

Ashley-Edison (UK)

MODEL: SES-2P- SPLIT SINGLE / TWO PHASE AC AUTOMATIC VOLTAGE STABILISERS

OPERATOR MANUAL

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SAFETY NOTE

The product described in this book operates up to 240Volts Single Phase. It is dangerous to open the case without first isolating the incoming mains supply.

The equipment must be installed and maintained by qualified personnel. Local legislation and regulations for electrical instructions shall be strictly adhered to.

The following symbols are used through out this manual.

Symbols

Warning Information



This symbol alerts you to important information.

Electrical Hazard



This symbol indicates an electrical hazard may be present.

Important Safety Instructions



Safety Instructions

READ AND FOLLOW ALL SAFETY INSTRUCTIONS. **SAVE THESE INSTRUCTIONS.**

This manual contains important safety instructions that should be followed during installation and maintenance of the **AC Automatic Voltage Stabilisers** system and optional packages. Before the installation process begins, we recommend that the installer read through the safety precautions, operators manual and the option installation instructions, taking all necessary safety precautions to protect themselves and the equipment being installed.

- Move the AUTOMATIC VOLTAGE STABILISER in an upright position, in its original packaging, to its final destination.
 - To lift the cabinets, use a forklift or lifting belts with spreader bars.
 - Check for sufficient floor and elevator loading capacity.
 - Check the integrity of the AUTOMATIC VOLTAGE STABILISER equipment carefully.
 - If visible damage is evident, **do not** attempt to install or start the AUTOMATIC VOLTAGE STABILISER. Contact the transport delivery company immediately, file a claim with the transport company and inform Ashley-Edison directly.
 - Do not use outdoors.
 - **WARNING! RISK OF ELECTRICAL SHOCK:** use extreme caution when removing covers.
 - All maintenance and service work should be performed by qualified and trained service personnel. The AUTOMATIC VOLTAGE STABILISER can be dangerous to the untrained person. This AUTOMATIC VOLTAGE STABILISER contains potentially hazardous voltages.
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- This AUTOMATIC VOLTAGE STABILISER contains voltages of up to 240 Volts Single Phase. All repairs and services shall be performed by authorised service personnel only.
 - Do not operate near water or excessive humidity or where condensation of the environment is very likely to occur.
 - The AUTOMATIC VOLTAGE STABILISER must be grounded or earthed at all times when in use.
 - Switch the AUTOMATIC VOLTAGE STABILISER off before disconnecting the input cable from the AC mains supply.
 - The AUTOMATIC VOLTAGE STABILISER shall be protected by over-current protection device on the input distribution system.

- These units are suitable for indoor use only.
- Keep liquids and foreign objects away from the AUTOMATIC VOLTAGE STABILISER.
- Install the AUTOMATIC VOLTAGE STABILISER in a well-ventilated area. Do not block air vents in the AUTOMATIC VOLTAGE STABILISER.
- Do not operate the AUTOMATIC VOLTAGE STABILISER near gas, electric or other heat sources or in direct sunlight.
- Do not site the AUTOMATIC VOLTAGE STABILISER next to magnetic storage media, monitor screens (VDU's) or any other equipment sensitive to magnetic fields.

WARNING



DO NOT LEAVE THE AUTOMATIC VOLTAGE STABILISER DOOR/S OPENED FOR LONG PERIODS OF TIME OR IN THE ABSENCE OF AUTHORISED PERSONNEL.

ONLY QUALIFIED PERSONNEL IS ALLOWED TO SERVICE THIS EQUIPMENT.

Pre-installation check

Unpacking and Installation

Upon receiving your AUTOMATIC VOLTAGE STABILISER, the installer should perform the following steps to ensure a quality installation.

Unpacking and Preliminary Inspection

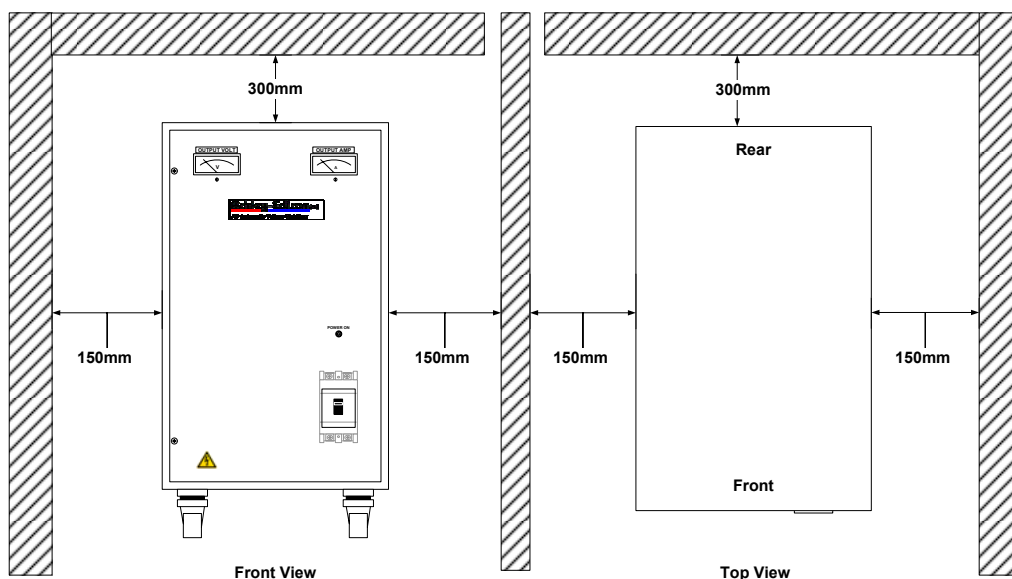
A quality installation begins on the receiving dock.

1. Inspect the shipping crate(s) for damage or signs of mishandling before unpacking the unit(s).
2. Open the shipping crates carefully. (Use care when using sharp objects. It may puncture the container and damage the contents inside).
3. Remove the packing and vapour barriers and inspect the equipment for any obvious shipping damages.
4. If any damage, as a result of shipping is observed, immediately file a damage claim with the shipping agency.
5. Do not install the equipment if there is any sign of damage.

Environment

The AUTOMATIC VOLTAGE STABILISER can be installed in sites with ambient temperatures from 0 to 45 degrees C up to 1000 m, relative humidity of up to 95% (non-condensing). The AUTOMATIC VOLTAGE STABILISER is forced air-cooled and free airflow shall not be obstructed. The temperature of the air entering the AUTOMATIC VOLTAGE STABILISER cabinet must not exceed the temperature shown above.

The ventilation and space requirement is shown below:



Installation Safety Note

- This equipment shall be installed and maintained by qualified personnel. They are to comply to local regulations for installation requirements.
- AC AUTOMATIC VOLTAGE STABILISER conforms to BS EN5008-1, IEC 61000-4 and CE EN55022, EN50082, ENV50140-1. To ensure safe and satisfactory operation, follow instructions as mentioned in this manual.
- Input Protection
If the input circuit breaker is not installed in the AUTOMATIC VOLTAGE STABILISER, then the installer must include a circuit breaker or fuse in the input circuit.
- System Grounding
The safety of any AUTOMATIC VOLTAGE STABILISER depends upon proper grounding. Grounding is primarily for safety. Correct implementation of grounding also enhances equipment performance.
- The AUTOMATIC VOLTAGE STABILISER is forced air-cooled and free airflow must not be obstructed.
- Position unit to ensure easy access. Ensure that no swarfs enters the unit when cutting holes. Block off all unused holes.
- Check that the current rating of the load will not exceed the rating shown on the rating plate. The load current must be measured using a true RMS reading meter.
- Maintenance Manual Bypass Switch
A maintenance manual bypass switch must be fitted if the supply cannot be switched-off for maintenance. This will enable end-user with direct mains supply while the AUTOMATIC VOLTAGE STABILISER is being serviced. Please contact our Sales Department for details.

Post Installation Check Before Turn On

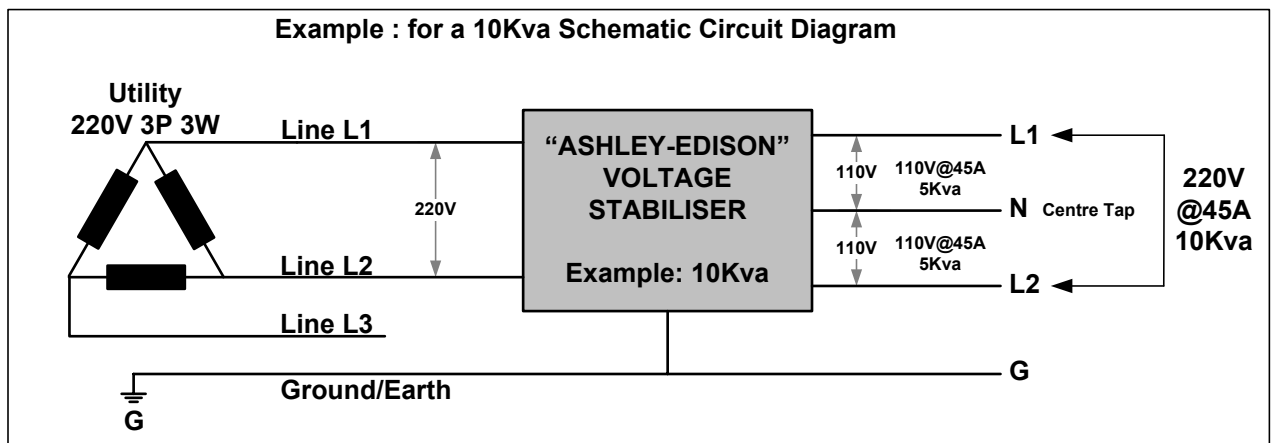
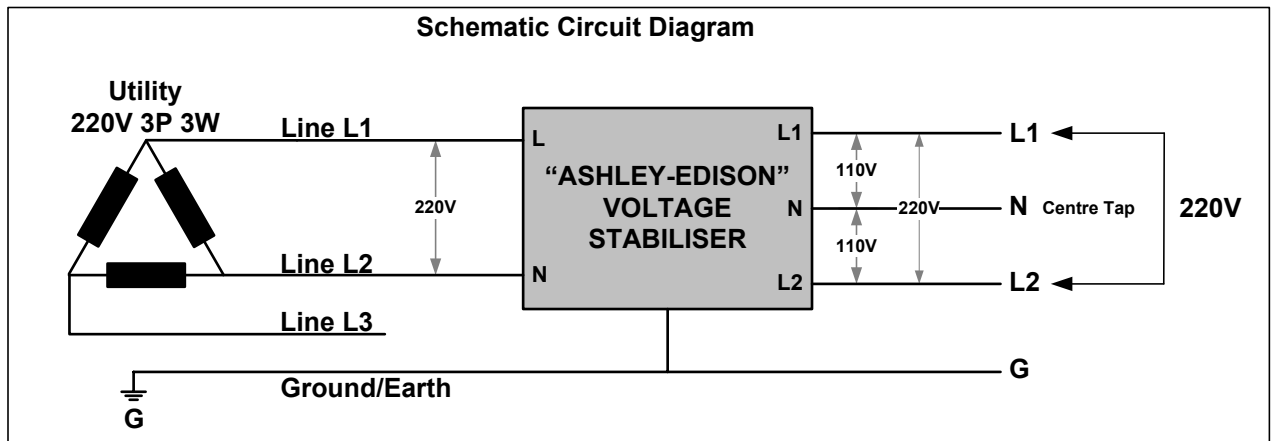
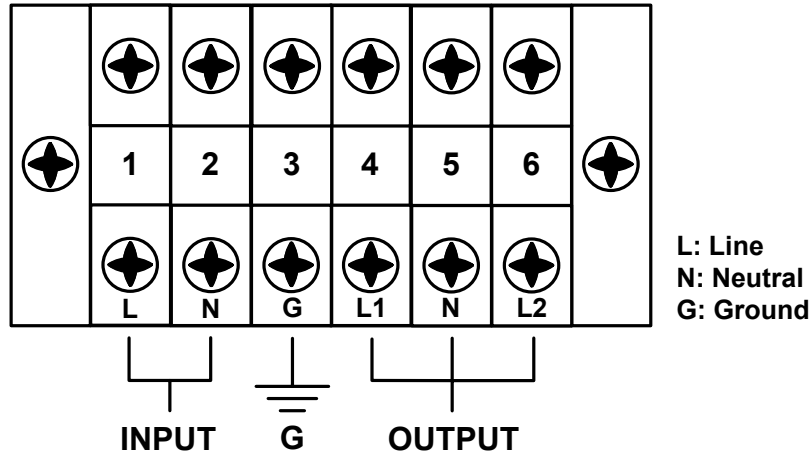
- Before you switch ON the mains, inspect the AUTOMATIC VOLTAGE STABILISER visually if dust has accumulated during installation. Clean the AUTOMATIC VOLTAGE STABILISER thoroughly with compressed air or with a soft brush.
- Check Ground connection. Ensure it is tight.
- Check all wiring connections to ensure it is not loosened on transit. Tighten all connections.
- After switching the AUTOMATIC VOLTAGE STABILISER ON, the input voltage will reach the pre-set value. The AUTOMATIC VOLTAGE STABILISER will maintain the output voltage stable. This voltage has been factory pre-set and is unlikely to have changed. Do not re-adjust the output voltage unless an accurate, true RMS voltmeter is at hand
- Please take note the date of commissioning.
- Please ensure that annual maintenance is carried out.

Single Phase Connection

Connect the mains input supply to terminals marked **INPUT L(1), NEUTRAL N(2)** and **GROUND G(3)**

Connect the load to terminals marked **OUTPUT L1(4), NEUTRAL N(5), L2 (6)** and **GROUND G(3)**

Connect the wiring as follows:



Operation

Before you commission or start up the AUTOMATIC VOLTAGE STABILISER, please check the following :

- Make sure the input switch to the AUTOMATIC VOLTAGE STABILISER is in “OFF” position.
- Make sure all the load switches are in “OFF” position.
- Make sure all the connections are tight in the terminals and do not come loose.
- Check with a true RMS-meter that the input voltage is correct reading before turning “ON” the AUTOMATIC VOLTAGE STABILISER.

To switch ON the AUTOMATIC VOLTAGE STABILISER, step by step procedure as follows:

- Switch the **CB1** (Input Breaker, see diagram on **Pg 16**) to “ON” position.
- The “Output Normal” light will indicate to show AUTOMATIC VOLTAGE STABILISER is switched ON.

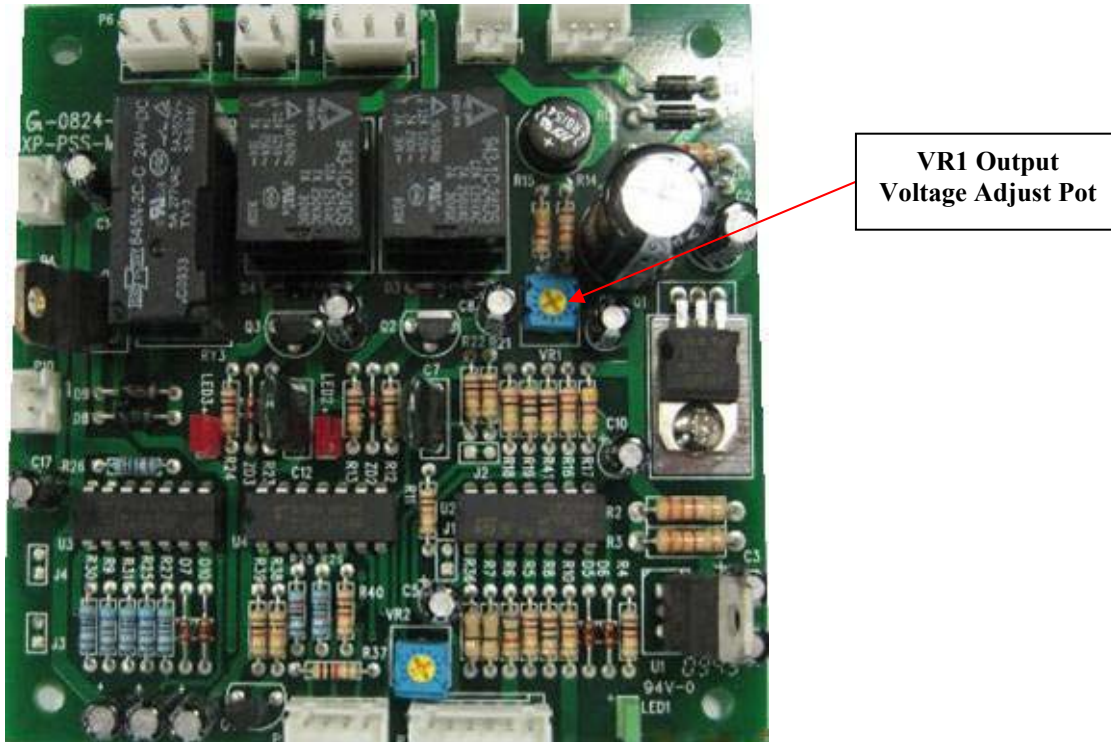
Output Voltage Adjustment

As live parts may be exposed, qualified personnel obeying safety regulations may only carry out this operation.

Set by means of a potentiometer with screwdriver slot.

The pot is situated on the Servo Amplifier PCB unit and clearly marked 'VR 1'

Place meter probes to 'Neutral' and Output Voltage and adjust pot VR1 till the voltage reads the required set value.



Maintenance

Annual general inspections, cleaning, and operation checks are recommended to ensure the AUTOMATIC VOLTAGE STABILISER performance and long service life.

The mains supply to the AUTOMATIC VOLTAGE STABILISER must be switched OFF before proceeding.

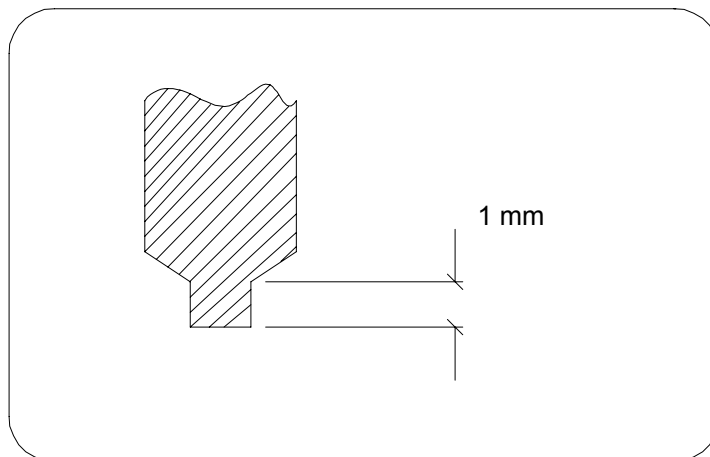
Please ensure that the AUTOMATIC VOLTAGE STABILISER is kept free from dust and dirt. Using a compressed air will be most effective in this cleaning operation. Otherwise use a soft brush.



Check the carbon brushes once a year.

Do not force the carbon brushes to rotate manually. This will damage the servo motor and their gearing.

Ensure that the tip of carbon brushes in the variable transformers are at least 1mm thick.



Servicing



The operations mentioned herein shall be carried out by qualified personnel.

High voltage in Automatic Voltage Stabiliser!

Check all fuses. Ensure all fuses are not blown.

Turn the output voltage setting potentiometer. Please refer to page 11 on **VR1 Output Voltage Adjustment Pot.** As it is turned one way and the other, the motor should drive the variable transformer in one direction and then the other.

If not, inspect the Servo Amplifier or motor.

Re-set the output voltage to the required value.

Servo Amplifiers PCB are readily available on an exchange basis from the factory or agent.

If the unit is not functioning properly after carrying out the above test, contact our service department or agent. By describing the results or the above tests it should be possible to pinpoint the fault.

If after replacing PCB, the AUTOMATIC VOLTAGE STABILISER is still not working, suspect the servo motor. If faulty, replace it.

Inspect the cooling fans. They should be inspected to ensure it rotates freely.

Inspect all mechanical links. Ensure they are all tightened accordingly.

Recommended Spares List

| <u>Part Ref.</u> | <u>Quantity</u> | <u>Description</u> |
|------------------|-----------------|-------------------------------------|
| SA | 1 | Sensor Amplifier PCB |
| VT-CB | 1 | Variable Transformer Carbon Brushes |
| VT | 1 | Variable Transformer Module |
| F | 3 | Fuses |
| PR | 1 | Power Relay |
| MOV | 1 | M.O.V |
| FP | 1 | Filter Protection |

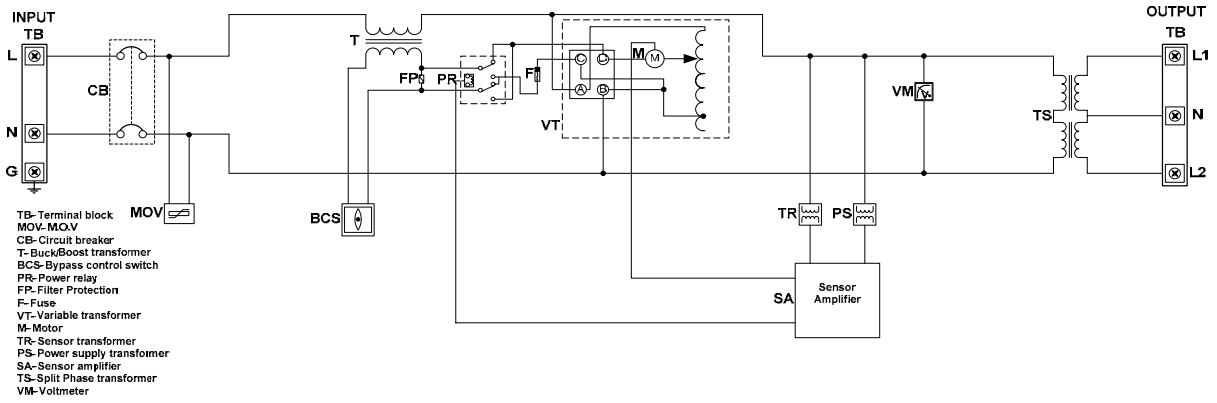
Technical Specifications

TECHNICAL SPECIFICATIONS

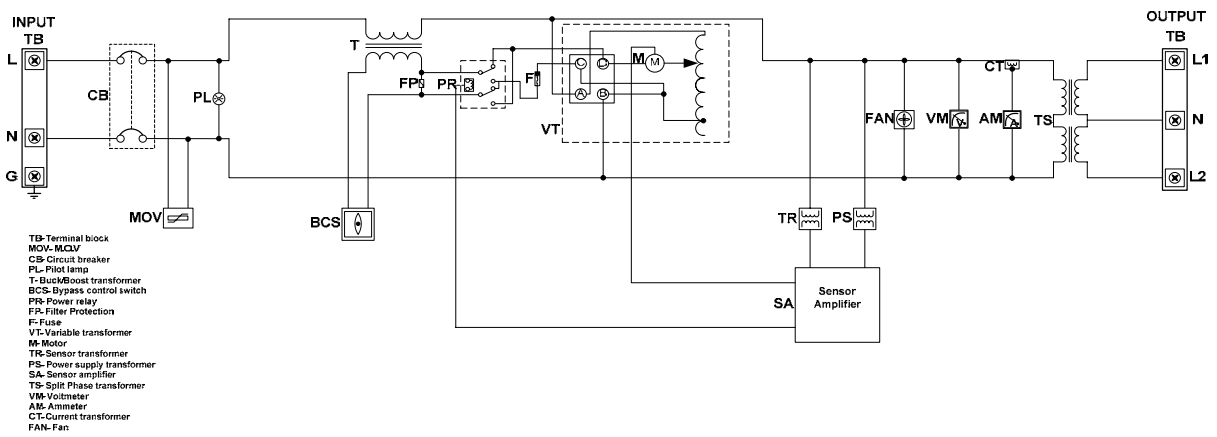
| | |
|-----------------------------------|---|
| Input Voltage | : See label on unit |
| Output Voltage | : See Label on unit |
| Output Voltage Accuracy: | $\pm 1\%$ |
| Frequency | : 47 to 65Hz |
| Response Time | : <1.5ms |
| Efficiency | : 98% |
| Total Harmonic Distortion: | <1% |
| Soft Switch-ON | : This feature ensure that the output voltage is at its minimum upon switch-On before it commence full stabilization |
| Power Factor | : Any lagging to 0.95 leading |
| Surge Ratings | : 10 x max current rating for 2 second 3 x max current rating for 1 minute 2 x max current rating for 5 minutes |
| Surge Suppression | : Protect loads against high-energy spike and transient voltage |
| Environment | : Temperature range -15 to 45°C. Derate by 2% for each additional °C up to max 60 °C. Suitable for indoor tropical use 95% RH (non-condensing) |
| Construction | : Enclosures to IP20, BS EN5490/IEC60529 |
| Conformance | : BS EN50081-1;2 / IEC 61000-4-3;4 |
| CE Conformity | : EN55022, EN50082, ENV50140-1 |

Circuit Diagram

MODEL: SES - 2P- SPLIT SINGLE / TWO PHASE – ENCLOSURE NO: 016B



MODEL: SES - 2P- SPLIT SINGLE / TWO PHASE – ENCLOSURE NO: 103



Outline Drawing

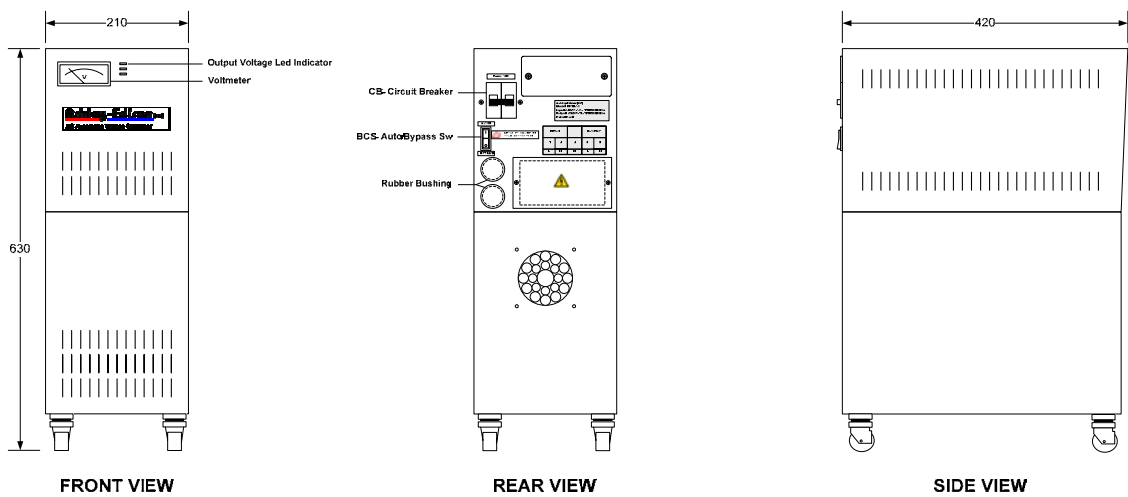
Standard Features for Enclosure No: 016B

- : Input Circuit Breaker
- : Bypass Control Switch
- : Voltmeter

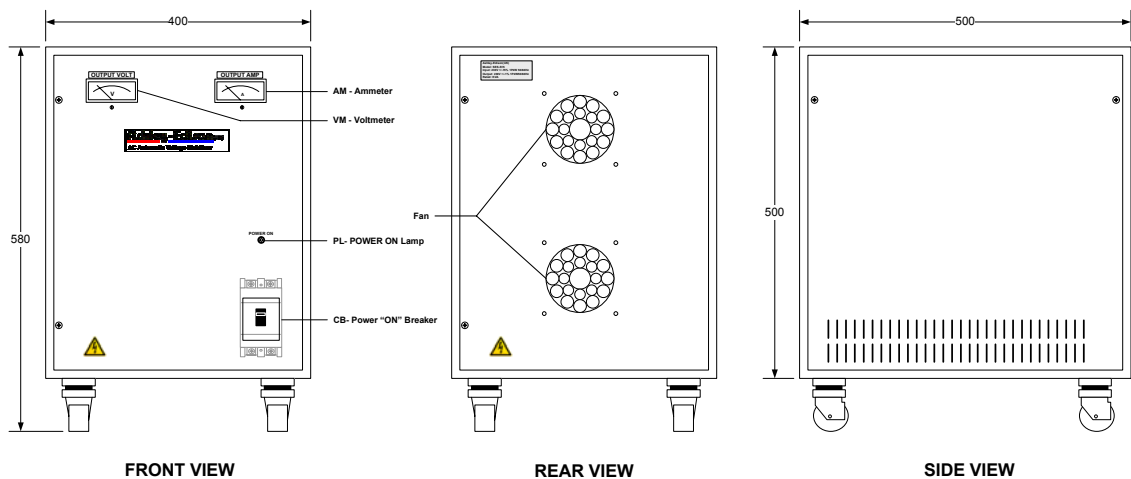
Enclosure NO: 103

- : Input Circuit Breaker
- : Bypass Control Switch
- : Voltmeter / Ammeter

MODEL: SES SINGLE PHASE ENCLOSURE NO: 016B



MODEL: SES SINGLE PHASE ENCLOSURE NO: 103



Warranty

WARRANTIES AND LIABILITY

- 1 Subject to the conditions set out below, Ashley-Edison (known as 'Seller') warrants that the Goods will correspond with their specification at the time of delivery and will be free from defects in material and workmanship for a period of 24 months from delivery.
- 2 The above warranty is given by Ashley-Edison (Seller) subject to the following conditions:-
 - 2.1 Seller shall be under liability in respect of any defect in the Goods arising from any drawing, design or specification supplied by the Buyer;
 - 2.2 Seller shall be under no liability in respect of any defects arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow the Seller's instructions (whether oral or in writing), misuse or alteration or repair of the Goods without the Seller's approval;
 - 2.3 Seller shall be under no liability under the above warranty (or any other warranty, condition or guarantee) if the total price for the Goods has not been fully paid by the due date;
 - 2.4 the above warranty does not extend to parts, materials or equipment not manufactured by the Seller.
- 3 Subject as expressly provided in these Conditions and except where the Goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977), all warranties, conditions or other terms implied by statute or common law are excluded to the fullest extent permitted by law.
- 4 Where the Goods are sold under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements Order 1976) the statutory rights of the Buyer are not affected by these Conditions.
- 5 Any claim by the Buyer which is based on any defect in the quality or condition of the Goods or their failure to correspond with specification shall (whether or not delivery is refused by the Buyer) be notified to the Seller within 7 days from the date of delivery or (where the defect or failure was not apparent on reasonable inspection) within a reasonable time after discovery of the defect or failure. If delivery is not refused, and the Buyer does not notify the Seller accordingly, the Buyer shall not be entitled to reject the Goods and the Seller shall have no liability for such defect or failure, and the Buyer shall be bound to pay the price as if the Goods have been delivered in accordance with the Contract.

- 6 Where any valid claim in respect of any of the Goods which is based on any defect in the quality or condition of the Goods or their failure to meet specification is notified to the Seller in accordance with these Conditions, the Seller shall be entitled to repair or modify all defective goods free of charge provided that the goods are returned to the Seller's works carriage paid, if the Buyer does not wish to return the goods, they will be repaired free of charge at the Buyer's nominated premises provided that the Buyer reimburses the Seller for traveling expenses, time and out of pocket expenses. The Seller shall be entitled, at its sole discretion, to replace the Goods free of charge or, refund to the Buyer the price of the goods (or a proportionate part of the price), but the Seller shall have no further liability to the Buyer.
- 7 Except in respect of death or personal injury caused by the Seller's negligence, the Seller shall not be liable to the Buyer by reason of any representation, of any implied warranty, condition or other term, or any duty at common law, or under the express terms of the Contract, for any consequential loss or damage (whether for loss of profit or otherwise) costs, expenses or other claims for consequential compensation whatsoever (and whether caused by the negligence of the Seller, its employees or agents or otherwise) which arise out of or in connection with the supply of the Goods or other use or resale by the Buyer, except as expressly provided in these Conditions.
- 8 Seller shall not be liable to the Buyer or be deemed to be in breach of the Contract by reason of any delay in performing, or any failure to perform, any of the Seller's obligations in relation to the Goods, if the delay or failure was due to any cause beyond the Seller's reasonable control. Without prejudice to the generality of the foregoing, the following shall be regarded as causes beyond the Seller's reasonable control.
- 8.1 Act of God, explosion, flood, tempest, fire or accident;
 - 8.2 war or threat of war, sabotage, insurrection, civil disturbance or requisition;
 - 8.3 acts, restrictions, regulations, bye-laws, prohibitions or measures of any kind on the part of any governmental, parliamentary or local authority;
 - 8.4 import or export regulations or embargoes;
 - 8.5 strikes, lock-outs or other industrial actions or trade disputes (whether involving employees of the Seller or of a third party);
 - 8.6 difficulty in obtaining raw materials, labour, fuel, parts or machinery;
 - 8.7 power failure or breakdown in machinery.