

ATS Operation Manual

Content

- Safety precautions..... 1
- I. Brief introduction2
- II. Composition 3
 - 1. Internal layout.....3
 - 2. Door layout.....4
- III. Wiring 5
 - 1. Mains power wiring5
 - 2. Control wiring 5
 - 3. Wiring diagram..... 5
- IV. Operation6
 - 1. Auto mode 6
 - 2. Manual mode.....8
 - 1) Mains supply to load8
 - 2) Genset supply to load.....8
- V. ATS controller and parameters.....10
 - 1. Controller panel.....10
 - 2. Definitions of buttons10
 - 3. Definitions of indicators.....12
 - 4. Controller parameters.....13

Safety precautions

WARNING

Improper maintenance or replacement of parts may result in death, serious personal injury and/or damage to the equipment. Personnel carrying out electrical and/or machine maintenance must be qualified personnel.

Read and follow the following advice

Keep the ATS cabinet closed and locked.

Make sure that the key is kept by the authorized persons only.

The high voltage in the cabinet can cause serious electric shock injury, the maintenance and repair of the ATS cabinet must be carried out by electricians or authorized maintenance personnel.

I. Brief introduction

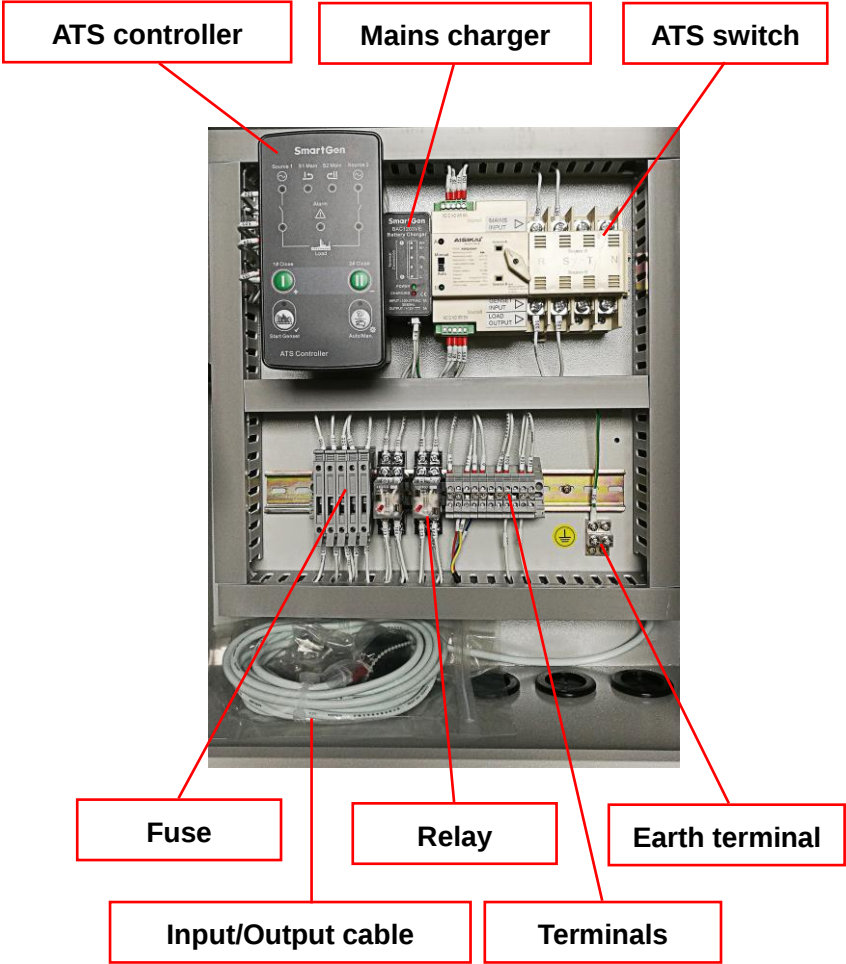
ATS cabinet is a kind of manual/automatic switch control cabinet with electrical/mechanical double interlock, which can input two power sources (mains power supply and standby power supply) and output one way (power supply to load).

The monitoring of two-way power supply and the switch of power supply are controlled by the ATS intelligent controller in the cabinet, which can accurately detect the two-way voltage and make accurate judgment on the voltage abnormalities (overvoltage, undervoltage, overfrequency, underfrequency and missing phase), and control ATS switching. When ATS switching is abnormal, the controller can detect the failure of switch, and at the same time, the control panel will give an alarm to ensure the correct action of ATS. In the automatic mode, the ATS controller has the function of sending out the signal to start the generator set when mains power supply is abnormal. Through LINK interface, remote communication, remote control and parameter configuration can be realized.

II. Composition

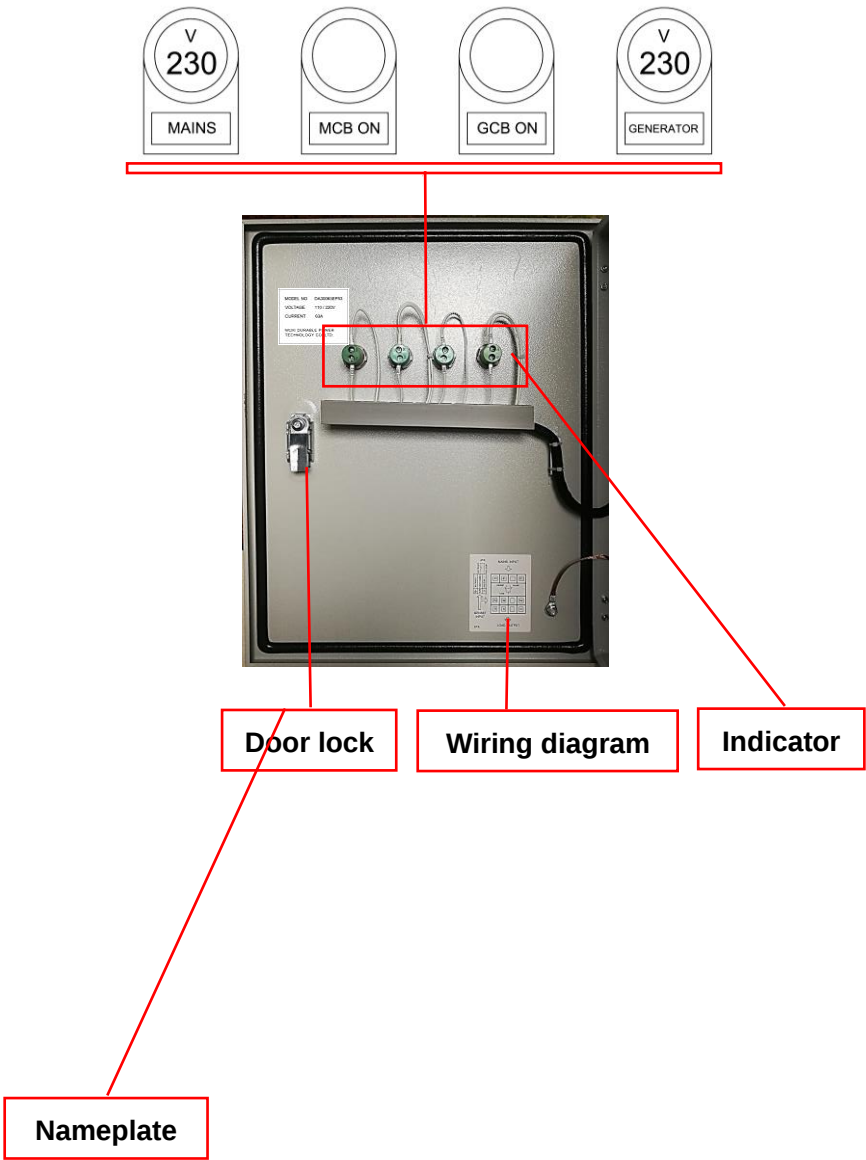
ATS cabinet is composed of cabinet, ATS controller, transfer switch, status indicator, mains charger, control wiring, input/output connection cable (optional) and other main components.

1. Internal layout



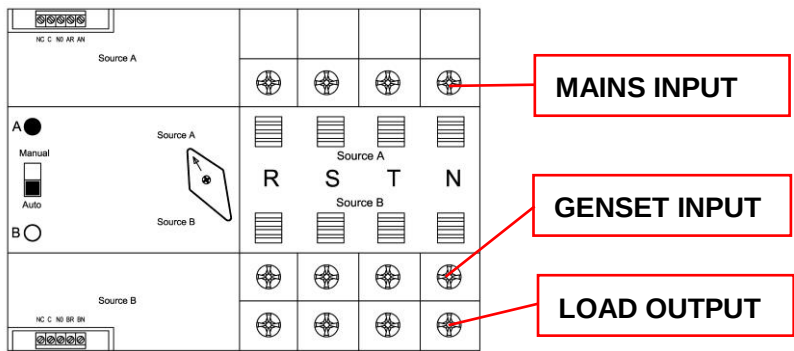
2. Door layout

4 status indicators and nameplate/wiring diagram are installed on the cabinet door.



III. Wiring

1. Mains power wiring

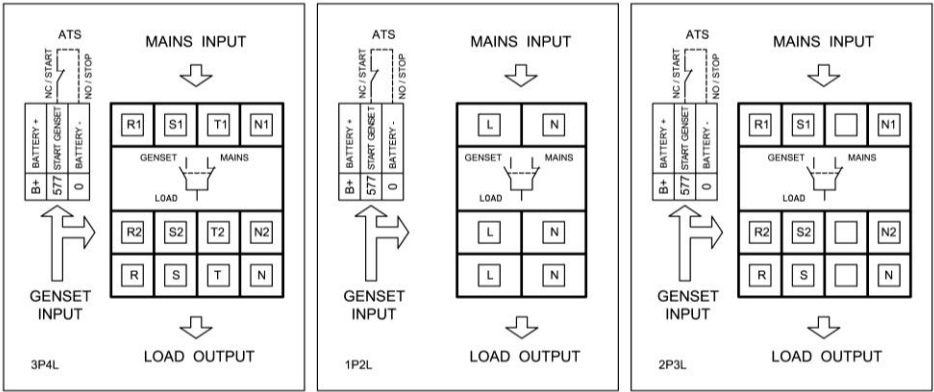


2. Control wiring

One end of the control cable (3-core) is connected to the terminal in the cabinet and the other end is connected to the generator set for automatic start/stop control of the generator set and charging the battery in the generator set.

3. Wiring diagram

The wiring diagram is located at the bottom of the ATS cabinet door.



Three phase

Single phase

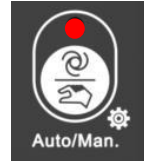
Two phase/Dual voltage

IV. Operation

Two modes available for the cabinet operation: Auto mode and manual mode.

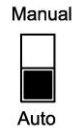
1. Auto mode

ATS controller is set in "Auto" mode (press Auto/Man to turn on "LED" light).



ATS switch in Auto position.

The generator set controller in "AUTO" mode.



When mains power abnormal, ATS controller

output "generator set start" signal, the

generator set start and reach normal

operating voltage, the indicator on the cabinet

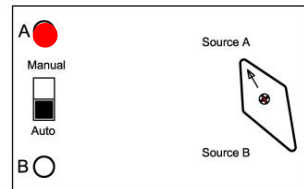
door "GENERATOR" light on (display

generator voltage), the ATS control switch

automatically switches to generator power (Source B) to power the load, the

"GENERATOR" light on the cabinet door is on (ATS switch indicate "Source

B "power in supply).



When the mains power comes back

normal, the "MAINS" light on the ATS

cabinet door will be on (indicating the

mains voltage), and the ATS controller

will automatically switch to the "Source A"

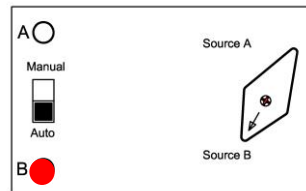
(the mains power) to supply power to the

load, and the "MAINS" light on the ATS cabinet door will be on (ATS

switch indicating "Source A" power in supply). ATS controller sends

out the signal of "generator set stop" in delay, and the generator set is

in the state of automatic standby after the delay stop.



Notice

When in mains power supply, the green light of MAINS CHARGER in the ATS cabinet will be on. The charger will automatically charge the battery inside the genset, and the red LED light on the charger will be on until the battery is fully charged and the charger will automatically turn into the state of floating charge.

POWER 
CHARGING 

2. Manual mode

Follow the following steps to “manual switch”
Disconnect the load;



ATS controller in "Man" mode (Auto/Man "LED" off).

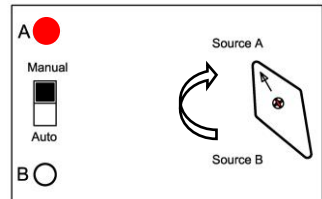
ATS switch in “Manual” position;
(The generator set controller in "manual" Mode)



1) Mains supply to load

Manually put switch handle to “Source A” position.

When connected to the mains power, the "MAINS" light on the ATS cabinet door will be on (indicating the mains power voltage). The mains power will supply power to the load through the transfer switch, and the "MAINS" light on the cabinet door will be on.



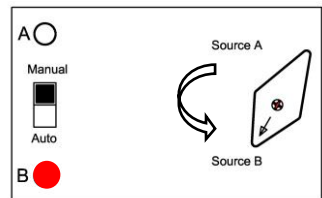
"Mains charger" automatically charges the battery in the genset.

2) Genset supply to load

Switch off the mains power;

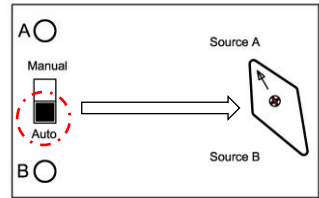
Manually put switch handle to “Source B” position;

After manually starting the genset, the "GENERATOR" light on the ATS cabinet door will be on (indicating the generator set voltage), the generator set will supply power to the load through the transfer switch, and the "GENERATOR" light on the cabinet door will be on.



Notice

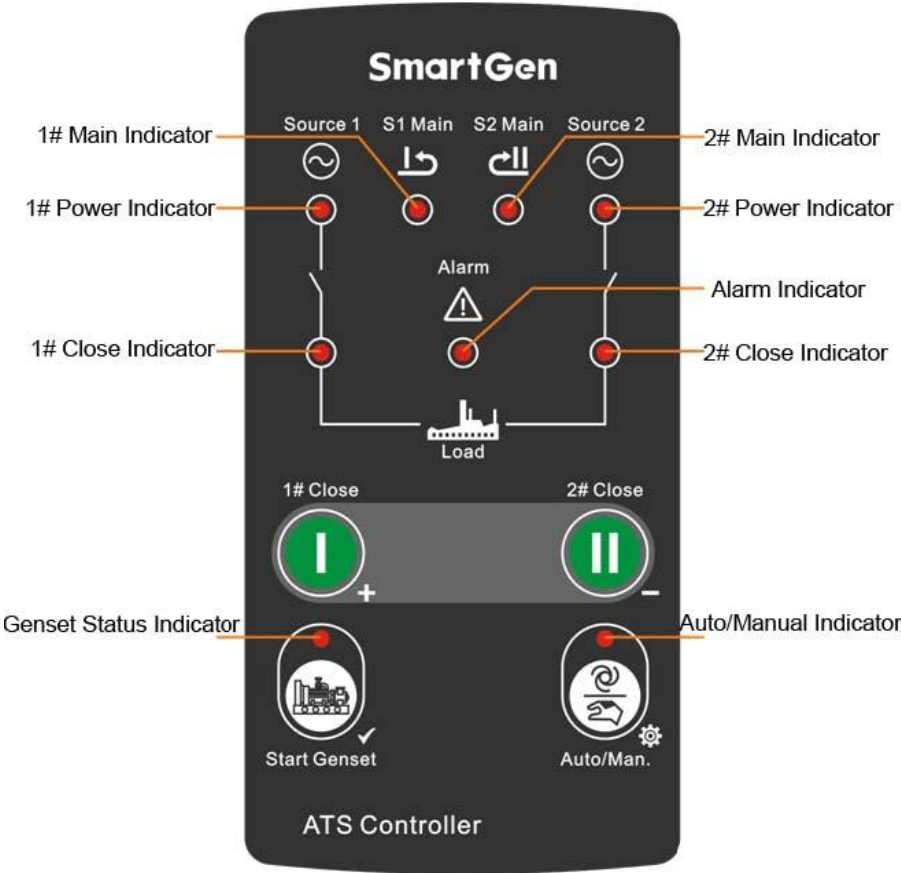
- 1) Manual switch power supply with load is prohibited.
It is necessary to turn off the mains power and the genset, disconnect the load, and then carry out the manual switch operation of the transfer switch.



- 2) When the switch is in "Auto" position, it is forbidden to operate the switch manually!!

V. ATS controller and parameters

1. Controller panel



2. Definitions of buttons

Symbol	Name	Definition
	AUTO (SET)	Auto/Manual mode switch; Enter into lamp test status by pressing for 3s; Enter into parameter configuration mode by pressing for 8s

	1# Close (Numerical increase)	1# close in manual mode; Adjust parameters in parameter configuration mode.
	2# Close (Numerical decrease)	2# close in manual mode; Adjust parameters in parameter configuration mode.
	Test (Confirm)	It is active in manual mode; While genset start signal is energizing, press this button can deactivate the start genset signal; While genset start signal is inactive, press this button can active the genset start signal; Confirm user defined parameters in parameter setting screen.

Note

Source A: Mains power

Source B: Generator set

3. Definitions of indicators.

Indicator	Description
1# Power 	Lamp illuminates: 1# power normal Lamp flashes: 1# power abnormal (over/under voltage, over/under frequency, loss of phase, and phase rotation) Lamp off: 1# loss of power
2# Power 	Lamp illuminates: 2# power normal Lamp flashes: 2# power abnormal (over/under voltage, over/under frequency, loss of phase, and phase rotation) Lamp off: 2# loss of power
1# Main 	Lamp illuminates: 1# Priority (auto transfer and restore)
2# Main 	Lamp illuminates: 2# Priority (auto transfer and restore)
1# Close 	Lamp illuminates: 1# Supply
2# Close 	Lamp illuminates: 2# Supply
Alarm 	Lamp illuminates: 1# or 2# Close fault
Auto/Manual Mode 	Lamp illuminates: controller in Auto mode Lamp off: controller in Manual mode
Genset Status 	Lamp illuminates: genset start signal outputs Lamp flashes: genset start signal de-energized

Note

- The mode of power supply on the controller depends on the mode in which the controller is last powered off. When the controller is power off in "MANUAL" mode. After power on again, the controller is still in "MANUAL" mode.
- When the controller is working normally, if the MANUAL/AUTO indicator light is off, it indicates that the controller is in the "MANUAL" mode;

Press  , controller switch to “AUTO” mode, MANUAL/AUTO indicator is on;

Press  again, controller switch back to “MANUAL” mode.

4. Controller parameters

These parameters can be set by the controller or PC software.

NO	Items	Range	Default	Description
1	AC System	(1-4)	1: 3P4L 2: 1P2L 3: 3P3L 4: 2P3L	
2	S1 Normal Delay	(1-7)	2	5s
3	S2 Normal Delay	(1-7)	2	5s
4	S1 Abnormal Delay	(1-7)	2	5s
5	S2 Abnormal Delay	(1-7)	2	5s
6	Close Delay	(1-7)	1	Continuous Close Enabled
7	Again Open Delay	(1-7)	2	3s
8	Transfer Delay Expired	(1-7)	1	0.5s
9	Gen Start Delay	(1-7)	4	30s
10	Gen Stop Delay	(1-7)	4	30s
11	Set Priority	(1-3)	1	S1 mains (mains power supply first)

- Please contact the ATS manufacturer for PC software of the controller.

These parameters must be set by PC software.

NO.	ITEM	RANGE	EX-WORKS SET	RE-SET
1	Rated Voltage	(170-270) V	(170-270) V	
2	Rated Frequency	(50.0-60.0) Hz	50	
3	Over Voltage Warn	(0-1)	1	1: Enabled
4	Over Volt Set Value	(100-120) %	120	
5	Over Volt Return Value	(100-120) %	115	
6	Under Voltage Warn	(0-1)	1	1: Enabled
7	Under Volt Set Value	(70-100) %	80	
8	Under Volt Return Value	(70-100) %	82	
9	Over Frequency Warn	(0-1)	1	1: Enabled
10	Over Frequency Set Value	(100-120) %	110	
11	Over Frequency Return Value	(100-120) %	104	
12	Frequency Warn	(0-1)	1	1: Enabled
13	Under Frequency Set Value	(80-100) %	90	
14	Under Frequency Return Value	(80-100) %	96	
15	Loss of Phase	(0-1)	1	1: Enabled (fixed delay as 3s)
16	Phase Sequence Wrong	(0-1)	0	0: Disabled
17	Output Ports	(0-16)	7	7: Gens Start Output(NO)
18	Module Address	(1-254)	1	Address that communicates with PC software