-	-	-
		W	-	-	-	-	-	-
		D	-	-	-	-	-	-
Weight	kg	6.5	8	10	-	-	-	
Additional Product Information								
Circuit Diagram			A6-23			A6-23		
Drawing			A6-36			A6-36		
Precautions			A6-20			A6-20		

Additional Product Info's page needs to be confirmed

- (1) Switch Capacity : AC3 Class : Closing 10 × Ie, Breaking 8 × Ie, cosφ = 0.35 / DC1 Class : Closing 1.1 × Ie, Breaking 1.1 × Ie, L/R= 1ms
AC2 Class : Closing 4 × Ie, Breaking 4 × Ie, cosφ = 0.65
- (2) Trip: A circuit is opened to the Neutral Position at OFF state in A or B power

Type			64CT	66CT	610CT	616CT	620CT	630CT							
Rated Current (In)		A	400	600	800, 1000	1200, 1600	2000	3000							
Rated voltage (Ue)		V	AC600												
Poles	2	P	●	●	●	●	●	●							
	3	P	●	●	●	●	●	●							
	4	P	●	●	●	●	●	●							
Throw		T	Double Throw												
Connection Type	Front		●	●	●	●	-	-							
	Back		●	●	●	●	●	●							
Performance															
Short Time Current(1s)		kA	12	15	22	25	35	50							
Short Circuit Peak Current		kA	30	37.5	50	55	60	80							
Switch Capacity		Class	AC33B	AC33B	AC33B	AC33B	AC33B	AC33B							
Endurance	Electrical	Cycles	50,000	10,000	10,000	10,000	5,000	5,000							
	Mechanical	Cycles	250,000	50,000	50,000	50,000	10,000	10,000							
Transfer Sequence			A ↔ B, A → Neutral (off) ↔ B, A ↔ Overlapping (overlapping) ↔ B												
Conditions of Uninterruptible Transfer			Phase difference : Within electrical angle 10°, Frequency difference : Within 0.2Hz, Voltage : Voltage difference with the commercial one is within 5%, Instantaneous Interconnection Time : Within 0.05 second												
Operation Time	A Source	closing	ms	≤60	≤100	≤115	≤115	≤180	≤140						
		Trip	ms	≤25	≤30	≤30	≤30	≤30	≤35						
	B Source	closing	ms	≤90	≤135	≤145	≤150	≤220	≤190						
		Trip	ms	≤25	≤30	≤30	≤30	≤30	≤35						
Auxiliary Voltage & Curren			2P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Closing	DC110V	A	6.4	6.4	9	7	8	8	10	10	13	13	16	16	18
	AC100/110V	A	6.4	6.4	9	7	8	8	10	10	13	13	16	16	18
	AC200/220V	A	3.2	3.2	4.5	3.5	4	4	5	5	6.5	6.5	8	8	9
Trip	AC/DC110V	A	2		2		2		2		4		4		
	AC220V	A	1		1		1		1		2		2		
Dimensions & Weight															
Front Type (mm)		H	307	307	307	545	545	609	609	645	645	-	-	-	-
		W	293	353	413	465	530	510	590	570	670	-	-	-	-
		D	132	132	220	220	220	220	-	220	220	-	-	-	-
	Weight	kg	14	17	21	53	61	66	76	72	84	-	-	-	-
Back Type (mm)		H	-	-	-	-	-	-	-	-	-	600	600	600	600
		W	-	-	-	-	-	-	-	-	-	683	818	833	1018
		D	-	-	-	-	-	-	-	-	-	329	329	364	364
	Weight	kg	-	-	-	-	-	-	-	-	-	130	150	165	205
Additional Product Information															
Circuit Diagram			A6-23			A6-23			A6-23						
Drawing			A6-36			A6-37			A6-38						
Precautions			A6-20			A6-20			A6-20						

Additional Product Info's page needs to be confirmed

(1) Switch Capacity : AC3 Class : Closing $10 \times I_e$, Breaking $8 \times I_e$, $\cos\phi = 0.35$ / DC1 Class : Closing $1.1 \times I_e$, Breaking $1.1 \times I_e$, L/R= 1ms
AC2 Class : Closing $4 \times I_e$, Breaking $4 \times I_e$, $\cos\phi = 0.65$

(2) Trip: A circuit is opened to the Neutral Position at OFF state in A or B power

Applied Standard

Low Voltage Auto Transfer Switch ...ATS, CTTS

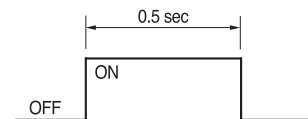
Consideration points when applying and selecting

Relevant Standards

- UL 1008
- IEC 60947-6-1

Control Command

Closing and trip transfer operation is completed within 0.3 second but set Sequence so that it can be operated with a control command of 0.5sec or more.



Interlock

Install an interlock (electrical) so that A power source and B power source are not commanded simultaneously at the operating circuit.
In case of WN Type, set a Sequence so that closing command and trip command are not in the same direction.

TR Capacity for Operating Circuit

The TR capacity of operating circuit should be calculated as shown below and use the capacity that exceeds the calculated value.

$$\text{Operating Voltage} \times \text{Operating Current} \times 0.5 = (\text{ JVA})$$

- ex) Operating Voltage AC220V Operating Current 4A
 $220 \times 4 \times 0.5 = 440\text{VA}$
 Use TR with 440VA or above.

Control Circuit

ATS is designed to turn OFF the operating current using an internal SW after the operation is completed. When the operating current is turned OFF by an auxiliary SW of body, it may lead to malfunctioning.

Selection of Control Relay

Use the selected voltage Relay 27, 84 and Timer with contact conducting current that exceeds the ATS operating current.

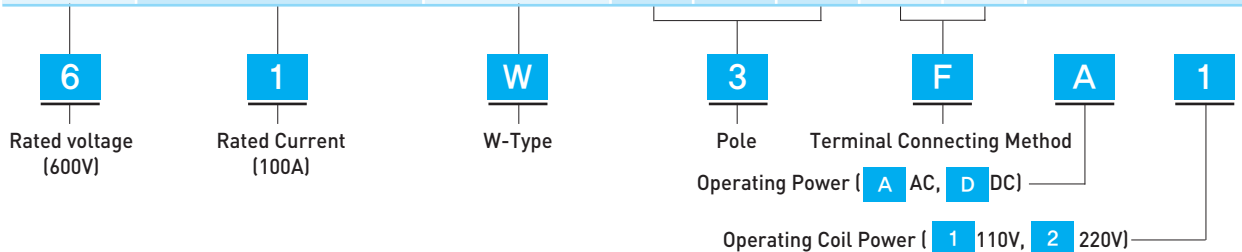
Considering the chattering of control relay, select a relay that can interrupt the operating current which is safer.

- * When the operating power is unstable, use a voltage fixed relay.



Type & Marking Method

Type			Poles			Connection Method		Overview	
Voltage	Current	Type	2	3	4	Front	Back		
			F	B					
2 AC250V	1 100A	HS	○	-	-	○	-	Miniature Type	
	2 200A								
6 AC600V DC125V	1 100A	W	○	○	○	○	○	Economic Type	
	2 200A		○	○	○	○	○		
	4 400A		○	○	○	○	○		
6 AC600V DC125V	1 100A	WP	○	○	○	○	○		
	2 200A		○	○	○	○	○		
	4 400A		○	○	○	○	○		
6 AC600V DC125V	1 100A	WN	○	○	○	○	○	Standard Type	
	2 200A		○	○	○	○	○		
	4 400A		○	○	○	○	○		
	6 600A		-	○	○	○	○		
	10 800/1,000A		-	○	○	○	○		
	16 1,200/1,600A		-	○	○	○	○		
6 AC600V	20 2,000A	WS	-	○	○	-	○	Standard Type	
	30 3,000A		-	○	○	-	○		
	6 600A		○	○	○	○	○		
6 AC600V DC125V	10 800/1,000A	WS	○	○	○	○	○		Standard Type
	16 1200/1,600A		○	○	○	○	○		
	20 2,000A		○	○	○	○	○		
	30 3,000A		-	○	○	-	○		
6 AC600V DC125V	1 100A	CT	○	○	○	○	○	CTTS	
	2 200A		○	○	○	○	○		
	4 400A		○	○	○	○	○		
	6 600A		-	○	○	○	○		
	10 800/1,000A		-	○	○	○	○		
	16 1200/1,600A		-	○	○	○	○		
	20 2,000A		-	○	○	-	○		
	30 3,000A		-	○	○	-	○		



Applied Standard

Low Voltage Auto Transfer Switch ATS, CTTS

Installation Location

Avoid high-temperature and highly humid places and places with poisonous gas.

Installation Direction

ATS is designed to use it by installing it in a certain direction. When the installation direction is changed, the feature will be changed. So, install it accurately. ATS should be installed so that the body rating plate can be read properly when facing the front and it should be installed without any twist, vertical to the panel.

* If a normal installation is not possible due to problems on wiring or equipment arrangement, consult with our company.

Operating Power

In case of DC operation and if a dropper circuit is included in the operating power, the operating power of ATS must be connected to the input part of dropper circuit.

Control Circuit Connection

Use a control power and control line with extra length.

In case of DC operation, be cautious of battery shortage and charging shortage.

Main Circuit Connection

Firmly connect it by selecting wire size and solderless terminal that meets the current capacity.

Be careful not to add an excessive stress to the main circuit terminal.

Especially, when connecting using a Busbar, be careful not to add an excessive stress to the main circuit terminal.

Precautions when Operating Handle

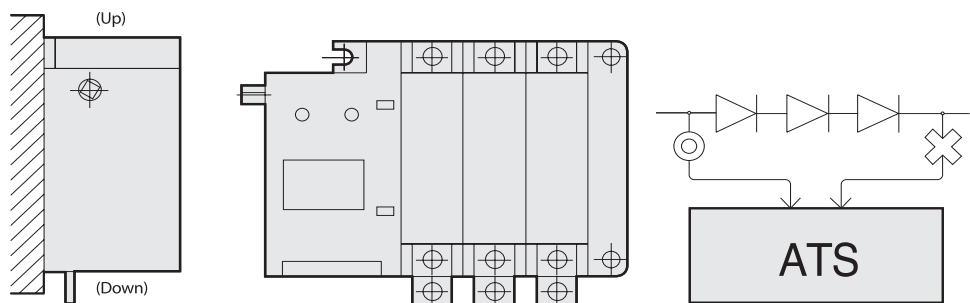
Manual operation of ATS should be carried out only when a detailed inspection of operating part and charging part is performed at no-load status.

There may be some differences in switch force, switch speed and so on based on the manual operation of the operator, so ATS features cannot be guaranteed.

Maintenance & Inspection

Conduct maintenance and inspection at regular cycle in order to maintain the performance of ATS steadily and well.

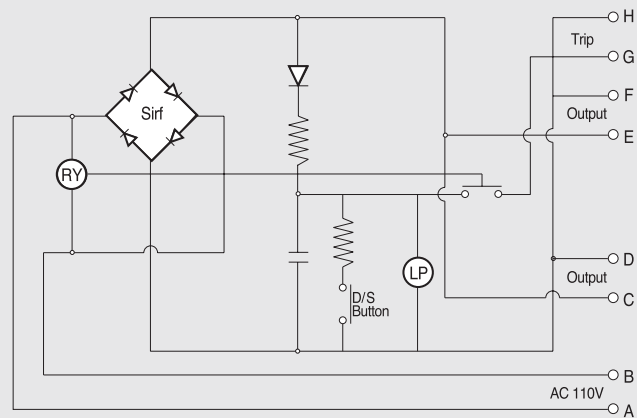
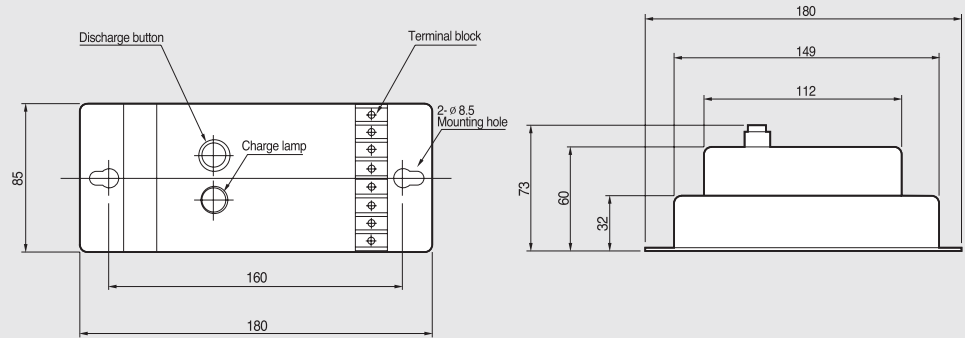
* Refer to the maintenance and inspection items presented in the instruction manual for the detailed information.



Low Voltage Auto Transfer Switch ATS, CTTS

Option

Condenser Trip Device



When using as CTD

When G, H terminals are connected to Trip Circuit during a power failure, it immediately trips. If tripping is required at an optional time, it can be used by adding S/W. (Normal operation is possible within 30 seconds)

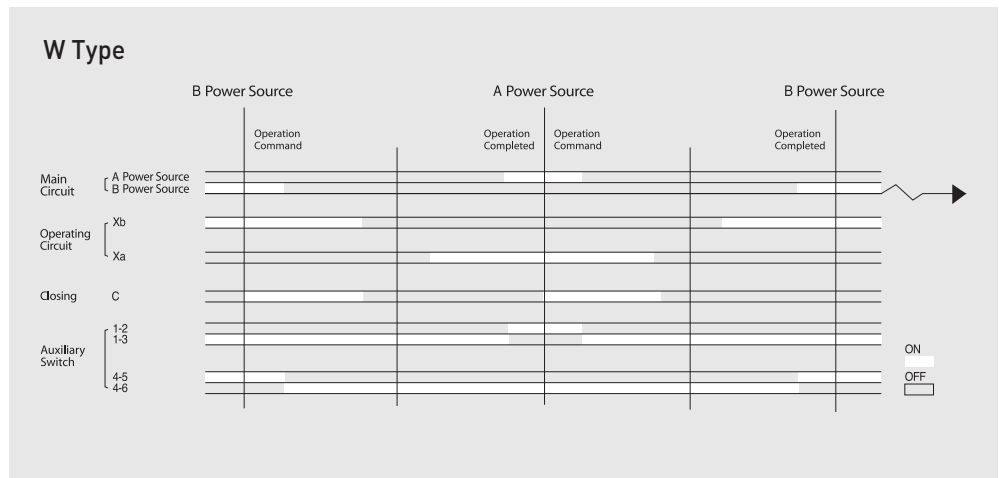
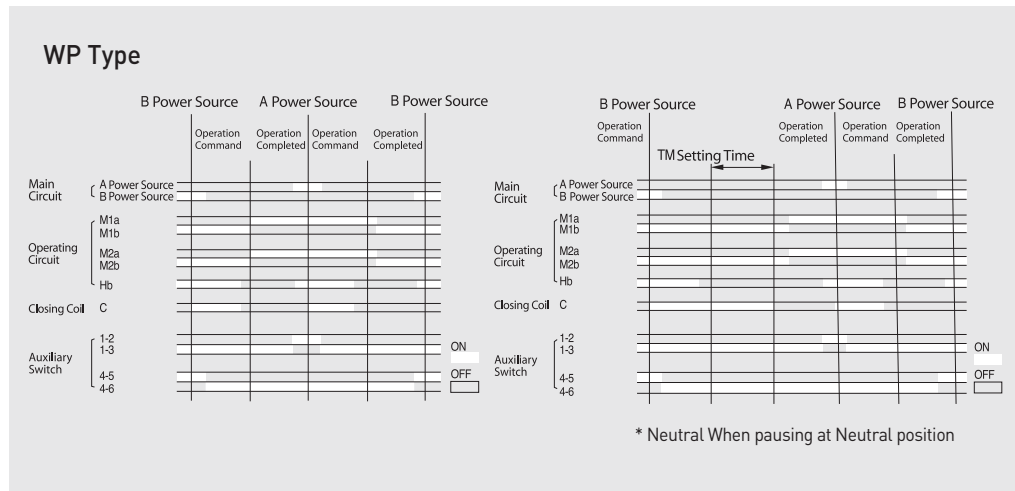
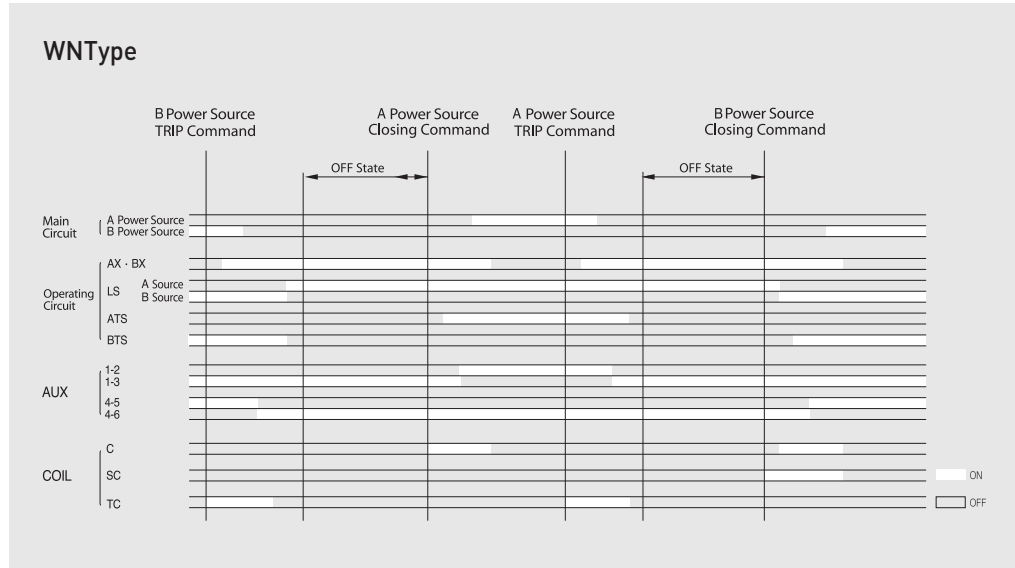
When using as Rectifier

C, D and E, F output terminals can be used as DC power. (Close, Open, Motor OCR Power and etc)

Contact Time Chart & Circuit Diagram

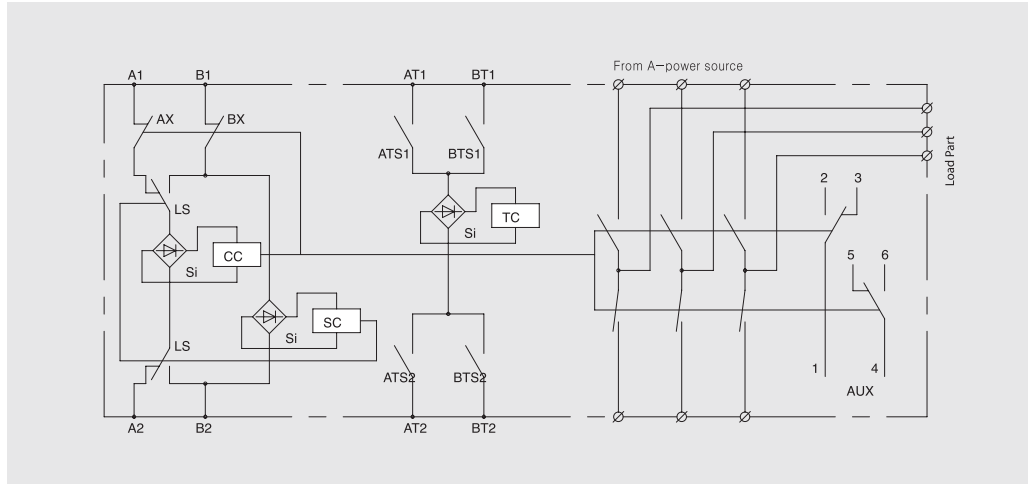
Low Voltage Auto Transfer Switch ATS, CTTS

Contact Time Chart

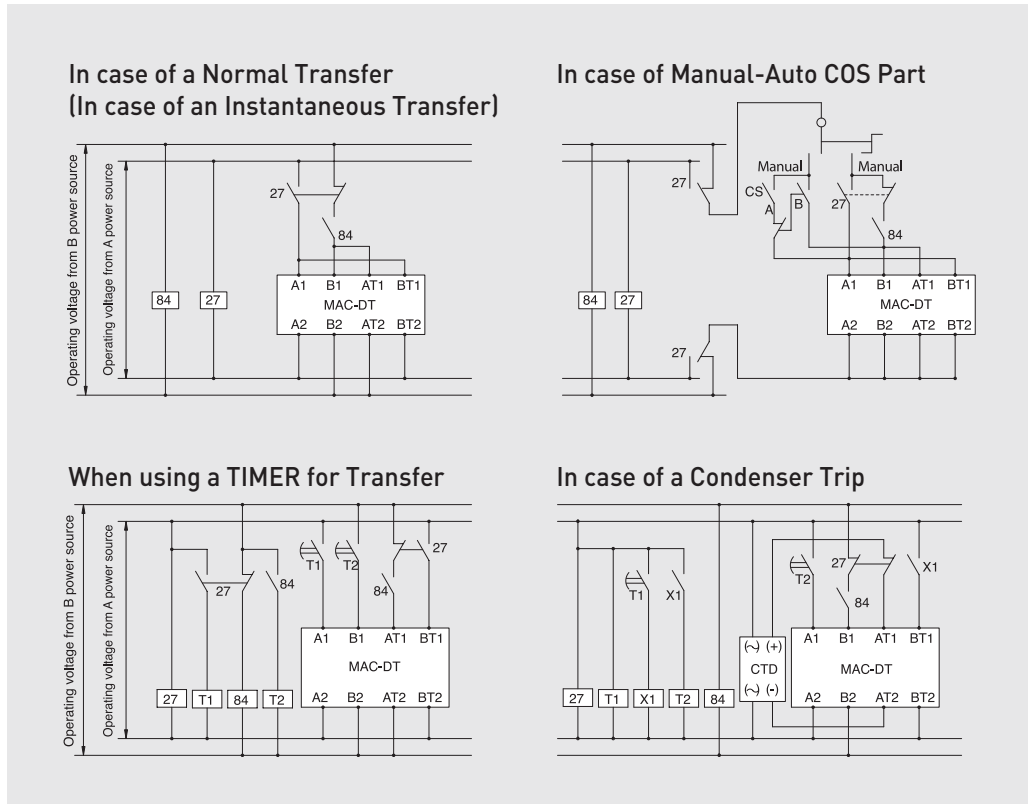


Low Voltage Auto Transfer Switch
ATS, CTTS

WN Type Internal Circuit



WN Type Operating Circuit



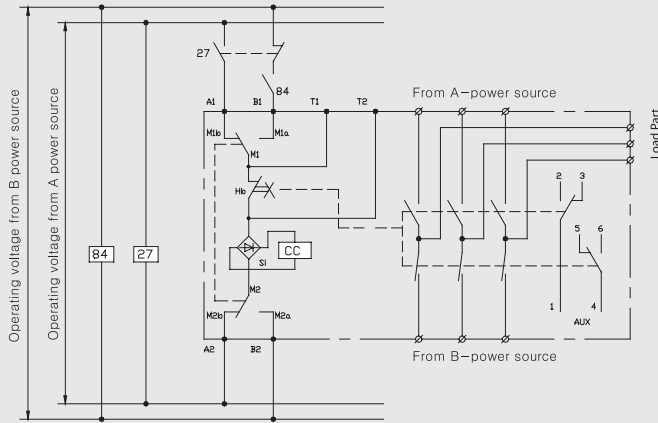
Circuit Diagram

Low Voltage Automatic Transfer Switch ATS, CTTS

WP Type

Internal Circuit

Control Circuit in case of a pause at neutral point



CC : Closing Coil
Si : Silicon Rectifier
Hb : Both Power OFF Pause Switch
M1, M2 : Limit Switch for Operating Power Transfer
AUX : Auxiliary Switch
27, 84 : Voltage Relay

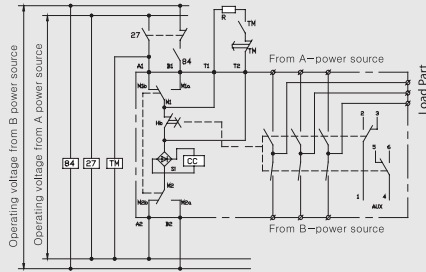
Operating Terminal

A1 - A2 : A Power Source Closing Terminal
B1 - B2 : B Power Source Closing Terminal
T1 - T2 : AUX Connecting Terminal

Operating Circuit 1

Pausing at Neutral Point when transferring B → A

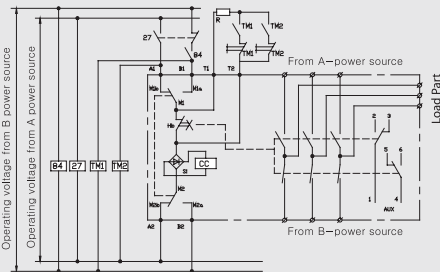
TM : Timer
R : Limited Resistance
27, 84 : Voltage Relay



Operating Circuit 2

Pausing at Neutral Point when transferring from both ways, A → B, B → A

TM1, TM2 : Timer
R : Limited Resistance
27, 84 : Voltage Relay



Precautions

- To pause at a neutral position, connect a Timer and limited resistance to T1, T2 terminals.
 - * Prepare a separate Timer and limited resistance.
- If the pause time is less than 3 seconds at the neutral position, the limited resistance should not be installed.
- The operating voltage to use when pausing at the neutral position should be AC110, AC220V.
- When operating continuously, it should be within 5 times. When operating continuously for more than 5 times, it may malfunction due to overheating of coil or coil may be burned. Be cautious.
- When it is required to pause for more than 30 seconds (Both power OFF), use WN-Type of our company.

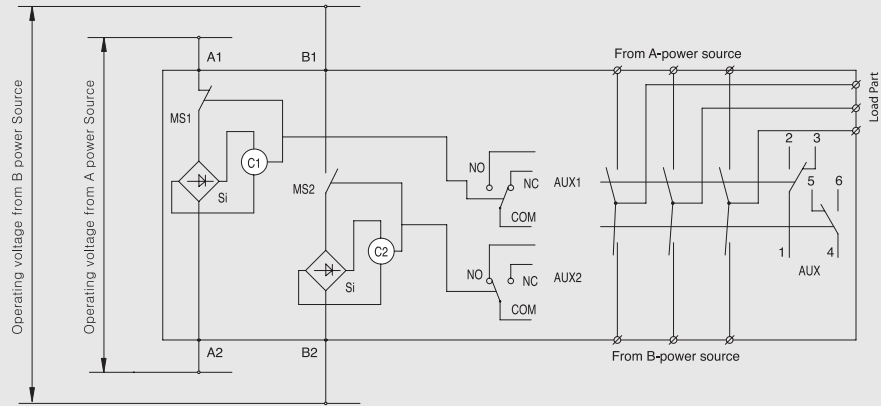
Limited Resistance

Type		61WP ~ 62WP		64WP	
Operating Voltage		AC110V	AC110V	AC110V	AC220V
Timer Used		Select a Timer that can interrupt the operating current.			
Timer Adjusting Time		3sec ~ 30sec			
Limited Resistance	Rated Power	200W	200W	200W	200W
	Resistance	50Ω	50Ω	50Ω	200Ω

W Type

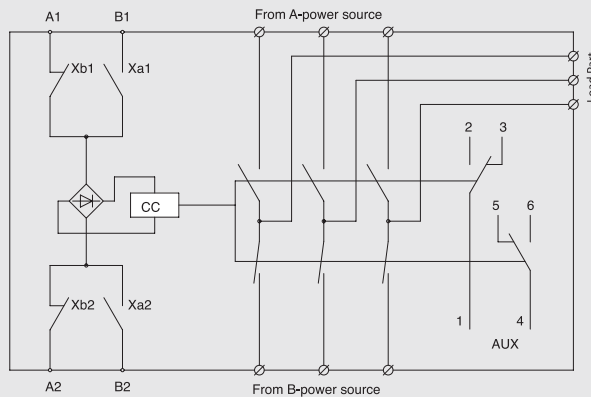
100~200A

Control Circuit Diagram



400A

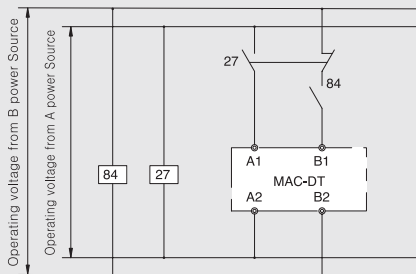
Internal Circuit



Xa1 - Xa2, Xb1 - Xb2 :
Control Switch
CC : Closing Coil
Si : Silicon Rectifier

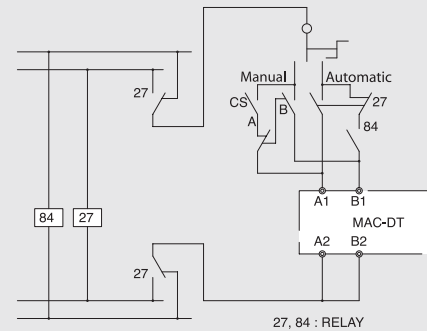
Operating Terminal
A1 - A2 : A-Power Source
Closing Terminal
B1 - B2 : B-Power Source
Closing Terminal
AUX : Auxiliary Switch

Operating Circuit 1



In case of a Normal Transfer
(In case of an Instantaneous Transfer)
* 27, 84: Voltage Relay

Operating Circuit 2



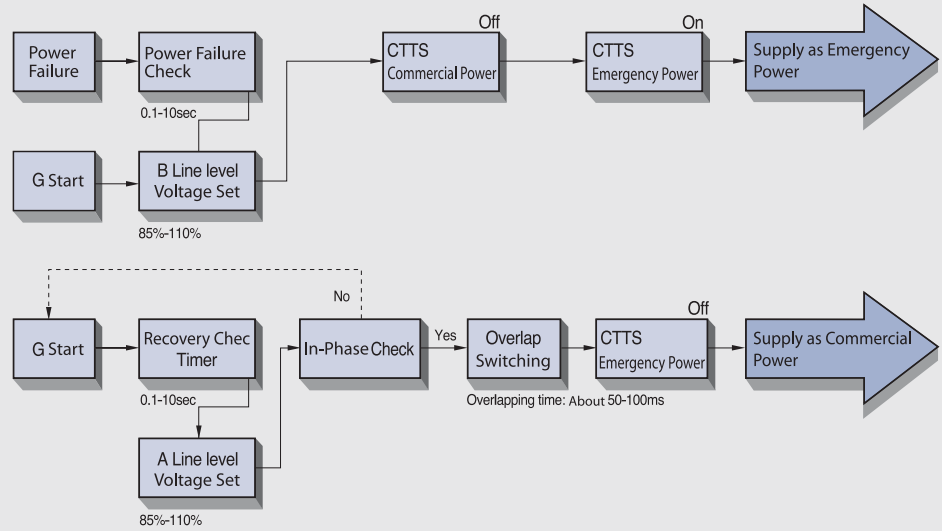
In case of Manual-Auto COS Part
* 27, 84: Voltage Relay

Circuit Diagram

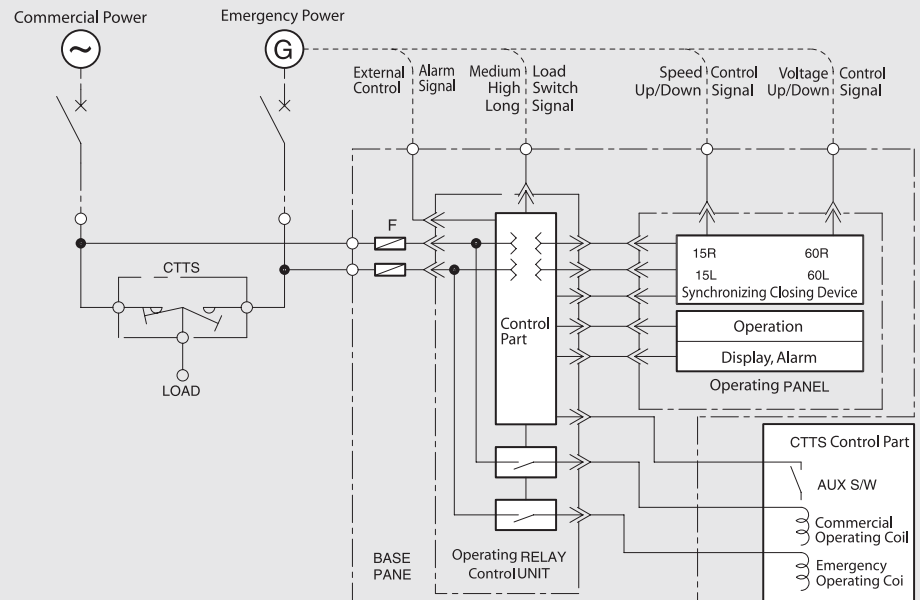
Low Voltage
Automatic Transfer
Switch
ATS, CTTS

CTTS

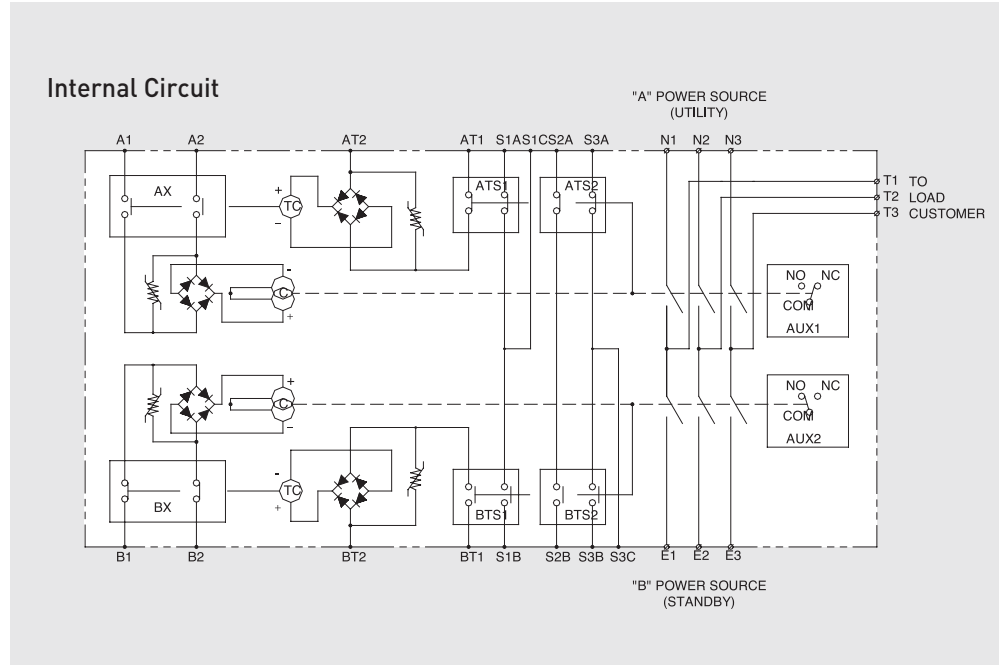
Operational Flow Chart



Operating Circuit



Low Voltage Automatic Transfer Switch
ATS, CTTS



A1, A2	"A" Power source side(On)
AT1, AT2	"A" Power source side(Trip)
ATS1, ATS2	Switch, Position contacts
BTS1, BTS2	
AUX1, 2	Switch, Auxiliary
AX, BX	Switch, Control
B1, B2	"B" Power source side(On)
BT1, BT2	"B" Power source side(Trip)
C	Coil, Closing
COM	Common
CTTS	Closed transition transfer switch
E1, E2, E3	Standby power source conn.
NO	Normally open
NC	Normally closed
N1, N2, N3	Utility power source
S1A, S1B, S1C	Switch, Position sensing
S2A, S2B	
S3A, S3B, S3C	
TC	Coil, Trip
T1, T2, T3	Customer load conn.

All contacts of switch shown in
Utility : Closed
Standby : Open

× : Closed ○ : Open

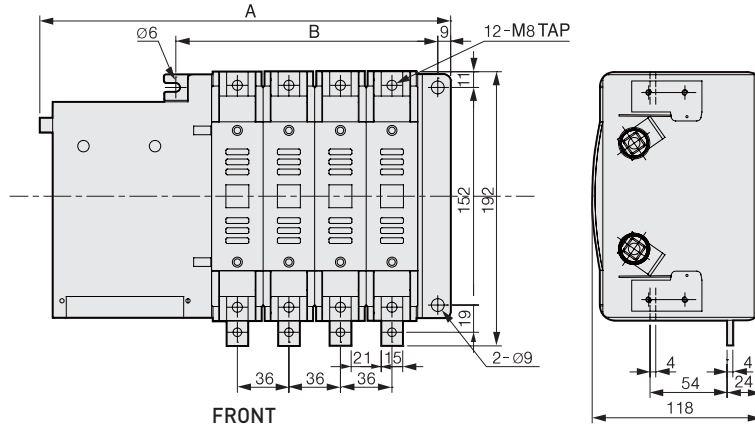
Utility side	Switch position	Utility closed	Neutral	Utility open
Aux. 1	COM - NC	×	○	○
	COM - NO	○	×	×

Standby side	Switch position	Standby Open	Neutral	Standby closed
Aux. 2	COM - NC	○	○	×
	COM - NO	×	×	○

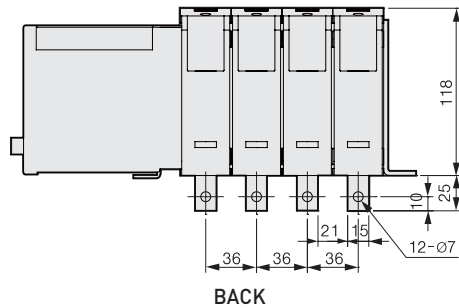
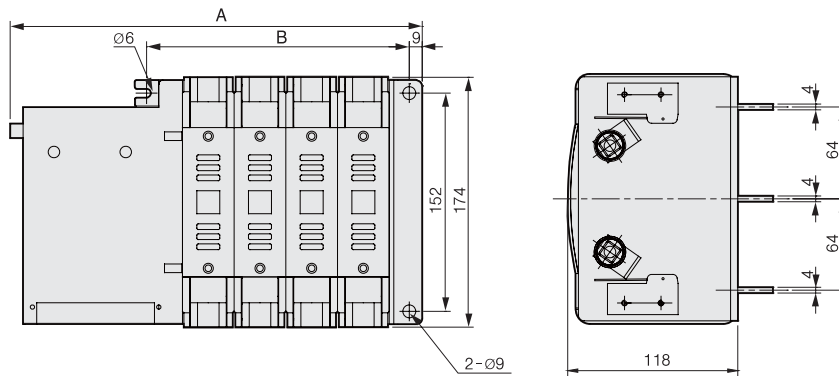
External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 61WN~62WN



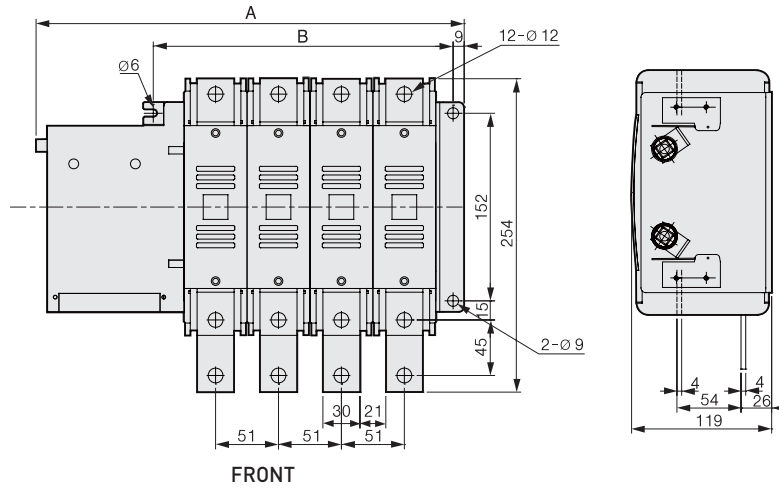
	A	B
2P	215	111
3P	251	147
4P	287	183



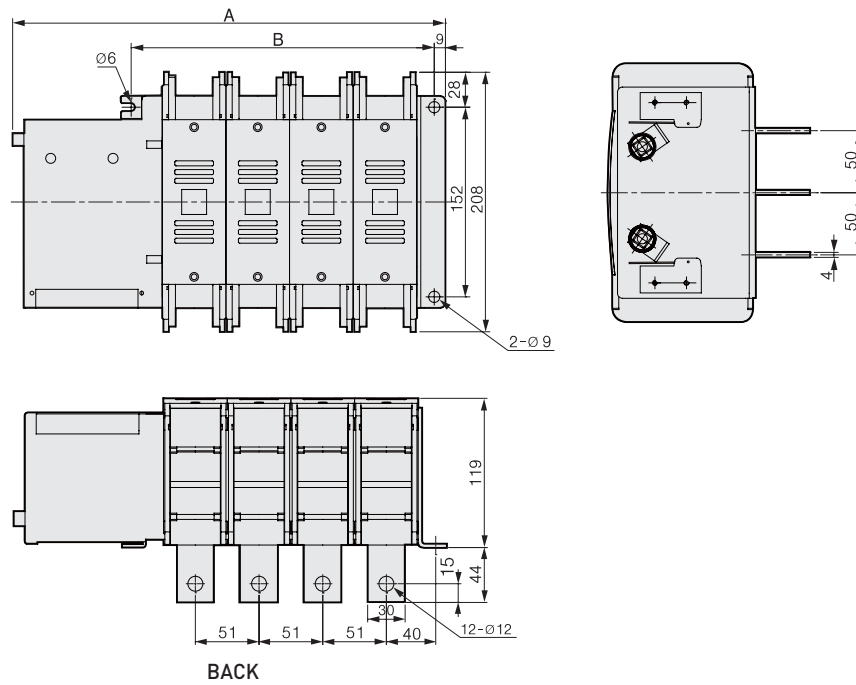
	A	B
2P	215	111
3P	251	147
4P	287	183

Low Voltage Automatic Transfer Switch ATS, CTTs

WN Type _ 64WN



	A	B
2P	245	141
3P	296	192
4P	347	243

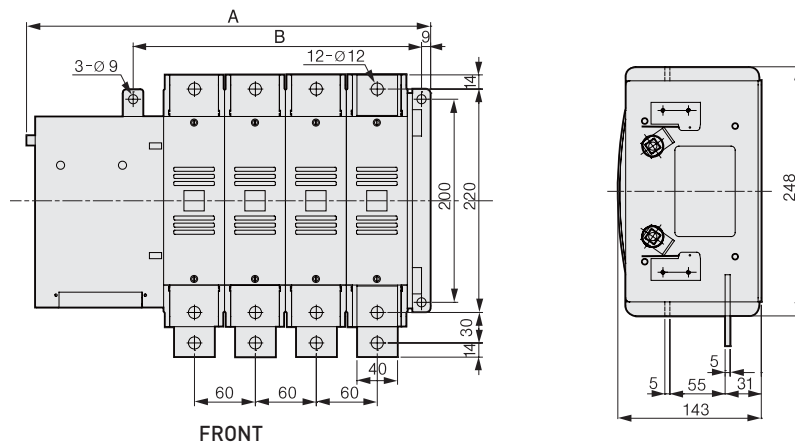


	A	B
2P	245	141
3P	296	192
4P	347	243

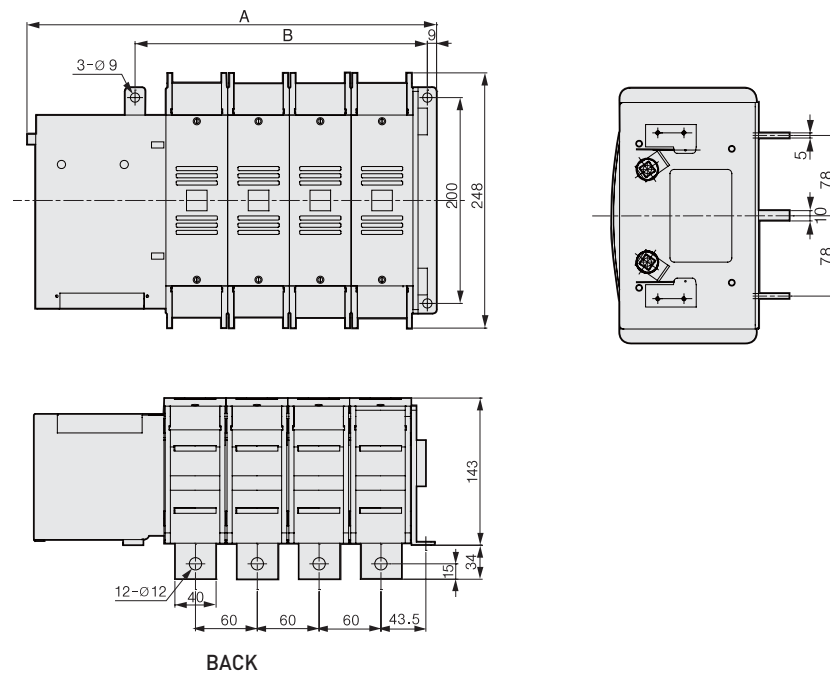
External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 66WN



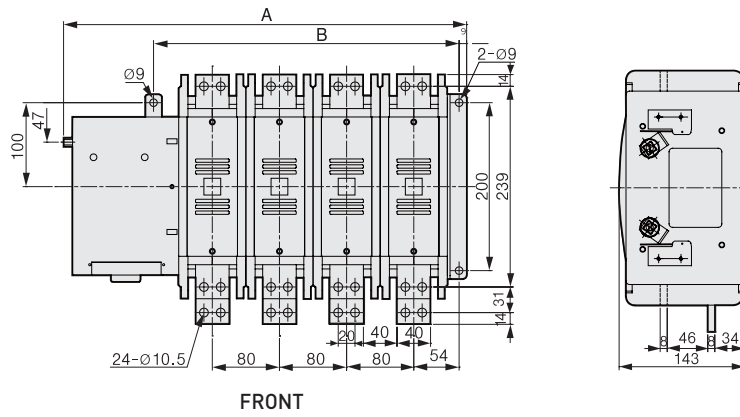
	A	B
3P	340	224
4P	400	284



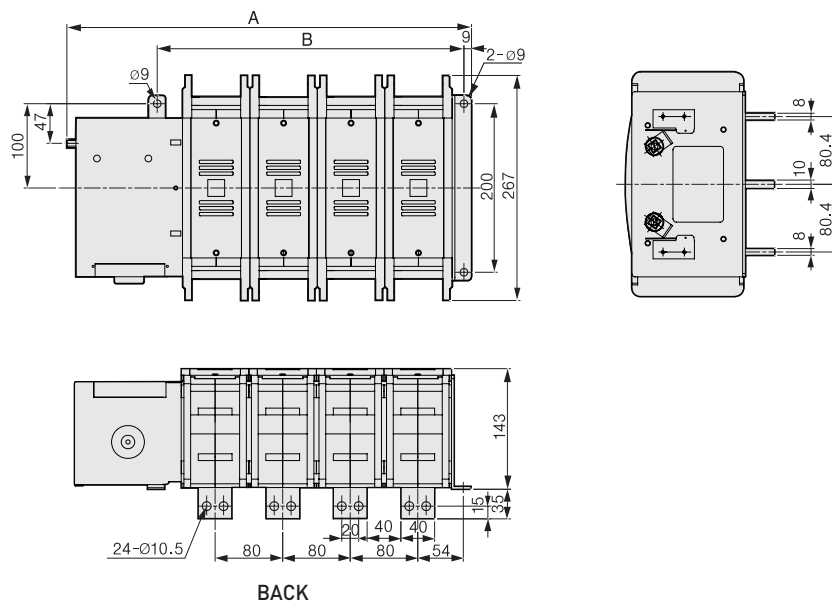
	A	B
3P	340	224
4P	400	284

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 68WN



	A	B
3P	400	284
4P	480	364

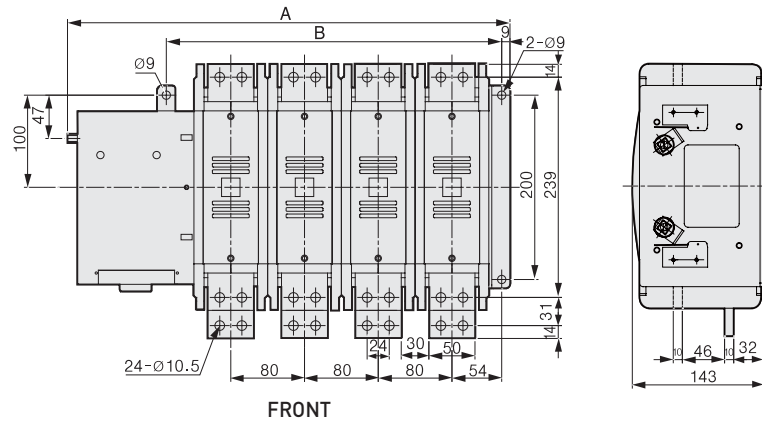


	A	B
3P	400	284
4P	480	364

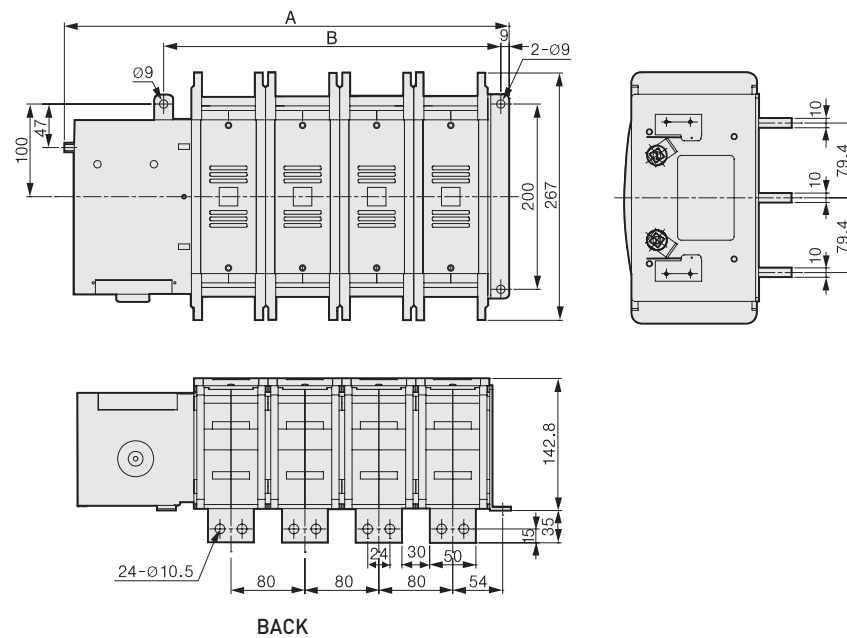
External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 610WN



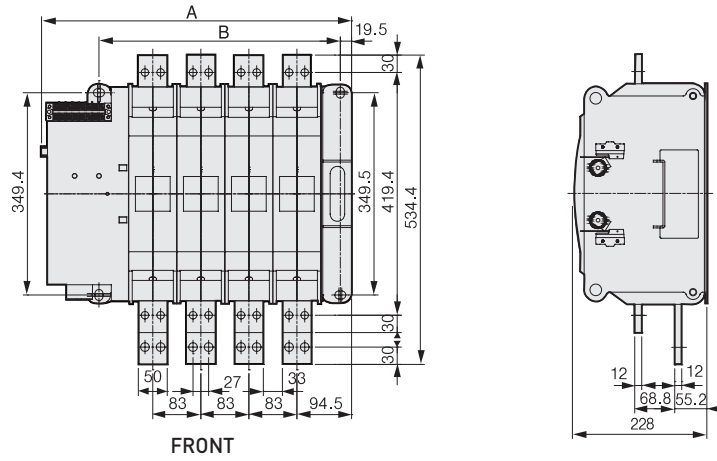
	A	B
3P	400	284
4P	480	364



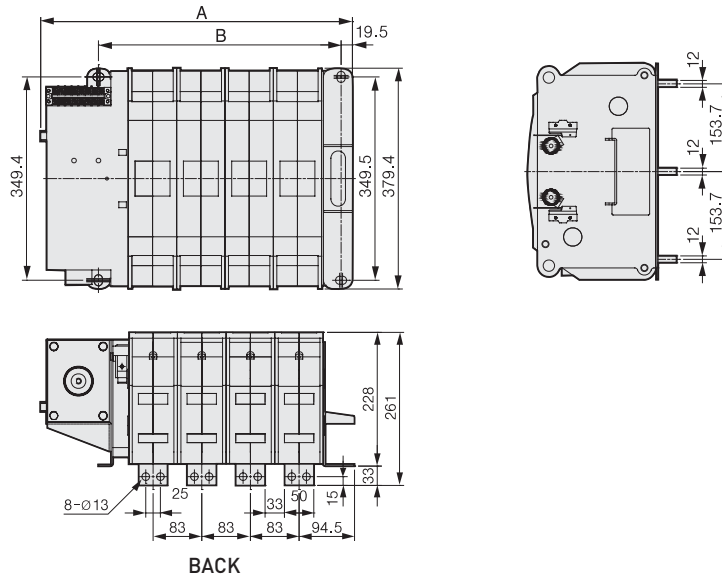
	A	B
3P	400	284
4P	480	364

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 612WN



	A	B
3P	452.7	334
4P	535.7	417

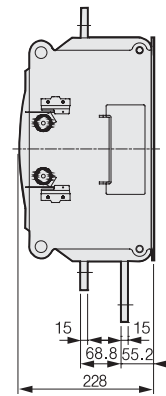
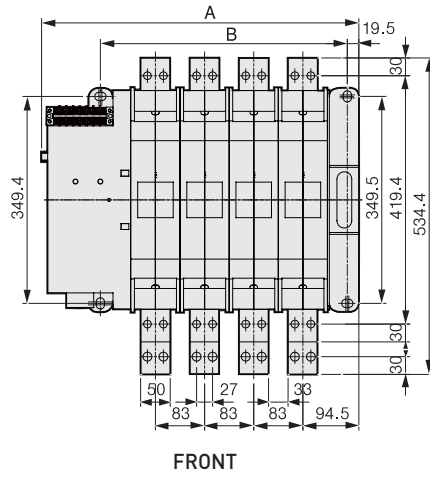


	A	B
3P	452.7	334
4P	535.7	417

External Size

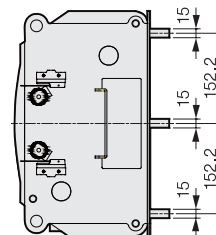
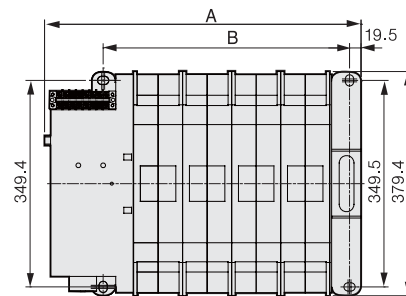
Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 616WN



FRONT

	A	B
3P	452.7	334
4P	535.7	417

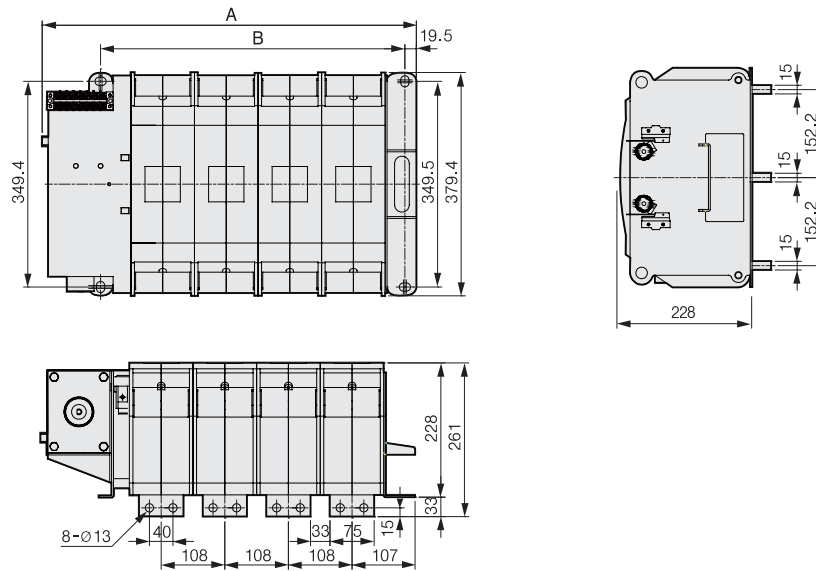


BACK

	A	B
3P	452.7	334
4P	535.7	417

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 620WN



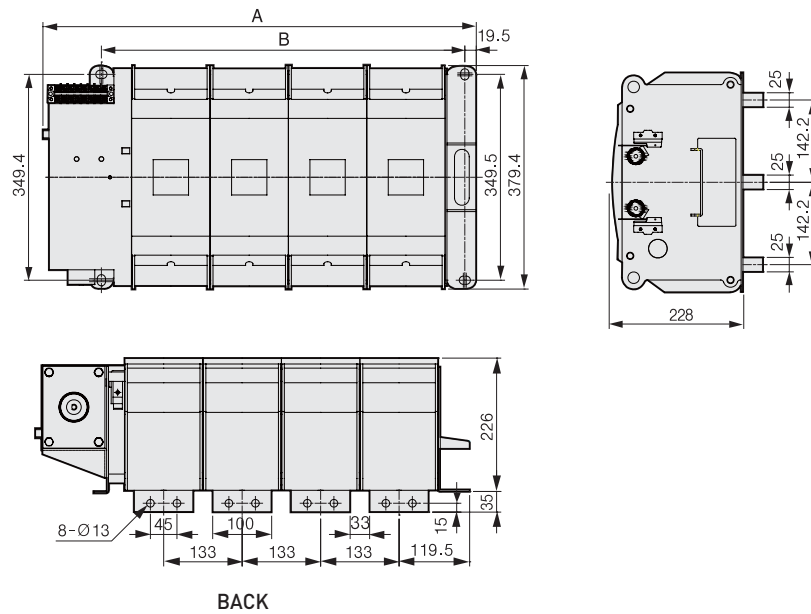
BACK

	A	B
3P	527.7	409
4P	635.7	517

External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type _ 625~630WN

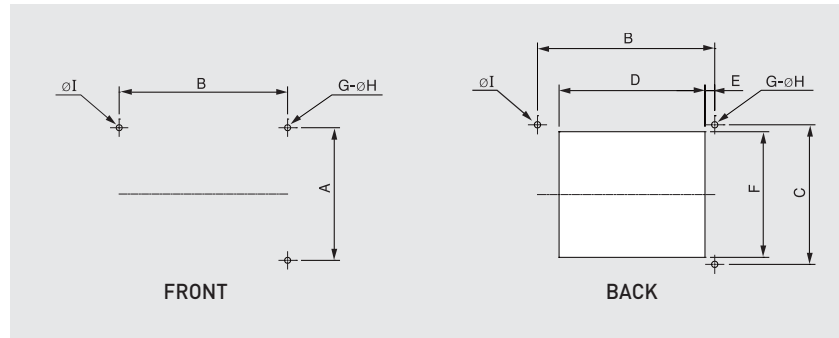


BACK

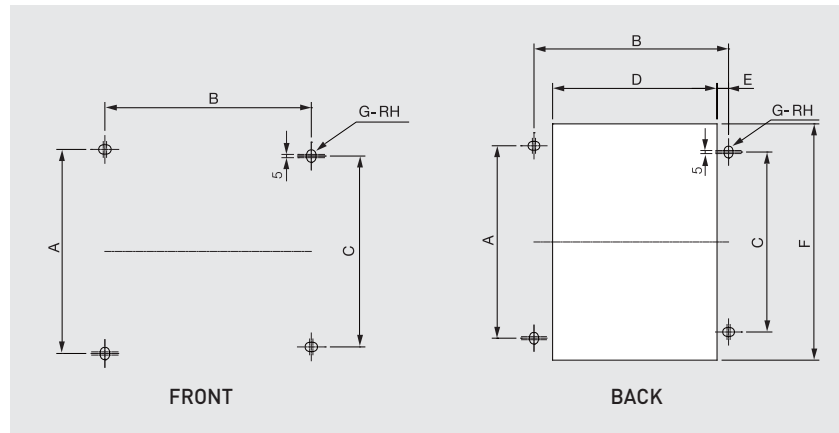
	A	B
3P	602.7	484
4P	735.7	617

Panel Processing Dimension

WN Type _ 100A~1000A



WN Type _ 1200A~3000A

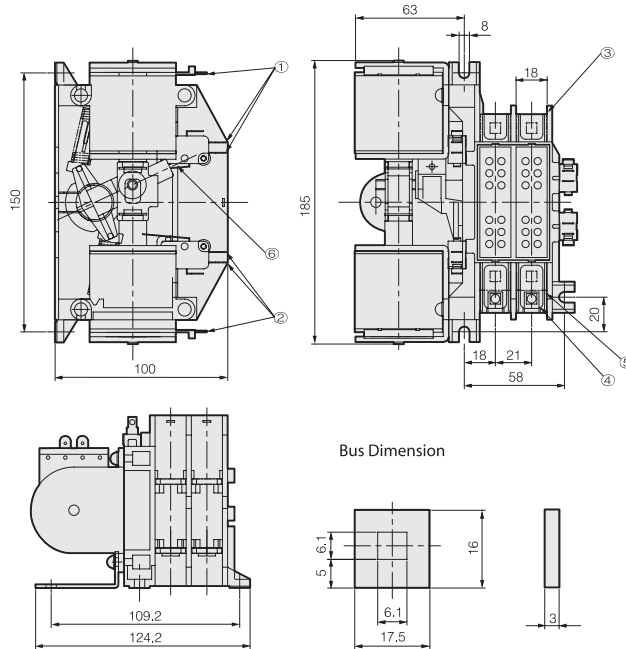


TYPE	100~200A		400A		600A		800A		1000A		1200A		1600A		2000A		3000A	
	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK
A	152	-	152	-	200	-	200	200	200	200	350	350	350	350	350	350	350	350
B	2P	111	111	141	141	-	-	-	-	-	-	-	-	-	-	-	-	-
	3P	147	147	192	192	224	224	284	284	284	284	334	334	334	334	409	484	484
	4P	183	183	243	243	284	284	364	364	364	364	417	417	417	417	517	617	617
C	-	152	-	152	-	200	200	200	200	200	200	350	350	350	350	350	350	350
	2P	-	90	-	120	-	-	-	-	-	-	-	-	-	-	-	-	-
	3P	-	125	-	170	-	200	-	250	-	250	-	279	-	279	354	429	429
D	-	160	-	220	-	260	-	330	-	330	-	362	-	362	462	562	562	562
	-	9.5	-	9.5	-	9	-	9	-	9	-	18.5	-	18.5	18.5	18.5	18.5	18.5
E	-	172	-	155	-	215	-	240	-	240	-	390	-	390	390	390	390	390
F	2	2	2	2	2	2	2	2	2	2	8	8	8	8	8	8	8	8
G	10	10	10	10	10	10	10	10	10	10	7	7	7	7	7	7	7	7
H	7	7	7	7	10	10	10	10	10	10	-	-	-	-	-	-	-	-
I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

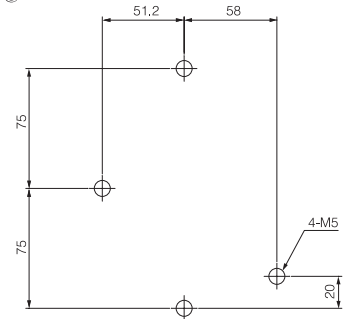
HS Type _ 21HS



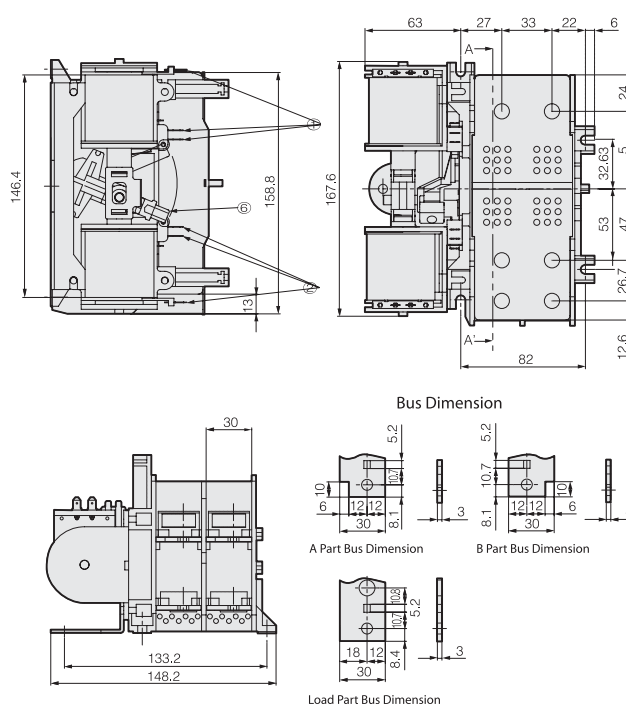
Part Names

- ① A Operating circuit terminal
- ② B Operating circuit terminal
- ③ A power source side main circuit terminal
- ④ Loading side main circuit terminal
- ⑤ B power source side main circuit terminal
- ⑥ Manual operating lever

Panel Processing Dimension (Front)/100A 2P

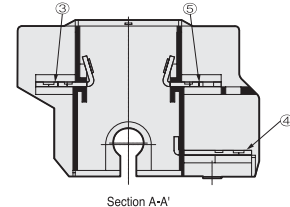


HS Type _ 22HS

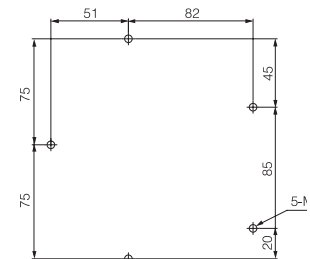


Part Names

- ① A Operating circuit terminal
- ② B Operating circuit terminal
- ③ A power source side main circuit terminal
- ④ Loading side main circuit terminal
- ⑤ B power source side main circuit terminal
- ⑥ Manual operating lever

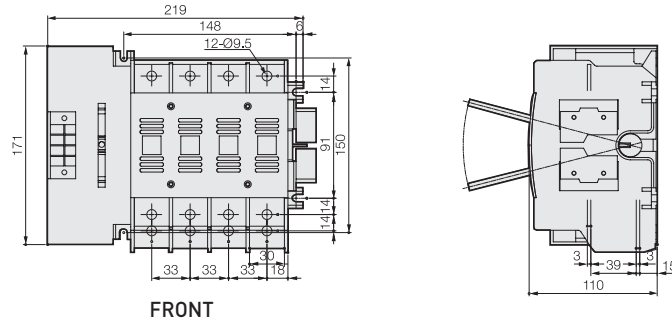


Panel Processing Dimension (Front)/200A 2P

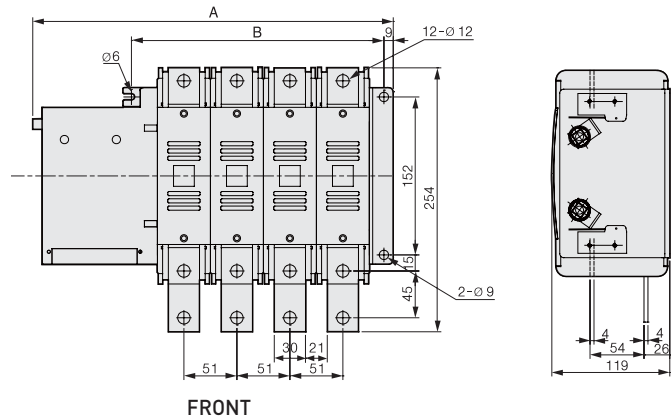


Low Voltage Automatic Transfer Switch ATS, CTTS

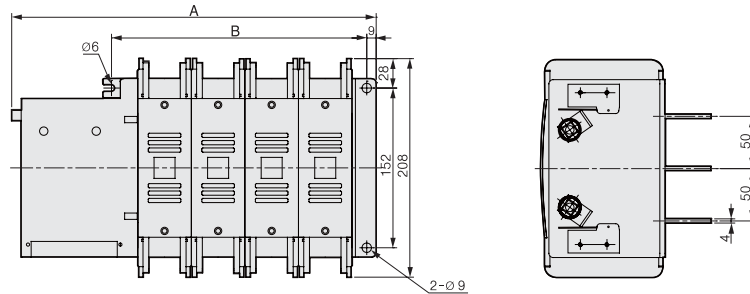
W Type _ 61W~62W



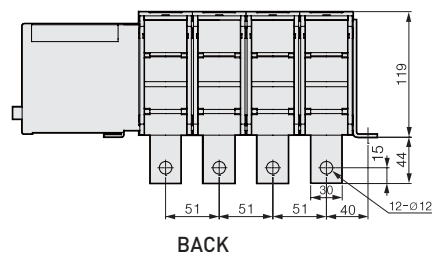
W Type _ 64W



Type	A	B
2P	245	141
3P	296	192
4P	347	243



Type	A	B
2P	245	141
3P	296	192
4P	347	243

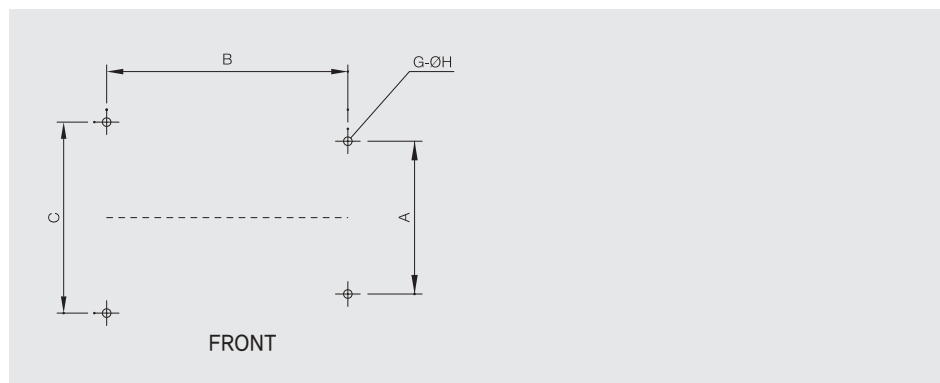


BACK

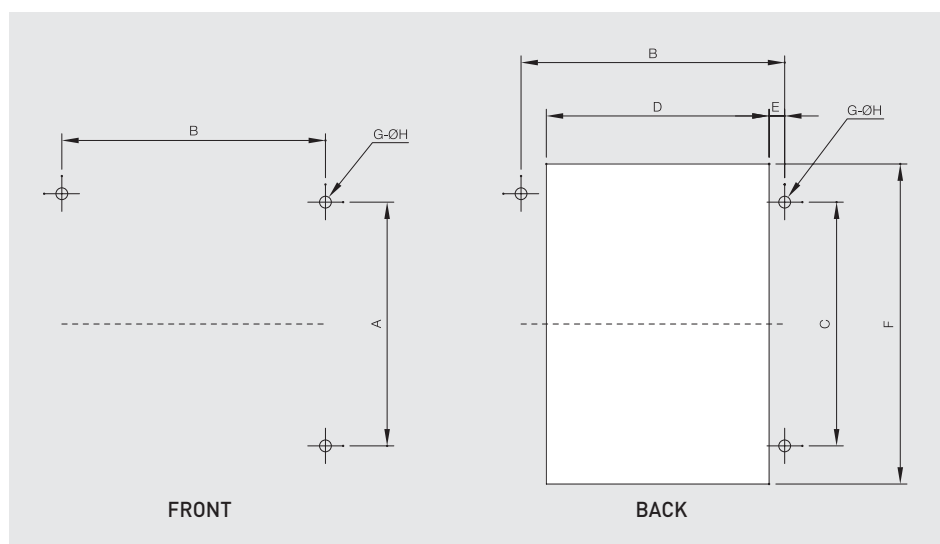
External Size

Panel Processing Dimension

W Type _ 100A~200A



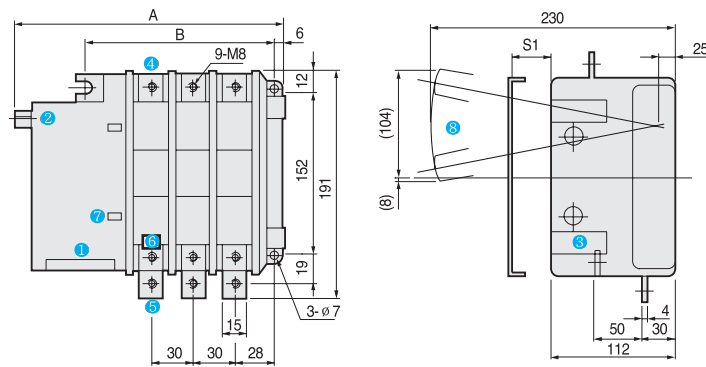
W Type _ 400A



Type	100A~200A		400A	
		FRONT	FRONT	BACK
A		91	152	-
B	2P	-	141	141
	3P	148	192	192
	4P	148	243	243
C		150	152	152
D	3P	-	-	120
	4P	-	-	170
		-	-	220
E		-	-	9.5
F		-	-	155
G		4	3	3
H		9	9	9

Low Voltage Automatic Transfer Switch ATS, CTTS

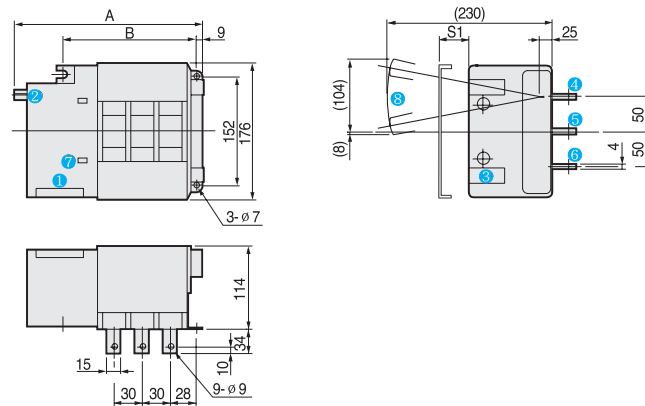
WP Type _ 61WP Front connection



Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	214	113
3P	244	143
4P	274	173

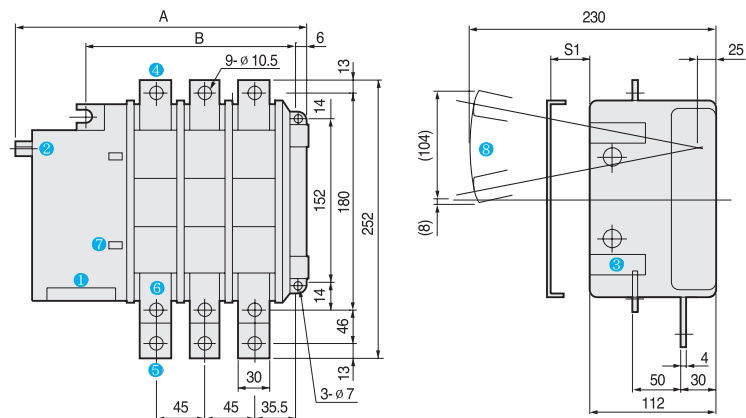
WP Type _ 61WP Back connection



Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	214	113
3P	244	143
4P	274	173

WP Type _ 62WP Back connection



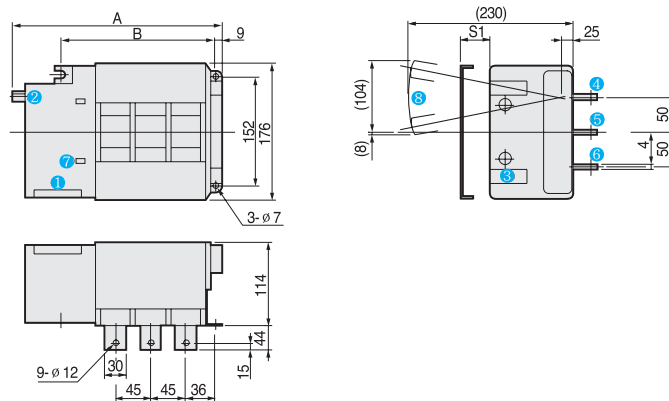
Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	244	143
3P	289	188
4P	334	233

External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

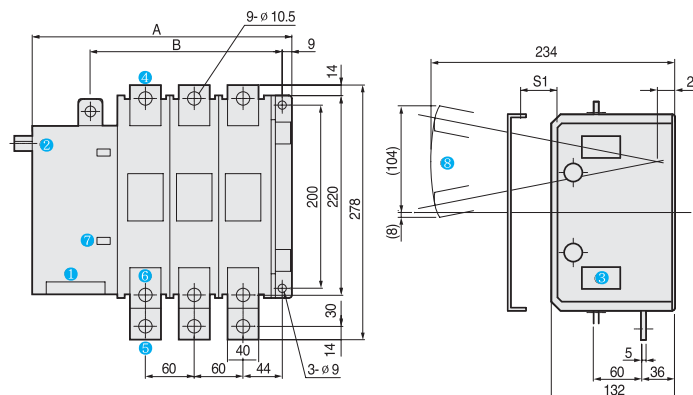
WP Type _ 62WP Back connection



Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	244	143
3P	289	188
4P	334	233

WP Type _ 64WP Front connection

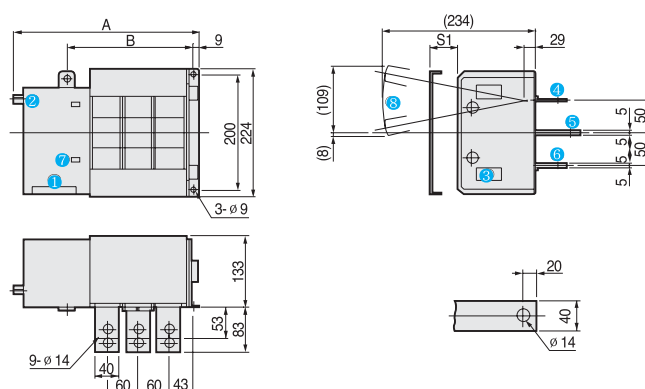


Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	290	174
3P	350	234
4P	410	294

- 1 Operation Main Circuit Terminal
- 2 Manual Operating Shaft
- 3 Auxiliary Switch
- 4 A-Power Source Main Circuit Terminal
- 5 Load Part Main Circuit Terminal
- 6 B-Power Source Main Circuit Terminal
- 7 Switch Display
- 8 Manual Handle

WP Type _ 64WP Back connection



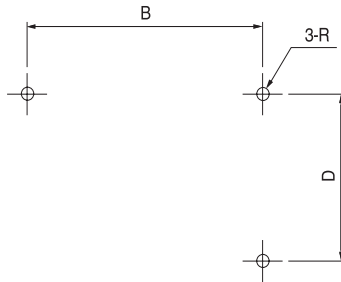
Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	290	174
3P	350	234
4P	410	294

- 1 Operation Main Circuit Terminal
- 2 Manual Operating Shaft
- 3 Auxiliary Switch
- 4 A-Power Source Main Circuit Terminal
- 5 Load Part Main Circuit Terminal
- 6 B-Power Source Main Circuit Terminal
- 7 Switch Display
- 8 Manual Handle

Panel Processing Dimension

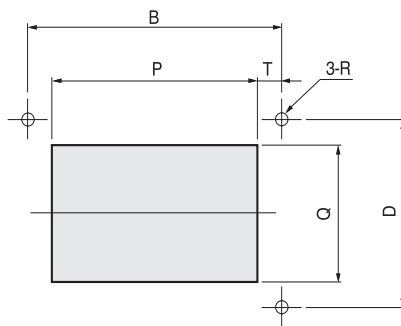
WP Type _ 61-64WP Front connection



WP-Type

Type	606-61WP	62WP	64WP	
B	2P	113	143	174
	3P	143	188	234
	4P	173	233	294
D	152	152	200	
R	M5		M8	

WP Type _ 61-64WP Back connection



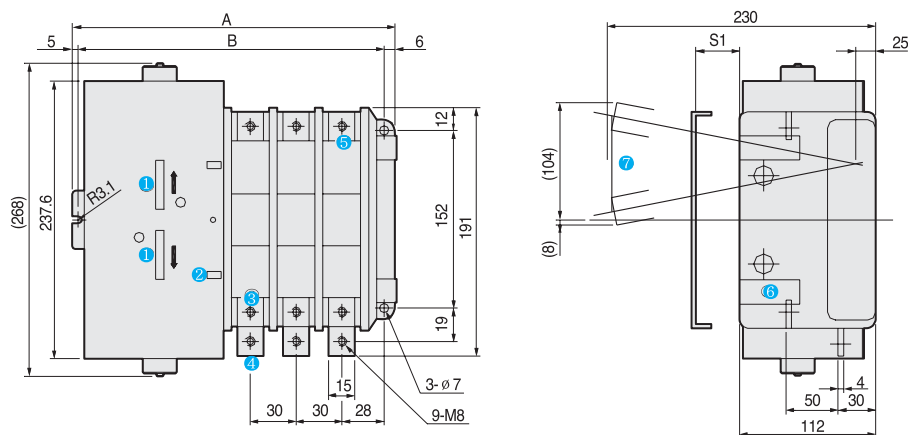
WP-Type

Type	606-61WP	62WP	64WP	
B	2P	113	143	174
	3P	143	188	234
	4P	173	233	294
D	152	152	200	
B	2P	85	110	135
	3P	115	155	195
	4P	145	200	255
Q			180	
T			9	
R	M5		M8	

External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

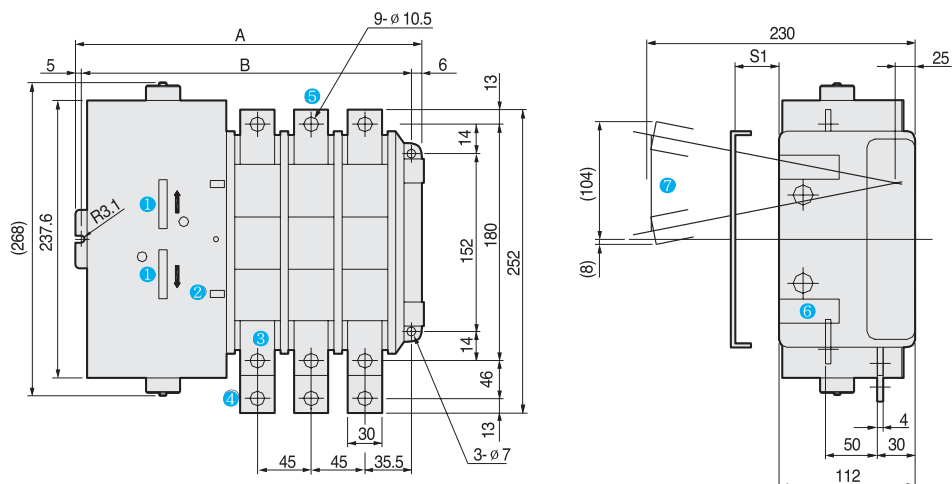
CTTS Type _ 61CT Front connection



Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	210,8	199,8
3P	240,8	229,8
4P	270,8	259,8

CTTS Type _ 62CT Front connection



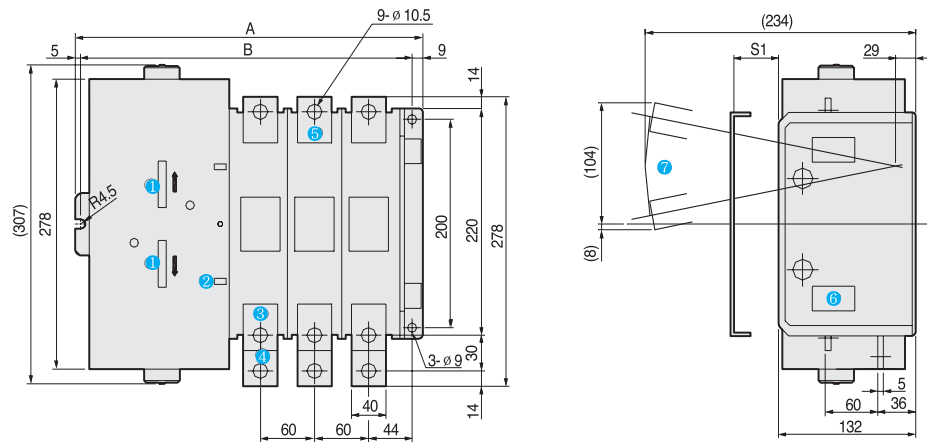
- ① Manual Operation Hole
- ② Switch Display
- ③ B-Power Source Main Circuit Terminal
- ④ Load Part Main Circuit Terminal
- ⑤ A-Power Source Main Circuit Terminal
- ⑥ Auxiliary Switch
- ⑦ Manual Handle

Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	240,8	229,8
3P	285,8	274,8
4P	330,8	319,8

Low Voltage Automatic Transfer Switch ATS, CTTS

CTTS Type _ 64CT Front connection

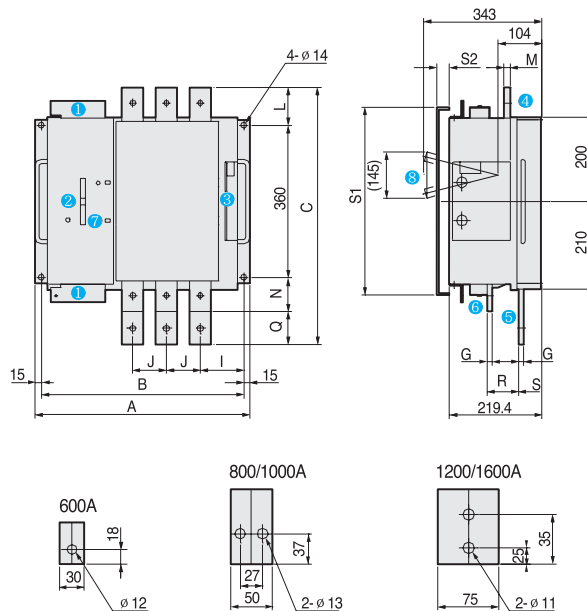


- 1 Manual Operation Hole
- 2 Switch Display
- 3 B-Power Source Main Circuit Terminal
- 4 Load Part Main Circuit Terminal
- 5 A-Power Source Main Circuit Terminal
- 6 Auxiliary Switch
- 7 Manual Handle

Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

Type	A	B
2P	292,5	278,5
3P	352,5	338,5
4P	412,5	398,5

CTTS Type _ 66-616CT Front connection



- 1 Operating Circuit Terminal
- 2 Manual Operation Hole
- 3 Auxiliary Switch
- 4 A-Power Source Main Circuit Terminal
- 5 Load Part Main Circuit Terminal
- 6 B-Power Source Main Circuit Terminal
- 7 Switch Display
- 8 Manual Handle

Arc space Size

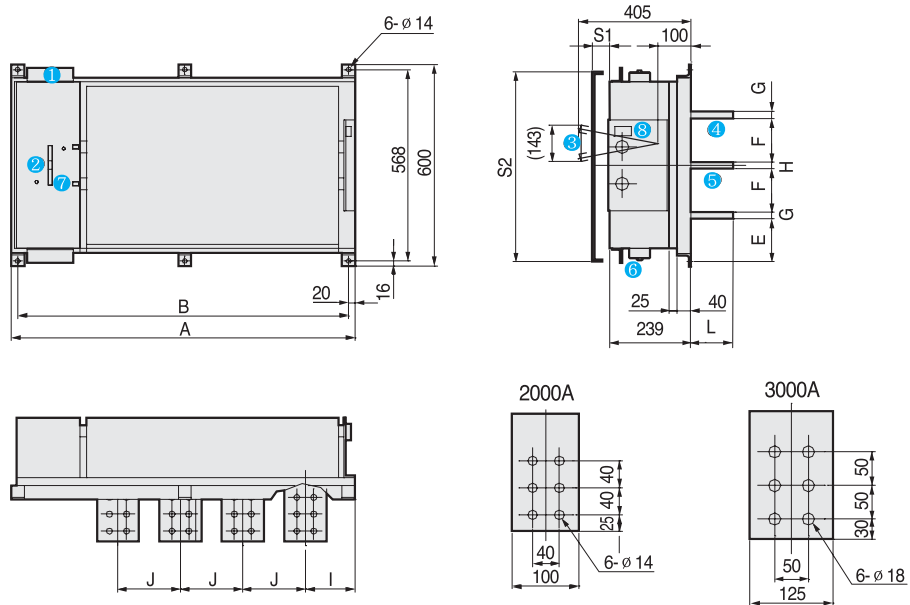
Type	A	B
2P	25mm	430mm
3P	90mm	450mm

Type	600A	800A	1000A	1200A	1600A
A	3P 465	510	570		
	4P 530	590	670		
B	3P 435	480	540		
	4P 500	560	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	15	79,5	109		
Q	44	78	65		
R	65	74	76		
S	55	55	57		

External Size

Low Voltage Automatic Transfer Switch ATS, CTTS

CTTS Type _ 620-630CT Back connection



- 1 Operating Circuit Terminal
- 2 Manual Operation Hole
- 3 Auxiliary Switch
- 4 A-Power Source Main Circuit Terminal
- 5 Load Part Main Circuit Terminal
- 6 B-Power Source Main Circuit Terminal
- 7 Switch Display
- 8 Manual Handle

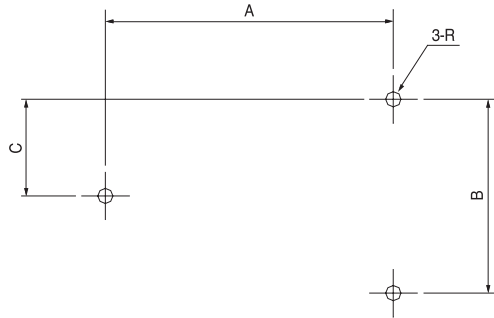
Arc spaceSize

Main circuit voltage	S1	S2
200V	50	560
600V	100	600

Type	2000A	3000A
A	3P	683
	4P	818
B	3P	645
	4P	780
E	128,5	126
F	132,5	130
G	15	20
H	15	20
I	123	148
J	135	185
L	90	125

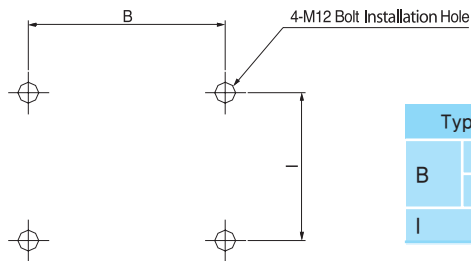
Panel Processing Dimension

61-64CT Front connection



Type	100A	200A	300A	
A	2P	199,8	229,5	278,5
	3P	229,8	274,8	338,5
	4P	259,8	319,8	398,5
B		152	200	
C		76	100	
R		M5	M8	

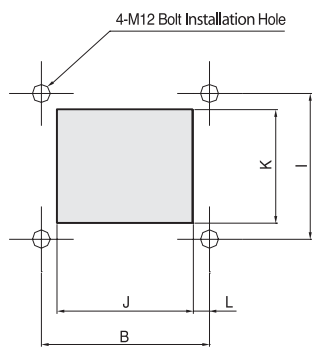
66-616CT Front connection



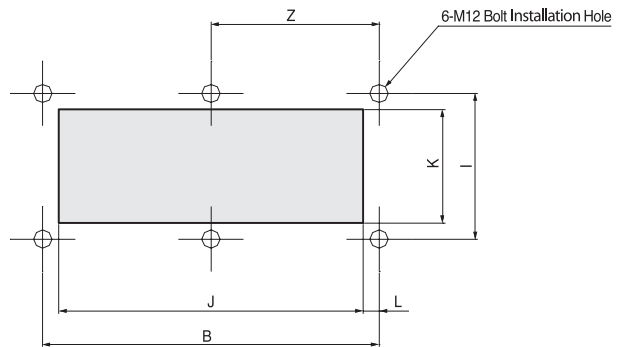
Type	600A	800A	1000A	1200A	1600A
B	2P	435	480	540	
	3P	500	560	640	
I	360	360	360		

620-630CT Back connection

CTTS 2000A-3000A (3P)



CTTS 3000A (4P)



Type	200A	300A	
B	2P	645	795
	3P	780	980
I	568	568	
J	3P	420	545
	4P	555	730
B	460	460	
C	28	40	
R	-	490	

BUREAU VERITAS
Certification



Certification

Awarded to

VITZROTECH Co., Ltd.

Head office : #233-3, 1-Dong, Sungsu-2Ga, Sungdong-Gu, Seoul, KOREA
Factory : 605-2, Sunggok-Dong, Danwon-Gu, Ansan-City, Kyunggi-Do, KOREA

Bureau Veritas Certification certify that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below

Standards

ISO 9001:2000 / KS A 9001:2001

Scope of supply

DESIGN/DEVELOPMENT, PRODUCTION, SALES AND SERVICING OF VACUUM CIRCUIT BREAKER, VACUUM CONTACTOR, VACUUM INTERRUPTER, AIR CIRCUIT BREAKER, LOAD BREAK SWITCH, AUTOMATIC TRANSFER SWITCH, MAIN CIRCUIT BREAKER FOR ELECTRIC RAILWAY, SURGE PROTECTION EQUIPMENT, OUTDOOR VACUUM SWITCH, DISCONNECTING SWITCH, POLYMER LIGHTNING ARRESTER, CABLE TERMINATION KIT, CABLE SPLICE KIT, INSTRUMENT AND CONTROL SYSTEM, SUPERVISOR AND MAINTENANCE CONTROL SYSTEM FOR SUBSTATION FACILITIES, MOTOR CONTROL CENTER AND SEWITCHGEAR

Original Approval Date: **01 August 1998**

Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until: **22 June 2007**

To check this certificate validity please call (+662 670 4800)

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization

Date: **14 February 2007**

Certificate Number: **158328**



Bureau Veritas Certification
Using the accreditation
certificate number 008

008

ISSUING OFFICE: Bureau Veritas Certification (UK) Ltd,
S.A., 2nd Floor, Tower Bridge Court, 224-226 Tower Bridge Road,
London SE1 2TX
MANAGING OFFICE: Bureau Veritas Certification Korea Ltd
Rm 1102, Krungsil Tower, 677-25, Yeoksam-Dong, Gangnam-Gu,
Seoul, Korea



BUREAU VERITAS
Certification



Certification

Awarded to

VITZROTECH Co., Ltd.

605-2, Sunggok-Dong, Danwon-Gu, Ansan-City, Kyunggi-Do, KOREA

Bureau Veritas Certification certify that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below

Standards

ISO 14001:2004 / KS A 14001:2004

Scope of supply

DESIGN/DEVELOPMENT, PRODUCTION, SALES AND SERVICING OF VACUUM CIRCUIT BREAKER, VACUUM CONTACTOR, VACUUM INTERRUPTER, AIR CIRCUIT BREAKER, LOAD BREAK SWITCH, AUTOMATIC TRANSFER SWITCH, MAIN CIRCUIT BREAKER FOR ELECTRIC RAILWAY, SURGE PROTECTION EQUIPMENT, OUTDOOR VACUUM SWITCH, DISCONNECTING SWITCH, POLYMER LIGHTNING ARRESTER, CABLE TERMINATION KIT, CABLE SPLICE KIT, INSTRUMENT AND CONTROL SYSTEM, SUPERVISOR AND MAINTENANCE CONTROL SYSTEM FOR SUBSTATION FACILITIES, MOTOR CONTROL CENTER AND SEWITCHGEAR

Original Approval Date: **29 December 2003**

Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until: **28 November 2009**

To check this certificate validity please call (+662 670 4800)

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization

Date: **11 April 2007**

Certificate Number: **271402**



Bureau Veritas Certification
Using the accreditation
certificate number 008

008

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MANAGING OFFICE: Bureau Veritas Certification Korea Ltd.
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Seoul, Korea

