



Sollatek SVS Range Voltage Stabilisers User Manual

IMPORTANT

Keep handy for reference.

Contains important safety information

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SAFETY

- FOLLOW all safety instructions and use caution when installing and operating any electrical equipment.
- CHECK that the voltage of the mains electricity supply is the same as the voltage of the SVS (see label on back) BEFORE connecting the SVS to the electricity supply.
- CHECK that the maximum current rating of the equipment you intend to connect does not exceed the maximum current rating of the SVS unit (see label on back plate) BEFORE connecting the SVS to the electricity supply.

[Most equipment is labeled to show the maximum current rating. If connecting more than one item of equipment calculate the total current rating by adding all of the current ratings together.]
- DO NOT expose this equipment to rain, moisture or liquid spillage.
- DO NOT insert any object into the ventilation slots.
- DO NOT attempt to dismantle the SVS, as this will invalidate the guarantee. There are no user serviceable parts inside
- The SVS was designed and is manufactured by Sollatek (UK) Ltd and complies with the safety codes of practice.

MAIN SVS FEATURES

In many places local electricity generating companies have difficulty keeping the voltage level of the supply to consumers within set safe* limits.

Any electrical equipment can easily be damaged or destroyed if voltage of the mains electricity supply rises above or falls below these limits.

If the voltage level rises above the safe range this can be specially harmful to equipment with electronic circuits, such as TV's, hi-fi's, computers, faxes, copiers, etc.

If the voltage drops below the safe range this can be especially harmful to electrical equipment with a motor, such as refrigerators, freezers, chillers, AC systems, etc.

A Sollatek SVS is a voltage stabiliser (aka 'regulator') and its main purpose is to correct any under or over voltage condition so the electricity supply doesn't harm equipment.

All SVS models use microprocessor controls that constantly monitor the voltage level of the incoming electricity supply to the protected equipment. When a threatening fall or rise in voltage level is detected the SVS automatically corrects the condition using relay operated tap set switching stabilisation technique to produce a safe output.

The SVS is fast acting, reliable and economic solution to the need to protect electrical and electronic equipment from the harm caused by voltage fluctuations.

AVS Feature

The SVS has an Automatic Voltage Switcher (AVS) feature. This has two functions.

Firstly to prevent harm to equipment should the electricity supply too rapidly switch ON and OFF. The AVS feature monitors the time between these events and automatically delays switching on the supply to the equipment if the interval is very short.

The AVS feature is especially helpful when protecting any equipment with an electric motor. If the electricity supply switches on and off too rapidly this can easily cause the motor to jam and burn out and the expense of replacement or even new equipment.

Secondly the AVS feature will disconnect the supply to the protected equipment if the voltage level go to extreme levels and beyond the SVS units' capacity to stabilise.

Spike Protection

The SVS also includes spike protection components. These help to prevent or reduce the harmful effects of high voltage spikes on the incoming supply.

High voltage spikes can be caused by other nearby equipment being switched on and off and also, most damagingly, by a lightning strike travelling along connecting cables.

The Sollatek SVS Voltage Stabiliser is designed to ensure that your electrical equipment is protected from the harmful effects of mains voltage fluctuation, rapid mains ON and OFF switching as well as high voltage spikes on the incoming electricity supply.

With a Sollatek SVS Voltage Stabiliser in place your electrical equipment keeps working.

* As set by the local country electricity supply authority.

SVS SPECIFICATIONS

<i>Operating Voltage</i>	: 230VAC (optional factory setting from 200 to 240VAC)
<i>Stabilisation Range</i>	: From 164 to 284V (230VAC from -29% to +23%)
<i>Output Voltage</i>	: Input 171 - 275V output = 216 to 244V (230VAC +/- 6%). : Input 164 - 171V output = 207 to 216V (230VAC +/- 10%). : Input 274 - 285V output = 244 to 253V (230VAC +/- 10%)
<i>Maximum load</i>	: SEE TABLE A.
<i>Frequency</i>	: 50/60 Hz [45 to 88Hz & 30Hz for short periods only]
<i>Speed of response</i>	: 750V per second.
<i>Spike protection</i>	: MOV on high voltage input rated at 160 Joules - 320VAC. : MOV on low voltage controls rated at 3.5 Joules - 50VDC.
<i>Indicators</i>	: LED displays; 7 for Input voltage, 5 for Output Voltage.
<i>Input / Output connection</i>	: SVS01-22EL (UK13) to SVS06-22EL (UK13); INPUT Plug, BS 1363 3-pin on 1metre, 3-core cable. OUTPUT Socket, to accept BS 1363 plug. : SVS15-22EL (UK15); INPUT Underterminated 1metre, 3-core cable. OUTPUT Socket, to accept BS 546 plug. : SVS18-22EL (TC); INPUT Underterminated 1metre, 3-core cable. OUTPUT Underterminated 1metre, 3-core cable. : SVS35-22EL (TC) to SVS75-22EL (TC) INPUT Terminal connections (LNE). OUTPUT Terminal connections (LNE)
<i>Controls</i>	: On / Off switch.
<i>Very Hi & Lo Voltage - Protection (AVS)</i>	: Disconnection voltages. HIGH at 295V. LOW at 145V : Auto reconnect after 10 sec. delay when voltage 290V to 150V
<i>Fuse*</i>	: Anti surge 20mm ceramic, rated 6.3A.
<i>EMC standards</i>	: EN 50022 - 81 - 82 and EN 61000-4-2 to 4-6 and 4-11.
<i>Temperature range</i>	: 0° to 40° C ambient (re-rating required above 40° C).
<i>Relative humidity</i>	: 95% non-condensing.
<i>Altitude</i>	: Up to 1,500m (re-rating required above this height).
<i>Audible noise</i>	: >45dB
<i>Housing</i>	: SVS01-22EL (UK13) to SVS18-22EL (TC) ; ABBSlastic enclosure IP20 rated. : SVS35-22EL (TC) to SVS75-22EL (TC) ; Metal case, black powder coated, IP21
<i>Dimensions</i>	: SEE TABLE B.

* Output circuit breakers (single pole) are fitted as standard to following SVS models:

SVS Model	CB Rating
SVS35-22EL (TC)	40A
SVS50-22EL (TC)	50A
SVS75-22EL (TC)	75A

TABLE A

<u>Model</u>	<u>Code</u>	<u>Rating</u>
SVS01-22EL (UK13)	L09313111	1A @ 230VAC
SVS03-22EL (UK13)	L09325111	3A @ 230VAC
SVS06-22EL (UK13)	L09319124	6A @ 230VAC
SVS15-22EL (UK15)	L09321124	15A @ 230VAC
SVS18-22EL (TC)	L09331171	18A @ 230VAC
SVS35-22EL (TC)	L09346111	35A @ 230VAC
SVS50-22EL (TC)	L09361111	50A @ 230VAC
SVS75-22EL (TC)	L09386111	75A @ 230VAC

TABLE B

<u>Model</u>	<u>Dimensions*</u>	<u>Weight*</u>
SVS01-22EL (UK13)	193x100x124mm	2.0kg
SVS03-22EL (UK13)	193x100x124mm	3.0kg
SVS06-22EL (UK13)	277x133x161mm	5.0kg
SVS15-22EL (UK15)	277x133x161mm	8.0kg
SVS18-22EL (TC)	336x212x161mm	14.0kg
SVS35-22EL (TC)	345x330x260mm	25.0kg
SVS50-22EL (TC)	345x330x260mm	29.0kg
SVS75-22EL (TC)	345x330x260mm	38.0kg

* Unpacked.

UNPACKING

- Remove the polystyrene protective packaging.
- Ensure that the contents include the Warranty Registration Card.
- Retain the box and packaging material in case you need it for a warranty return.

INSPECTION

- Check that the unit is undamaged.
- Inspect the ventilation slots to ensure that they are free from all obstruction. Use a vacuum cleaner to dislodge any obstructions.

INSTALLATION

Installation of the SVS range models is simple and straightforward but please take time to read through these instructions before attempting to install a unit.

The SVS01-22EL (UK13) to SVS06-22EL (UK13) models can be connected to the mains electricity supply by simply plugging the SVS cable into a suitable wall socket. The protected equipment is then plugged into the SVS.

The SVS15-22EL (UK15) must be directly connected to the mains supply. The protected equipment is then plugged into the SVS using a 15A plug (supplied loose with SVS15).

The SVS18-22EL (TC), SVS35-22EL (TC), SVS50-22EL (TC) and SVS75-22EL (TC) models must be directly connected to the mains supply and the protected equipment.

WARNING: IF IN DOUBT ALWAYS CONSULT A QUALIFIED ELECTRICIAN

Models SVS01-22EL (UK13) to SVS06-22EL (UK13)

- Turn the equipment to be protected OFF and unplug it from the wall socket.
- Ensure that the SVS is switched OFF.
- Plug the cable from the SVS into the wall socket. [The SVS cable is terminated with a plug made to BS1363: 1984 13A standard and is protected by a 13A rated fuse.]
- Plug the equipment to be protected into the socket of the SVS.
- Switch the wall socket switch ON.
- Switch the SVS mains switch to ON.
- Switch the protected equipment ON.
- NOTE: The SVS will not connect the supply to the protected equipment until it has checked the voltage level and if necessary corrected it to a safe level.
- Once any delay period has passed the SVS will allow the supply to pass through to the protected equipment.

- The LED bar displays for Input Voltage and Output Voltage will light and show the various voltage levels of the incoming and outgoing supply.
- The mains supply to the protected equipment will now be stabilised.

Model SVS15-22EL (UK15)

- Turn the equipment to be protected OFF and disconnect it from the mains supply.
- Ensure that the SVS is switched OFF.
- Ensure that the incoming electricity supply is isolated before making connections.
- IMPORTANT. DO NOT CONNECT TO A 13A SUPPLY. The incoming supply must be a minimum of 20A or above.
- Connect the trailing input lead of the SVS15-22EL (UK15) directly to the mains supply as follows:-

<u>Wire Colour</u>	<u>Connects to Terminal</u>	<u>Marking</u>
BLUE	'N'	(Neutral)
BROWN	'L'	(Live)
YELLOW & GREEN	'E'	(Earth)

- To enable connection of the protected equipment to the SVS15-22EL (UK15) a 15A plug (BS 546) is supplied loose with the unit (plugged into the output socket of SVS).
- Connect the input lead of the protected equipment to 15A plug as follows:-

<u>Wire Colour</u>	<u>Connects to Terminal</u>	<u>Marking</u>
BLUE	'N'	(Neutral)
BROWN	'L'	(Live)
YELLOW & GREEN	'E'	(Earth)

- Switch the supply to the SVS ON.
- Switch the SVS mains switch to ON.
- Switch the protected equipment ON.
- NOTE: The SVS will not connect the supply to the protected equipment until it has checked the voltage level and if necessary corrected it to a safe level.
- Once any delay period has passed the SVS will allow the supply to pass through to the protected equipment.
- The LED bar displays for Input Voltage and Output Voltage will light and show the various voltage levels of the incoming and outgoing supply.
- The mains supply to the protected equipment will now be stabilised.

Model SVS18-22EL (TC)

- Turn the equipment to be protected OFF and disconnect it from the mains supply.
- Ensure that the SVS is switched OFF.

- Ensure that the incoming electricity supply is isolated before making connections.
- Connect the trailing lead marked 'INPUT' of the SVS18-22EL (TC) directly to the mains supply as follows:-

<u>Wire Colour</u>	<u>Connects to Terminal</u>	<u>Marking</u>
BLUE	'N'	(Neutral)
BROWN	'L'	(Live)
YELLOW & GREEN	'E'	(Earth)

- Connect the trailing lead of the SVS18-22EL (TC) marked 'OUTPUT' directly to the mains supply as follows:-

<u>Wire Colour</u>	<u>Connects to Terminal</u>	<u>Marking</u>
BLUE	'N'	(Neutral)
BROWN	'L'	(Live)
YELLOW & GREEN	'E'	(Earth)

- Switch the supply to the SVS ON.
- Switch the SVS mains switch to ON.
- Switch the protected equipment ON.
- NOTE: The SVS will not connect the supply to the protected equipment until it has checked the voltage level and if necessary corrected it to a safe level.
- Once any delay period has passed the SVS will allow the supply to pass through to the protected equipment.
- The LED bar displays for Input Voltage and Output Voltage will light and show the various voltage levels of the incoming and outgoing supply.
- The mains supply to the protected equipment will now be stabilised.

Models SVS35-22EL (TC) to SVS75-22EL (TC)

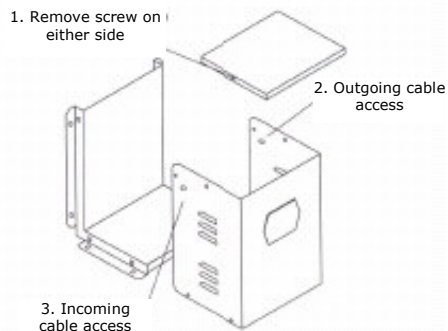
- Turn the equipment to be protected OFF and disconnect it from the mains supply.
- Ensure that the SVS is switched OFF.
- Ensure that the incoming electricity supply is isolated before making connections.
- Ensure that only correctly rated cable is used for the connections (see Table 1)

TABLE 1	<u>Cable Cross Section*</u> <u>(mm²)</u>	<u>Max. Rating</u> <u>(Amps)</u>
	2.5	20
	4.0	28
	6.0	36
	10.0	50

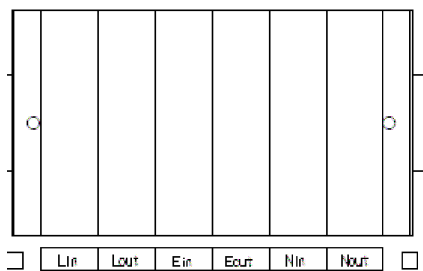
* 3 or 4 core PVC insulated cable with given current carrying capacity (amperes)@30°C ambient (conductor operating at 70°C).

- IMPORTANT. The input cable must be rated at 1.5 times the output current. (Note that the larger the cable size the better the regulation).
- IMPORTANT. The SVS must be earthed.
- IMPORTANT. The SVS must have a Neutral connection.
- IMPORTANT. An over-current protection device (fuse or circuit breaker rated at least 1.5 times the rating of the SVS) must be connected on the input to the SVS.
- Remove the screw from either side of the top cover of the SVS to gain access to the connections terminals (see Diagram A).

DIAGRAM A



- Feed the Incoming and Outgoing cables through their respective access holes.
- Connect the input cable to the terminal block as shown in Diagram B.
- Connect the output cable to the terminal block as shown in Diagram B.



- Check all connections are correctly made and are tight then screw top cover back on.
- Switch the supply to the SVS ON.
- Switch the SVS mains switch to ON.
- Switch the protected equipment ON.
- NOTE: The SVS will not connect the supply to the protected equipment until it has checked the voltage level and if necessary corrected it to a safe level.
- The LED bar displays for Input Voltage and Output Voltage will light and show the various voltage levels of the incoming and outgoing supply.
- The mains supply to the protected equipment will now be stabilised.

OPERATION

The SVS works by constantly monitoring its input voltage and when it moves outside the tolerance range set for nominal voltage level it then corrects its voltage level output to the protected equipment, ensuring that it always receives a 'safe' voltage and thereby allowing it to continue to operate unharmed.

For instance the UK nominal voltage is 230V and the tolerance range statutorily allowed by the electricity supply authorities is 10% above to 6% below this level, a range spanning about 37V with a high of 253V and a low of 216V.

If the SVS input voltage rises above the 10% level the SVS will automatically reduce ("buck") the voltage of its output to the protected equipment down to within the tolerance level. Similarly, if the input voltage to the SVS drops below the tolerance range it will 'boost' the level of its output voltage to the protected equipment.

The SVS displays the input and output voltages by two columns of LED 'bars', one column entitled 'INPUT VOLTAGE' and the other entitled 'OUTPUT VOLTAGE'. These are shown in Diagram B below.

DIAGRAM B

The legends, colour coding and status indicators are explained in Table 2 below.

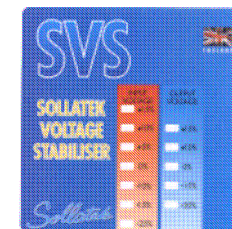


TABLE 2. The seven LED's for INPUT VOLTAGE and these indicate the following:

Legend	LED Colour	Status Indication
+ 15%	RED	Incoming voltage level 15% above nominal voltage ¹
+ 10%	YELLOW	Incoming voltage level 10% above nominal voltage
+ 5%	YELLOW	Incoming voltage level 5% above nominal voltage
0%	GREEN	Incoming voltage level at nominal voltage level
- 10%	YELLOW	Incoming voltage level 10% below nominal voltage
- 15%	YELLOW	Incoming voltage level 15% above nominal voltage
- 25%	RED	Incoming voltage level 25% above nominal voltage ²

The five LED's for OUTPUT VOLTAGE and these indicate the following:

Legend	LED Colour	Status Indication
+ 15%	RED	Output voltage level 15% above nominal voltage ¹
+ 10%	YELLOW	Output voltage level 10% above nominal voltage ¹
0%	GREEN	Output voltage level at nominal voltage level
- 10%	YELLOW	Output voltage level 10% below nominal voltage
- 20%	RED	Output voltage level 20% above nominal voltage

1. If the Input Voltage rises above +18% (272V @ 230V nominal) the SVS will respond by increasing the Output Voltage accordingly and this will be indicated on the Output Voltage indicators by the +10% Yellow or 15% Red LED's being lit.
2. If the Input Voltage falls below -26% (175V @ 230V nominal) the SVS will respond by decreasing the Output Voltage accordingly and this will be indicated on the Output Voltage indicators by the -10% Yellow or -20% Red LED's being lit.

AVS FUNCTION

The AVS function is set up so that, if the input voltage falls below 144V or rises above 291V, then the SVS will automatically shut down the output to the protected equipment to protect it from harm. These levels are known as the low-voltage-disconnect (LVD) and high-voltage-disconnect (HVD) levels respectively.

After an AVS shutdown the SVS continues to monitor the input voltage and once this rises above 150V or falls below 290V the SVS will automatically reconnect the output supply to the protected equipment again after a short delay of 10 seconds has elapsed.

SELF TEST

The SVS performs a self-test procedure each time that it starts up and continuously thereafter. If it finds a fault the LED's will light from top to bottom repeatedly. For a possible solution see Troubleshooting section below.

TROUBLESHOOTING

If the SVS does not work then consult the table below for a possible solution.

SYMPTOM	POSSIBLE CAUSE	REMEDY
SVS does not switch on. No LED's lit on SVS.	a) Mains not switched on b) No input power. c) Fuse blown	Switch on mains supply to SVS. Ensure input voltage is same as SVS. Replace fuse in mains plug of input cable.
SVS functions but protected equipment not switch on.	a) Equipment not plugged in. b) Equipment not switched on. c) Equipment fuse has blown. d) Input voltage different.	Plug equipment to SVS. Switch on equipment. Replace fuse in mains plug of input cable. Check the input voltage matches SVS.
SVS functions but input voltage persistently low.	a) Mains voltage always low. b) Mains voltage different.	Consult power supply company. Check the input voltage matches SVS.
SVS continuously performs a self-test (see above).	a) Possible internal fault. b) Very bad mains wave form. c) Very bad mains frequency.	Turn off and restart the SVS and equipment Turn off and restart the SVS and equipment Turn off and restart the SVS and equipment

GUARANTEE

The SVS is guaranteed for 2 years from the date of purchase. Faults due to faulty workmanship or materials will be repaired or replaced free of charge provided that:

1. The SVS has been correctly installed and used within the electrical range for which it was specified (see SVS label) and in accordance with these operating instructions.
2. There has been no attempt to open the SVS.
3. The SVS is received by the Sollatek agent in good condition.
4. This guarantee does not affect your statutory or Common Law rights.

WARRANTY RETURNS

If you need to return the SVS to your supplier of a Sollatek Service Centre, please follow these instructions:

1. Contact your nearest Sollatek Service Centre.
2. Obtain a Returns Number.
3. You will need to supply the following information about yourself:

Name
Address
Telephone number
Fax number
Email address

4. You will also have to supply the following information about the SVS.

Model number
Serial number
Name of supplier
Date purchased
Description of fault.

5. Use the original packaging of the SVS (if available) to enclose the unit. If this is not available then make sure that the unit is adequately packed for shipment.

IMPORTANT NOTE:

MOST SVS UNITS ARE HEAVY AND IF NOT ADEQUATELY PACKED CAN EASILY BE DAMAGED IN TRANSIT. NO RESPONSIBILITY CAN BE ACCEPTED BY SOLLATEK, ITS RESELLERS, DISTRIBUTORS OR AGENTS FOR DAMAGE SUSTAINED IN TRANSIT TO A REPAIR CENTRE.

6. Enclose a short note with the unit that records the Return Number and gives your name address and contact details.
7. Clearly land securely label the SVS packaging showing the destination address.

This User Manual is issued by:

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