ATS 3 PHASE 63A

USER MANUAL

NINH THANH PRODUCTION AND TRADING CO., LTD

1. SCOPE OF APPLICATION

- This document is written with the purpose of providing detailed instructions on how to use, installation steps, and the meaning of parameters of the automatic power transfer control device and generator warning device used for telecommunication stations with grid power, using 1 generator.

- Instructions for handling some common errors during actual equipment operation.

2. CONNECTION DIAGRAM

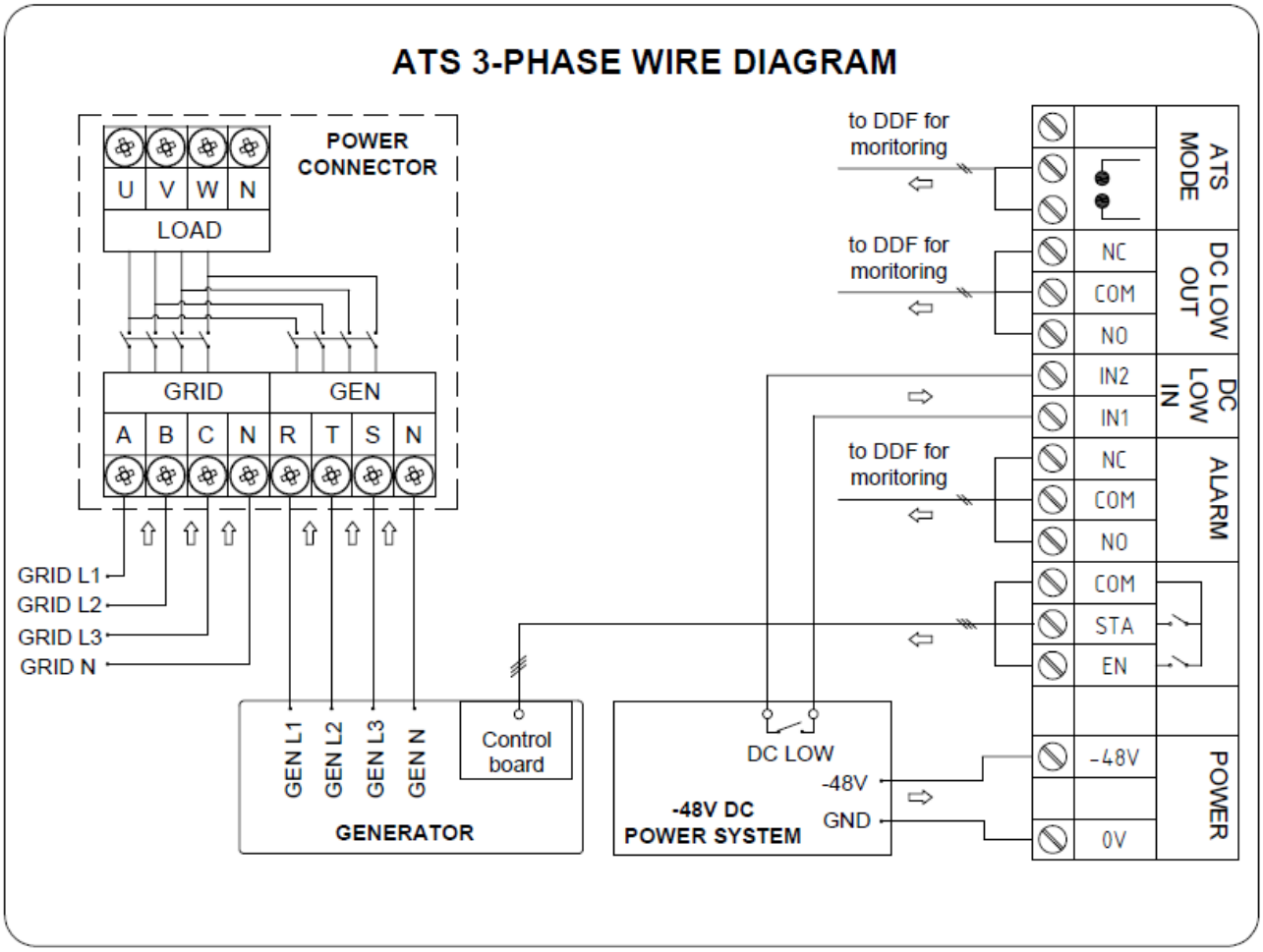


Figure: 3-phase ATS cabinet connection diagram

- Describe the features of the signal connectors.

Symbol	Function	Recommended wire size
ATS MODE	ATS operating status signal	
Alarm Connector (ALARM)		
NC	Generator fault warning to NOC	1.5mm2
COM		1.5mm2

NO		1.5mm2
DC-LOW signal input (DC-LOW IN)		
IN1	Connect to the normally open contact of the DC Low relay output of the power cabinet	1.5mm2
IN2		1.5mm2
DC-LOW return signal (DC-LOW OUT)		
NC	DC-LOW return signal (Relay contact)	1.5mm2
COM		1.5mm2
NO		1.5mm2
DC input 48V		
0V	Connect to the 0V bus bar of the power cabinet	1.5mm2
-48V	Connect to the -48V bus of the power cabinet ***Input DC voltage range from -40Vdc to -60Vdc***	1.5mm2

- Description of the features of the Main connectors

Symbol	Function	Wire type
Mains input		
N	Connect to grid neutral	6-25mm2
A	Connect to the grid phase A wire	6-25mm2
B	Connect to the grid phase B wire	6-25mm2
C	Connect to the grid phase C wire	6-25mm2
Generator input		
N	Connect to generator neutral	6-25mm2
R	Connect to the generator phase R	6-25mm2
S	Connect to the generator phase S	6-25mm2
T	Connect to the generator phase T	6-25mm2
Load output		
N	Connect to AC distribution cabinet neutral	6-25mm2
U	Connect to L1 phase wire of AC distribution cabinet	6-25mm2
V	Connect to L2 phase wire of AC distribution cabinet	6-25mm2
W	Connect to L3 phase wire of AC distribution cabinet	6-25mm2

- ATS connection when the generator uses only one EN control signal

Equipment terminal block	Generator control panel wiring	Recommended wire size
COM	0V_INPUT	1.5mm2
EN	EN_INPUT	1.5mm2

- ATS connection when the generator uses two control signals together with the Starter

Equipment terminal block	Auxiliary board configuration	Recommended wire size
COM	0V_INPUT	1.5mm2
STA	STA_INPUT	1.5mm2
EN	EN_INPUT	1.5mm2

- Connect the Starter to the generator.

The Starter is designed to support a wide variety of generators.

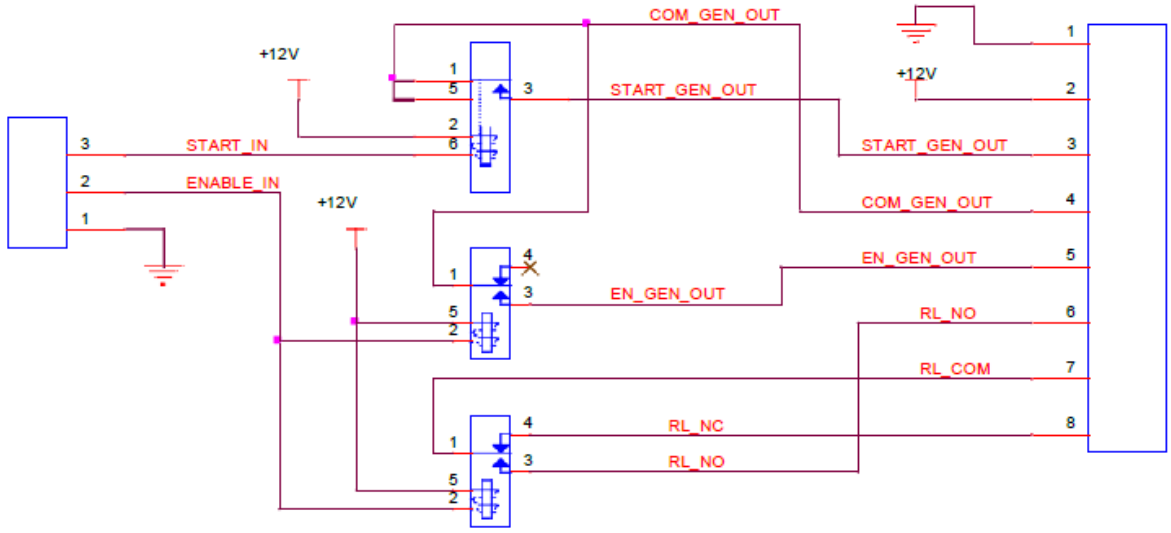


Figure: Circuit diagram of the Starter

- Function of the Starter signals

Symbol	Function	Wire type
Input		
EN_INPUT	Enable Port	0.5mm2
STA_INPUT	Start Port	0.5mm2
COM_INPUT	COM pin	0.5mm2
Output		
POWER_0V	Negative battery terminal (0V)	0.5mm2
POWER_+12V	Battery positive (+12V)	0.5mm2
COM	Transmitter COM pin	1.5mm2
STA	Generator Start control pin	1.5mm2
EN	Enable generator control pin	0.5mm2
RL_NO	Normally open relay contact	0.5mm2
RL_COM	COM relay pin	0.5mm2
RL_NC	Normally open relay contact	0.5mm2

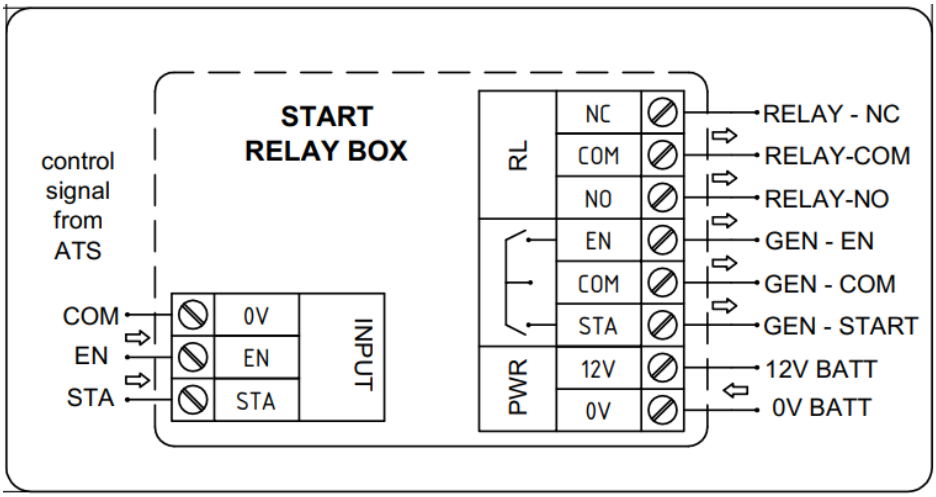


Figure : Starter kit connection diagram

3. AUTO AND MANUAL RUNNING MODE

When we want ATS to run in automatic mode, we need to turn the switches to the following positions:

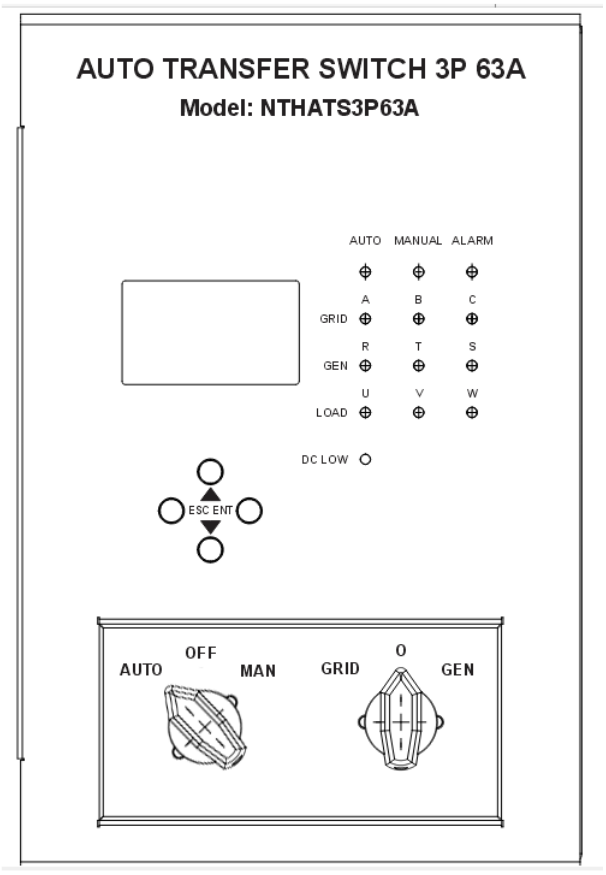


Figure: ATS in AUTO mode

When we want the ATS to run in manual mode, we need to turn the switches to the following positions:

1: Turn switch 1 to MAN position

2: Turn switch 2 to GEN or GRID position depending on which input power source we want to use

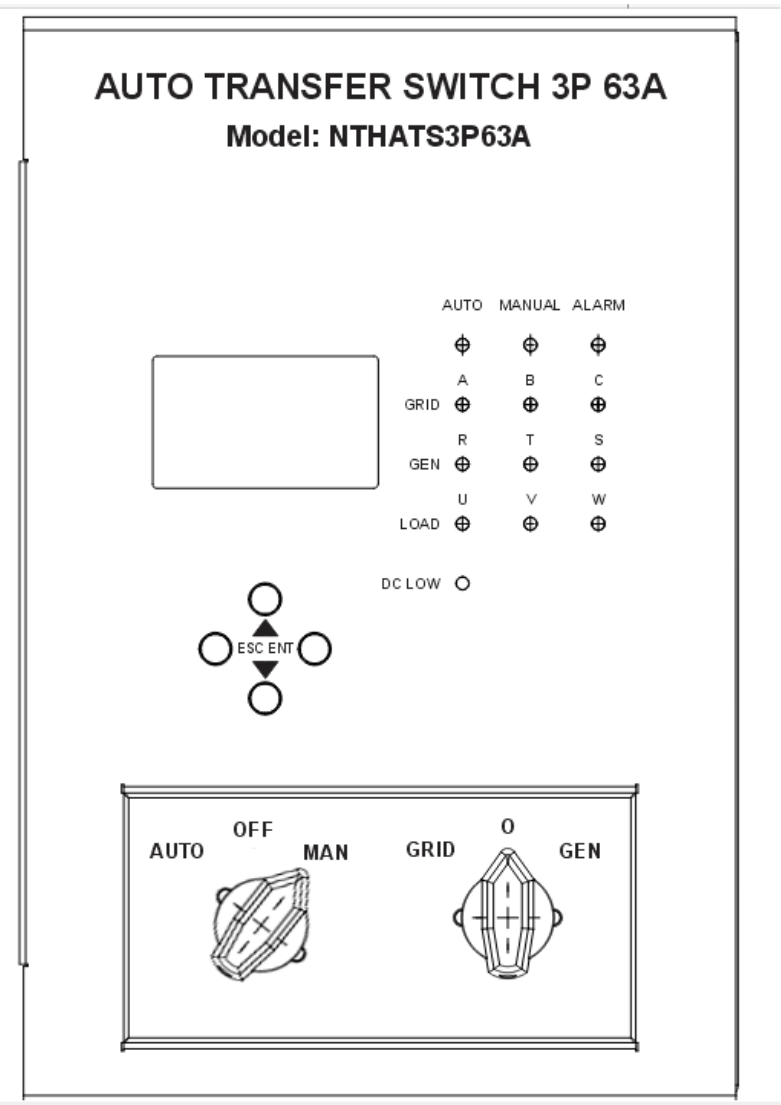


Figure: ATS in Manual mode

4. SOFTWARE INSTALLATION INSTRUCTIONS

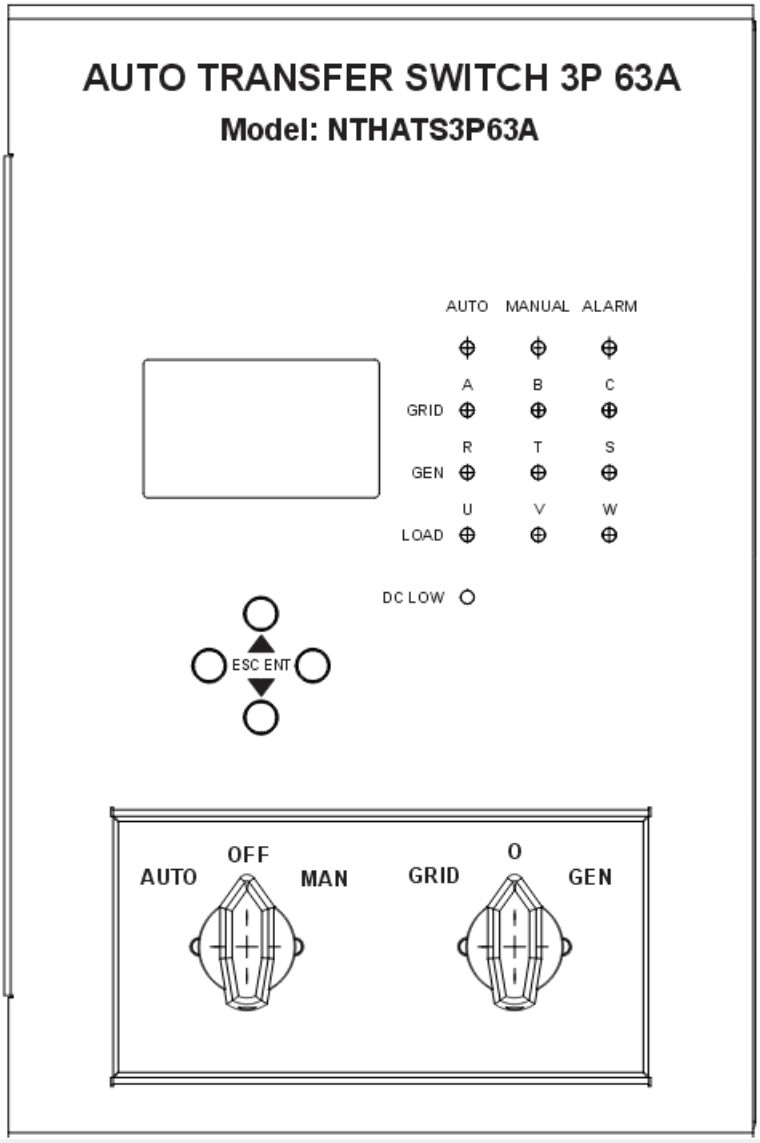
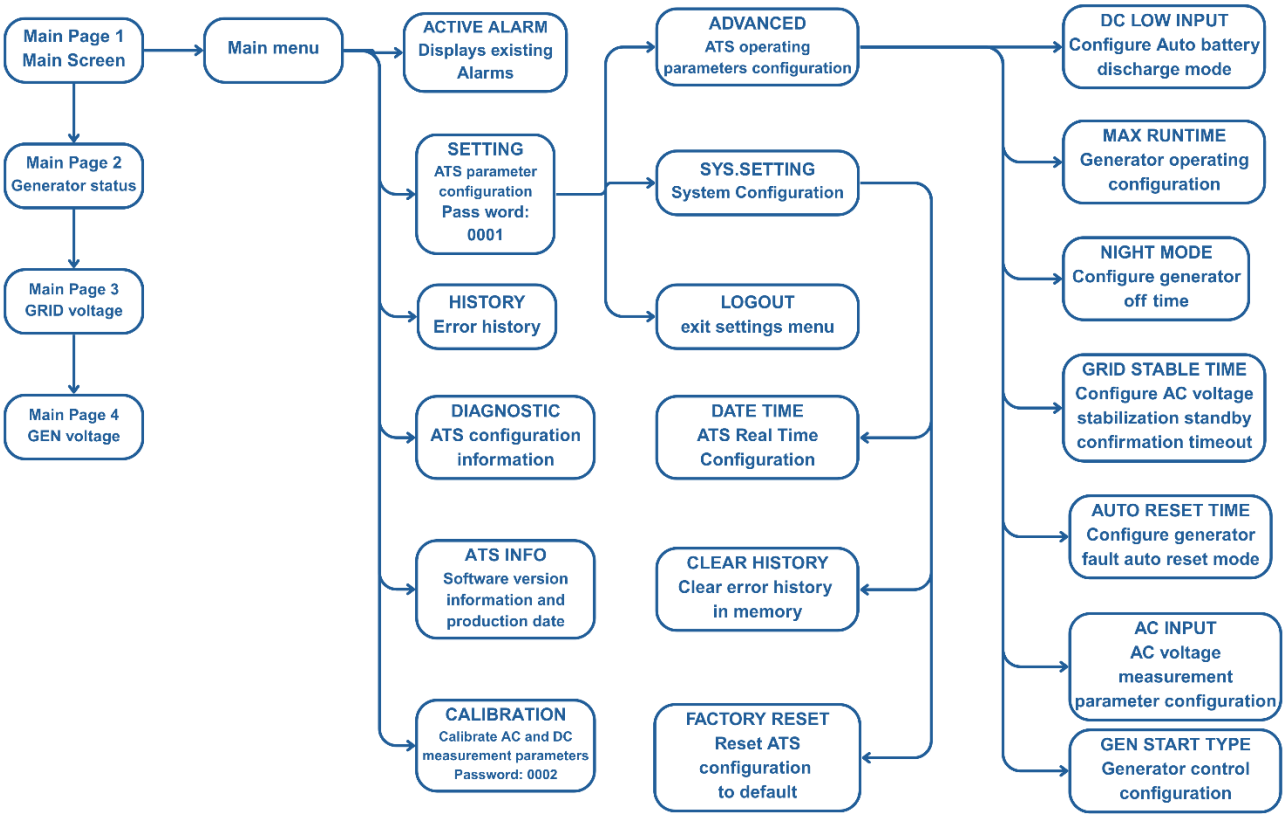


Figure: Control panel interface

Description of the function of the LED light

Lamp name	Function
AUTO	LED ON if ATS is operating in AUTO mode
MANUAL	Lights if ATS is operating in MANUAL mode
A, B, C	On if there is grid voltage in each corresponding phase
R, T, S	Lights up if there is generator voltage in each corresponding phase
U, V, W	On if there is load voltage in each corresponding phase
DC LOW	Lights if DC LOW signal is present
ALARM	Lights up if there is a generator fault

Menu Description:



Menu Explanation:

Main Page 1	- This is ATS's startup screen: + Displays operating mode + Real time + Battery voltage + ATS operating status
Main Page 2	- Displays the operating status of the generator
Main Page 3	- Display grid voltage
Main Page 4	- Display generator voltage
Active alarm	- Displays errors that are occurring, including: + Grid Lost: grid loss + DC Low: has DC low signal + Gen failure: generator error + Over3Time_Start: generator start error 3 times + Cannot Stop Gen: generator error does not turn off after generator shutdown command + LoadDetect Fail: error of no power output when grid power and generator power are stable
Setting	- ATS parameter configuration (password: 0001)

History	- Error history
Diagnostics	- ATS configuration information
ATS Info	- Software version information, production time
Calibration	- Calibrate AC and DC measurement parameters (password: 0002)
Advanced	- Configure ATS operating parameters
SYS.SETTING	- System Configuration
Logout	- Exit the settings menu
DC Low Input	- Configure parameters for battery discharge priority feature + NO/NC: Use dry contact signal to generate DC LOW signal to ATS + Voltage: Set to detect DC LOW signal by measuring battery voltage + OFF: turn off the feature
MaxRunTime	- Generator operating configuration + MAX (h): maximum generator running time + Warm up (s): Generator warm-up time after generator starts operating and before starting + Cool Down (s): Generator cooling time before turning off the generator + Rest Time (h): Generator rest time after Max Run Time has run out + Gen Manual: turn on/off the Automatic error reset feature when there is stable generator power supplied to the ATS and close the power supply to the load when there is no grid power
Night Mode	- Time does not allow generator to run + Enable: Turn on/off the running ban mode + Start: Time to start the running ban + End: End time of running ban
Grid Stable Time	- Configure AC voltage stability confirmation timeout
Auto Reset Time	- Configure automatic reset mode when generator error occurs
AC Input	- Configure AC input operating parameters + Min: AC voltage low limit threshold + Max: upper limit threshold of AC voltage + Delay time: waiting time to confirm AC voltage loss + Grid Phase: Set the number of grid voltage phases + Gen Phase: Set generator voltage phase number
Gen Start Type	- Generator control type configuration: + NORMAL: uses 2 control signals, including: START and EN + EN ONLY: Use only 1 control signal: EN
Date Time	- ATS Real-Time Configuration
Clear History	- Clear alarm history in memory
Factory reset	- Reset ATS configuration to default

5. Some errors during operation and how to fix them

STT	Phenomena	How to check and fix
1	ATS not working	- Check the -48VDC power supply MCB (must be on).

		- Check the 2 power connector pins, make sure they are correct polarity and not loose or broken.
2	Generator won't start	- Check the generator's starter battery.
		- Check the generator's fuel/oil level.
		- Check the generator control outputs.
3	Generator is running but generator voltage indicator light is not on	- Check generator MCB, it must be on.
		- Use a generator voltage meter on the circuit breaker to see if it is there? If not, check the power wire.
		- Check power wire connection
		- Check generator MCB, it must be on.
4	Generator is running, stop error.	- Check generator MCB, it must be on.
		- Check the generator's fuel/oil level.
		- Check the power cord, make sure it is not loose, broken or loose.
		- Check the generator voltage measuring wire, tighten it if loose.
5	Generator cannot be turned off, Alarm error message.	- Check to make sure the Generator's switch is in the OFF position (for diesel engines).
6	No DC low warning	- Check the connection of the DC low in alarm input
7	No warning received on NOCPRO	- Check the alarm connection from the ATS output
8	Generator has power but no output power after idling.	- Check the power contactor by manual test, replace if damaged.

6. INSTALLATION INSTRUCTIONS

a. Mounts on 19" and 23" racks

Use M6X25 bolt with 1 washer to attach the mounting ear to the cabinet.

Use M6x15 Rack bolt + Ecu rack to attach the mounting ear to the 19" rack

Use M5x20 bolt with 1 washer to attach the mounting ear to the 23" rack

All types of screws supplied with accessory bag with ATS

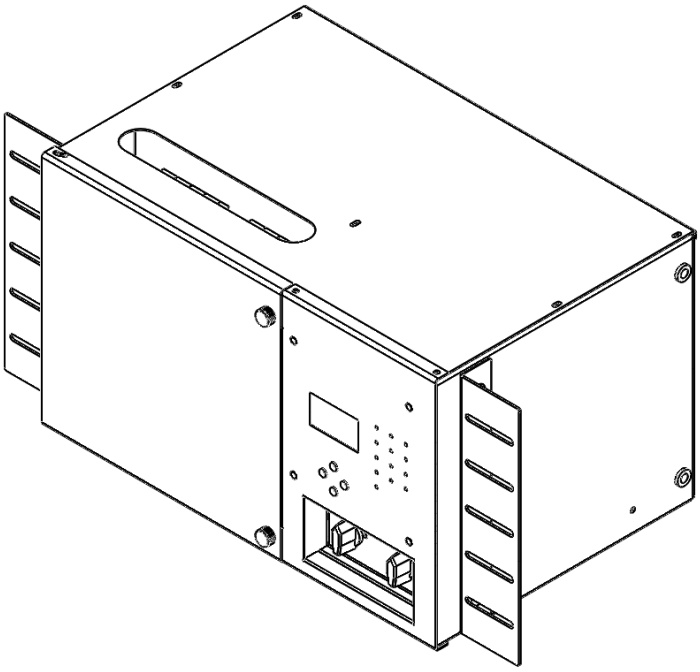


Figure . ATS3P cabinet including rack mounting bracket

b. Wall Mounted:

Use M6X25 bolt with 1 washer to attach the mounting ear to the cabinet.
Use M6x50 screws with plastic expansion to hang the cabinet on the wall.

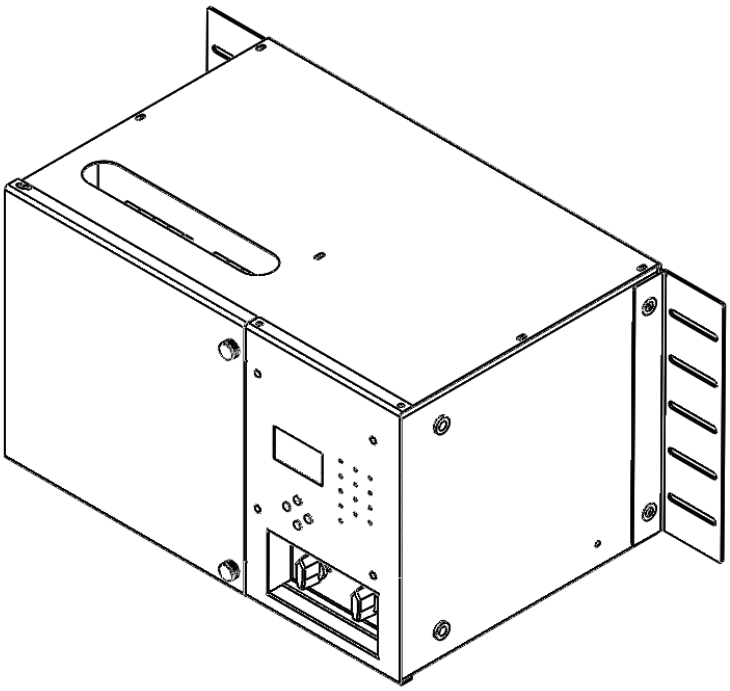


Figure . ATS3P cabinet includes wall mounting bracket.