Sollatek™

Voltright™

SVS SOLLATEK VOLTAGE STABILISER

SVS20(E/LD), SVS35(LD), SVS45(E/LD), SVS50(LD), SVS75(LD), SVS1413

Instruction Manual

IMPORTANT: This manual contains important safety instructions.
Keep this manual handy for reference.

CONTENTS

1. SAFETY

- All equipment designed and manufactured by Sollatek (UK) Ltd complies with the latest safety codes of practice. You should still follow all safety instructions and use caution when installing and operating electrical equipment.
- To avoid the risk of shock, DO NOT expose this equipment to rain, moisture or liquid spillage.
- Before attempting to use the SVS (Sollatek Voltage Stabiliser) ensure that the total loading of your equipment does not exceed the maximum rating of the SVS. To check the rating of your SVS, refer to the label on the back of the unit.
- For your own safety, do not insert any object into the ventilation slots.
- Do not attempt to dismantle the SVS, to do so will invalidate the guarantee. There are no user serviceable parts inside.

2. DESCRIPTION

The SVS continuously monitors the mains voltage, if the voltage rises or drops, the SVS will stabilise the output to ensure the voltage reaching your equipment remains constant at 230V or 110V (±3 or 6% depending on the model)

The Sollatek SVS has either a 12 LED panel or a LED display (depending on the model) to accurately indicate the state of the input and the output voltage.

The Sollatek SVS is unique in having a built-in Sollatek AVS™ (Automatic Voltage Switcher). This adds the following protective functions;

a) Provides a start-up delay which prevents rapid switching ON and OFF of the connected appliance when the mains is fluctuating. The delay varies between 10 seconds to 6 minutes depending on the model.

b) Provides a shutdown and disconnect function whereby it will switch off your equipment in cases where the fluctuations are extreme and the SVS cannot safely correct the voltage.

c) The Sollatek SVS has a built-in microprocessor which adds the advanced feature TimeSave™. TimeSave™ means that when the mains return to normal from a brown-out, the SVS checks the duration of the OFF time and adjusts the wait period accordingly.

The SVS also protects your electrical equipment against power spikes and surges. By using the SVS you will ensure a stable, and clean voltage supply to your equipment.

Common Applications:

The SVS is suitable for the following electrical and electronic appliances (depending on the rating of the SVS):

- Fridges
- Freezers
- Coolers
- Medical refrigeration
- Air conditioners
- Computers
- Printers/photocopiers
- TV/Hi-Fi
- Satellite and video equipment
- Domestic pumps
- Telecom applications

3. TECHNICAL SPECIFICATION

3.1 GENERAL SPECIFICATION - STANDARD MODELS

Input/Output		
Input Operating Range	230 V Models: 115V Models:	150.5 - 286.5 V 75 - 143 V
Input Regulating Range*	230 V Models: 115 V Models:	171 - 274 V 86 - 137 V
Output Accuracy		± 6%
Frequency Range		45Hz to 75Hz
General		
Derating Factor		10% to 15% per 10°C above 40°C
Synchronization		Output synchronized to input
Permissible		Overload 1000% for 100ms, 150% for 4 minutes, 110% for 15 minutes
Load Types		Suitable for all domestic, commercial and industrial appliances
Technology		Transformer tap switching using relay/triac combination for fast switching
Efficiency		>97% (at 100% linear load)
Control		Microcontroller based control system provides self checks, system integrity monitoring and diagnostic indicators
Control Protection		Internal surge arrestors and filters in control circuit protect against disturbances. Filtering algorithms and fault tolerant software protect against disturbances and false measurements
Ambient Temp Range		0 to +55°C
Relative Humidity		<95%, non condensing
Acoustic Noise		< 45 dB (A)
Expected Service Life		> 10 years
Standards		Manufactured to comply with :- ISO9001:2000, CE, EN 50081-1:1992, EN 50082-1:1998, EN 61000-4-6:1996, EN 61000-4-11:1994, DD ENV 50204, BS EN 61558-1, EN 600651998, EN 55022:1998, EN 61000-4-2:1995/1998, EN 61000-4-3:1996, EN 61000-4-4:1995, EN 61000-4-5:1995, 60065, EN 60555
Correction Speed		750 Volts per second
Response		Within 0.1 second
Wait Time on Start Up		10 seconds
Efficiency		88% at 25% load, 94% at 50% load, 96% at 75% load, 97% at 100% load
Power Factors		Unaffected by load power factor
AVS™ Function		Automatic voltage switcher: output is switched off to protect device against over and under voltage (available on certain models only)
TimeSave™ Function		Reduced startup delay if unit was off for more than the standard delay period to 10 seconds. Available on models with AVS function

* Regulating range is the supply range to provide stated output accuracy. Supply voltage outside this range will result in output accuracy decreasing.

Note: for specifications of other models, please refer to the appendix.

3.2 MODEL SPECIFICATION

	Input Voltage	Output Current	Output Power @ Nominal	Connector	User Interface	Case Type	Dimensions (mm)	Weight
STANDARD MODEL								
SVS20-22 (98220060)	230 V	20 A	4600 VA	Cable	LED Panel	Plastic	160 x 130 x 350	10.5 kg
SVS20-22 (98220000)	230 V	20 A	4600 VA	Terminal	LED Panel	Plastic	160 x 130 x 350	10.5 kg
SVS20-11 (98220511)	115 V	20 A	2300 VA	US Plug	LED Panel	Plastic	160 x 130 x 280	8.0 kg
SVS20-11 (98220411)	115 V	20 A	2300 VA	UK 15 socket / Cable	LED Panel	Plastic	160 x 130 x 280	8.0 kg
SVS20-22 (98220550)	230 V	20 A	4600 VA	Direct wiring	LED Panel	Metal	300 x 200 x 280	16.0 kg
SVS35-22 (98235000)	230 V	35 A	8050 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	29.3 kg
SVS50-22 (98250000)	230 V	50 A	11500 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	32.0 kg
SVS75-22 (98275000)	230 V	75 A	17250 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	46.0 kg
EXTENDED MODEL								
SVS20-22E (98222055E)	230 V	20 A	4600 VA	Direct wiring	Digital Display	Metal	340 x 320 x 380	30.0 kg
SVS45-22E (98245E00)	230 V	45 A	10350 VA	Direct wiring	Digital Display	Metal	390 x 330 x 405	59.0 kg
LOW DISCONNECT MODEL								
SVS20-22LD (98220061)	230 V	20 A	4600 VA	Cable	LED Panel	Plastic	200 x 300 x 280	16.0 kg
SVS35-22LD (98235061)	230 V	35 A	8050 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	29.3 kg
SVS45-22LD (98245000)	230 V	45 A	10350 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	33.0 kg
SVS50-22LD (98250061)	230 V	50 A	11500 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	32.0 kg
SVS75-22LD (98275061)	230 V	75 A	17250 VA	Direct wiring	LED Panel	Metal	325 x 340 x 380	46.0 kg
SPECIAL VOLTAGE MODEL								
SVS1413-21 (98141321)	220 V / 127 V	220 O/p - 14 A	220 V 3000 VA / 115 V 1500 VA	EU & US socket / Cable	Digital Display	Metal	340 x 320 x 380	23 kg
		115 O/p - 13 A	1500 VA					

3.3 INPUT AND OUTPUT VOLTAGE CHARACTERISTICS

SVS20

230 V																			
Input	0-146	147	155	165	175	185	195	205	210	215	225	235	240	245	255	265	275	285	287
Output	OFF	191	196	208	221	233	219	230	236	215	225	235	240	218	227	236	245	255	OFF

115 V																	
Input	0-75	76	80	85	90	95	100	105	110	115	120	125	130	135	140	143	144
Output	OFF	96	101	107	114	120	112	118	110	115	120	111	116	120	125	127	OFF

SVS35, SVS50 & SVS75

230 V																			
Input	0-150	151	155	165	175	185	195	205	210	215	225	235	240	245	255	265	275	285	287
Output	OFF	191	196	208	221	233	219	230	236	215	225	235	240	218	227	236	245	255	OFF

SVS20E & SVS45E

230 V																									
Input	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
Output	OFF	206	216	225	235	223	232	220	228	236	220	230	237	224	230	237	222	228	234	220	225	231	236	220	225	230

I/P cont	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	306
O/P cont	235	219	224	228	233	238	221	226	230	234	238	240	246	250	255	OFF

SVS20LD

230 V																									
Input	0-87	88	95	105	115	125	135	145	155	165	175	185	195	205	210	215	225	235	240	245	255	265	275	285	287
Output	OFF	110	119	132	144	157	169	182	196	208	221	233	219	230	236	215	225	235	240	218	227	236	245	255	OFF

SVS45LD

230 V																									
Input	0-80	85	90	100	110	120	130	140	150	160	170	180	185	190	195	200	205	210	215	220	225	230	235	240	245
Output	OFF	105	111	124	136	148	161	173	185	198	210	223	229	235/224	230	236/224	230	236/224	230	235/224	229	224	228/224	233/229	234

I/P cont	250	255	260	265	270	280	290	300	304
O/P cont	227	232	236/225	230	234/223	231	239	247	OFF

SVS35LD, SVS50LD & SVS75LD

230 V																								
Input	0-80	85	95	105	115	125	135	145	155	165	175	185	195	205	210	215	225	235	240	245	255	265	275	285	287
Output	OFF	107	120	133	145	158	170	183	196	208	221	233	221	232	237	215	225	235	240	218	228	237	248	255	OFF

SVS1413

Input	80	90	100	110	120	130	140	150	160	180	200	220	240	260	270	280	290
Output voltage from 220 V output	OFF	197	219	215	208	225	216	231	202	227	225	220	214	231	240	OFF	OFF
Output voltage from 115 V output	OFF	103	115	111	109	118	111	119	106	119	116	115	111	120	124	129	OFF
Max power output from 220 V output only	1500 VA								3000 VA								
Max power output from 115 V output only	1500 VA																
Max power output from 220 V & 115 V output	1500 VA																

3.4 VOLTAGE LIMIT TABLES

	Under Voltage				Over Voltage			
	Input		Output		Input		Output	
	LVD	LVR	LVD	LVR	HVD	HVR	HVD	HVR
SVS20-22	147	153	185	192	291	289	260	258
SVS20-11	75	78	95	98.5	143	142	127.5	126.5
SVS20-22LD	88	85	100	106	291	289	260	258
SVS20-22E	110	115	206.7	216.1	305	301	255	251.7
SVS35-22	150.5	156	190	197	286.5	284.5	255	253
SVS35-22LD	80	85	101	107.5	286.5	284.5	255	253
SVS45-22	80	85	99	105	303.5	301	250	248
SVS45-22E	110	115	206.7	216.1	305	301	255	251.7
SVS50-22	150.5	156	190	197	286.5	284.5	255	253
SVS50-22LD	80	85	101	107.5	286.5	284.5	255	253
SVS75-22	150.5	156	190	197	286.5	284.5	255	253
SVS75-22LD	80	85	101	107.5	286.5	284.5	255	253
SVS1413-21	80	86	178	189	280	276	249	247

4. UNPACKING & INSPECTION

After removing the polystyrene protective packaging from the SVS unit, inspect the ventilation slots to ensure that they are free from all obstruction. Use a vacuum cleaner to dislodge any obstructions.

Retain the box and packaging material to return the SVS unit in the unlikely event of its operational failure.

5. INSTALLATION

- Isolate mains before installing
- Ensure the rating of the load doesn't exceed the capacity of the SVS, if in doubt consult your electrician.

- Ensure that it is positioned so that a free flow of air allows the unit to cool.
- Do not install inside a closed cupboard and do not allow papers or other materials to be piled on top.

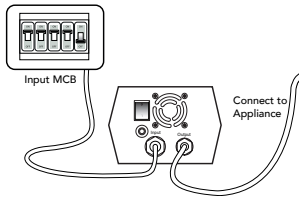
- Do not obstruct the air vents or fan (if fitted)
- All terminal type connections must be carried out by an authorised electrician.

ENSURE THE SVS IS TURNED OFF BEFORE INSTALLATION

5.1 PLASTIC ENCLOSURE

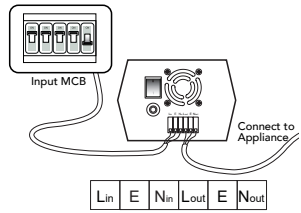
SVS20-22 - Cable Connections

- Insert the Live, Neutral and Earth wires from the input cable into the corresponding terminals from the mains supply MCB.
- Tighten screws, ensuring all wires are secure.
- Insert the Live, Neutral and Earth wires from the output cable into the corresponding terminals on the appliance.
- Tighten screws, ensuring all wires are secure.



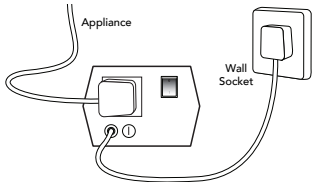
SVS20-22 - Terminal Connections

- Loosen the screw in the terminals on the rear of the SVS.
- Insert the Live, Neutral and Earth wires from the input into the corresponding terminals and tighten terminal screws.
- Insert the Live, Neutral and Earth wires from the output into the corresponding terminals and tighten terminal screws.
- Connect the other end of the input/output wires to the circuit breaker/appliance accordingly



SVS20-11 - Plug & Socket Connections

- Plug the SVS into the wall socket.
- Plug the appliance/device into the socket on the rear of the SVS.



5.2 METAL WALL MOUNTED BOX

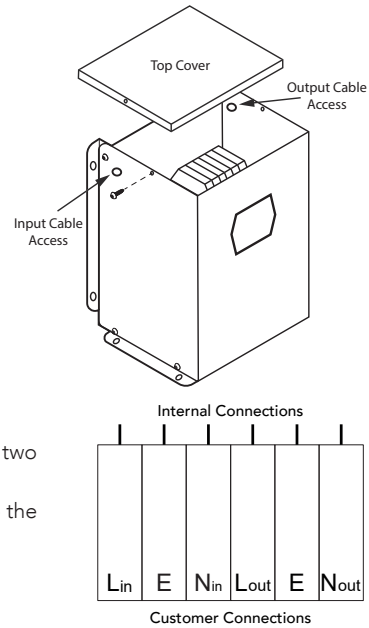
- Please ensure that you use correctly rated cable (see table below).

3 or 4 core PVC insulated cables current carrying capacity (amperes) @ 30°C ambient (conductor operating at 70°C)	
mm² (cross section)	**Amps**
2.5	20
4	28
6	36
10	50

- Input cable should be rated at 1.5 times the output current. (Increase the cable size for better regulation).
- This unit must be earthed and requires a neutral.
- A suitable circuit breaker 1.5 times the unit's rating should be connected on the input.
- Ensure that the cable size current rating is greater than the associated fuse rating

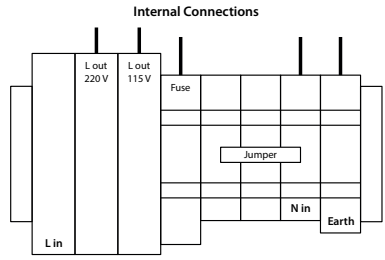
SVS20, SVS20E, SVS35(LD), SVS45, SVS45E, SVS50(LD) & SVS75(LD) - Direct Connection

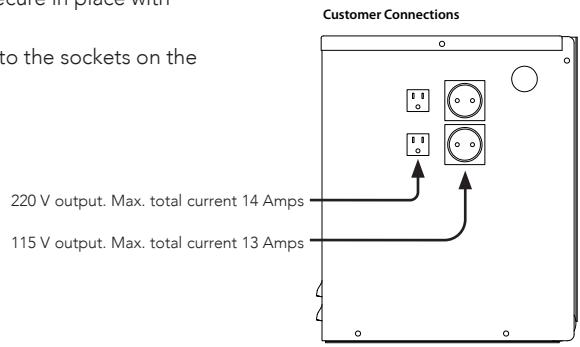
- Remove the top cover by loosening the two screws on either side of the SVS.
- Insert the input cable through the cable access hole on the side of the SVS.
- Loosen the screw in the terminals and insert the Live, Neutral and Earth wires into the corresponding terminals.
- Tighten screws, ensuring all wires are secure.
- Insert the output cable through the cable access hole on the other side of the SVS.
- Loosen the screw in the terminals and insert the Live, Neutral and Earth wires into the corresponding terminals.
- Tighten screws, ensuring all wires are secure.
- Turn the output MCB inside the SVS ON.
- Replace the top cover and secure in place with the two fixing screws.
- Connect the other end of the input/output wires to the circuit breaker/equipment accordingly



SVS1413 – Direct / Socket Connection

- Remove the top cover by loosening the two screws on either side of the SVS.
- Insert the supply input cable through the cable access hole on the side of the SVS.
- Loosen the screw in the terminals and insert the Live, Neutral and Earth wires into the corresponding terminals.
- Tighten screws, ensuring all wires are secure.
- Replace the top cover and secure in place with the two fixing screws.
- Plug the appliance/device into the sockets on the side of the SVS



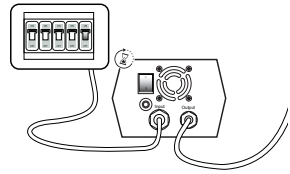


6. OPERATION

NOTE: On first powering the SVS ON, the input voltage must be within the reconnection range of the SVS (LVR-HVR).

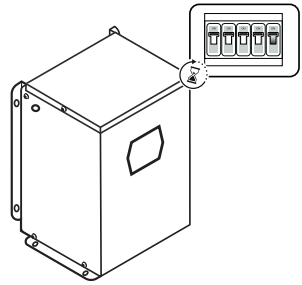
6.1 TURNING THE SVS ON

SVS20 (Plastic Box)



- Turn the input MCB / wall socket ON.
- Turn the SVS switch ON.
- Turn the equipment ON.
- The AVS (if fitted) will delay switching the power to the connected equipment until it has sensed the power is good.
- Once the wait period has elapsed, the SVS will supply power to the equipment.

All Wall mount SVS (Metal Box)



- Turn ON the supply to the SVS
- Turn the load equipment ON.
- The AVS (if fitted) will delay switching the power to the connected equipment until it has sensed the power is good.
- Once the wait period has elapsed and the supply is within limits, the SVS will supply power to the equipment.

6.2 SVS INTERFACE

LED Panel

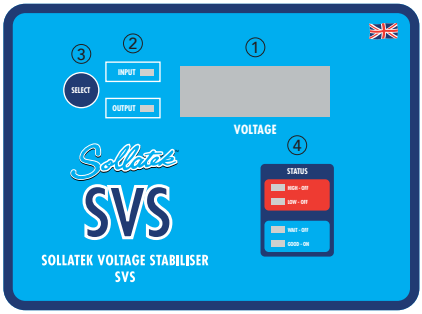
① **Input voltage status LEDs**

0%	Input voltage good
+5%, +10% -10%,-15%	Input voltage level of deviation from nominal supply
+15%, -25%	Input voltage close to the regulating limits

② **Output voltage status LEDs**

0%	Output voltage supplied at nominal or within unit accuracy
+10%,-10%	Accuracy of the output voltage from the nominal supply
+15%, -20%	Output voltage accuracy close to limits

Digital Display
SVS20E, SVS45, SVS45E



① **Digital Display -** Current voltage value

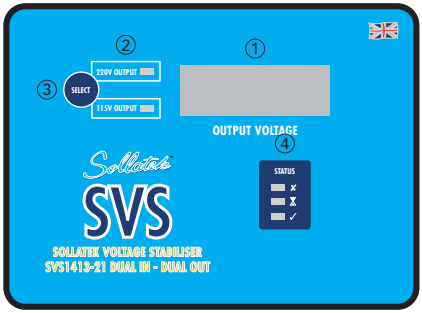
② **Voltage Display Indicators -** Indicates the display is showing either the input or output voltage depending which LED is ON

③ **Toggle Button -** Switch between voltages on the display

④ **SVS and Voltage Status Indicators**

- **HIGH - OFF** Input voltage above acceptable limits - Output OFF
- **LOW - OFF** Input voltage below acceptable limits - Output OFF
- **WAIT - OFF** Input voltage returned within limits & the SVS is in wait mode - Output OFF
- **GOOD - ON** Input voltage within limits - Output ON

SVS1413



① **Digital Display**
Current voltage value

② **Voltage Display Indicators**
Indicates the display is showing either 230V or 115V depending which LED is ON

③ **Toggle Button**
Switch between voltages on the display

④ **SVS and Voltage Status Indicators**

- ✓ Input voltage within limits - Output ON
- ⧗ Input voltage returned within limits and the SVS is in wait mode - Output OFF
- ✘ Input voltage above/below acceptable limits - Output OFF

6.3 OPERATING SEQUENCE

Input voltage within the regulating Range

If the input voltage is within the regulating range, the SVS will compensate any difference in the input voltage by stepping up or stepping down the output voltage to maintain an optimal output supply.

LED Panel – If the input voltage is at nominal, the green 0% LED will be on. However, if there is any deviation in the input supply, the corresponding Input LED will be on instead. The Green 0% output status LED will be on.

Digital Display – The display will show the output voltage (if configured to output voltage) and the green status LED will be on.

Input voltage outside the regulating range

If the input voltage falls below the minimum regulating voltage the output will continue to be supplied however the output supply voltage will be outside the standard accuracy.

LED Panel - The amount the output voltage is lowered will be indicated by the yellow -10% or red -20% LED.

Digital Display – The display will show the output voltage (if configured to output voltage) and the green status LED will be on.

If the input voltage rises above the maximum regulating voltage the output will continue to be supplied however the supply voltage will be outside the standard accuracy.

LED Panel - The amount the output voltage is increased will be indicated by the yellow +10% or red +15% LED.

Digital Display – The display will show the output voltage (if configured to output voltage) and the green status LED will be on.

Input voltage outside the acceptable limits

If the incoming voltage supply goes outside the operating range, the AVS disconnects the supply from the output.

LED Panel – The output LED will turn off and the either the +15% or -25% input LED will flash depending on the condition (high or low voltage) which forced the SVS to disconnect power to the output.

Digital Display – 000 (if configured to output voltage), the red status LED will turn on.

Input voltage returns within acceptable limits

When the income voltage supply returns within the reconnection range (LVR to HVR) the SVS will begin the wait period, prior to reconnecting the supply to the output and resuming normal operation.

LED Panel during Wait Period - Either the +10% or -10% yellow output LED will turn on and start flashing depending on the condition which forced the SVS to disconnect power to the output. Once the wait period is over the LEDs will resume normal operation (Input voltage within regulating range).

Digital Display during Wait period – 000 (if configured to output voltage), the yellow wait status LED will turn on. Once the wait period is over the display and LEDs will resume normal operation (Input voltage within regulating range).

Models with an extended wait period – Off period longer than wait period

If the off period is longer than the wait period, when the income voltage supply returns within acceptable limits the SVS will connect the supply to the output after ONLY a 10 second delay (TIMESAVE™) rather than the full wait period.

7. TROUBLESHOOTING

Symptom	Possible Cause	Remedy
The unit does not switch on. LEDs and display (depending on model) are off.	The fuse has blown.	Change the fuse for a fuse of the correct rating.
	No power is available on the input.	Ensure that the load current does not exceed the capacity of the unit.
	The mains switch is not on.	Ensure that you are using the correct voltage - 230 V Ensure the mains supply and the SVS is switched on
	The thermal fuse inside the SVS has blown.	Contact Sollatek for return
The unit appears to be functioning normally but the load is not being switched on.	The Load is not plugged in.	Ensure the load is plugged in / wired correctly.
	The Load is not Switched on.	Check that the input voltage is within the input range of the SVS.
	Load fuse has blown.	Ensure the load is switched on, if not, check/change the load fuse
	Time delay is in progress	Wait for the delay to end.
The unit appears to be functioning but the output voltage is persistently low.	The mains input is too low; Due to continuous brown-out The unit is rated at 230 V and the incoming supply is 110 V	
The unit is on, the load is off and the LEDs are flashing. LED panels: The 3 +% Input LEDs and 2 +% output LEDs flash alternately SVS1413: Red cross and yellow wait LED flash alternately SVS20E & SVS45E: High OFF and Low OFF LEDs flash alternately flash with Wait OFF & Good ON	Very bad input frequency	Wait for the mains supply to become good. Once good, the SVS will reconnect the supply to your appliance.
Continuous fan noise (models with a fan fitted).	The vents are blocked	Isolate supply to the unit and appliance and clean the vents. Ensure there are no obstructions blocking the vents.
The SVS continuously performs self-test. If it finds a fault the LEDs will continuously light from top to bottom repeatedly in one of two patterns.	Possible internal fault. The fault could be temporary or permanent.	Ensure that the load current does not exceed the rating of the SVS. Turn the appliance off then switch SVS off. Restart the unit as per operating instructions.

Please consult the above chart before contacting your supplier. Ensure that you have followed the operating instructions carefully.

There are no user serviceable parts internally.

Disassembling the unit, opening the lid or tampering with the unit is unsafe for unqualified users and will render the warranty invalid.

8. MAINTENANCE AND CALIBRATION

As the unit is essentially maintenance free, maintenance is limited to ensuring periodically that the fan cover and ventilation holes are free from dust. No calibration is required as the unit is factory calibrated and is not subject to long term deviation.

The service life of the SVS should be in excess of twenty years if operated within specification.

9. GUARANTEE

Sollatek (UK) Ltd guarantee that if within 2 years of purchase this appliance fails due to faulty workmanship or materials we will repair or replace it free of charge provided that:

- The appliance has been correctly installed and used within the electrical range as specified on the appliance nameplate.
- The appliance has been used in accordance with the operating instructions.
- There has been no attempt to open the unit for any reason whatsoever.
- The unit is returned to Sollatek or Sollatek agent in good condition.
- Sollatek shall not be liable under the terms of this guarantee for any material fault or damage as a result of failure of this appliance.
- This guarantee does not affect your statutory or Common Law rights.

10. WARRANTY & RETURNS

Should your SVS unit need repair, the quickest and simplest way is to return it to your dealer or to a Sollatek Service Centre or direct to the nearest Sollatek office.

IMPORTANT: Before returning a unit to a Sollatek Service Centre, contact the returns department to obtain a returns number. You will be asked for the following information which you should have ready;

Your Name, Address, Telephone, Fax (If Available), Email (If Available)

Date Purchased, Where Purchased

Serial Number, model number

Local voltage and type of load.

Description of Fault

Once you have the returns number, ensure that the unit is securely packed enclosing a short note with details as above and mark the unit clearly with the returns number. Remember also to add your name and address.

Complying with the above will ensure that your unit will be treated promptly and efficiently. Without a returns number it will not be possible to trace a unit or check progress of repair of the unit.

11. APPENDIX

SPECIFICATION FOR OTHER SVS MODELS

	SVS20LD	SVS20E & SVS45E	SVS45	SVS50LD & SVS75LD	SVS1413
Input Operating Range	100 - 260 V	110 - 305 V	80 - 303.5 V	80 - 286.5 V	80 - 280 V
Input Regulating Range*	171 - 274 V	120 – 288 V	184 - 276 V	171 - 274 V	94 - 262 V
Output Accuracy	± 6%	± 5%	± 3%	± 6%	± 6%
Efficiency	>97% (at 100% linear load)	>97% (at 100% linear load)	>96% (at 100% linear load)	>97% (at 100% linear load)	>97% (at 100% linear load)
Wait Time on Start Up	10 seconds	6 minutes	10 seconds	10 seconds	10 seconds

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