



ATS-100A-4P- i

2-3 Phase, 120/208/240V, 50/60Hz
Automatic Transfer Switch

Short description

The ATS-100A-4P-i changeover switch is an microprocessor based intellectual device designed to transfer loads automatically and manually from one power source to another in a wide variety of 2-3 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.

Inputs and outputs: fire linkage control, generator remote start, external indicators.

The front panel leds provide information about mains and generator power availability as well as a current switch positions.

External display shows phase voltages (phase-phase), current workign mode and etc. It 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.

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



Features

- compatible with 120/208VAC 3 phase and 120/240 2 phase 50/60 Hz applications;
- displays phase-phase voltages and current state on external LCD Display;
- 3 working positions: main power ON - backup power OFF; main power OFF - backup power ON; main and backup power OFF;
- double complex contacts/ horizontal pulling mechanism/micro motor energy pre-storage and micro-computer control technology;
- reliable mechanical interlock and electric interlock;
- "Zero Position" technology. Device can be set to Zero Position under emergency situations with two way power supply cut off meeting the fire linkage requirements;
- singleness motor drive providing smooth, reliable, low noise operation;
- driving motor energized only during switching operations with outstanding energy saving;
- mechanical interlock, making sure that the Normal power and Reserve Power sources work without interference;
- distinct ON and OFF position and activity indicators;
- high security and reliability with working life more than 8000 times;
- electromechanical integration design with accurate changeover adopting an advanced logical control technology and high anti-interference ability;
- easy installation using control circuit plug type terminal connections.

Working Conditions

- Ambient temperature: -5℃- +40℃; 24 hours average - not more than +35℃;
- Atmospheric conditions: humidity not more than 50% at max. +40℃. 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.

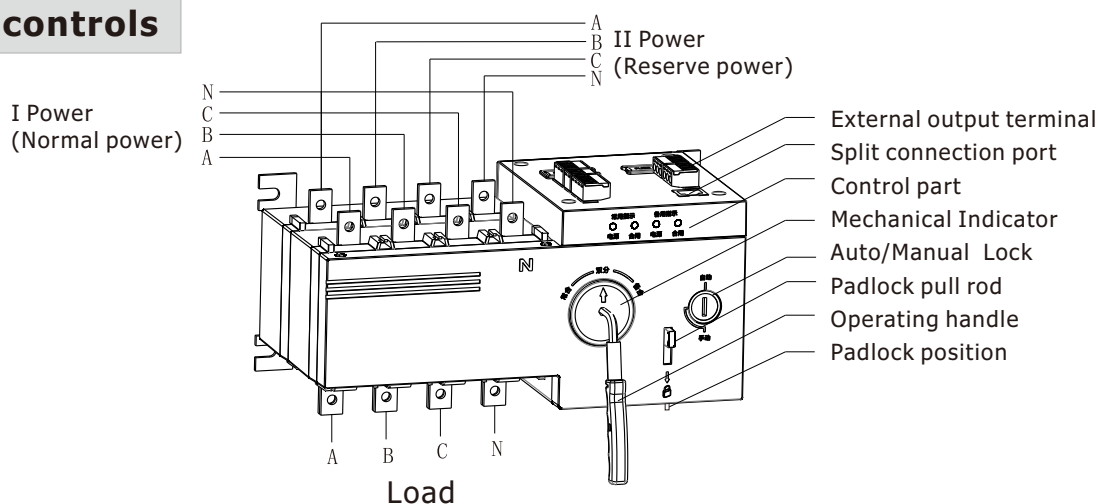
Standards conformity

- 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.)

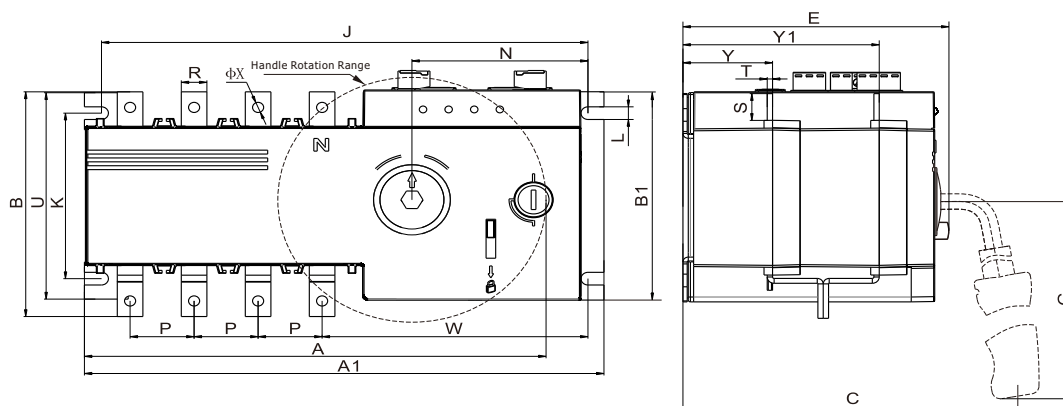
Transportation and Storage Conditions

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

Device controls



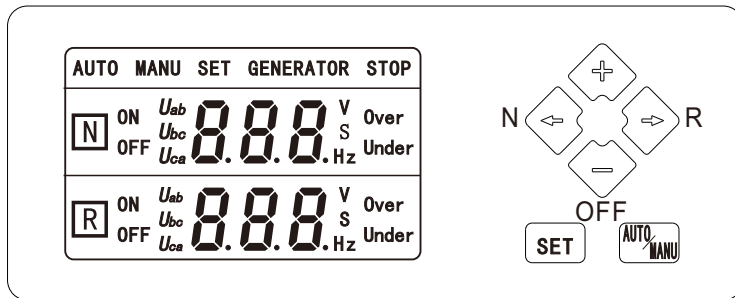
Outline Drawing Size



Outline size and Mounting Size

A	A1	B	B1	C	E	G	J	K	L	N	P	R	S	T	U	W	ΦX	Y	Y1
330	244	115	107	182	125	174	228	85	6.5	83	30	12	18	(2.5)5	99	125	6.2	42	92

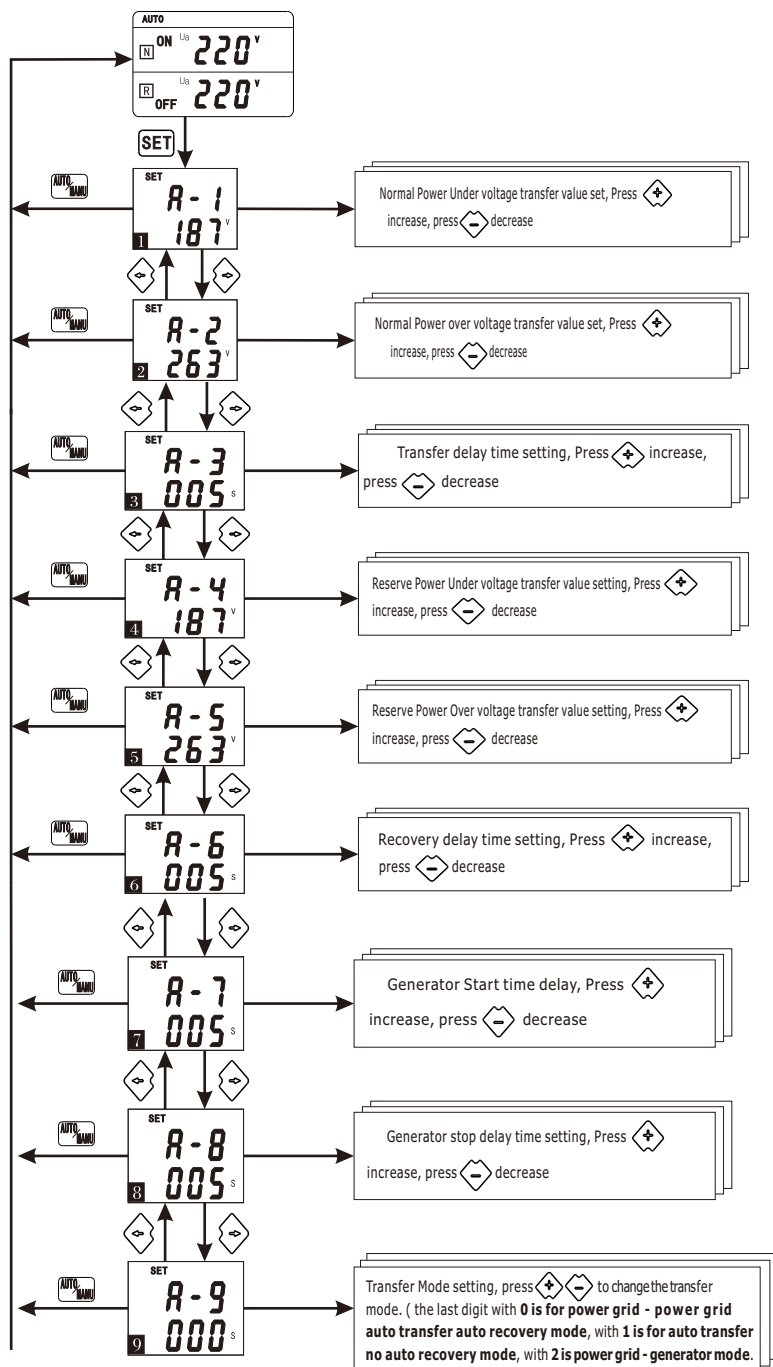
External display controller



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

Settings menu



Note: all voltages are measured between 2 phases (phase-phase voltage).

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 000 for Ph-N voltage display or to 001 for Ph-Ph voltage display.

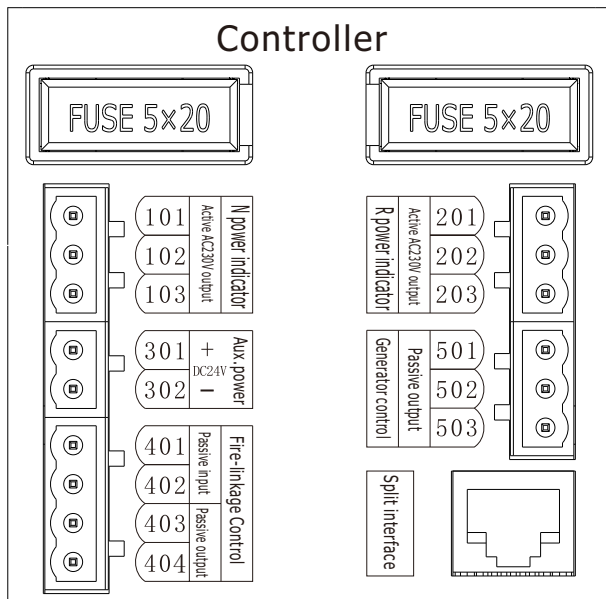
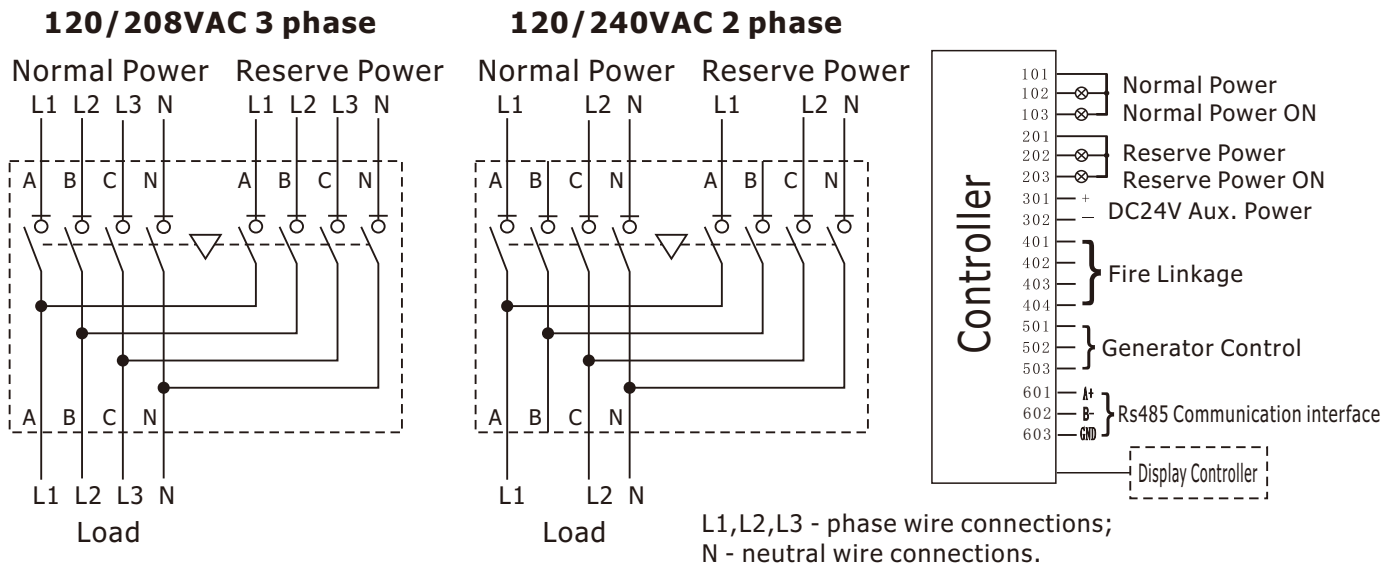
Click on the "Auto/Man" button 2 times to exit the menu.

NOTE: E-3" value must be set to 001 for 120/208VAC device version.

Key-press instruction

When controller is working, press Set button on the LCD display front panel. Under the setting menu, press " " or " " button to scrol the setting items. Press " " or " " button to modify item value settings. Press " " button to exit the setting menu.

Device connection



CONTROLLER TERMINAL CONNECTIONS

- 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 - DC24V "+" input
 - 302 - DC24V "-" 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 - 603 - RS485 Communication terminals**
- 601 - A+; 602 - B-; 603 - GND

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.

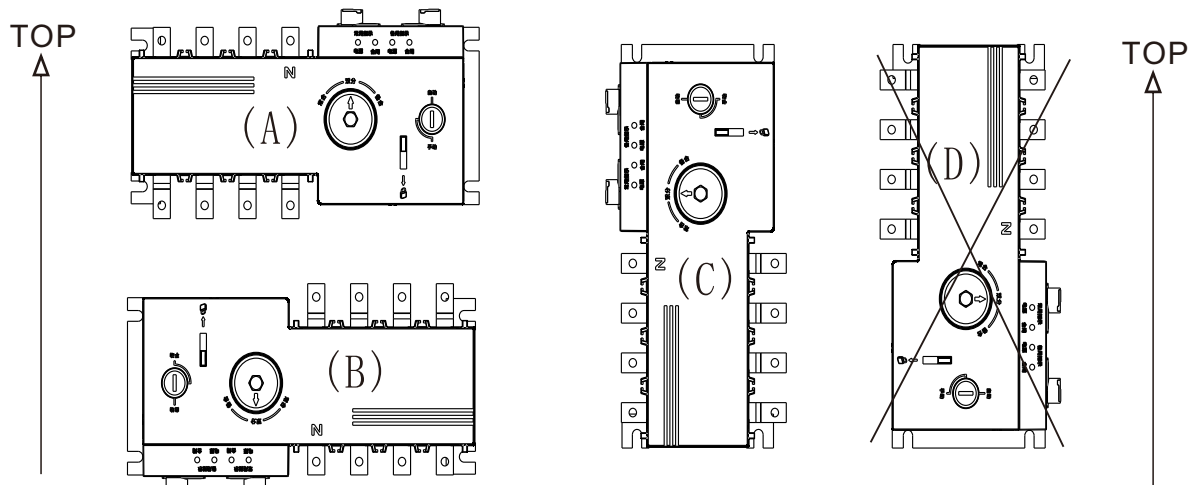
When the fire linkage inputs are active, the ATS will switch to OFF position disconnecting LOAD from power sources.

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 manual- 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		AC400V 50/60Hz
Aux. Power		DC24V
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	690V	
Rated Impulse Voltage	8KV	
Rated Short Circuit Capacity	8KA	
Rated Short Circuit Current	120KA	
Control Power Voltage	AC230V	
Transfer Time	0.5 sec	
Weight	4.3 kg	