



# ATS-xxxxA-iRC

63A, 125A, 160A, 250A, 400A, 630A, 800A,  
1000A, 1250A, 1600A, 2000A, 2500A, 3200A

**The 208VAC version:** 2 phase 3 wire , 120/240VAC; 50/60Hz  
3 phase 4 wire , 120/208VAC, 50/60Hz  
**The 400VAC version:** 1-3 phase 2-4 wire, 220/380VAC, 50/60Hz  
1-3 phase 2-4 wire, 230/400VAC, 50/60Hz  
1-3 phase 2-4 wire, 240/415VAC, 50/60Hz  
1-3 phase 2-4 wire, 270/480VAC, 50/60Hz

## Features

- Build-in microprocessor based controller
- Automatic/Manual operation modes with key locking selector
- Source I /OFF / Source II load circuit switching positions
- Detachable handle for manual failover switching operation
- Configurable power source priority settings
- Standard generator remote start/stop outputs
- Remote control operation inputs for external ATS, AMF or toggle switch usage.
- Build-in power source availability and position LED indicators
- Phase lose, over/under voltage and frequency protections
- Optional build-in timers for delayed transfer and generator start/stop operations
- Optional display module for remote control, configuration and monitoring
- Driving motor energized only during switching operations with outstanding energy saving;
- Reliable mechanical interlock and electric interlock systems
- Optional real time clock for generator exercise scheduling
- Fire linkage control signal input and feedback signal output
- Control circuit overload protection fuses
- Easy installation and simple wiring
- AC-32B utilization category (IEC 60947-6-1)



## Short description

This changeover switch type is an microprocessor based intellectual device designed to transfer loads automatically and manually from one power source to another in a wide variety of 1-3 phase applications. The unit monitors 3-phase normal and reserve source voltages, sends remote start command to the generating set and performs changeover switching between those 2 sources connecting the load circuits to a power source having voltages within preset limits.

Device has a manual load switch lever, a manual/auto mode switch and a mechanical locking. The front panel LEDs provide information about mains and generator power availability as well as a current switch positions.

External display shows phase voltages and can be placed in a distance of 1-3 meters from the device via standard Ethernet cable.

Power source voltage limits, transfer, start and stop delays and transfer modes are front panel configurable settings.

**Note:** The delays apply in case if the device is connected to 12-24VDC auxiliary power supply only.

## Working Conditions

- Ambient temperature: -5°C- +40°C; 24 hours average - not more than +35°C;
- Atmospheric conditions: humidity not more than 50% at max.+40°C. Max.monthly humidity 90%. Higher humidity is allowed at lower temperatures. It should take special treatment for the occasionally condensation due to the temperature variation.
- Altitude: Not more than 2000m  
Pollution Class: The installation site environment pollution Class 3
- Use category: AC-33iB
- Electromagnetic Environment: Suitable for A environment. Using in environment B, the product will produce harmful electromagnetic interference. Proper safeguard procedures should be taken in such cases.

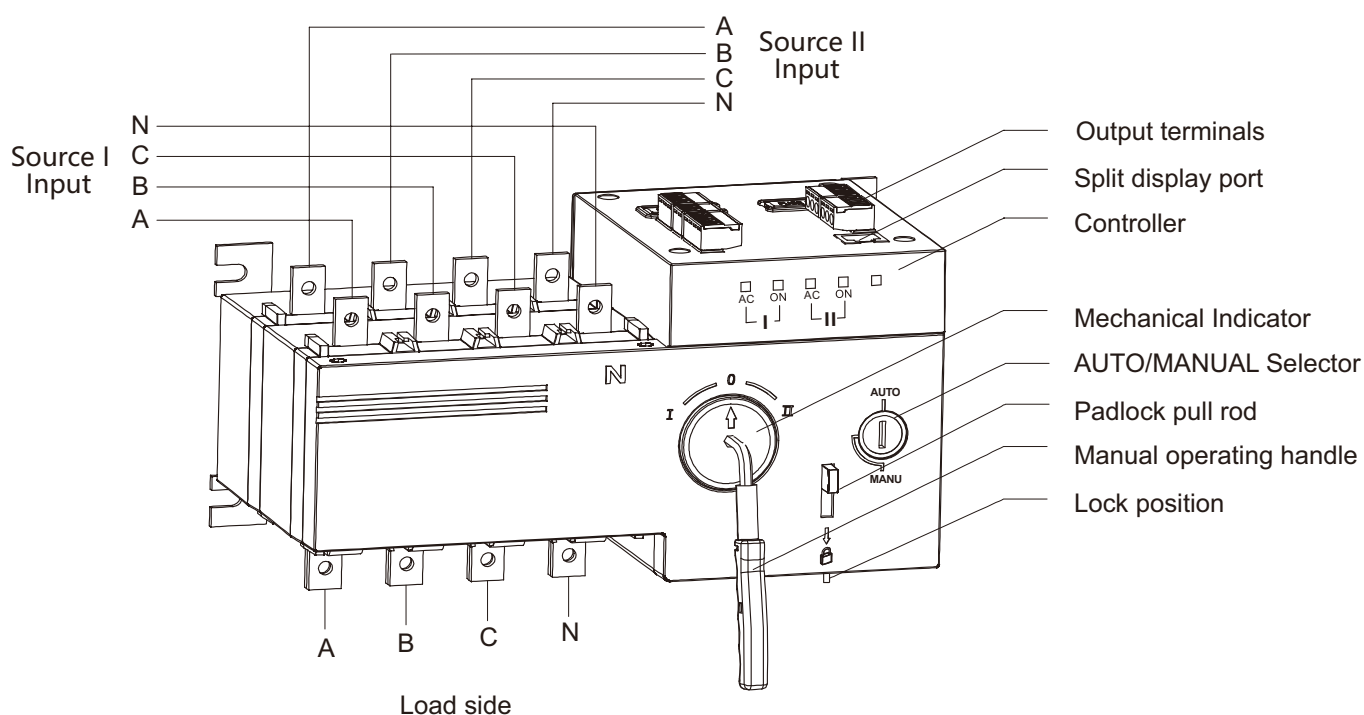
## Standards conformity

- IEC60947-1(2001) (Low voltage switchgear and control gear, part one: General Rules)
- IEC60947-3(2005) (Low voltage switchgear and control gear, switch, isolator and combined fuse switch etc)
- IEC60947-6-1 (2005) (Low voltage switchgear and control gear multi-function switch: auto transfer switch etc. )
- GB/T14048.1-2006 (Low voltage switchgear and control gear, part one: General Rules)
- GB14048.3-2008 (Low voltage switchgear and control gear, switch, isolator and combined fuse switch etc)
- GB14048.11-2008 (Low voltage switchgear and control gear multi-function switch: auto transfer switch etc. )

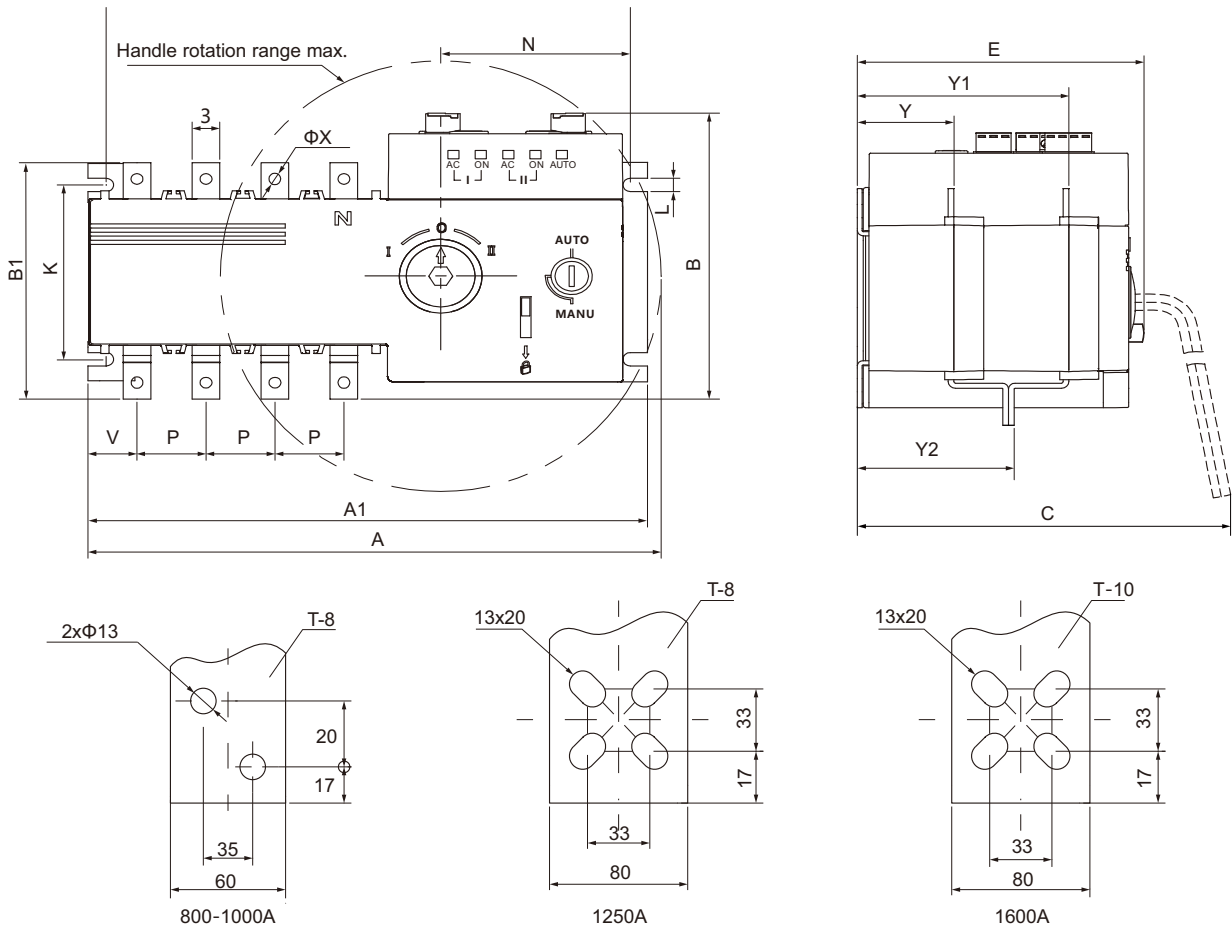
## Transportation and Storage Conditions

- During the transportation should not be exposed to rain and snow
- Storage ambient temperature should between -25°C- +55°C
- Relative humidity - not more than 95% ( under 25°C)

## Device controls

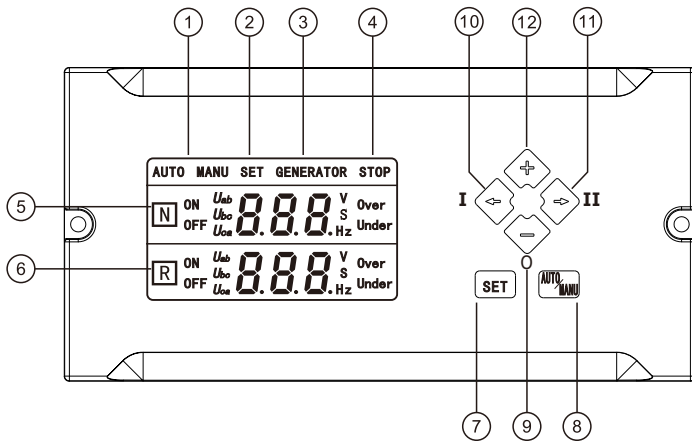


# 125A-1600A Outline Drawing and Mounting Dimensions



Item / Spec.	125A	160A	250A	630A	1600A	
Outline Size	A	330	374	436	502	1050
	A1	244	301	373	433	636
	B	135	175	200	265	345
	B1	115	140	178	260	337
	C	165	200	250	295	373
	E	125	150	198	244	320
Mounting Size	J	228	285	344	416	612
	K	85	102	108	180	220
	L	6.5	7	6.5	9	11
	N	83	94	99	101	83.5
	P	30	36	50	65	120
	R	12	20	24	40	80
	V	21	31	37	47.5	71
	X	6.5	8.5	11	12	13
	Y	41.5	55.5	72	83	109
	Y1	91.5	125.5	157	193	241
	Y2	66.5	92.5	116	140	196

# Display Operation Instruction



- 1: Auto, Manual working mode indicators.
- 2: Setting status indicators.
- 3: Generator start signal indicator.
- 4: ATS stop indicator (such as Fire-linkage start).
- 5: I Power status data indication zone. Under working mode: displays I power voltage data and transfer delay time. Under setting mode: displays setting item code.
- 6: II power status data indication zone. Under working mode: displays II power voltage data and recovery delay time. Under setting mode: displays setting item code.
- 7: "SET" Setting button: press this button to enter to the controller setting menu.
- 8: "Auto/Manual" button. Under working status, it used to select the Auto and Manual transfer mode. Under the setting status, it is used for the save and escape action.
- 9: "Left Arrow" button. Under manual control mode if any of the two power is good, this button will transfer to OFF position. Under setting status, it is used for value decreasing.
- 10: "Left Arrow" button. Under manual mode and when the power source I is ON, this button will transfer the switch to the power source I side. Under setting mode, it is used as shift button for shifting to up page setting item.
- 11: "Right Arrow" button. Under manual mode and when the power source II is ON, this button will transfer the switch to the power source II side. Under setting mode, it used for shifting to down page setting item;
12. "Right Arrow" button.
  - a) under setting status this button is used as data increase button;
  - b) Long press this button to enter into time query menu;
  - c) In the manual mode, this button is used as test button to start and stop the generator manually;
  - d) During generator exerciser time, in the manual mode, this "Right Arrow" button will stop the generator exerciser.

## Key Button Operation Instruction

During LCD start working, press "SET" and enter password "888", press again "SET", it will enter into Menu A;  
 Press "SET" to select the different menu;  
 Press "Left Arrow" to page up or page down the setting item;  
 Press "Right Arrow" to adjust value.

## Factory default value settings

Normal power under voltage transfer value: 187V  
 Normal power Over voltage transfer value: 263V  
 Reserve power under voltage transfer value: 187V  
 Reserve power Over voltage transfer value: 263V  
 Transfer delay time: 5 sec  
 Recovery delay time: 5 sec  
 Generator start delay time : 5 sec  
 Generator Stop delay time: 5 sec  
 Transfer Mode: Power Grid - Power Grid

## 2 or 3 Phase Power Source Settings

Press and release the SET button.  
 When you see "A-1", press and hold the SET button again for 4 seconds until you see "E-1".  
 Use the arrow buttons to scroll down the menu until you reach "E-2" value.  
 Set "E-2" value to 000 for 2 phase mode or to 001 for 3 phase mode.  
 Click on the "Auto/Man" button 2 times to exit the menu.

## 50/60Hz Frequency Settings

Press and release the SET button.  
 When you see "A-1", press and hold the SET button again for 4 seconds until you see "E-1".  
 Use the arrow buttons to scroll down the menu until you reach "E-4" value.  
 Set "E-4" value to 000 for 60HZ or to 001 for 50HZ settings.  
 Click on the "Auto/Man" button 2 times to exit the menu.

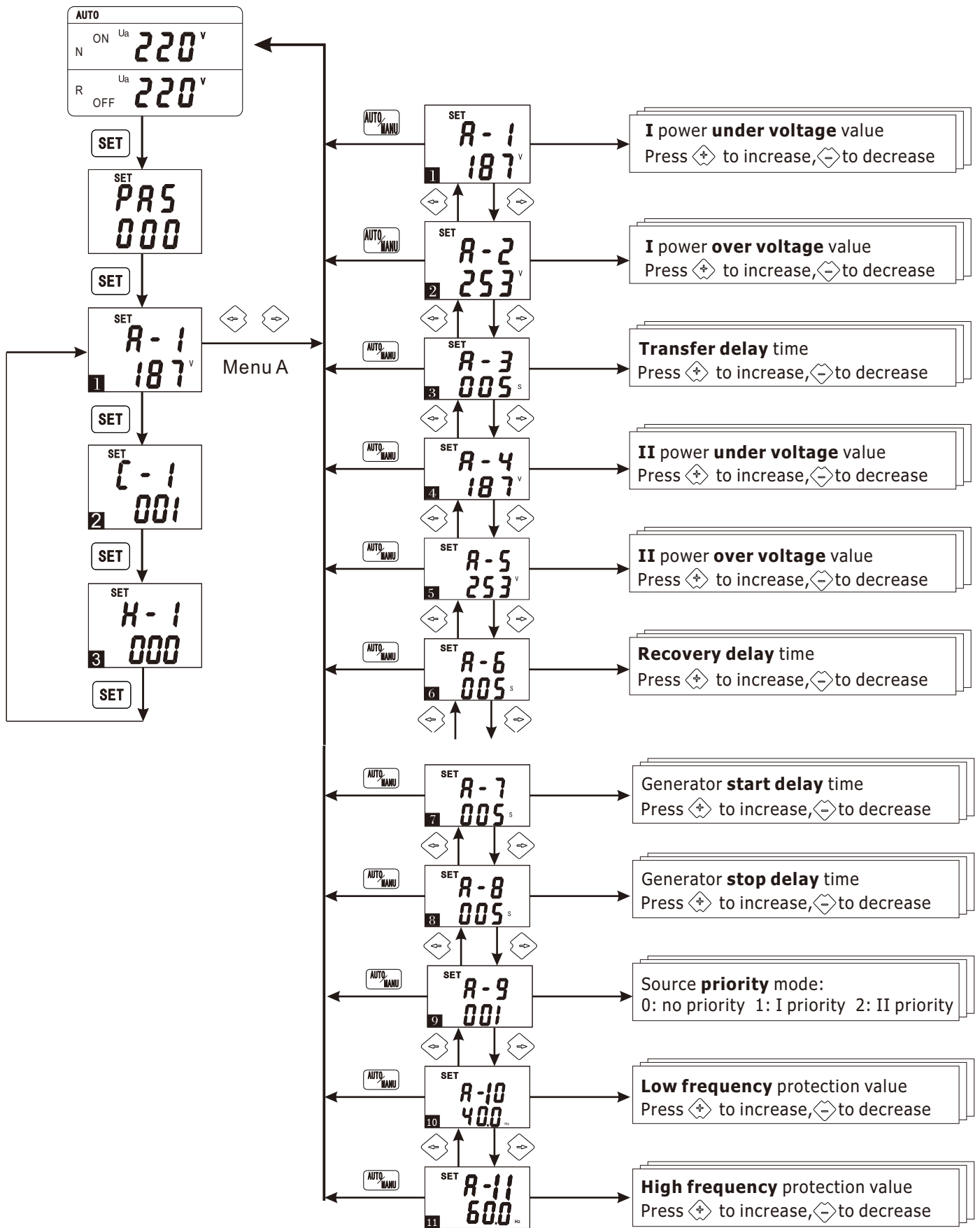
## Ph-N or Ph-Ph Voltage Display Settings

Press and release the SET button.  
 When you see "A-1", press and hold the SET button again for 4 seconds until you see "E-1".  
 Use the arrow buttons to scroll down the menu until you reach "E-3" value.  
 Set "E-3" value to 001 for Ph-N voltage display or to 000 for Ph-Ph voltage display.  
 Click on the "Auto/Man" button 2 times to exit the menu.

### IMPORTANT NOTE:

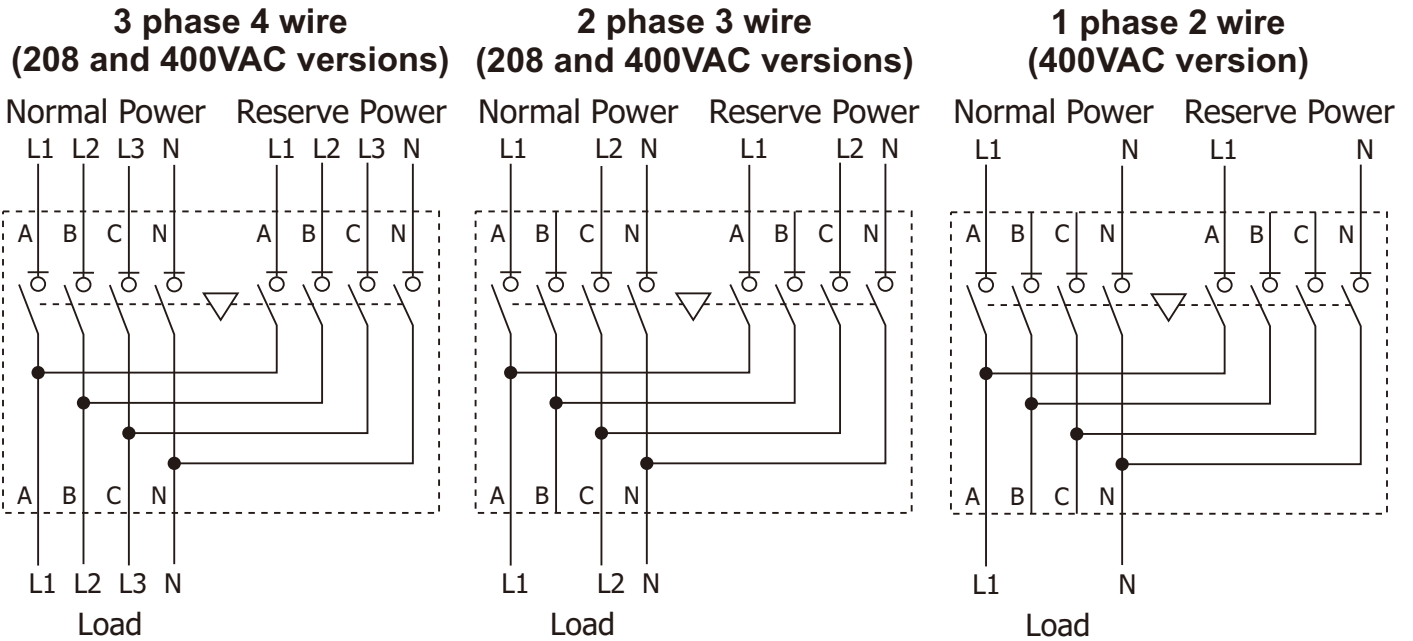
"E-3" and "E-8" must be set to 000 values for the 208VAC device version.

# Settings menu

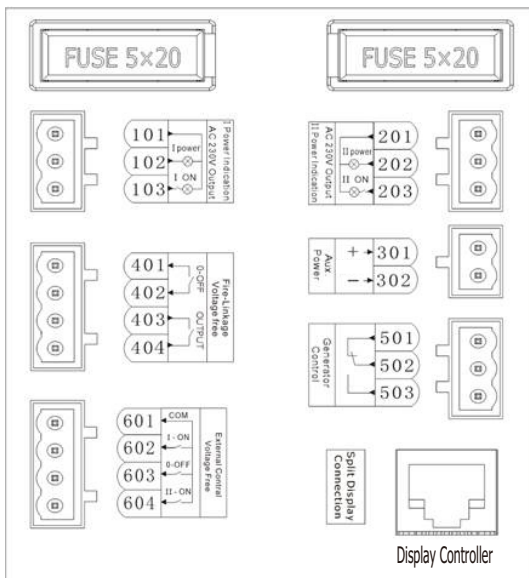


Item	Function	Code	Description
E-1	Programmable Relay	000	Generator control
		001	Switch Failure Alarm
		002	Power Failure alarm
		003	Overload Output (optional)
		004	Factory test (Not open for customer)
E-2	Power Supply	000	Single Phase
		001	Three phase
E-3	Voltage Display Mode	000	Display Line voltage (Ph-Ph)
		001	Display phase voltage (Ph-N)
E-4	Frequency	000	60Hz
		001	50Hz
E-5	Load Making time		not open for customer setting
E-6	Load Breaking		not open for customer setting
E-7	Center delay		Center OFF delay (optional)
E-8	Voltage System Selection	000	120/208VAC or 120/240VAC
		001	220/380VAC or 230/400VAC
		002	240/415VAC
		003	270/480VAC
E-9	Controller model selection	000	C Type ( Standard Controller )
		001	D Type (for RS-485 interface option)
		002	E Type (for Generator Exerciser option)
E-10	Fire-linkage	000	Fire-linkage pulse signal input
		001	Fire-linkage voltage signal input
E-11	Fault trip	000	Disable
		001	Enable
E-12	Rated Current	for L-type only (optional)	
E-13	CT Ratio	for L-type only (optional)	
E-14	Phase Sequence protection	for L-type only (optional)	

## Device connection



L1,L2,L3 - phase wire connections; N - neutral wire connection.



### 101 - 103 : Normal Power external Indicator outputs ( Active AC230V 0.5A)

- 101 - Indicator common neutral line
- 102 - Normal power indicator signal output
- 103 - Normal power ON signal output

### 201 - 203 Reserve power external indicator outputs (Active AC230V/0.5A)

- 201 - Indicator common neutral line
- 202 - Reserve power indicator signal output
- 203 - Reserve power ON signal output

### 301 - 302 Auxiliary power supply DC24V inputs

- 301 - 12-24VDC "+" input
- 302 - 12-24VDC "-" input

### 401 - 404 Fire linkage control signal inputs and feedback signal outputs

- 401, 402 - Fire linkage signal passive inputs
- 403, 404 - Feedback signal outputs (active when ATS transfer is in OFF position)

### 501 - 503 - Generator remote start control signal outputs

- 501 - Control signal NC point
- 502 - Control signal common point
- 503 - Control signal NO point

### 601 - 604 - External control inputs (voltage-free)

- 601 - Control signal common point
- 602 - Power Source I close
- 603 - 0 (OFF) position
- 604 - Power Source II close

### Notes:

When the fire-fighting equipment output signal is active (closed), it means that the Load circuits is powered by whether via Normal or Reserve power source.

When the fire linkage inputs are active, the ATS will switch to OFF position disconnecting LOAD from power sources.

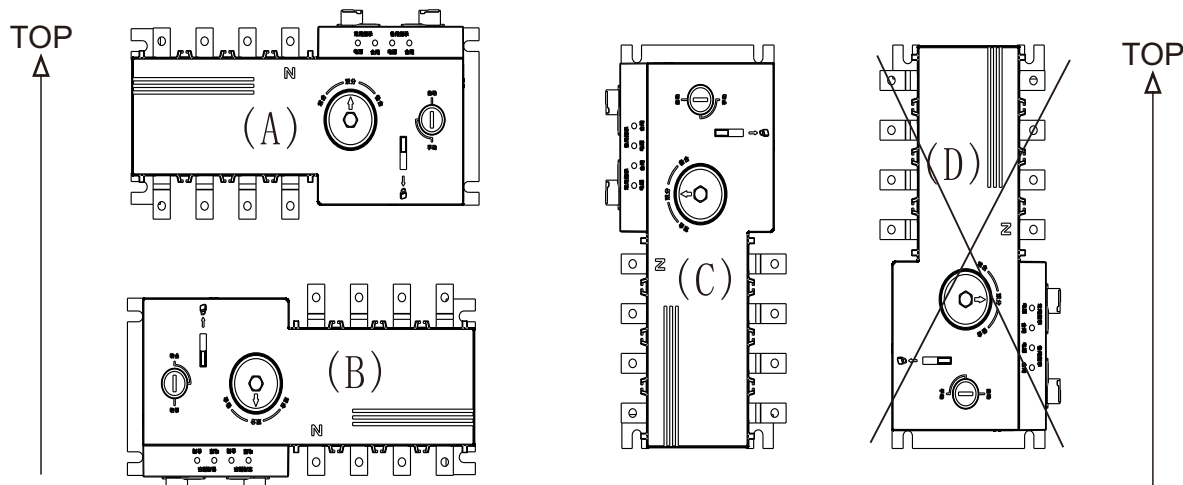
To re-activate the device, the fire-fighting signal must be removed and the Manual/Auto button must be pressed once. So, the ATS will return to normal operation.

## Installation, Usage and Maintenance

- This device requires professional installation and maintenance.
- Product wiring should be done strictly as per input wiring mark.
- The device must be reliable earthed to avoid any injuries, fire, explosions and equipment damage.
- Voltmeter must be used to check that the power sources are disconnected before installation.
- Periodically make normal inspection, test manuall- and automatic transfer modes to insure that the device works normally.
- Periodically make a maintenance, clear out the dust and check product insulation quality.



## Device placement



A, B and C - Correct Installations; D - wrong installation.

## Technical specifications

Item	Type	Intelligent controller
Rated Voltage		AC480V 50/60Hz
Aux. Power		12-24VDC
Voltage measuring Range		40V - 300V
Power Loss		≤10W
Working position		(Normal power ON, Reserve power ON, OFF) Three working position
Operation Mode		Auto, Manual, Remote
Display mode		LED indicator (LCD Display optional)
Voltage display		Only with LCD display model
Transfer mode		Auto Transfer auto recovery / Auto transfer no recovery
Under voltage transfer value		160~200V Adjustable by LCD display
Over voltage transfer value		240~290V Adjustable by LCD display
Transfer Delay Function		0~180s Adjustable by LCD display
Recovery Delay Function		0~180s Adjustable by LCD display
Phase missing detect		Three phase (A, B, C Phase)
Phase sequence detect		NO
Generator control		Yes(one set DC2A relay contact)
Fire-linkage control		Yes(passive contact input, with one set NO passive feedback signal)
Switch alarm indicate		NO
RS485 function		Optional
Installation mode		Can make with integrated and split (Note: integrated type without display)
Rated Insulation Voltage	6	90V
Rated Impulse Voltage	8	KV
Rated Short Circuit Capacity	8	KA
Rated Short Circuit Current	1	20KA
Control Power Voltage	A	C230V
Transfer Time	0	.5 sec
Weight		1 00A -4.3 kg, 125A- 4.8 kg, 250A - 9.5 kg