

A6 Automatic Transfer Switches

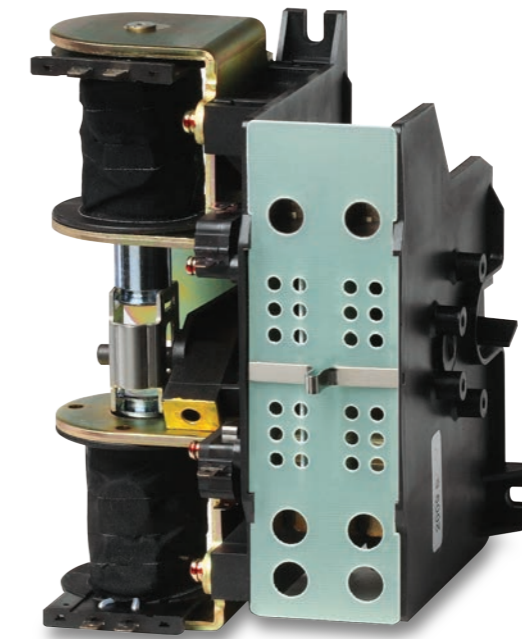
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Automatic Transfer Switches 100~200A

It combines new IT technologies to design and produce the optimal solution for any customer environment. This premium offering is complete with user-centered protection to satisfy a wide range of customer needs and ensure maximum safety.



Saving Power

- Low operating current instantaneous excitation system.

Safety Design

- Contact is semi-permanent by mold construction in anti-vibration zones.

2-Coil System

- Convenient operation with 2-Coil is adopted.

Miniature Structure

- It can be built into portable generators or UPS, and is ideal for single-phase load less than 200A.

Certificate & Approval

- IEC 60947-6/UL1008

Automatic Transfer Switches

100~3000A

Innovative convenience and ergonomics are adopted.

It is also a premium product that delivers user-centric reliability while delivering the best solution for a wide range of customer environments with world-class reliability.



Certificate & Approval

- It is a product applied with the accumulated switch design and application technologies, operating machine design technology and insulation design technology.
- It is a product with the largest short circuit capacity and applied with the international standards IEC60947-3 (Transfer Switching Equipment) and IEC60947-6-1(Transfer Switching Equipment).
- It is an automatic transfer switch equipped with the breaking capacity and its reliability has improved (Obtained a short circuit certificate through KERI Type Test).
- It has both-way breaking capacity.

It is possible to install a 1000 mm panel board for all types through an optimal reduction of exterior structure

- Standard type up to 73% less cosmetic. / Economic type up to 48% less external.
- It can be built inside the movable generator or UPS since it is in a miniature structure.
- It is possible to supply a stable power by composing a separate system.

The transparent terminal cover and insulation molding provides safety

- Transparent insulation cover for access terminals enhances insulation performance against ingress of foreign material and improves operator safety.
- A sealed structure with fully molded insulation to maximize the safety of the operator and lifespan of the device.
- Transparent terminal cover adoption makes it easy to identify terminal connections and makes it easy to work with terminal covers when carrying out a connection.
- It stressed harmony with the surrounding equipment with wired external structure.

It is easy to carry out maintenance and designed in a safe structure

- It is easy to attach/detach the insulation cover of the front part so that it is easy to identify the structural health of the breaking part and connecting terminal part.
- It is easy to check the switching performance and main contact state through a simple, removable Arc Shute structure.
- The operational part is protected by a steel cover and the structural health of solenoid can be checked by a simple removable.

Each phase has been individually sealed for enhanced prevention and safety

- Individual moldings and closures on each of the phase improve blocking performance and increase device lifespan.
- Short arc time and low contact consumption during opening and closing causes semi-permanent life.
- The open operation by means of separate breaking springs ensures consistent and reliable shutdown performance regardless of operating voltage.

Improved safety for users

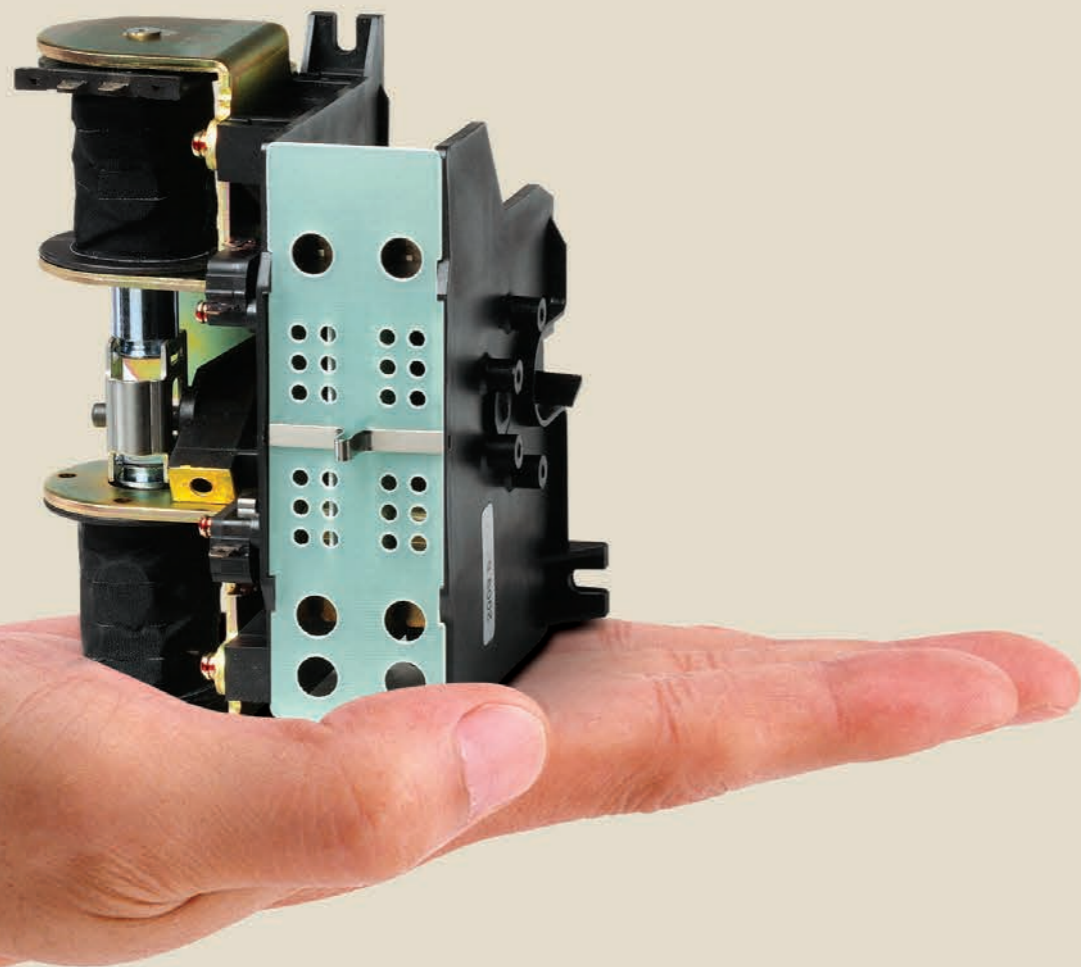
- The protection and breaking capacity of main points have been enhanced by the design of the trip system after the lines are inserted at the auxiliary contacts Improved safety for users.
- Excellent opening and closing function enables low-arcing arc production for longer product life.

Compact design for customers makes it convenient

- The volume sensitive shape user friendly image was inventoried and the whole curve was applied to create innovation with a simple, beautiful and progressive product image.
- Confidence is emphasized by the clean shape-clearing and well-cleaned adoption of the cable.
- Products in the panel are clear and arranged with clear color application.

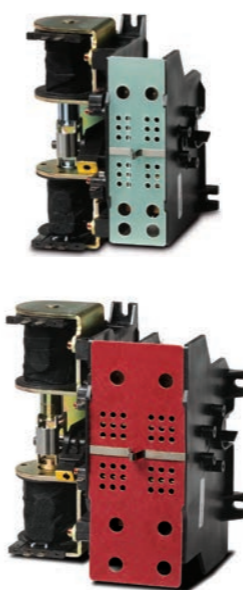
Ratings

World-Best ATS Technology achieved by constant researches and continuous technology development – We invite you to the world of premium electric equipment ever, the finest products in the world.



Miniature ATS HS Types

2P 100A 200A



Features

- Saving power**
It is in an instantaneous excitation mode with little operating current (1.6A in case of AC 220V operation)
- Safe Design**
The breaking part is molded for a dust-proof so the operational cycle of the contact part is semi-permanent.
- 2-Coil Mode**
It adopted a simple operation mode using 2 coils
- Miniature**
It can be built inside the portable generator or UPS
- Low Cost**
It is a miniature type and it is optimal for a single phase with less than 200A (non-inductive)
- Applied Standard**
IEC 60947-6-1 / UL1008

Type		21HS	22HS
Rated Current(In)	A	100	200
Rated Voltage(Ue)	V	AC220	AC220
Rated Insulation Voltage(Ui)	V	AC300	AC300
Rated Impulse Voltage(Uimp)	kV	4	4
Poles	P	2	2
Throw	T	Double Throw	Double Throw
Connection Type	Front	•	•
	Back	-	-
Performance			
Short Time Current(1s) Icw	kA	5	10
Short Circuit Peak Current Icm	kA	5	10
With Specific Circuit Breaker	kA	14	25
Fuse Mounting	kA	200	200
Switch Capacityapacity ^{Note1)}	Class	AC-33B	AC-33B
Endurance	Electrical Cycles	5,000	5,000
	Mechanical Cycles	10,000	10,000
Transfer Sequence		A ↔ B	A ↔ B
Operation Time	Opening msec	≤30	≤30
	Switching msec	≤60	≤60
Conditions of Uninterruptible Transfer			
Switching	AC/DC 110V A	-	-
	AC 220V A	5	8
Dimensions & Weights			
	H	165	176
	W	127	151
	D	100	121
Weight	kg	1.1	2.2
Precautions		1) Transfer time is operated at 0.3sec or less. Make sure a full operation is possible with an operation command of 0.5sec or more. 2) When A-side and B-side operation command is done simultaneously, it may lead to coil burning. 3) In case of an operation relay, select a sufficient contact capacity that exceeds the operating current.	

* Note1) Switching Capacity : AC-33B :
Overcurrent Switching Performance (Closing 10×Ie, Breaking 10×Ie, Cos∅ = 0.35),
Rated Load Switching Performance (Closing 1×Ie, Breaking 1×Ie, Cos∅ = 0.8)

Ratings

Standard ATS WN Types

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 chute, 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 chute, 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	68WN	610WN	612WN	616WN	620WN	625WN	630WN	
Rated Current(In)	A	100	200	400		600	800	1000	1200	1600	2000	2500	3000	
Rated Voltage(Ue)	V	AC600	AC600	AC600		AC600	AC600	AC600	AC600	AC600	AC600	AC600	AC600	
Rated Insulation Voltage(Ui)	V	AC800	AC800	AC800		AC800	AC800	AC800	AC800	AC800	AC800	AC800	AC800	
Rated Impulse Voltage(Uimp)	kV	8	8	8		8	8	8	8	8	8	8	8	
Pole	P	2, 3, 4	2, 3, 4	2, 3, 4		3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	
Throw	T	Double Throw	Double Throw	Double Throw		Double Throw	Double Throw	Double Throw	Double Throw	Double Throw	Double Throw	Double Throw	Double Throw	
Connection Type	Front	•	•	•		•	•	•	•	•	-	-	-	
	Back	•	•	•		•	•	•	•	•	•	•	•	
Performance														
Short Time Current(1s) Icw	kA	5	10	12		15	22	22	25	32	40	50	50	
Short Circuit Peak Current Icm	kA	5	10	12		15	22	22	25	32	40	50	50	
With Specific Circuit Breaker	kA	14	25	35		42	50	50	65	65	85	85	85	
Fuse Mounting	kA	200	200	200		200	200	200	200	200	200	200	200	
Switch Capacity ^{Note1)}	Class	AC-33B	AC-33B	AC-33B		AC-33B	AC-33B	AC-33B	AC-33B	AC-33B	AC-33B	AC-33B	AC-33B	
Endurance	Electrical	Cycles	5,000	5,000	5,000		5,000	5,000	5,000	5,000	5,000	3,000	3,000	
	Mechanical	Cycles	10,000	10,000	10,000		10,000	10,000	10,000	10,000	10,000	5,000	5,000	
Transfer Sequence	A ↔ B, A ↔ Neutral(off) ↔ B						A ↔ B, A ↔ Neutral(off) ↔ B							
Operation Time	Closing	msec	≤55	≤55	≤55		≤100	≤100	≤100	≤150	≤150	≤180	≤180	
	Trip	msec	≤20	≤20	≤20		≤30	≤30	≤30	≤30	≤30	≤35	≤35	
Conditions of Uninterruptible Transfer		2P	3P	4P	2P	3P	4P	2P	3P	4P				
Closing	AC/DC 110V	A	7	7	7	7	7	8	8	8				
	AC 220V	A	3.5	3.5	3.5	3.5	3.5	4	4	4				
Trip ^{Note2)}	AC/DC 110V	A	3		3		3							
	AC 220V	A	1.5		1.5		1.5							
Dimensions & Weights														
Front Size (mm)		H	192	192	192	192	192	254	254	254				
		W	215	251	287	215	251	287	245	296	347			
		D	118	118	118	118	118	118	119	119	119			
Back Size (mm)		H	174	174	174	174	174	208	208	208				
		W	215	251	287	215	251	287	245	296	347			
		D	143	143	143	143	143	143	163	163	163			
Weight	Front	kg	4.5	6	8	4.5	6	8	7.5	9	10.5			
	Back	kg	4.5	6	8	4.5	6	8	6	8	10			
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	
Time chart		A6-18	A6-18	A6-18		A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	A6-18	
Drawing		A6-24	A6-24	A6-25		A6-26	A6-26	A6-26	A6-27	A6-27	A6-27	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	

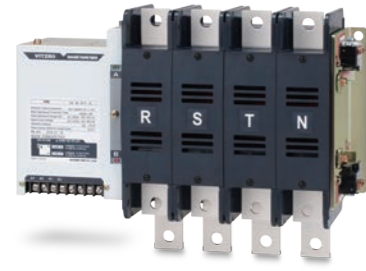
* Note1) Switching Capacity : AC-33B :
Overcurrent Switching Performance (Closing 10×Ie, Breaking 10×Ie, Cosφ = 0.35),
Rated Load Switching Performance (Closing 1×Ie, Breaking 1×Ie, Cosφ = 0.8)

* Note2) Trip : The switch in the circuit is opened to the neutral position (OFF) at Power A or B.

Ratings

Economic Type ATS W, WP Types

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				64W				61WP				62WP				64WP				
Rated Current(In)	A	100				200				400				100				200				400				
Rated Voltage(Ue)	V	AC480				AC480				AC600				AC600				AC600				AC600				
Rated Insulation Voltage(Ui)	V	AC600				AC600				AC800				AC800				AC800				AC800				
Rated Impulse Voltage(Uimp)	kV	6				6				8				8				8				8				
Pole	P	3, 4				3, 4				2, 3, 4				2, 3, 4				2, 3, 4				2, 3, 4				
Throw	T	One Throw				One Throw				Double Throw				Double Throw				Double Throw				Double Throw				
Connection Type	Front	•				•				•				•				•				•				
	Back	-				-				•				-				-				-				
Performance																										
Short Time Current(1s) Icw	kA	5				10				12				5				10				12				
Short Circuit Peak Current Icm	kA	5				10				12				5				10				12				
With Specific Circuit Breaker	kA	14				25				35				14				25				35				
Fuse Mounting	kA	200				200				200				200				200				200				
Switch Capacity ^{Note1)}	Class	AC-33B				AC-33B				AC-33B				AC-33B				AC-33B				AC-33B				
Endurance	Electrical	Cycles	5,000				5,000				5,000				50,000				5,000				5,000			
	Mechanical	Cycles	10,000				10,000				10,000				10,000				10,000				10,000			
Transfer Sequence		A ↔ B				A ↔ B				A ↔ B				A ↔ Pause ↔ B				A ↔ Pause ↔ B				A ↔ Pause ↔ B				
Operation Time	Opening	msec	≤30				≤30				≤60				≤30				≤30				≤60			
	Switching	msec	≤60				≤60				≤200				≤200				≤200				≤200			
	Off	sec	-				-				-				3-30				3-30				3-30			
Conditions of Uninterruptible Transfer		3P	4P	3P	4P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P	2P	3P	4P				
Switching	AC/DC 110V	A	-	-	-	-	-	7	7	10	5	5	7	7	7	10	8	8	10	8	8	10				
	AC 220V	A	8	8	8	8	8	3.5	3.5	5	2.5	2.5	3.5	3.5	3.5	5	4	4	5	4	4	5				
Dimensions & Weights																										
Front Size (mm)		H	171	171	171	171	254	254	254	191	191	191	252	252	252	254	254	254								
		W	219	219	219	219	248	299	350	214	244	274	244	289	334	246	287	348								
		D	110	110	110	110	119	119	119	112	112	112	112	112	112	119	119	119								
Back Size (mm)		H	-	-	-	-	208	208	208	-	-	-	-	-	-	-	-	-								
		W	-	-	-	-	236	287	338	-	-	-	-	-	-	-	-	-								
		D	-	-	-	-	164	164	164	-	-	-	-	-	-	-	-	-								
Weight	Front	kg	2.5	3	3.5	4	7.5	9	10.5	4.5	6	8	6	8	10	11	14	18								
	Back	kg	-	-	-	-	6	8	10	-	-	-	-	-	-	-	-	-								
Additional Product Information																										
Circuit diagram		A6-21				A6-21				A6-21				A6-20				A6-20								
Time chart		A6-18				A6-18				A6-18				A6-18				A6-18								
Drawing		A6-31				A6-31				A6-31				A6-33				A6-33								
Precautions		A6-16				A6-16				A6-16				A6-16				A6-16								

* Note1) Switching Capacity : AC-33B :
 Overcurrent Switching Performance [Closing 10×Ie, Breaking 10×Ie, Cosθ = 0.35],
 Rated Load Switching Performance [Closing 1×Ie, Breaking 1×Ie, Cosθ = 0.8]

Uninterruptible Transfer Types 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.



WP type Pause Function
A ↔ Synchronizing ↔ B

Features

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,

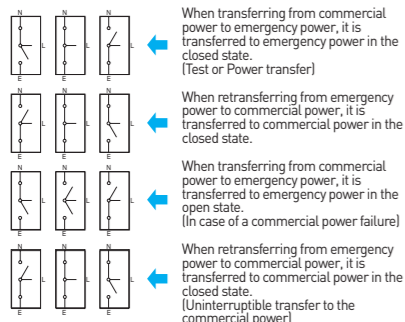
- ① Power failure notified by KEPCO
- ② When the power is recovered and transferred to power plant
- ③ When an instantaneous power failure is expected due to the weather
- ④ When testing a generator or equipment

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

UPS Power Transfer Equipment

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		64CT	66CT	610CT	616CT 416CT ^{Note3)}	620CT	425CT ^{Note3)}	630CT																	
Rated Current(In)	A	100	200		400	600	800, 1000	1200, 1600	2000	2500	2500, 3000																	
Rated Voltage(Ue)	V	AC600	AC600		AC600	AC600	AC600	AC600 AC415V	AC600	AC415	AC600																	
Rated Insulation Voltage(Ui)	V	AC800	AC800		AC800	AC800	AC800	AC800 AC600V	AC800	AC600	AC800																	
Rated Impulse Voltage(Uimp)	kV	8	8		8	8	8	8 6	8	6	8																	
Pole	P	2, 3, 4	2, 3, 4		2, 3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4																	
Throw	T	Double Throw	Double Throw		Double Throw	Double Throw	Double Throw	Double Throw	Double Throw	Double Throw	Double Throw																	
Connection Type	Front	•	•		•	•	•	•	-	-	-																	
	Back	-	-		-	•	•	•	•	•	•																	
Performance																												
Short Time Current(1s) I _{cw}	kA	5	10		12	15	25	32	40	50	50																	
Short Circuit Peak Current I _{cm}	kA	5	10		12	15	25	32	40	50	50																	
With Specific Circuit Breaker	kA	14	25		35	50	50	65	85	85	85																	
Fuse Mounting	kA	200	200		200	200	200	200	200	200	200																	
Switch Capacity ^{Note1)}	Class	AC-33B	AC-33B		AC-33B	AC-33B	AC-33B	AC-33B	AC-33B	AC-33B	AC-33B																	
Endurance	Electrical	Cycles	5,000	5,000	5,000	5,000	5,000	5,000	3,000	3,000	3,000																	
	Mechanical	Cycles	10,000	10,000	10,000	10,000	10,000	10,000	5,000	5,000	5,000																	
Transfer Sequence	A ↔ Overlapping(overlapping) ↔ B, A ↔ B, A ↔ Neutral(off) ↔ B						A ↔ Overlapping(overlapping) ↔ B, A ↔ B, A ↔ Neutral(off) ↔ B																					
Conditions for Uninterrupted Switchover	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						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	Closing	msec	≤60	≤60	≤100	≤150	≤150	≤150	≤250	≤250	≤250																	
	Trip	msec	≤20	≤20	≤30	≤30	≤30	≤60	≤80	≤80	≤80																	
Conditions of Uninterruptible Transfer		2P	3P	4P	2P	3P	4P	2P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P						
Closing	AC/DC 110V	A	5	5	7	7	7	7	7	7	9	7	8	8	10	10	13	-	-	-	-	-	-					
	AC 220V	A	2.5	2.5	3.5	3.5	3.5	3.5	3.5	3.5	4.5	3.5	4	4	5	5	6.5	6.5	8	8	9	8	9					
Trip ^{Note2)}	AC/DC 110V	A	3			3			4			4			4 4			4			-			4				
	AC 220V	A	1.5			1.5			2			2			2			2 4			2			4			2	
Dimensions & Weights																												
Front Size (mm)		H	268	268	268	283	283	283	307	307	307	545	545	607	607	644	644	-	-	-	-	-	-					
		W	210.8	240.8	270.8	240.8	285.8	330.8	292.5	352.5	412.5	465	530	510	590	570	670	670	-	-	-	-	-	-				
		D	111	111	111	111	111	111	132	132	132	219.4	219.4	219.4	219.4	219.4	219.4	219.4	-	-	-	-	-	-				
Back Size (mm)		H	-	-	-	-	-	-	-	-	-	478	478	478	478	478	478	580	580	580	580	580	580					
		W	-	-	-	-	-	-	-	-	-	465	530	510	590	570	670	685	820	835	1020	835	1020					
		D	-	-	-	-	-	-	-	-	-	-	-	-	-	300	300	329	329	364	364	364	364					
Weight	Front	kg	6.5	8	10	8	10	12	14	17	21	53	61	66	76	72	84	-	-	-	-	-	-					
	Back	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	72	84	130	150	165	205	165	205					
Additional Product Information																												
Circuit Diagram	A6-24			A6-24			A6-24			A6-24			A6-24															
Drawing	A6-40-42			A6-40-42			A6-40-42			A6-40-42			A6-40-42															
Precautions	A6-18			A6-18			A6-18			A6-18			A6-18															

* Note1) Switching Capacity : AC-33B :
Overcurrent Switching Performance [Closing 10×I_e, Breaking 10×I_e, Cosθ = 0.35],
Rated Load Switching Performance [Closing 1×I_e, Breaking 1×I_e, Cosθ = 0.8

* Note2) Trip : The switch in the circuit is opened to the neutral position [OFF] at Power A or B.

* Note3) 416CT/425CT Test Report held

Applied Standards

**Low Voltage Auto Transfer Switch ...
ATS, CTTS**

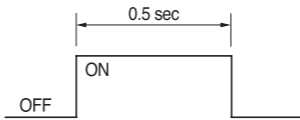
Consideration points when applying and selecting

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.

Operating Voltage × Operating Current × 0.5 = (JVA)

ex) Operating Voltage AC220V Operating Current 4A
 $220 \times 4 \times 0.5 = 440VA$
 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

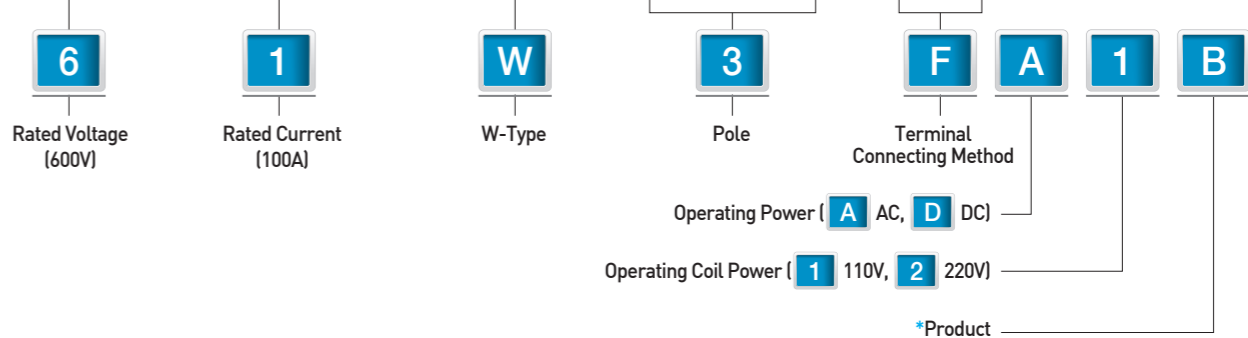
Use the selected voltage Relay 27, 84 and Timer with contact conducting current that exceeds the ATS operating current. Considering the chattering of control relay, select a relay that can interrupt the operating current which is safer.

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



Type & Marking Method

Voltage	Current	Type	Poles			Connection Method		Overview	
			2	3	4	Front	Back		
			F	B					
2 AC250V	1 100A	HS	○	-	-	○	-	Miniature Type	
	2 200A								
6 AC600V	1 100A	W	○	○	○	○	-	Economic Type	
	2 200A								
	4 400A								
6 AC600V	1 100A	WP	○	○	○	○	○		Standard Type
	2 200A								
	4 400A								
6 AC600V	1 100A	WN	○	○	○	○	○	Standard Type	
	2 200A								
	4 400A								
	6 600A		-	○	○	○	○		
	10 800/1000A		-	○	○	○	○		
	16 1200/1600A		-	○	○	○	○		
	20 2000A		-	○	○	-	○		
	30 3000A		-	○	○	-	○		
6 AC600V	1 100A	CT	○	○	○	○	-	CTTS	
	2 200A								
	4 400A								
	6 600A		-	○	○	○	○		
	10 800/1000A		-	○	○	○	○		
	16 1200/1600A		-	○	○	○	○		
	20 2000A		-	○	○	-	○		
	30 3000A		-	○	○	-	○		



*The product classification marking can be modified without prior notice while improving the specifications.

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

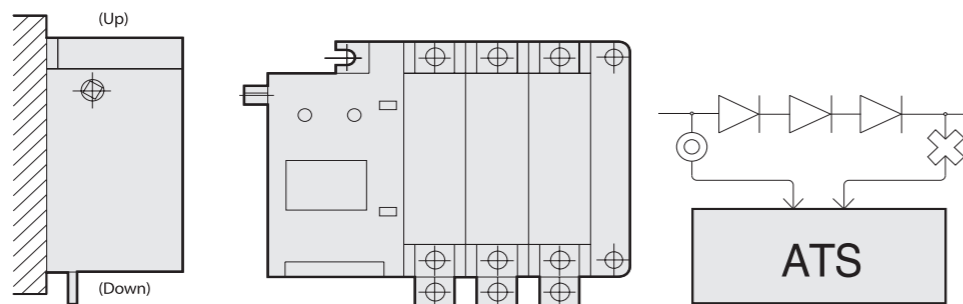
Manual operation of ATS should be carried out only when a detailed inspection of operating part and charging part is performed at no-load status.

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.

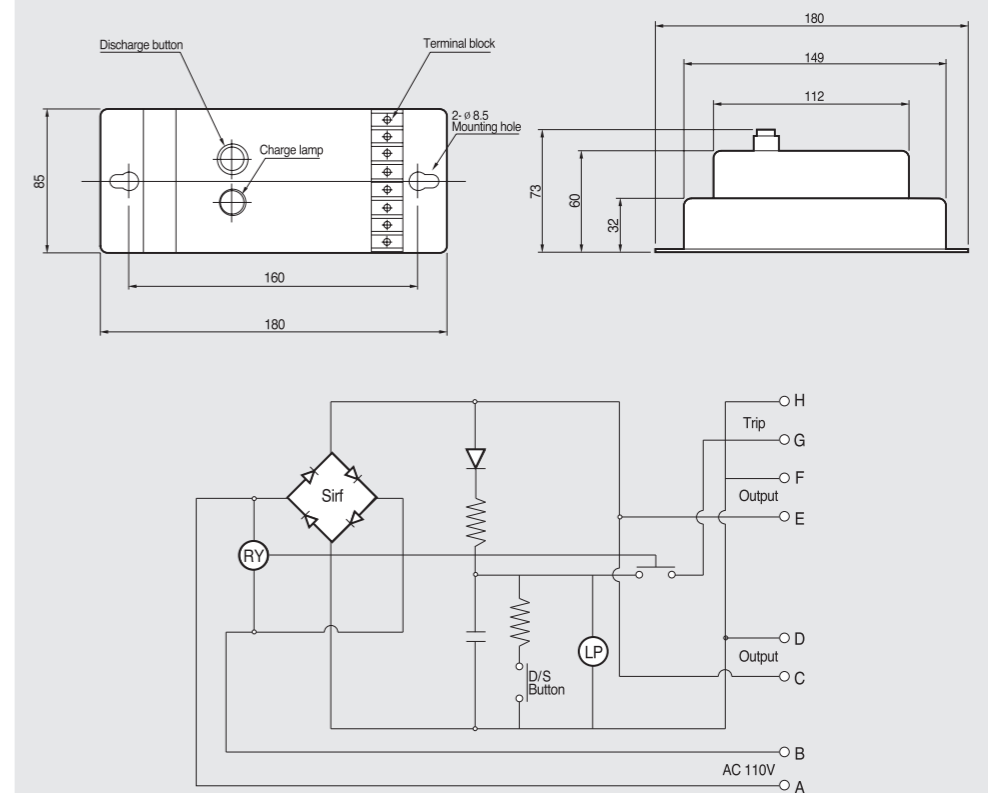
* Refer to the maintenance and inspection items presented in the instruction manual for the detailed information.



Low Voltage Auto Transfer Switch ATS, CTTS

Option

Capacitor 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

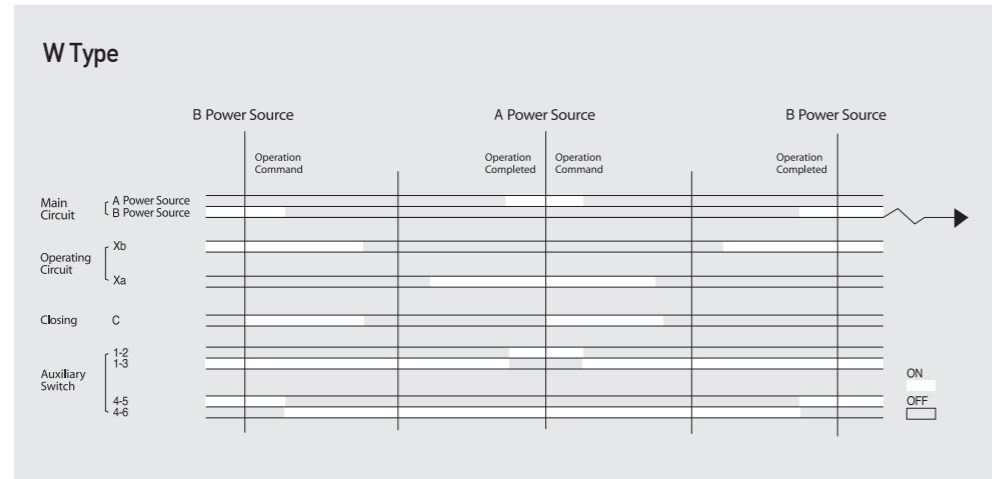
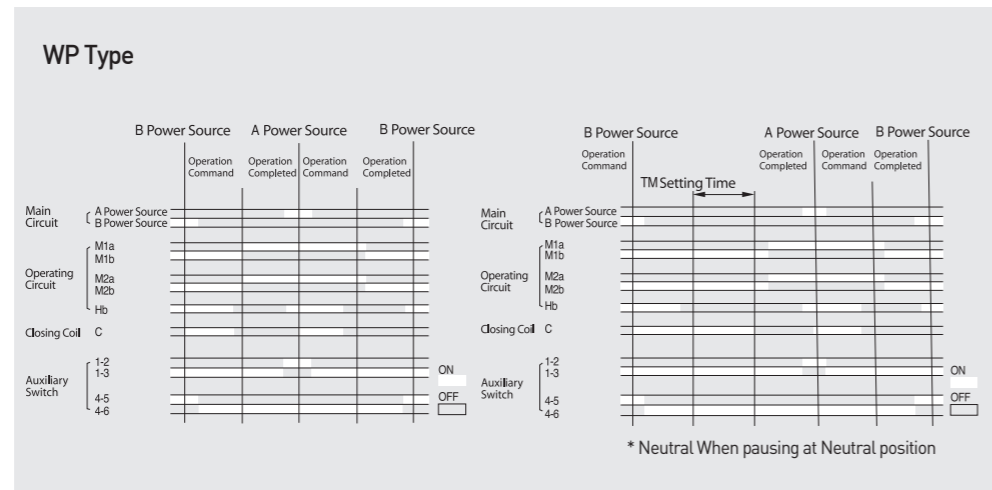
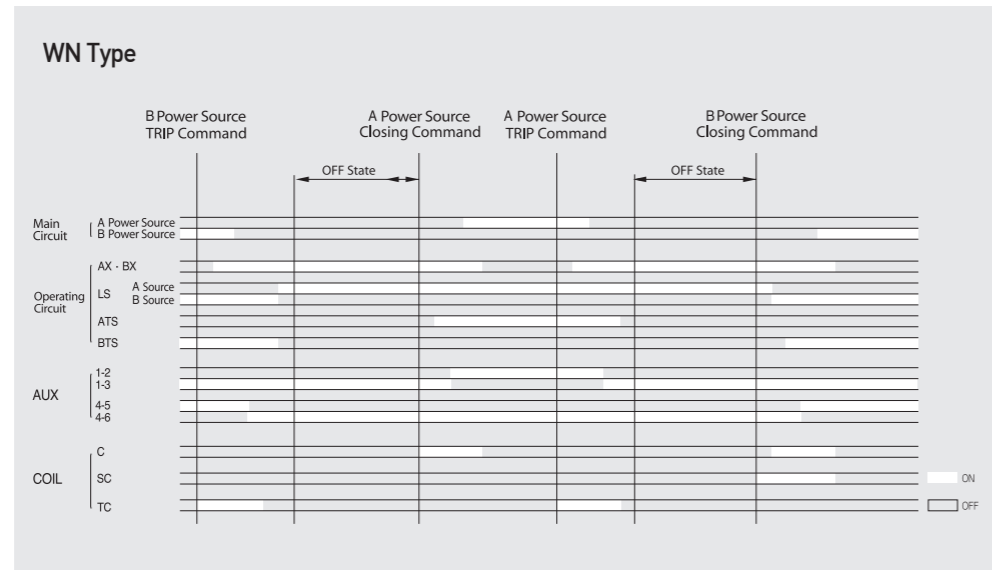
C.D and E.F output terminals can be used as DC power.

(Close, Open, Motor OCR Power and etc)

Contact Time Charts & Circuit Diagrams

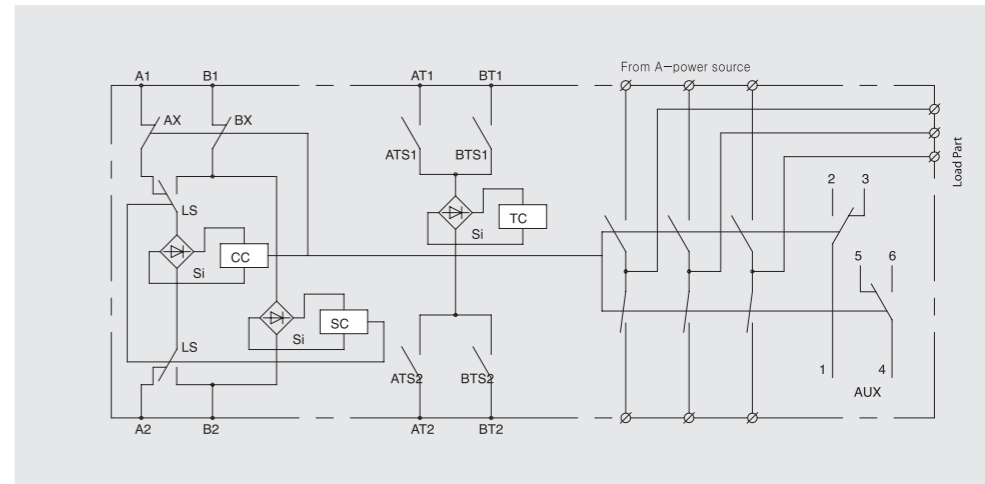
Low Voltage Auto Transfer Switch ATS, CTTS

Contact Time Charts



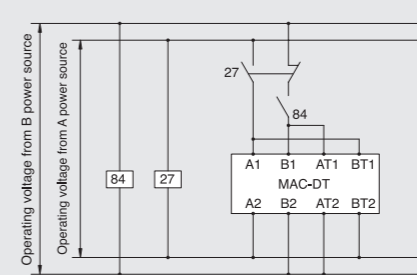
Low Voltage Auto Transfer Switch ATS, CTTS

WN Type Internal Circuit

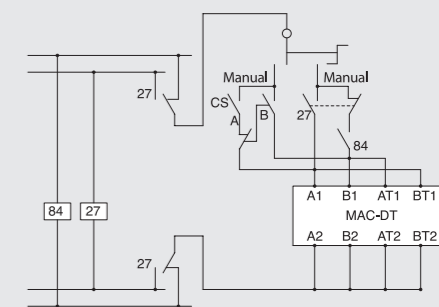


WN Type Operating Circuits

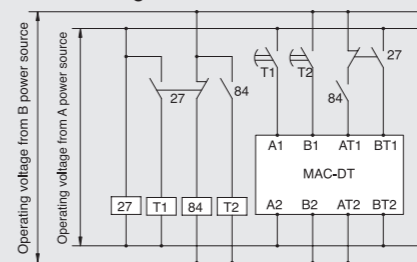
In case of a Normal Transfer (In case of an Instantaneous Transfer)



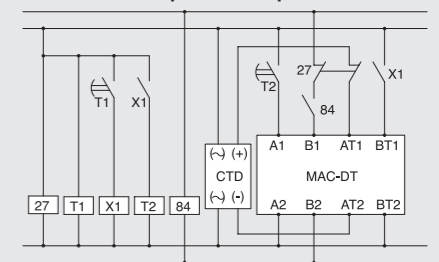
In case of Manual-Auto COS Part



When using a TIMER for Transfer



In case of a Capacitor Trip



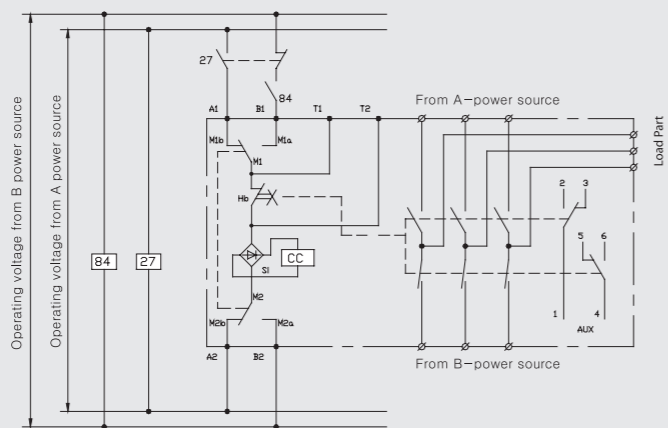
Circuit Diagrams

Low Voltage Automatic Transfer Switch ATs, CTTS

WP Type

Internal Circuit

Control Circuit in case of a pause at neutral point



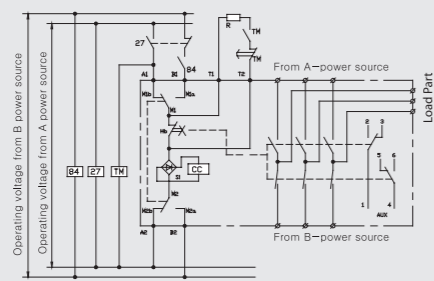
CC : Closing Coil
Si : Silicon Rectifier
Hb : Both Power OFF Pause Switch
M1, M2 : Limit Switch for Operating Power Transfer
AUX : Auxiliary Switch
27, 84 : Voltage Relay

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

Operating Circuit 1

Pausing at Neutral Point when transferring B → A

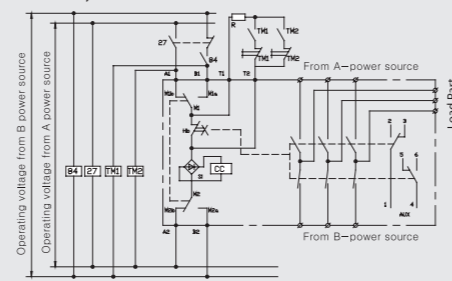
TM : Timer
R : Limited Resistance
27, 84 : Voltage Relay



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 AC 110, AC 220V.
- 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.

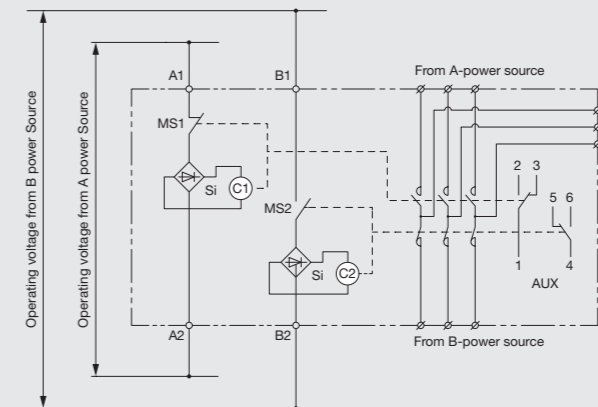
Limited Resistance

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 50Ω

W Types

100~200A

Control Circuit Diagram

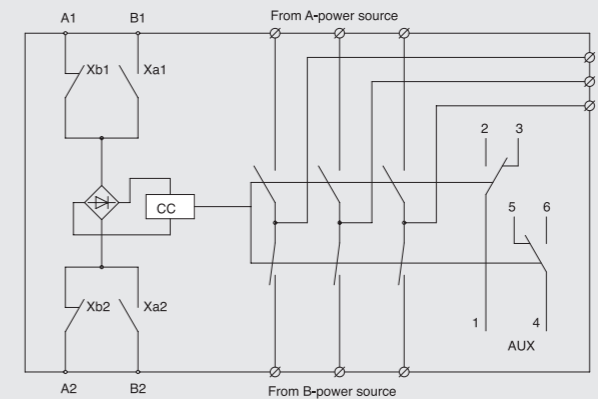


C1, C2 : Closing Coil
Si : Silicon Rectifier
MS1, MS2 : Manipulation for Power Source Limit Switch
AUX : Auxiliary Switch

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

400A

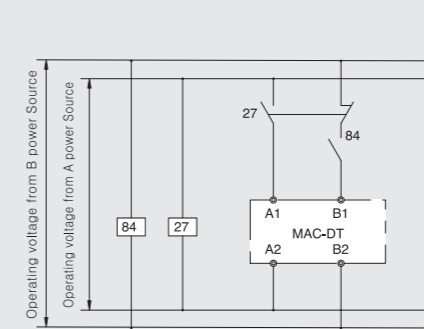
Internal Circuit



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

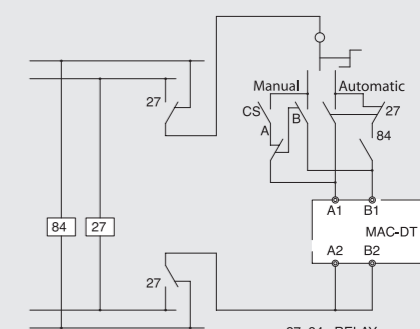
Operating Terminal
A1 - A2 : A-Power Source Closing Terminal
B1 - B2 : B-Power Source Closing Terminal

Operating Circuit 1



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

Operating Circuit 2



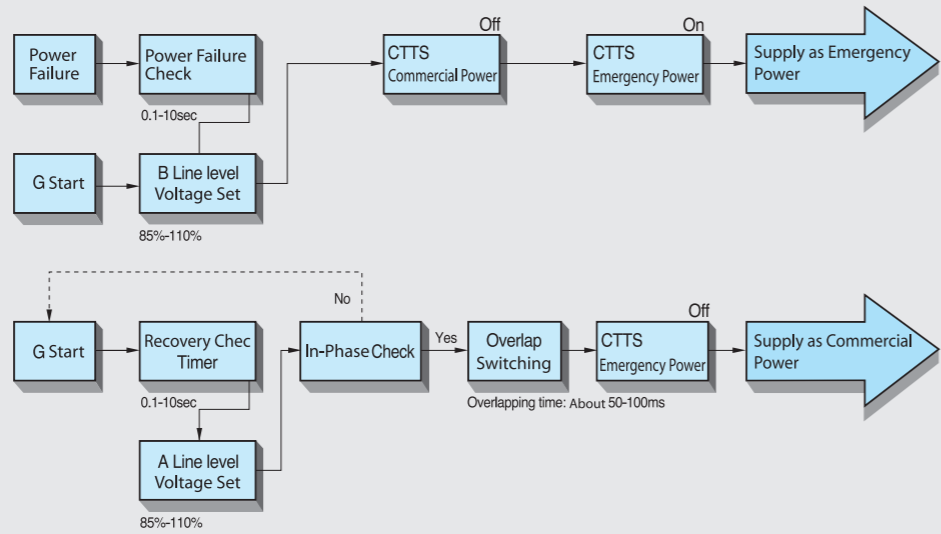
In case of Manual-Auto COS Part
 *27, 84 : Voltage Relay

Circuit Diagrams

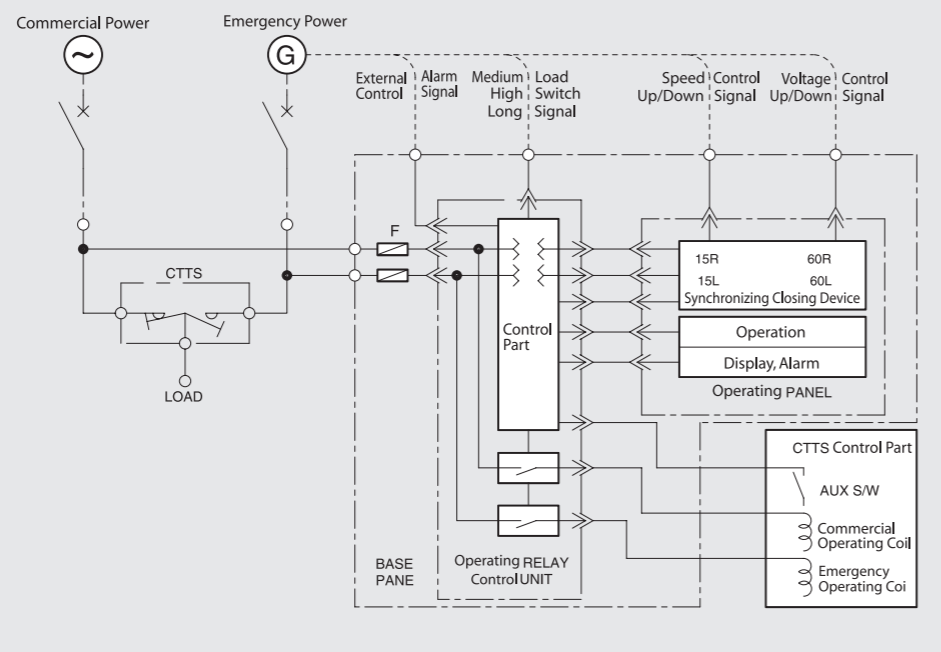
Low Voltage Automatic Transfer Switch ATs, CTTS

CTTS

Operational Flow Chart

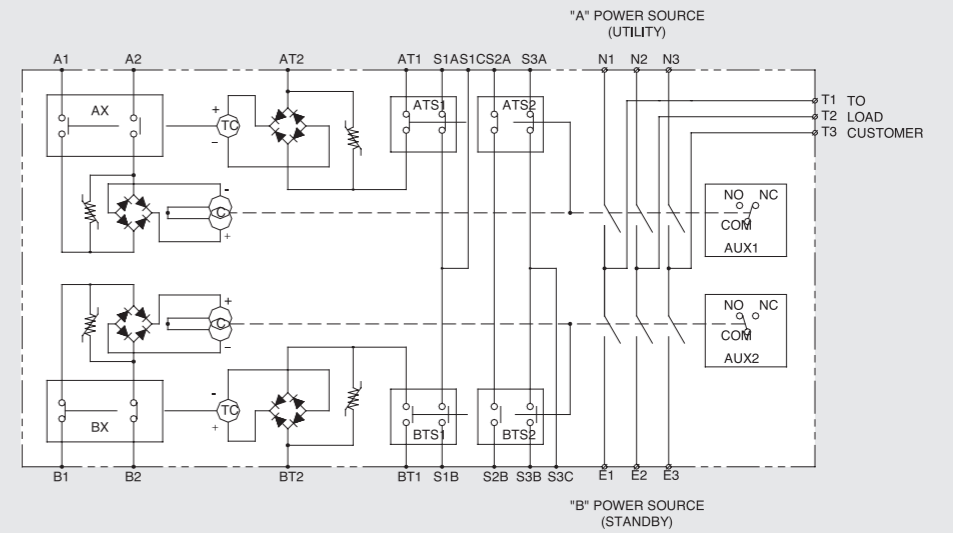


Operating Circuit



Low Voltage Automatic Transfer Switch ATs, CTTS

Internal Circuit



A1, A2	"A" Power source side(On)
AT1, AT2	"A" Power source side(Trip)
ATS1, ATS2	Switch, Position contacts
BTS1, BTS2	Switch, Auxiliary
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

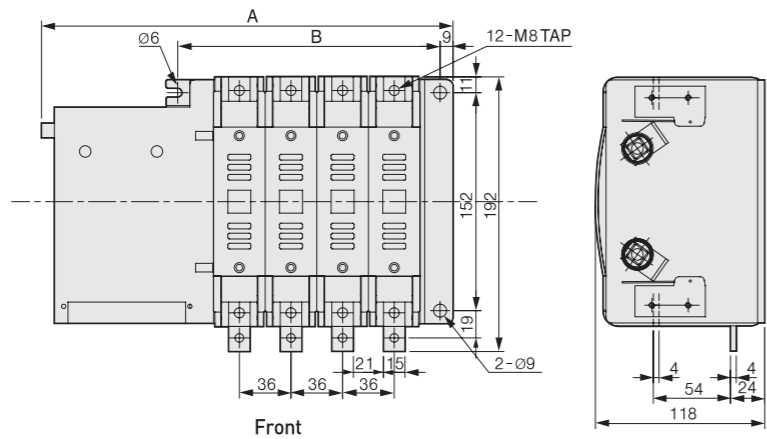
× : Closed ○ : Open

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	×	×	○

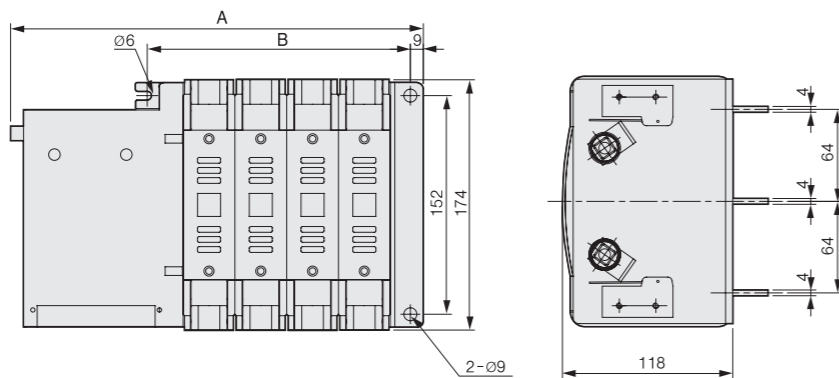
External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Types 61WN~62WN



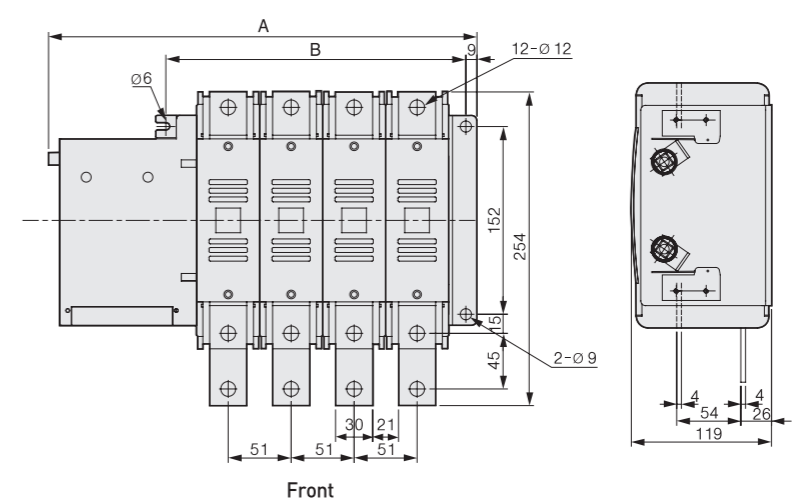
Type	A	B
2P	215	111
3P	251	147
4P	287	183



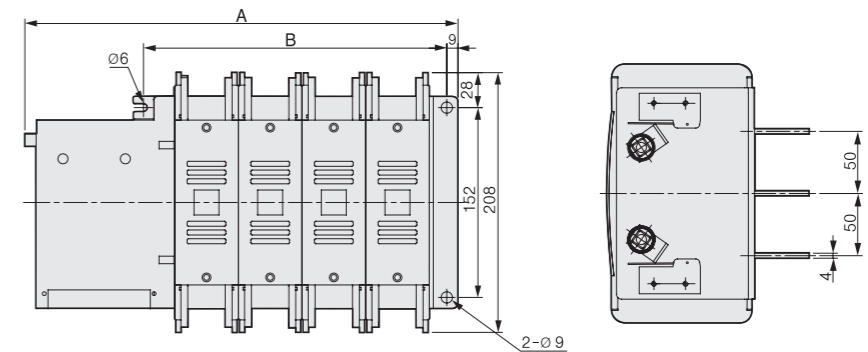
Type	A	B
2P	215	111
3P	251	147
4P	287	183

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 64WN



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

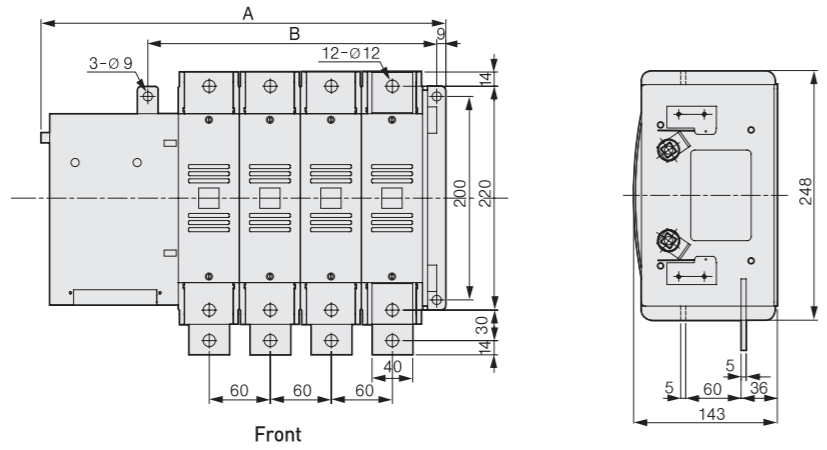


Type	A	B
2P	245	141
3P	296	192
4P	347	243

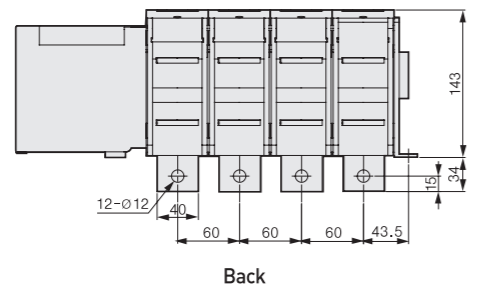
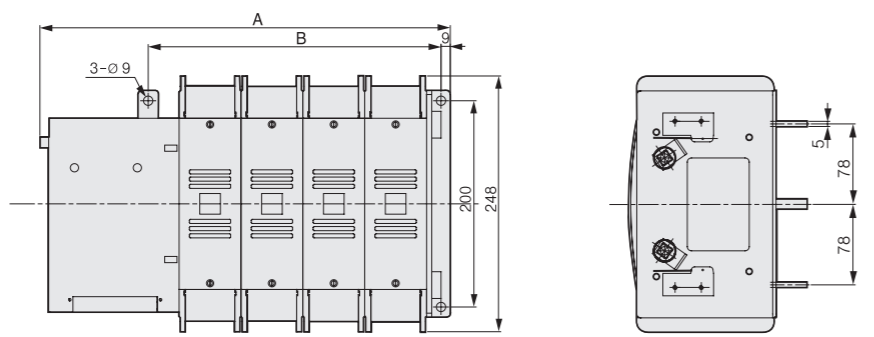
External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 66WN



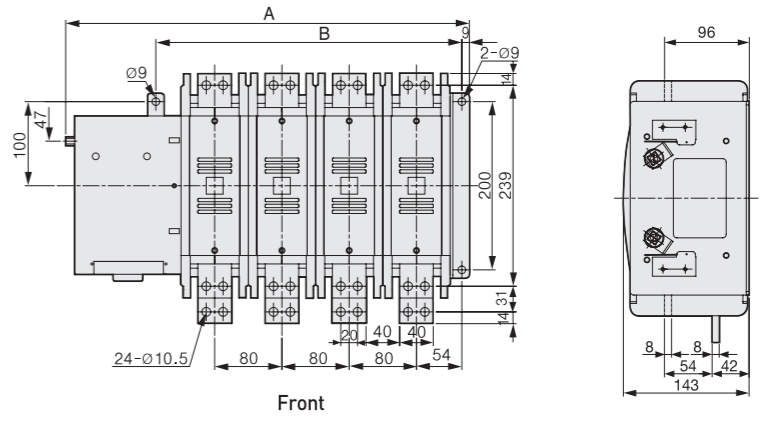
Type	A	B
3P	340	224
4P	400	284



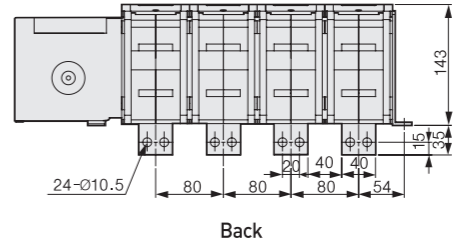
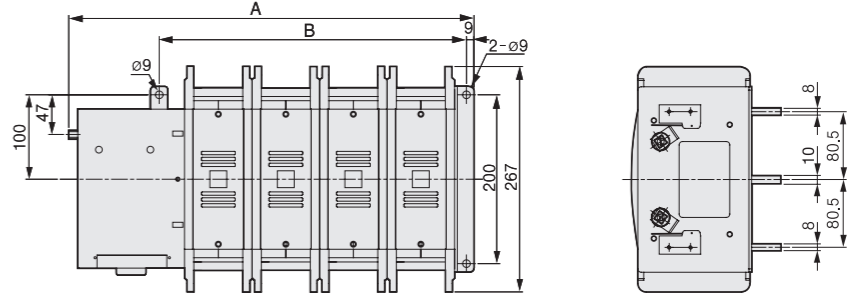
Type	A	B
3P	340	224
4P	400	284

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 68WN



Type	A	B
3P	400	284
4P	480	364

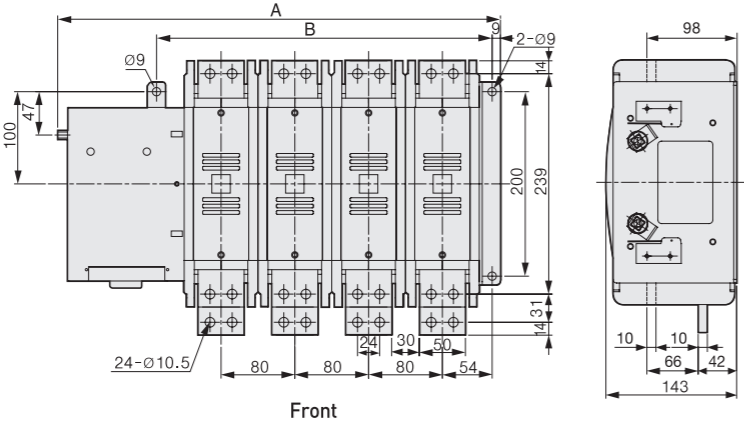


Type	A	B
3P	400	284
4P	480	364

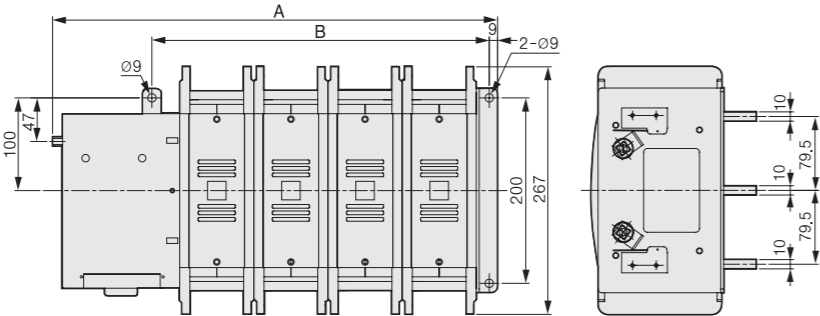
External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 610WN



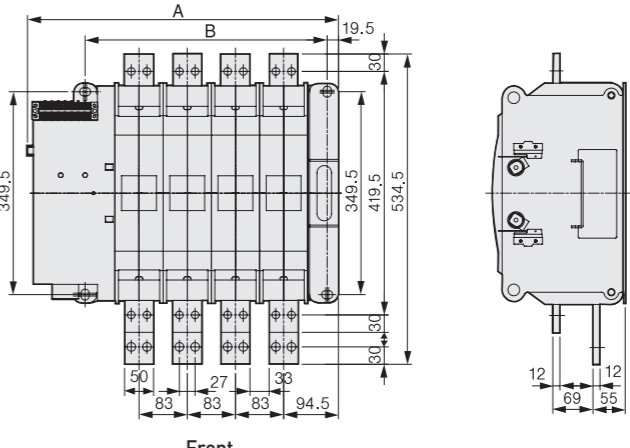
Type	A	B
3P	400	284
4P	480	364



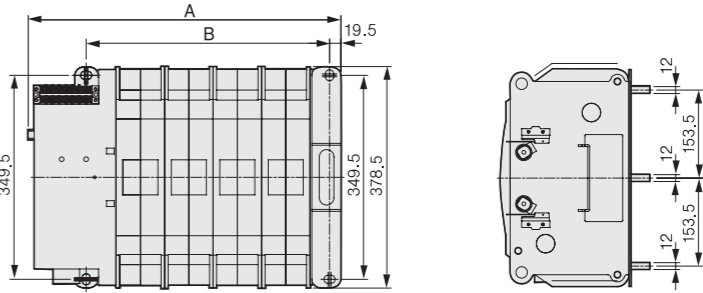
Type	A	B
3P	400	284
4P	480	364

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 612WN



Type	A	B
3P	452.5	334
4P	535.5	417

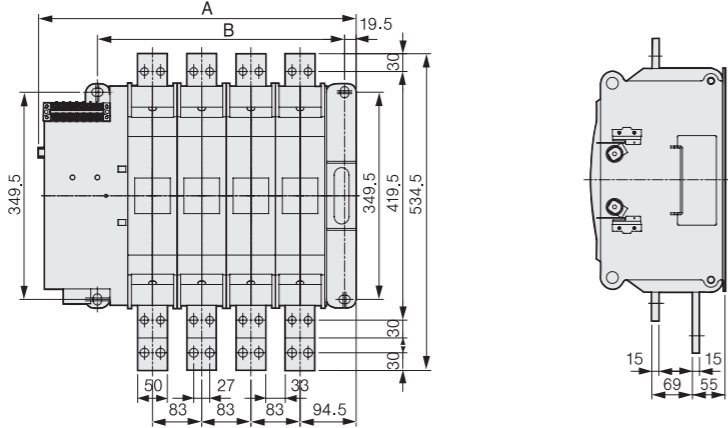


Type	A	B
3P	452.5	334
4P	535.5	417

External Sizes

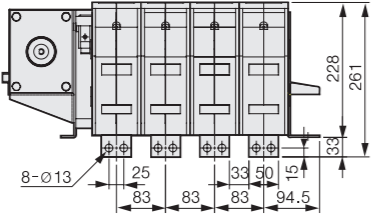
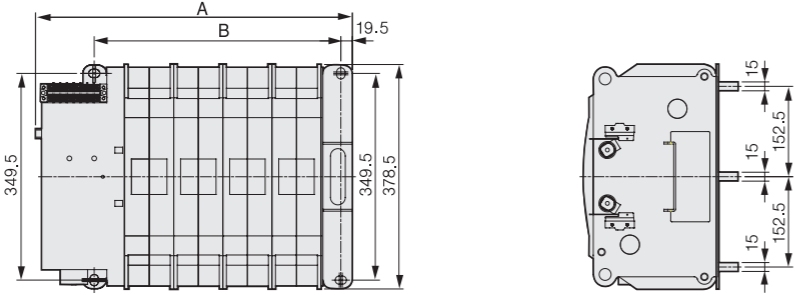
Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 616WN



Front

Type	A	B
3P	452.5	334
4P	535.5	417

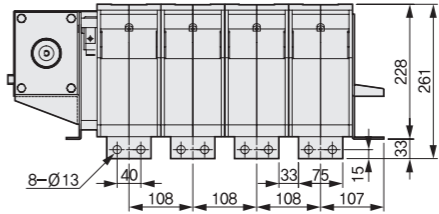
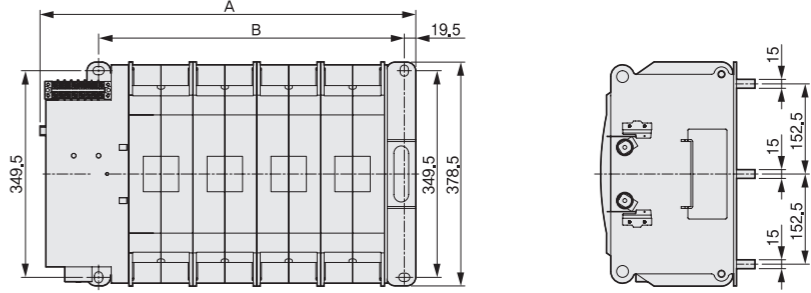


Back

Type	A	B
3P	452.5	334
4P	535.5	417

Low Voltage Automatic Transfer Switch ATS, CTTS

WN Type 620WN



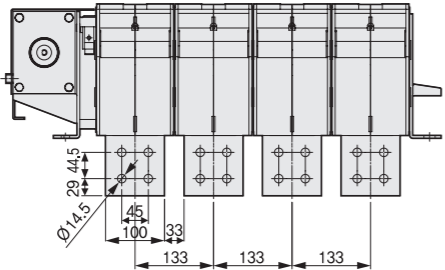
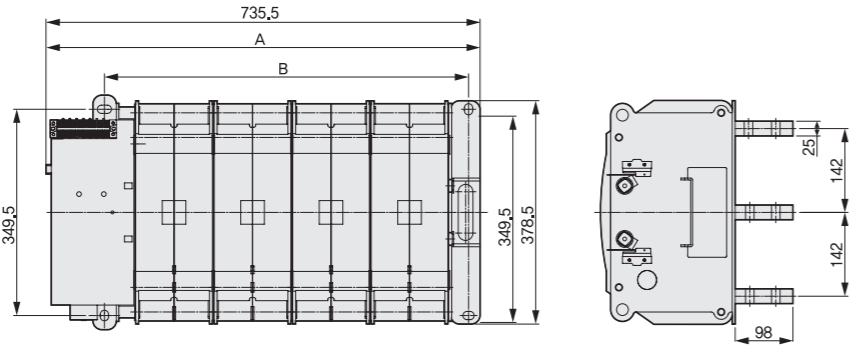
Back

Type	A	B
3P	527.5	409
4P	635.5	517

External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

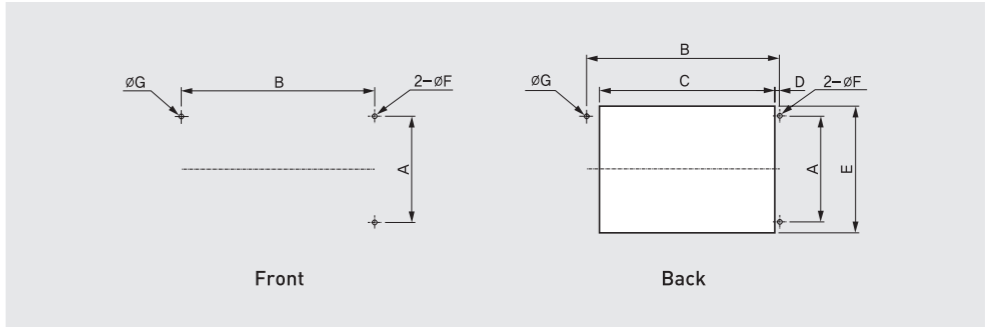
WN Types 625~630WN



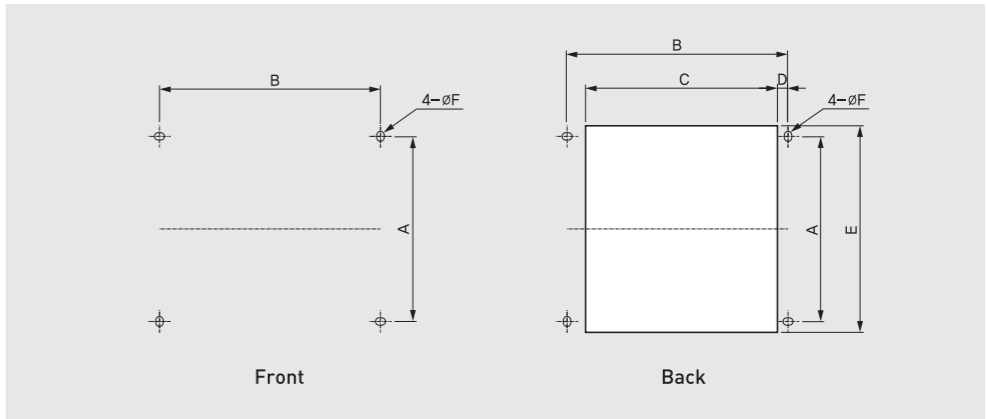
Type	A	B
3P	602.5	484
4P	735.5	617

Panel Processing Dimension

WN Types 100A~1000A



WN Types 1200A~3000A



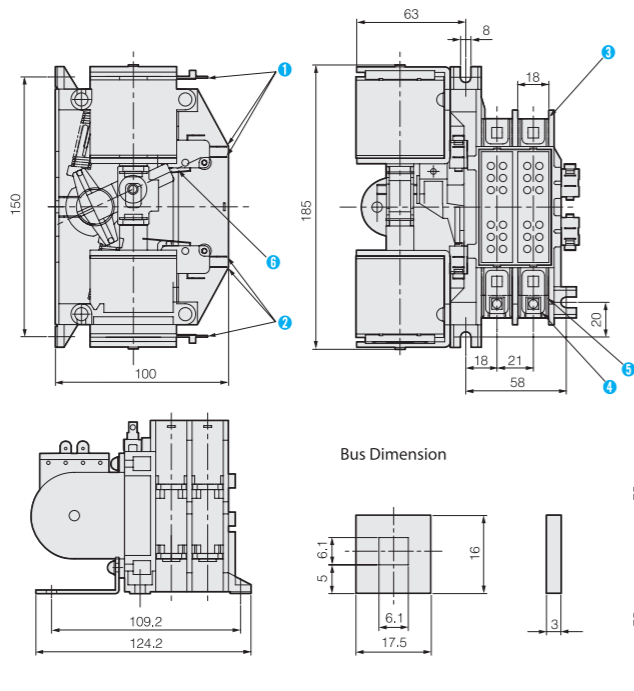
Type	100~200A		400A		600A		800A		
	Front	Back	Front	Back	Front	Back	Front	Back	
A	152	152	152	152	200	200	200	200	
2P	111	111	141	141	-	-	-	-	
B	3P	147	147	192	192	224	224	284	284
	4P	183	183	243	243	284	284	364	364
C	2P	-	88	-	118	-	-	-	-
	3P	-	124	-	169	-	200	-	250
4P	-	160	-	220	-	260	-	330	
D	-	9.5	-	9.5	-	9	-	9	
E	-	172	-	155	-	215	-	240	
F	10	10	10	10	10	10	10	10	
G	7	7	7	7	10	10	10	10	

Type	1000A		1200A		1600A		2000A	3000A	
	Front	Back	Front	Back	Front	Back	Back	Back	
A	200	200	349.5	349.5	349.5	349.5	349.5	349.5	
2P	-	-	-	-	-	-	-	-	
B	3P	284	284	334	334	334	334	409	482
	4P	364	364	417	417	417	417	517	617
2P	-	-	-	-	-	-	-	-	
C	3P	-	250	-	279	-	279	354	432
	4P	-	330	-	362	-	362	462	565
D	-	9	-	18.5	-	18.5	18.5	18.5	
E	-	240	-	390	-	390	390	390	
F	10	10	14	14	14	14	14	14	
G	10	10	-	-	-	-	-	-	

External Sizes

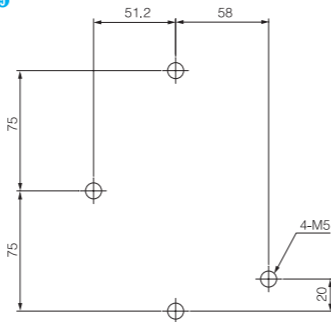
Low Voltage Automatic Transfer Switch ATS, CTTS

HS Type 21HS

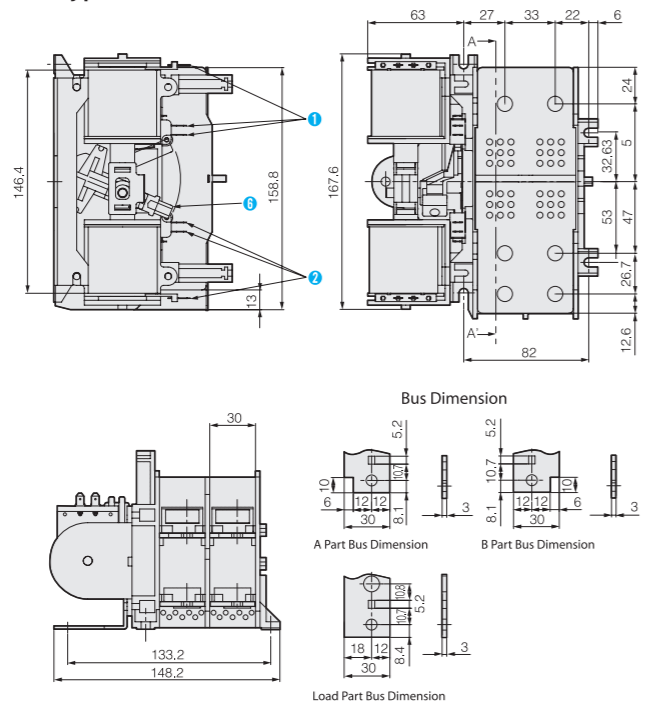


- Part Names**
- 1 A Operating circuit terminal
 - 2 B Operating circuit terminal
 - 3 A power source side main circuit terminal
 - 4 Loading side main circuit terminal
 - 5 B power source side main circuit terminal
 - 6 Manual operating lever

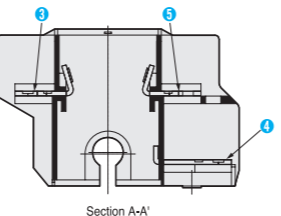
Panel Processing Dimension (Front)/100A 2P



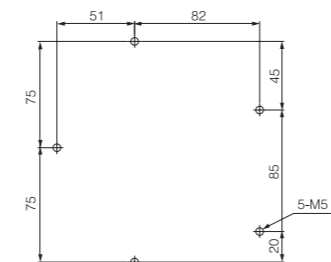
HS Type 22HS



- 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

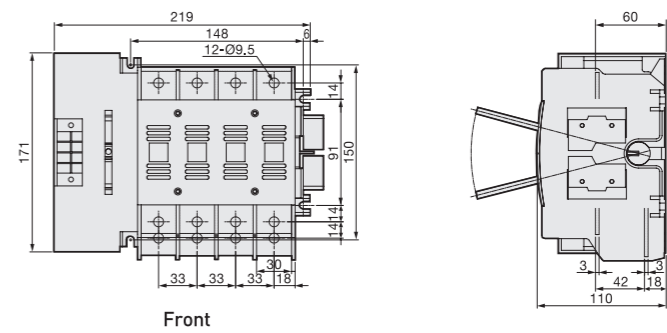


Panel Processing Dimension (Front)/200A 2P

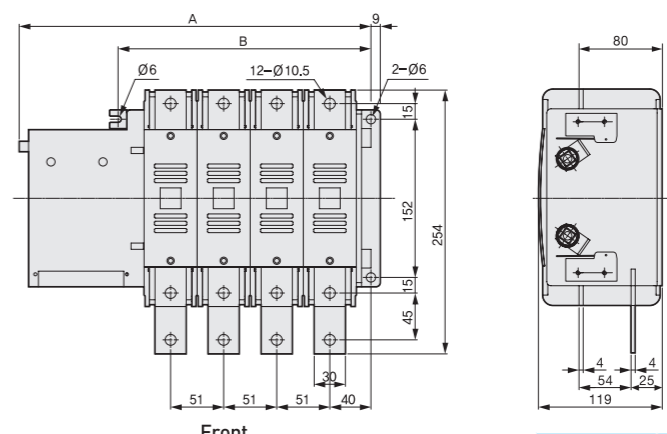


Low Voltage Automatic Transfer Switch ATS, CTTS

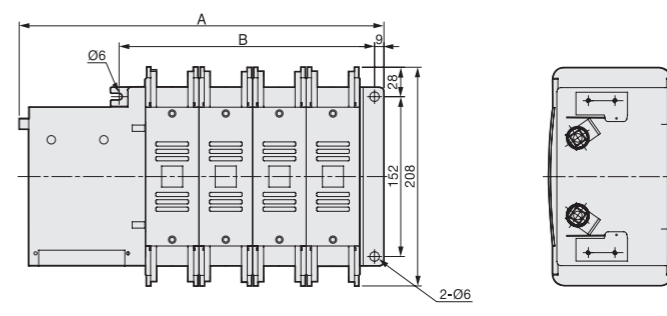
W Types 61W~62W



W Type 64W



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

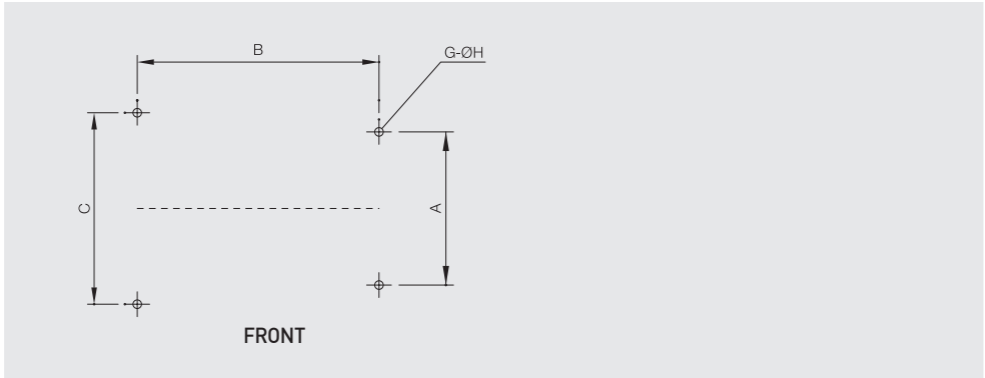


Type	A	B
2P	245	141
3P	294	192
4P	347	243

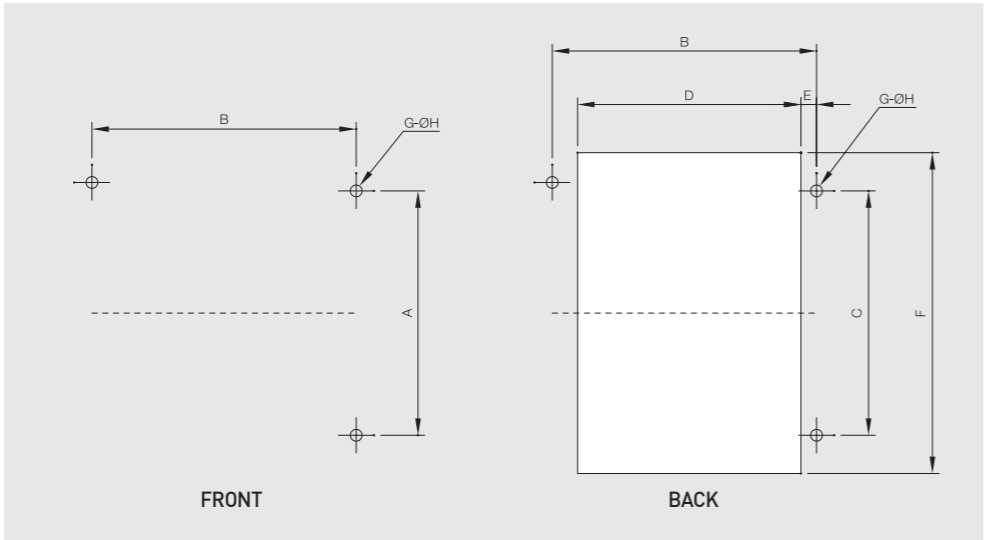
External Sizes

Panel Processing Dimensions

W Types 100A~200A



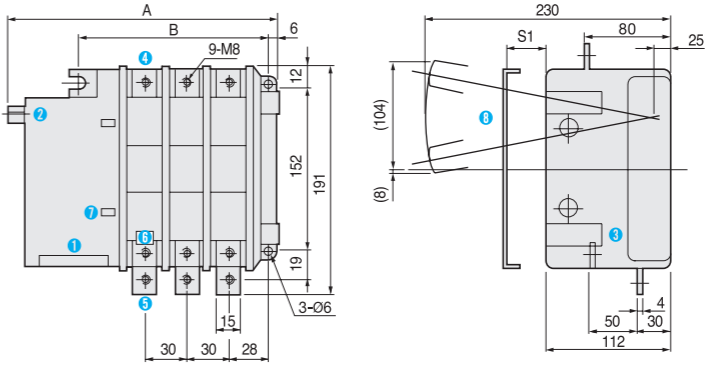
W Type 400A



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

Low Voltage Automatic Transfer Switch ATS, CTTS

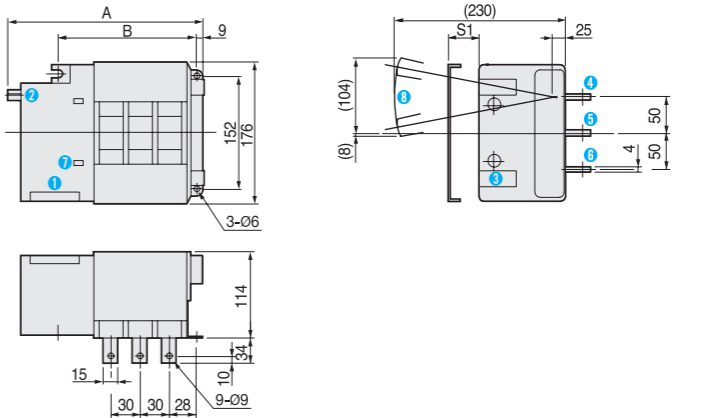
WP Type 61WP Front connection



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

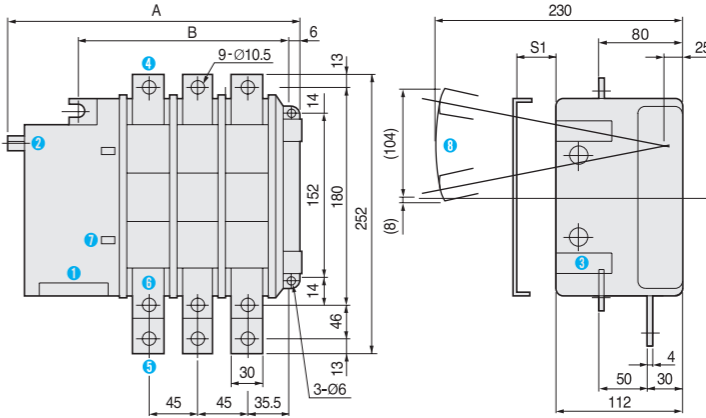
WP Type 61WP Back connection



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 Front connection



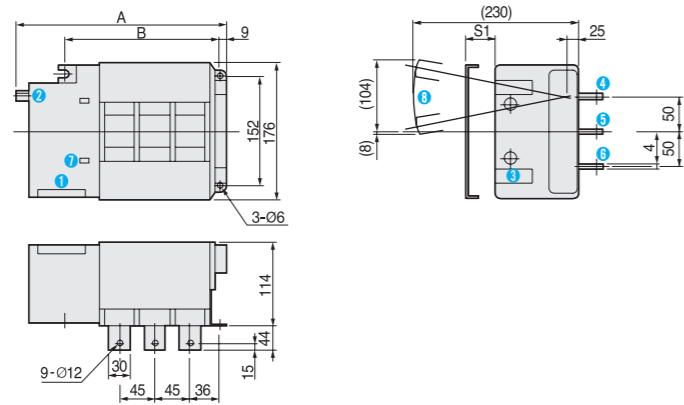
Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

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

External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

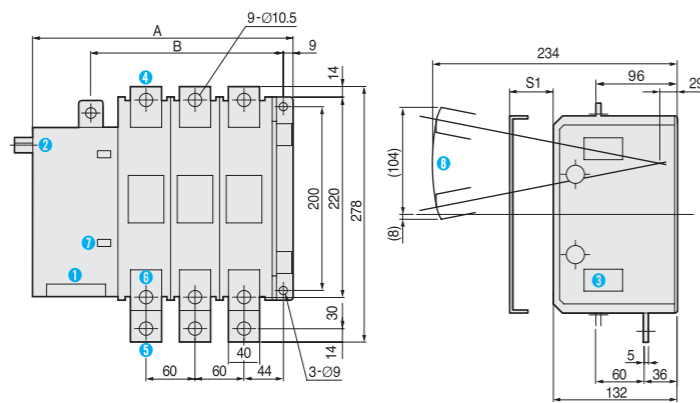
WP Type 62WP Back connection



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

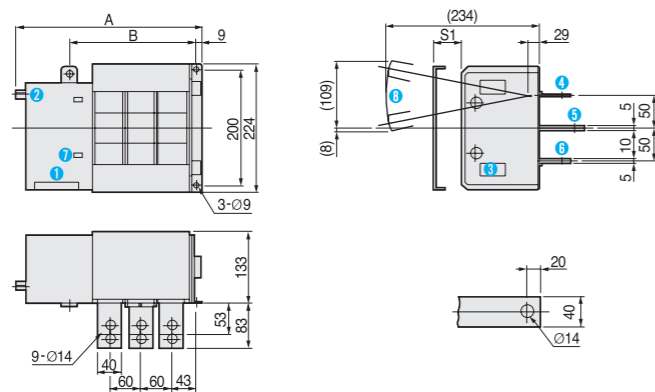


Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

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

- ① Operation Main Circuit Terminal
- ② Manual Operating Shaft
- ③ Auxiliary Switch A-Power Source Main Circuit Terminal
- 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



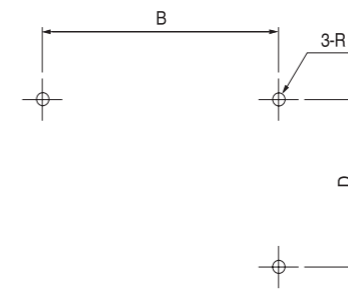
Arc space size (S1) is 30mm when the main circuit voltage is 220V and 60mm when it is 600V.

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

- ① Operation Main Circuit Terminal
- ② Manual Operating Shaft
- ③ Auxiliary Switch A-Power Source Main Circuit Terminal
- 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 Dimensions

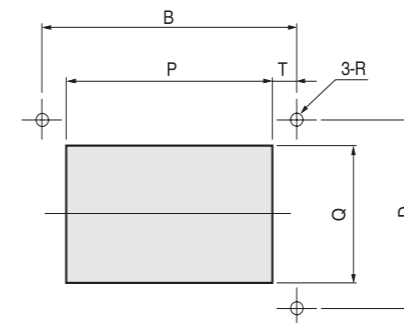
WP Types 61-64WP Front connection



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 Types 61-64WP Back connection



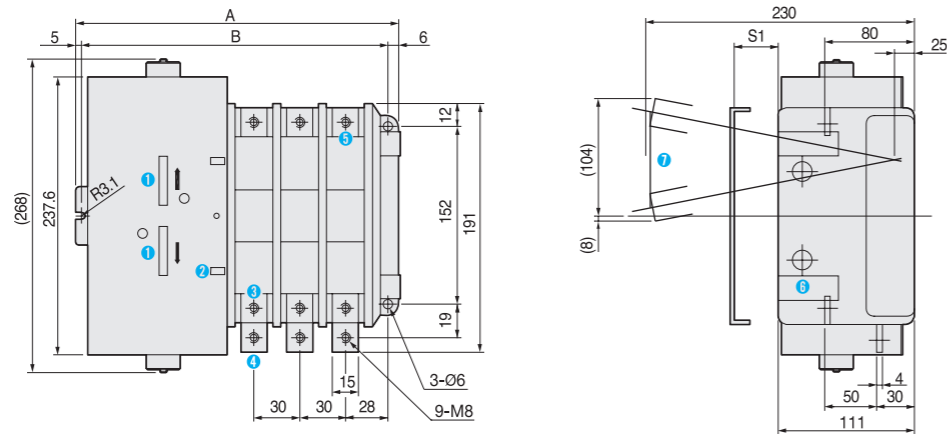
WP-Type

Type	606-61WP	62WP	64WP	
B	2P	113	143	174
	3P	143	188	234
	4P	173	233	294
D	152	152	200	
R	2P	85	110	135
	3P	115	155	195
	4P	145	200	255
Q	140		180	
T	7.5		9	
R	M5		M8	

External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

CTTS Type 61CT Front connection



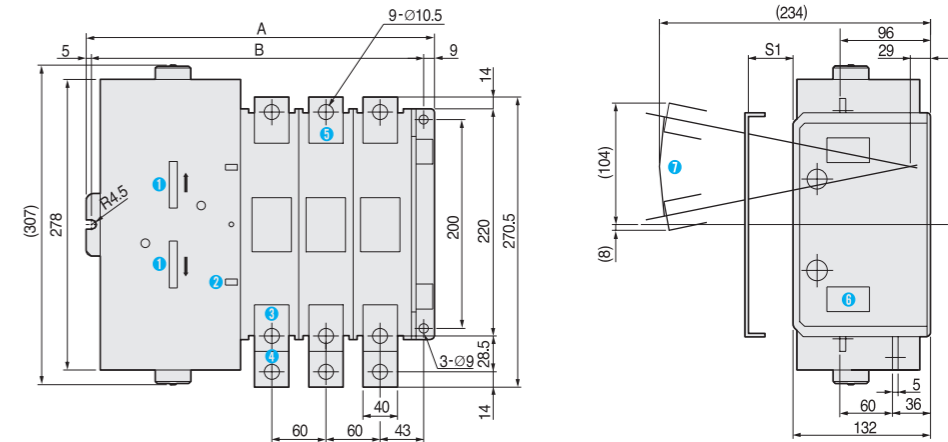
- 1 Manual Operation Hole
- 2 Switch Display
- 3 B-Power Source Main Circuit Terminal
- 4 Load Part Main Circuit Terminal
- 5 A-Power Source Main Circuit Terminal
- 6 Auxiliary Switch
- 7 Manual Handle

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

Type	A	B
2P	210.8	199.8
3P	240.8	229.8
4P	270.8	259.8

Low Voltage Automatic Transfer Switch ATS, CTTS

CTTS Type 64CT Front connection

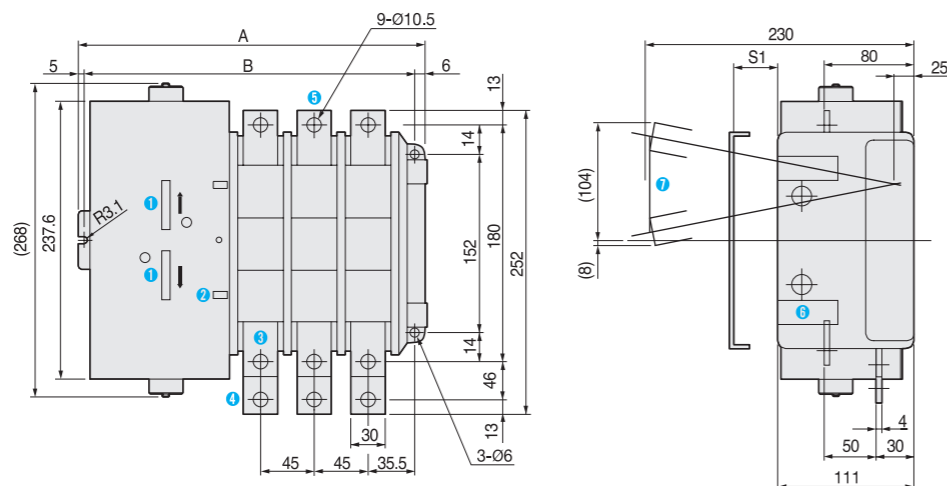


- 1 Manual Operation Hole
- 2 Switch Display
- 3 B-Power Source Main Circuit Terminal
- 4 Load Part Main Circuit Terminal
- 5 A-Power Source Main Circuit Terminal
- 6 Auxiliary Switch
- 7 Manual Handle

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

Type	A	B
2P	292.5	278.5
3P	352.5	338.5
4P	412.5	398.5

CTTS Type 62CT Front connection

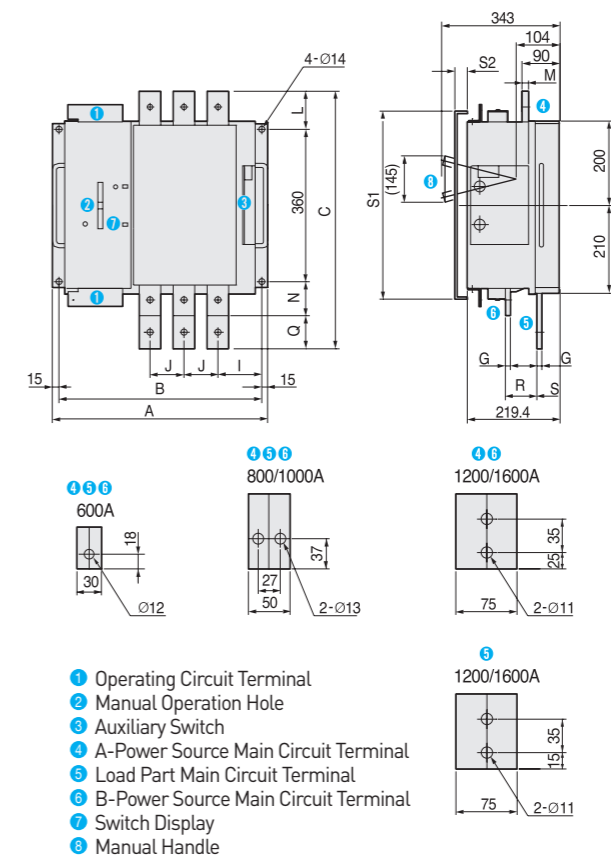


- 1 Manual Operation Hole
- 2 Switch Display
- 3 B-Power Source Main Circuit Terminal
- 4 Load Part Main Circuit Terminal
- 5 A-Power Source Main Circuit Terminal
- 6 Auxiliary Switch
- 7 Manual Handle

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

Type	A	B
2P	240.8	229.8
3P	285.8	274.8
4P	330.8	319.8

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

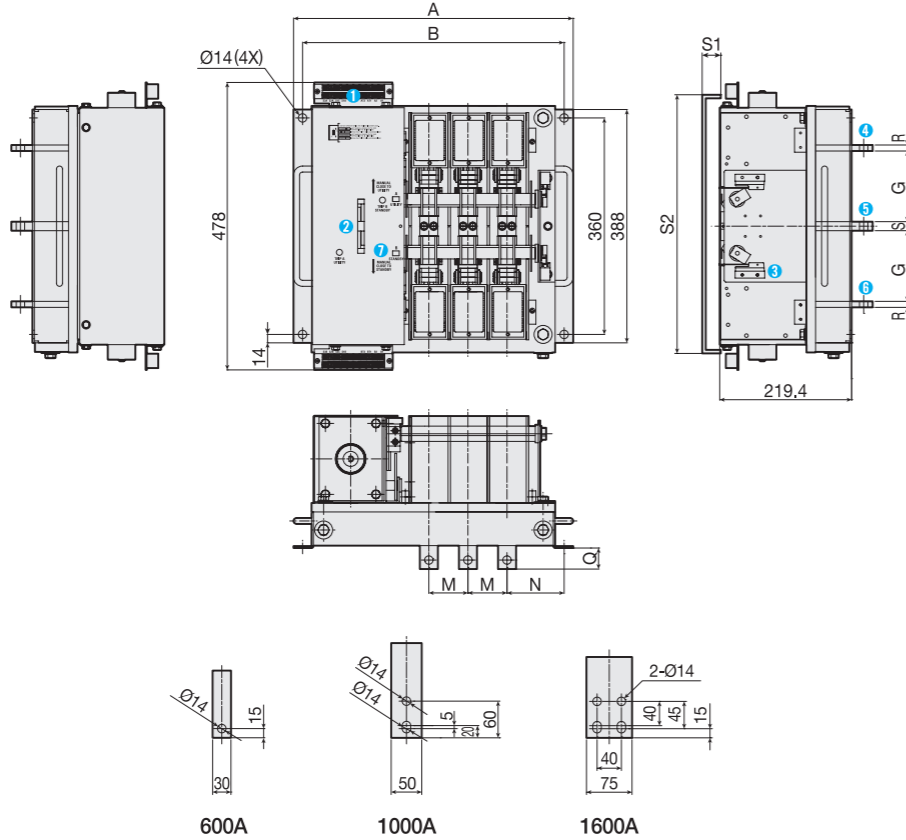
Main Circuit Voltage	S1	S2
200V	430mm	25mm
600V	450mm	90mm

Type	600A	800A	1000A	1200A	1600A
A	465	510	570		
4P	530	590	670		
B	435	480	540		
4P	500	560	640		
C	545	607	644		
G	10	12	15		
I	95	103	112.5		
J	65	80	100		
L	70	90	109		
M	15	15	15		
N	71	79	109		
Q	44	79	66		
R	75	75	75		
S	55	55	55		

External Sizes

Low Voltage Automatic Transfer Switch ATS, CTTS

CTTS Types 66-616CT 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

Arc space Size

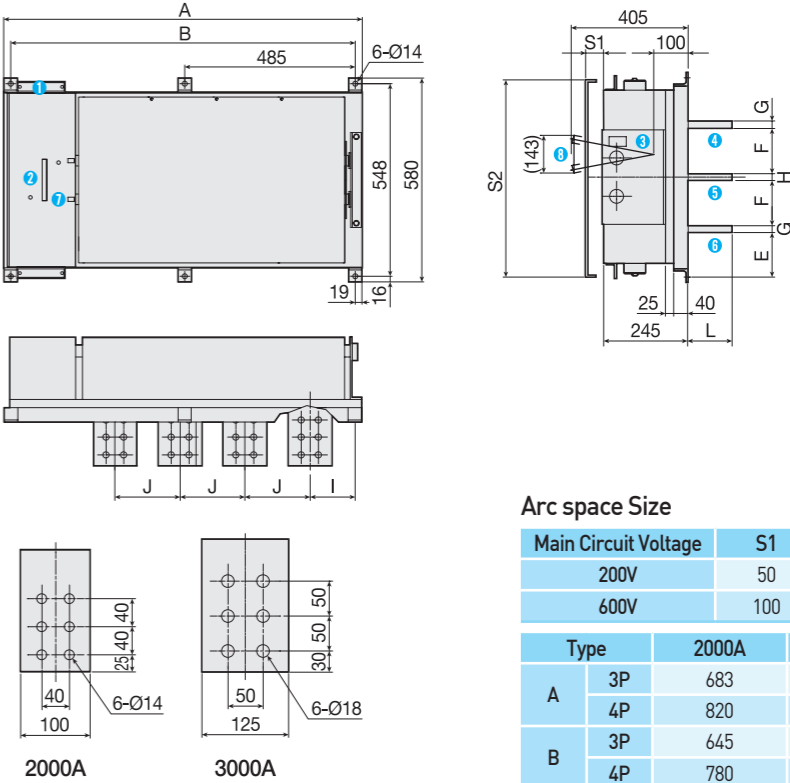
Main Circuit Voltage	S1	S2
200V	26	430
600V	90	450

Type	600A	1000A	1600A	
A	3P	465	510	570
	4P	530	590	670
B	3P	435	480	540
	4P	500	560	640
G	117.5	116.5	116.5	
M	65	80	100	
N	95	103	112.5	
Q	35	80	80	
R	10	15	15	
S	15	15	15	

Automatic Transfer Switches

Low Voltage Automatic Transfer Switch ATS, CTTS

CTTS Types 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 space Size

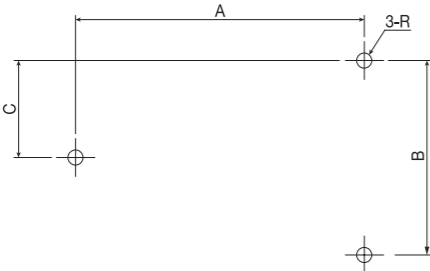
Main Circuit Voltage	S1	S2
200V	50	560
600V	100	600

Type	2000A	3000A	
A	3P	683	835
	4P	820	1020
B	3P	645	795
	4P	780	980
E	119	114	
F	132.5	130	
G	15	20	
H	15	20	
I	103	128	
J	135	185	
L	90	125	

External Sizes

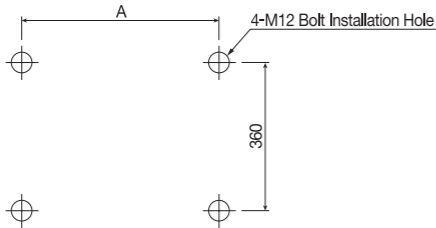
Panel Processing Dimensions

61-64CT Front connection



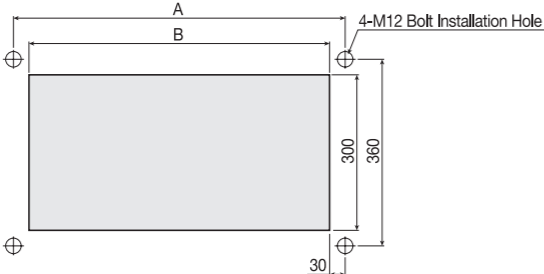
Type	100A	200A	400A	
A	2P	199.8	229.8	278.5
	3P	229.8	274.8	338.5
	4P	259.8	319.8	398.5
B		152	200	
C		76	100	
R		M5	M8	

66-616CT Front connection



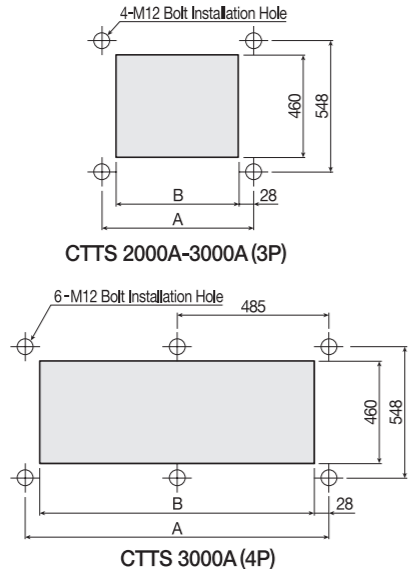
Type	600A	800A	1000A	1200A	1600A
A	3P	435	480	540	
	4P	500	560	640	

66-616CT Back connection



Type	600A	800A	1000A	1200A	1600A
A	3P	435	480	540	
	4P	500	560	640	
B	3P	375	420	480	
	4P	440	500	580	

620-630CT Back connection



CTTS 2000A-3000A (3P)

CTTS 3000A (4P)

Type	2000A	3000A	
A	3P	645	795
	4P	780	980
B	3P	420	570
	4P	555	755

VITZRO EM