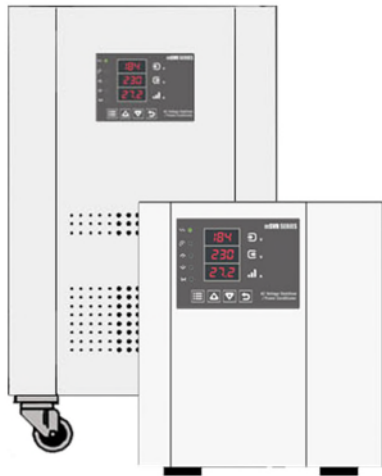


**mSVR SERIES**  
**USER / OPERATOR**  
**PRODUCT MANUAL**



**AC VOLTAGE STABILISERS**  
**/ POWER LINE CONDITIONERS**

*1 to 15 kVA*  
*SINGLE PHASE*

**WITH SECTIONS ON**  
**INSTALLATION, MAINTENANCE & FRONT-LINE FAULT FINDING**

**IMPORTANT**  
**PLEASE READ**

This User / Operator Manual contains information concerning the safe and proper installation and operating procedures applicable to the mSVR ranges of Single Phase Servo Electronic AC Voltage Stabilisers / Power Line Conditioners. The Manual should be read in full before attempting to use, or operate the equipment.

If any problems are encountered with the procedures contained within this Manual, then seek assistance from Sinalda UK or the distributor from whom you purchased the equipment.

Whilst every precaution has been taken to ensure the accuracy and completeness of this User Manual, Sinalda UK assumes no responsibility and disclaims all liabilities for damages resulting from the misuse of this information or any error or omission.

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# 1. Introduction

## 1.1 Overview

mSVR Series of microprocessor-controlled Single-Phase Servo Electronic Voltage Stabilisers/Line Conditioners automatically correct brownouts (by boosting low voltage) and over-voltages (by reducing down high voltage). They are, designed to ensure the delivery of a step-less stable and clean output voltage that is at an acceptable level for the connected load equipment.

Being designed for many years of reliable and trouble-free service, Sinalda UK's mSVR models provide protection from incoming line voltage sags, spikes and surges/swells. In addition, they take voltage protection to the next level by ensuring defence against mains born electrical noise – delivering what is commonly referred to us a "CLEAN" supply.

## 1.2 Applications

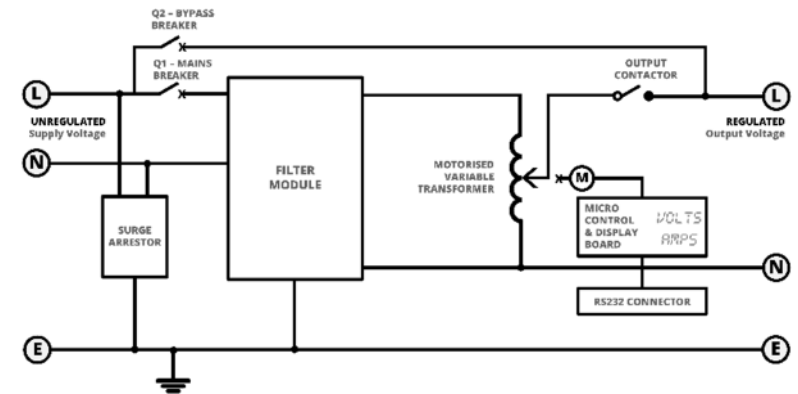
Suitable for all electronic and electrical load types models are available for situations where the incoming mains utility supply is between 165V to 265V (H Models) and, 90V to 140V (L Models).

## 1.3 Basic Principles of Operation

mSVR Series AC Voltage Stabilisers / Line Conditioners are intended as low-cost solutions.

### 1.3.1 Models: SVR-1H to 7.5H & SVR-1L to 3L

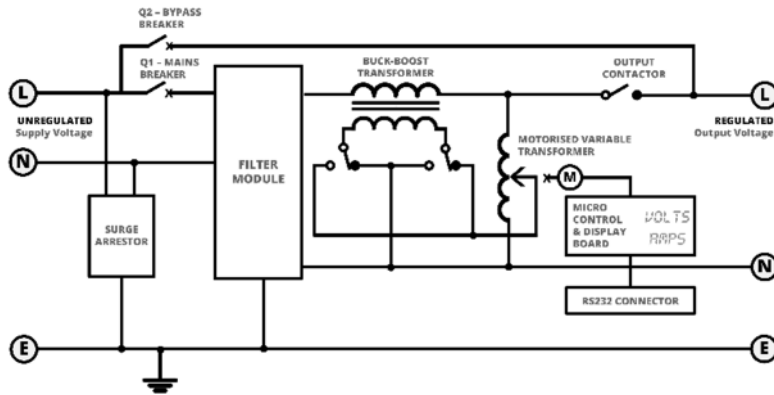
The Servo Electronic design principle ensures the voltage is automatically controlled through a servo motor-driven variable transformer, ensuring a step-less, smooth and stable output voltage. A microprocessor-based controller continuously monitors the output voltage of the Stabiliser. Should the incoming voltage change, the microprocessor instructs the servo motor to rotate the brush-gear on the variable transformer to correct any deviation in the output voltage.



### 1.3.2 Models: mSVR-5L & mSVR-10H to mSVR-15H

The Servo Electronic design principle used in these models differs in so much as it has an additional Buck-Boost transformer, with its secondary winding connected between the mains supply and the load. The primary voltage is automatically controlled through a servo motor-driven variable transformer, ensuring a step-less, smooth and stable output voltage. A microprocessor-based controller continuously monitors the output voltage of the Stabiliser. Should the incoming voltage change, the microprocessor instructs the servo motor to rotate the brush-gear on the variable transformer to correct any deviation in the output voltage.





### 1.4 Features



Suitable for all electrical and electronic equipment, **mSVR Series Voltage Stabilisers / Conditioners** continuously monitor the incoming supply. Should the incoming voltage rise or drop, the Stabilisers will automatically control the Output to ensure the voltage reaching the load equipment remains within the load equipment's intended requisite input voltage window.



Protection against all too common everyday high energy spikes and transient voltages typically introduced into the utility mains supply by nearby disturbances resulting from peak power demands or stop / start operation of electrical machines.



Filtering designed to attenuate disruptive and damaging electrical noise on the incoming supply. Ensures protection against Common Mode electrical noise that occurs between the neutral and earth, and also Normal (AKA. Transverse / Differential) Mode electrical noise that occurs between the line and neutral.



Protection of the load equipment from the potentially damaging effects of high transient over-voltages introduced indirectly into the utility mains supply following a lightning strike.



A 5 second time delay (*front panel adjustable*) on system re-start is designed to prevent nuisance tripping. Ensures that load appliances are not switched on-off repeatedly during fluctuations, nor are they subjected to massive surges normally experienced when power returns after power outages. For air conditioning applications this feature should ensure compressors have sufficient time to neutralise before re-starting.



Offered as standard with a wide permissible input voltage window, **mSVR Series Voltage Stabilisers** are capable of delivering a precise output voltage accuracy, making them ideal for virtually all types of load applications and the more challenging of power environments.



Being based on the highly reliable servo electronic design topology, the latest generation of **mSVR Series** models are digitally enhanced to meet the needs of today's 'Digital Age'.



**mSVR Series Voltage Stabilisers / Conditioners** offer a long design life and are 'Low-Maintenance' solutions.



**Please Note:** mSVR Series Voltage Stabilisers / Power Conditioners are **NOT FOR USE** with life-sustaining equipment or any device where the power requirements exceed the “Maximum Output Rating” listed in the Specification table. Nor are they suitable for “back feed” applications, where energy is required to be fed back into the utility supply.

## 2: General Specification

### 2.1 Input

#### H Series (220-240V Models)

Model No	mSVR-1H	mSVR-2H	mSVR-3H	mSVR-5H	mSVR-7.5H
Nominal Input Voltages	230V Default ( <i>front panel adjustable 220V to 240V</i> ) AC Single Phase, 2 Wire (L, N & G/E)				
Input Voltage Range	165V to 265V AC Single Phase, 2 Wire (L, N & G/E)				
Max Input Current - Amps	6.1	12.1	18.2	30.3	45.5
Input Power Socket (* with IEC Power Cable)	IEC 320 C13 *	IEC 320 C13 *	Hardwire - Screw Terminals		
Operating Frequency	50 / 60 Hz (35 to 63 Hz)				
Surge Suppression	TVSS - Protects loads against high-energy Spikes and Transient Voltages				
Surge Rating	300 Joules				
Lightning Arrestor	Class II SPD				
Noise Filtering	LC Filter delivering Common Mode and Differential Mode Attenuation of 50dB at 100kHz				

Model No	mSVR-10H	mSVR-15H
Nominal Input Voltages	230V Default ( <i>front panel adjustable 220V to 240V</i> ) AC Single Phase, 2 Wire (L, N & G/E)	
Input Voltage Range	165V to 265V AC Single Phase, 2 Wire (L, N & G/E)	
Max Input Current - Amps	60.6	90.9
Input Power Socket	Hardwire - Screw Terminals	
Operating Frequency	50 / 60 Hz (35 to 63 Hz)	
Surge Suppression	TVSS - Protects loads against high-energy Spikes and Transient Voltages	



Surge Rating	300 Joules
Lightning Arrestor	Class II SPD
Noise Filtering	LC Filter delivering Common Mode and Differential Mode Attenuation of 50dB at 100kHz

### L Series (110-127V Models)

Model No	mSVR-1L	mSVR-3L	mSVR-5L
Nominal Input Voltages	120V Default ( <i>front panel adjustable 110V to 127V</i> ) AC Single Phase, 2 Wire (L, N & G/E)		
Input Voltage Range	90V to 140V AC Single Phase, 2 Wire (L, N & G/E)		
Max Input Current - Amps	11.1	33.3	55.6
Input Power Socket (* with IEC Power Cable)	IEC 320 C13 *	Hardwire - Screw Terminals	
Operating Frequency	50 / 60 Hz (35 to 63 Hz)		
Surge Suppression	TVSS - Protects loads against high-energy Spikes and Transient Voltages		
Surge Rating	300 Joules		
Lightning Arrestor	Class II SPD		
Noise Filtering	LC Filter delivering Common Mode and Differential Mode Attenuation of 50dB at 100kHz		

## 2.2 Output

### H Series (220-240V Models)

Model No	mSVR-1H	mSVR-2H	mSVR-3H	mSVR-5H	mSVR-7.5H	
Max Output Rating	<i>VA/ Watts</i>	1000	2000	3000	5000	7500
	<i>Amps</i>	4.3	8.6	13	21.7	32.6
Output Voltage	230V Default ( <i>front panel adjustable 220V to 240V</i> ) AC Single Phase, 2 Wire (L, N & G/E)					
Output Voltage Accuracy	±1% Default ( <i>front panel adjustable 1% to 5%</i> )					
Output Power Socket / Terminals	IEC 320 C13	IEC 320 C13	Hardwire - Screw Terminals			
Speed of Response	Typically a 10% supply variation will be corrected within 2.5% in 0.6 seconds ( <i>front panel adjustable</i> )					
Power Factor	No effect on performance providing the Stabiliser / Conditioner is being used within its rated capacity					
Overload Ratings	Operational Overload Settings are set via the Digital Display Panel, with electro-mechanical overload ratings standing at 10 x Max. Current for 100 milliseconds 2.5 x Max. Current for 10 seconds 1.5 x Max. Current for 1 minute					
Operating Frequency	50 / 60 Hz (35 to 63 Hz)					

Model No	mSVR-10H	mSVR-15H	
Max Output Rating	<i>VA/ Watts</i>	10000	15000
	<i>Amps</i>	43.5	65.2
Output Voltage	230V Default ( <i>front panel adjustable 220V to 240V</i> ) AC Single Phase, 2 Wire (L, N & G/E)		
Output Voltage Accuracy	±1% Default ( <i>front panel adjustable 1% to 5%</i> )		
Output Power Terminals	Hardwire - Screw Terminals		
Speed of Response	Typically a 10% supply variation will be corrected within 2.5% in 0.6 seconds ( <i>front panel adjustable</i> )		
Power Factor	No effect on performance providing the Stabiliser / Conditioner is being used within its rated capacity		



Overload Ratings	Operational Overload Settings are set via the Digital Display Panel, with electro-mechanical overload ratings standing at 10 x Max. Current for 100 milliseconds 2.5 x Max. Current for 10 seconds 1.5 x Max. Current for 1 minute
Operating Frequency	50 / 60 Hz (35 to 63 Hz)

### L Series (110-127V Models)

Model No	mSVR-1L	mSVR-3L	mSVR-5L
Max Output Rating	1000	3000	5000
	8.3	25.0	41.6
Output Voltage	120V Default ( <i>front panel adjustable 110V to 127V</i> ) AC Single Phase, 2 Wire (L, N & G/E)		
Output Voltage Accuracy	±1% Default ( <i>front panel adjustable 1% to 5%</i> )		
Operating Frequency	50 / 60 Hz (35 to 63 Hz)		
Output Power Terminals	IEC 320 C13	Hardwire - Screw Terminals	
Speed of Response	Typically, a 10% supply variation will be corrected within 2.5% in 0.6 seconds ( <i>front panel adjustable</i> )		
Power Factor	No effect on performance providing the Stabiliser / Conditioner is being used within its rated capacity		
Overload Ratings	Operational Overload Settings are set via the Digital Display Panel, with electro-mechanical overload ratings standing at 10 x Max. Current for 100 milliseconds 2.5 x Max. Current for 10 seconds 1.5 x Max. Current for 1 minute		
Operating Frequency	50 / 60 Hz (35 to 63 Hz)		

### 2.3 Additional Features

Model No	All Models
Input Breaker	Over Current & Short Circuit Protection
Manual Bypass	Manual Bypass Switch - with interlocking
Loss of Supply	Automatic Re-Start on Return of the Utility Mains Supply

Re-Start Time Delay	Default 5 second Re-Start time delay ( <i>adjustable via front display panel - 1 to 999 seconds</i> ) to prevent nuisance tripping and protect sensitive equipment against damage. On Activation, a count-down will be displayed on the front display Panel
LED Display Indicators	Normal, Time Delay, High Voltage, Low Voltage, & Overload
Digital Display Metering	Input Volts, Output Volts & Input Current (Amps) (+ <i>Re-Start Time Delay Count Down</i> )
Adjustable Key Parameter Settings	Password Protected adjustment of the 7 Key System Operating Parameters via the Front Display Panel - Output Voltage, Output Accuracy, Under Voltage, Over Voltage, Overload, Speed of Response & Time Delay
Interface	RS-232 (DB-9 Pin Style Port)

### 2.4 Environmental

Model No	All Models
Efficiency	>98%
Harmonic Distortion	THD - Less than 1%
Operating Temperature	0 to 45°C. Derate by 2% for each additional °C up to max. of 60°C
Maximum Altitude	1000 meters. Derate by 2.5% for each additional 500 metres
Relative Humidity	Suitable for indoor tropical use up to 90% RH (non-condensing)

### 2.5 Physical

#### H Series (220-240V Models)

Model No	mSVR-1H	mSVR-2H	mSVR-3H	mSVR-5H	mSVR-7.5H
Construction	Free-standing Enclosures to IP20 / NEMA 1 Style - BS/EN 60529 Option - 19" Rack Mount (-RM) and IP54 / NEMA 3 Style Enclosure (-IP54)				
Colour	RAL 1013 (Oyster White - Epoxy Powder Coat)				
Mounting	On Rubber Feet				
Physical Size W x H x D mm	210 x 210 x 292		243 x 280 x 342	303 x 320 x 402	
Weight	12 Kg	13 Kg	16 Kg	27 Kg	31 Kg



Packed Size W x H x D cm	35 x 36 x 43	38 x 44 x 49	44 x 47 x 54
Packed Weight	13.5 Kg	14 Kg	19 Kg

Model No	mSVR-10H	mSVR-15H
Construction	Free-standing Enclosures to IP20 / NEMA 1 Style - BS/EN 60529 IP54 / NEMA 3 Style Enclosure (-IP54)	
Colour	RAL 1013 (Oyster White - Epoxy Powder Coat)	
Mounting	On Castors	
Physical Size W x H x D mm	400 x 590 x 400	430 x 700 x 450
Weight	76 Kg	94 Kg
Packed Size W x H x D cm	48 x 77 x 50	54 x 96 x 53
Packed Weight	86 Kg	108 Kg

### L Series (110-127V Models)

Model No	mSVR-1L	mSVR-3L	mSVR-5L
Construction	Free-standing Enclosures to IP20 / NEMA 1 Style - BS/EN 60529 Option – 19" Rack Mount (-RM) excluding 5kVA model and IP54 / NEMA 3 Style Enclosure (-IP54)		
Colour	RAL 1013 (Oyster White - Epoxy Powder Coat)		
Mounting	On Rubber Feet	On Castors	
Physical Size W x H x D mm	210 x 210 x 292	243 x 280 x 342	400 x 590 x 400
Weight	11 Kg	26 Kg	56 Kg
Packed Size W x H x D cm	35 x 36 x 43	38 x 44 x 49	54 x 96 x 53
Packed Weight	14 Kg	28 Kg	67 Kg

### 2.6 Certification & Compliance

Model No	All Models
EMC Compliance	Complies with BS/EN 55022 & the relevant parts of BS/EN 61000 standards
CE Certification	CE Marked – being fully compliant with European Union Directives 2014/30/EU (The EMC Directive) and 2014/35/EU (The Low Voltage Directive)

### 2.7 Warranty

Model No	All Models
Standard Warranty	24 Months / 2 Years

### 2.8 Optional Add-Ons

Model No	All Models
Rack- Mountable (-RM)	19" Rack Mountable Enclosure (excluding H Series 10 & 15 kVA & L Series 5kVA models)
Outdoor IP54 Enclosure (-IP54)	Outdoor IP54 / NEMA 3 style Free-Standing steel cubicles suitable for external use, or more challenging internal environments

#### Note:

All mSVR Stabilisers/Conditioners are designed to support the full load at minimum input volts and maximum ambient temperature.





## 3: Safety Instructions



Read and follow all Safety Instructions

Please save these instructions for future reference

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### 3.1 Introduction

These instructions are addressed to the Installer and End-User / Operator of the mSVR Series of Single Phase AC Voltage Stabiliser / Conditioners. We strongly suggest you keep this Manual next to the equipment for future reference.

### 3.2 General Installation & Usage

Do not use the Stabiliser / Conditioner for other than the intended use.

Do not install Stabiliser / Conditioner in back feed circuits, such as solar panel and wind turbine applications, where the energy is supplied back to the grid, nor should the input voltage supply be connected to the Output of Stabiliser.

If on delivery, there is evidence of visible damage, do not attempt to install or start the Stabiliser / Conditioner. Advise the transport delivery company and inform Sinalda UK, or the resale partner from whom you purchased the equipment.

The Stabiliser / Conditioner can contain potentially dangerous voltages – up to 300V AC. If the covers are removed, use extreme caution and do not leave the unit unattended with the covers off.

Hazardous voltages can be present at the unit's Output any time AC input power is applied. To avoid possible personal injury, or equipment damage, and to make certain there is no output voltage, turn the unit off and disconnect the AC Input.

To reduce the risk of fire, or electrical shock, install the unit in an indoor area free from conductive contaminants.

Do not use outdoors (*unless supplied with the IP54 Option*).

Do not place the unit near water or liquids, gas and combustible materials or in an excessively humid environment where condensation is very likely to occur.

To reduce the risk of overheating, do not block the unit's ventilation panels and try to avoid positioning the unit in strong direct sunlight or close to other heat sources.

Do not allow liquids or foreign objects to enter the unit.

The installation and use of this product must comply with all relevant current electrical installations that are in force in the territory of installation.

Where the system is required to be hardwired into the input utility mains supply, we would strongly suggest that a qualified electrician should install the equipment. The electrician should install the AC input according to the instructions contained in this Manual. Standard safety practices should be followed at all times.

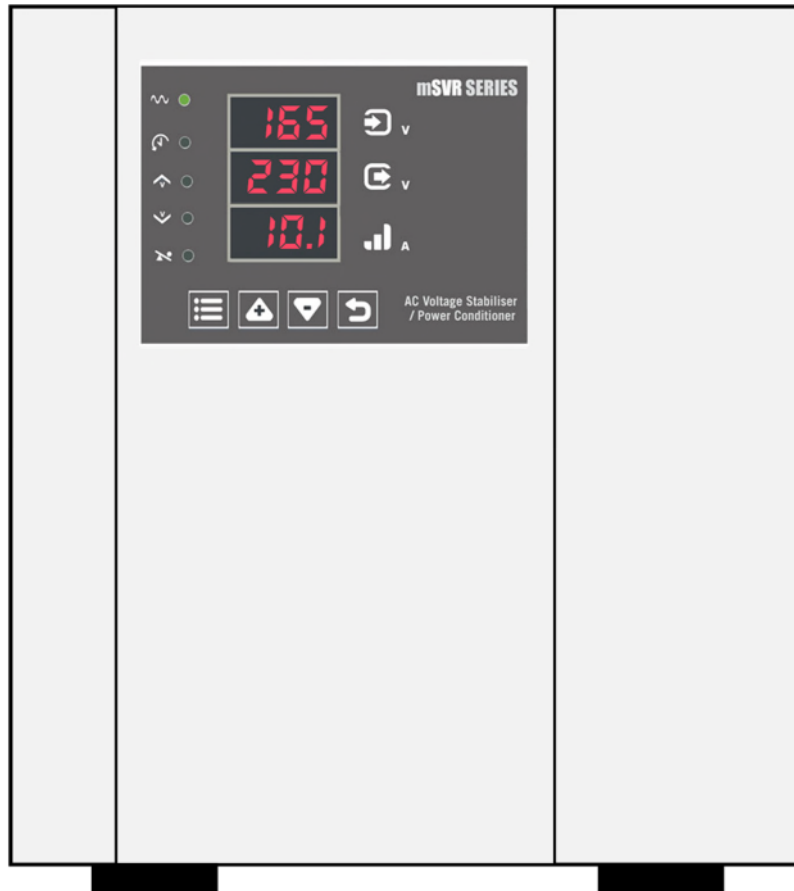
The unit must be grounded or earthed at all times when in use.



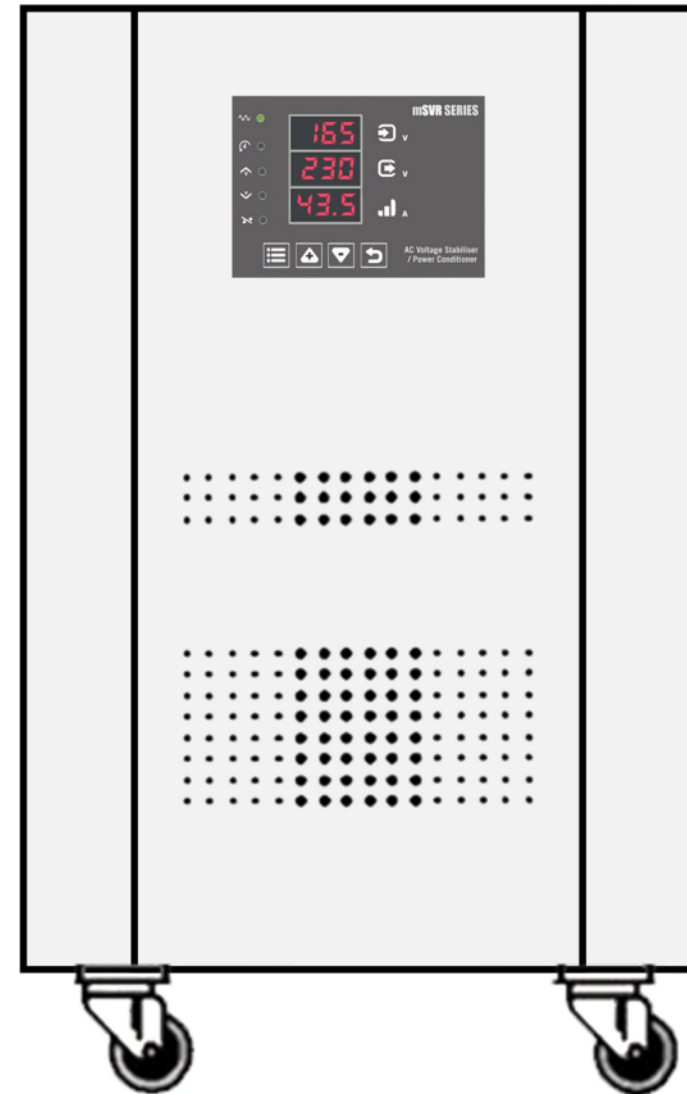
## 4: Visual External Appearance

### 4.1 Front View

H Series mSVR-1H to 7.5H & L Series mSVR-1L to 3L Models

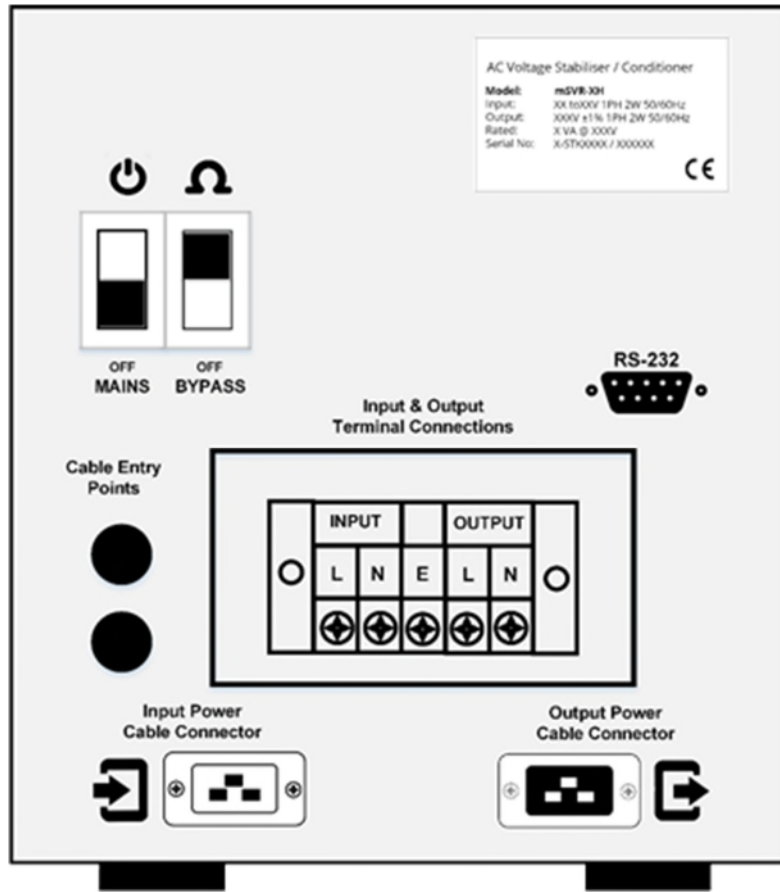


H Series mSVR-10H to 15H & L Series mSVR-5L Models



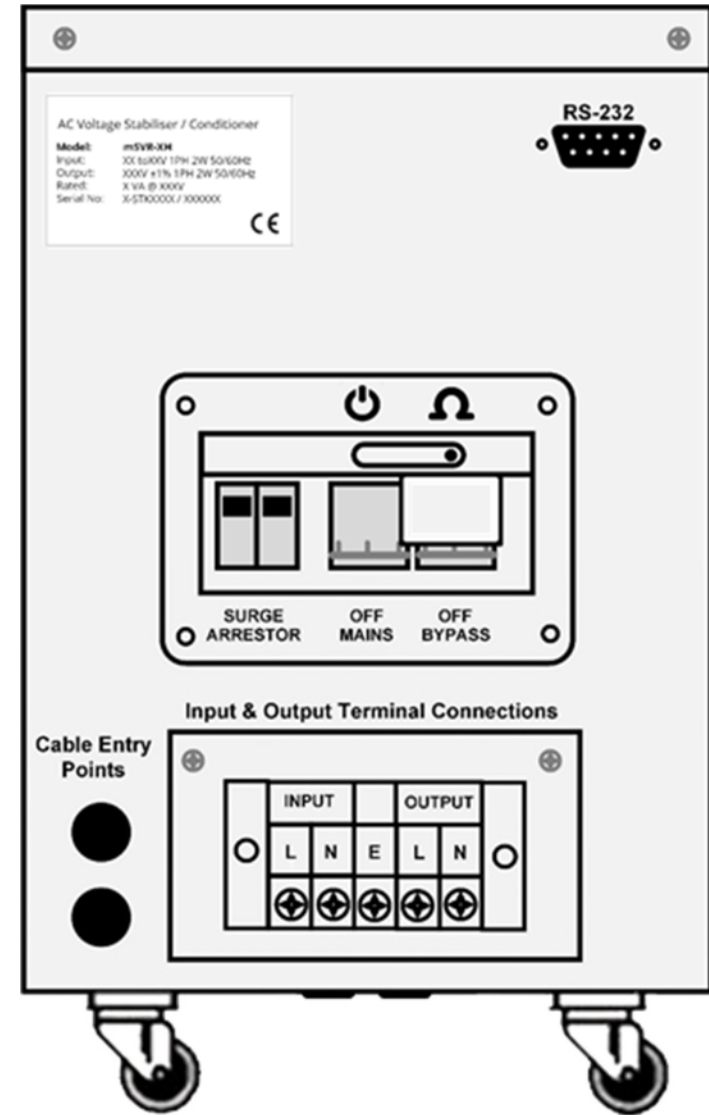
## 4.2 Rear View

### H Series mSVR-1H to 7.5H & L Series mSVR-1L to 3L Models

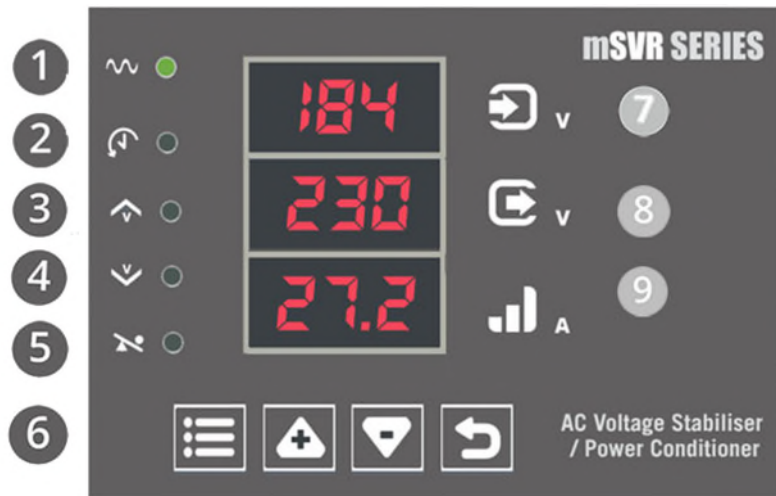


**NB:** Provision of Input and Output Power Cable Connectors is dependent on the model purchased. Where Input Connectors are fitted the Stabiliser / Conditioner is supplied with a suitably rated IEC power cable.

### H Series mSVR-10H to 15H & L Series mSVR-5L Models



### 4.3 Display Panel



#### LED Indication & Parameter Settings

1	<b>Normal</b>	All is Working Fine
2	<b>Time Delay</b>	Delay in the supply of power to the Output on start-up and re-engagement of the Output.
3	<b>High Voltage</b>	Output voltage exceeds the selected over-voltage level. The Output will be automatically disconnected. On fault clearance, the Output will be automatically re-engaged.
4	<b>Low Voltage</b>	Output voltage exceeds the selected under-voltage level. The Output will be automatically

disconnected. On fault clearance, the Output will be automatically re-engaged.

5	<b>Overload</b>	The actual current drawn on the input supply exceeds the models stated maximum input current rating. LED will indicate an overload condition for 60 seconds and then the Output will be automatically disconnected. On fault clearance, the system will require a manual restart.
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6	<b>Menu</b>	Password-protected access for setting the Stabiliser/Conditioner's seven user-definable system parameters ( <i>with menu navigation buttons</i> ).
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User-adjustable parameters are-

1. Output Voltage
2. Output Voltage Accuracy
3. Output Under-Voltage Level
4. Output Over-Voltage Level
5. Input Overload level
6. Speed of Response
7. Time Delay

**See Appendix 1 – Adjusting System Parameters**

#### Digital Metering

7	<b>Input Volt Meter</b>	Voltage level of the incoming utility mains supply.
---	-------------------------	---



**8 Output Volt Meter** Output Voltage delivered by the system.  
Also shows Count-Down on Time Delay Re-Start.

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**9 Current Ammeter** Power (Amps) drawn by the connected load & Stabiliser / Conditioner

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## 5: Installation & Operation Instructions

### 5.1 Unpacking & Inspection

If on delivery, there is evidence of visible damage, do not attempt to install or start the Stabiliser / Conditioner. Advise the transport delivery company and inform Sinalda UK, or the resale partner from whom you purchased the equipment.

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

We would suggest you retain the packing carton and packaging material to return the **mSVR** Series Stabiliser / Conditioner in the unlikely event of its operational failure.

### 5.2 Positioning

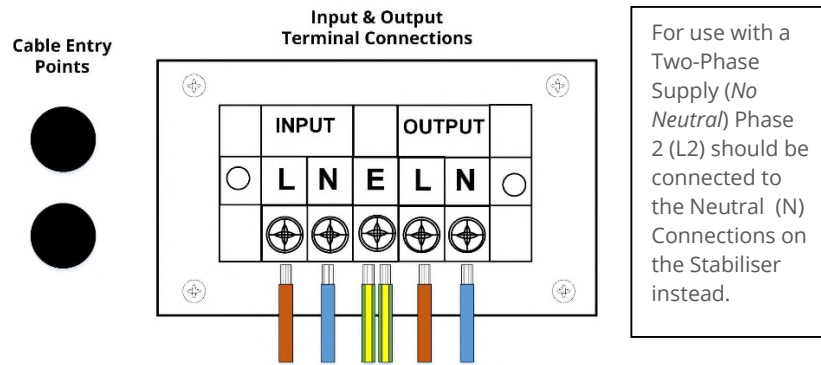
Although the Stabiliser / Conditioner does not produce excessive heat, you should ensure that it is positioned so that a free flow of air allows the unit to cool. To reduce the risk of overheating, do not block the unit's ventilation panels and try to avoid positioning the unit in direct strong sunlight or close to other heat sources

The Stabiliser is intended for indoor use only. Do not install inside a closed cupboard and do not allow papers, or other materials, to be piled on top of the enclosure.

Do not place the unit near water or liquids, gas and combustible materials or in an excessively humid environment where condensation is very likely to occur.



### 5.3 Hardwire Installation & Operation



- Remove Terminals Connection Cover Plate.
- Ensure supply is isolated before making connections.
- Connect the Input Cable to the terminal block (as indicated) and take to mains supply via cable entry access hole in the enclosure.
- Connect Output Cable to the terminal block (as indicated) and take to the load via the relevant cable entry access hole in the enclosure.
- Check all wires are properly secured (using glanding - as appropriate), connections are tight and cables are correctly wired before switching on.
- Refit Terminals Connection Cover Plate.
- Energise / Switch-On the mains utility supply. Connect the load equipment and Switch-On the Input Breaker to turn the Stabiliser / Conditioner on.

- There will be a 5 second delay before the Output engages. The delay will ensure that the utility mains supply is healthy before connecting the load and protects the load equipment from rapid switching on and off.
- The LED Indicators and Digital Metering on the Front Display Panel will display the operational status of the Voltage Stabiliser / Power Conditioner – see Section 4.3
- Any variation to the input power supply, up or down, will be monitored and adjusted by the mSVR Series Stabiliser / Conditioner.

#### Please Note:

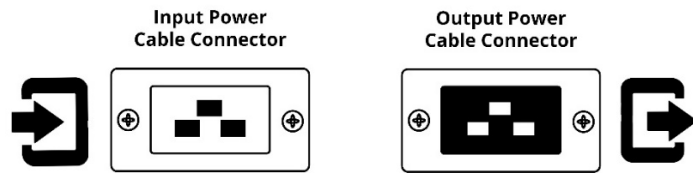
If you are unfamiliar with installing electrical equipment, prior to installing the Stabiliser / Conditioner, please consult with a qualified electrician.

Also with the cable connections -

- The wire coloured **BROWN** must be connected to the terminal marked 'L' for Live
- The wire coloured **BLUE** must be connected to the terminal marked 'N' for Neutral.
- The wire coloured **YELLOW and GREEN** must be connected to the terminal marked 'E' for Earth/Ground.



## 5.4 Plug N Play Installation Option & Operation



- Where the selected model's maximum input and maximum output current ratings permit the Voltage Stabiliser / Conditioner is fitted with alternative standard IEC input and output sockets.
- Where an Input Power Cable Connector is available the Stabiliser / Conditioner comes bundled with an appropriately rated IEC input power cable.
- Having connected the input and output power cables, energise the mains utility supply. Connect the load equipment and Switch-On the Input Breaker to turn the Stabiliser / Conditioner on.
- Upon Start-Up, there will be a 5-second delay before the Output engages. The delay will ensure that the utility mains supply is good before connecting the load and protects the load equipment from rapid switching on and off.
- The LED Indicators and Digital Metering on the Front Display Panel will display the operational status of the Voltage Stabiliser / Power Conditioner – see Section 4.3.
- Any variation to the input power supply, up or down, will be monitored and adjusted by the mSVR Series Stabiliser / Conditioner.

## 5.5 Manual Bypass Operation

- In the unlikely event of a problem with mSVR Series model, the Stabiliser / Conditioner can be bypassed – with the input supply being fed directly to the load equipment.
- To manually activate this bypass, disconnect the load and Switch-Off the Input Switch. Then Switch-On the Bypass Switch and reconnect the load equipment.

### Please Note:

The Input Switch and Bypass Switch are interlocked to prevent the Activation of both switches at the same time . **Do not attempt** to force the Activation of both switches at the same time as this will damage both the Stabiliser / Conditioner and connected load equipment.



## 6: Troubleshooting

Symptom	Possible Cause	Remedy
The unit does not Switch On. None of the LEDs are illuminated.	<p>1) The external input mains utility supply fuse has blown or the external input breaker has tripped.</p> <p>2) The unit's input breaker has tripped.</p> <p>3) No power is available from the mains supply.</p>	<p>Change the input supply fuse or reset the breaker.</p> <p>Ensure that the load current does not exceed the capacity of the unit.</p> <p>If, after changing the fuse / resetting the breaker, the unit is still not functioning return the unit for repair.</p> <p>Ensure that you are using the correct voltage (i.e.230V or 120V).</p>
The unit appears to be functioning correctly but there is no power being supplied to the load.	<p>Load is not plugged in / connected.</p> <p>Load is not switched on.</p> <p>A fuse on the load has blown.</p> <p>Time delay is in progress.</p>	<p>Check the load is plugged in / connected.</p> <p>Check / replace the fuse on the output load.</p> <p>Check that the input voltage is within the acceptable range of the unit.</p> <p>Check that the load is switched on.</p> <p>Wait for the time delay to end.</p>
The unit appears to be functioning correctly, but the output voltage is persistently low.	<p>The mains input is too low.</p> <p>Due to a continuous severe brown-out.</p>	

	The unit is rated at 230V and the incoming supply is 120V.	
<b>LED Front Panel Red Alarm Condition shows</b>		
<b>- Low Voltage</b>	Output Voltage exceeds the set acceptable output voltage level ( <i>Parameter 3</i> ).	Output will be automatically disconnected. LED Alarm will activate. On fault clearance Output will be automatically re-engaged.
<b>- High Voltage</b>	Output Voltage exceeds the set acceptable output voltage level ( <i>Parameter 4</i> ).	Output will be automatically disconnected. LED Alarm will activate. On fault clearance, the Output will be automatically re-engaged.
<b>- Overload</b>	Input current exceeds the set maximum rating ( <i>Parameter 5</i> ).	LED will indicate an overload condition for 60 seconds and then the Output will be automatically disconnected. On fault clearance, the Output will be automatically re-engaged.

**NOTE:** In the hopefully unlikely event of misoperation of the Bypass Switch, it is highly likely the fuses and MOVs will blow and may cause damage to the Microprocessor Control and Display PCB.





## 7: Warranty & Returns

### 7.1 Warranty

Sinalda UK warrants its products to be free from defects in materials and workmanship for a two (2) years from the date of purchase.

The obligation under this warranty is limited to repairing or replacing, at Sinalda UK's sole discretion, any such defective products.

The warranty does not apply if the product has been damaged by accident, negligence, or misapplication or has been altered or modified in any way.

Except as provided herein, Sinalda UK makes no warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose.

Some countries do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

Except as provided above, in no event shall Sinalda UK be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of this product, even if advised of the possibility of such damage. Specifically, Sinalda UK is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise. This warranty gives you specific legal rights, and you may also have other rights which may vary from location to location.

This warranty does not affect your statutory or Common Law rights.

### 7.2 Returns Procedure

Should your **mSVR** Series Stabiliser / Power Conditioner need repair, the quickest and simplest way is to return it to the resale partner/dealer you purchased it from or direct to your nearest Sinalda office.

### Important:

Before returning a product to Sinalda UK, please contact the After Sales Support Department to obtain a Returns Number and to be advised of the nearest and most appropriate Service Centre to which you should send the goods.

#### Sinalda UK - After Sales Support

Email Support: support@sinalda.com  
Tel: +44(0)345 504 6442  
Web: <https://www.sinalda.com>

At the time of your request, please note you will be asked to provide the following information:-

- Your Name, Company Name, Address, Telephone No, Email Address
- Date of Purchase, Where and From Whom it was Purchased
- Serial No, Model No
- Local Voltage and Type of Load Connected
- A Description of the Fault

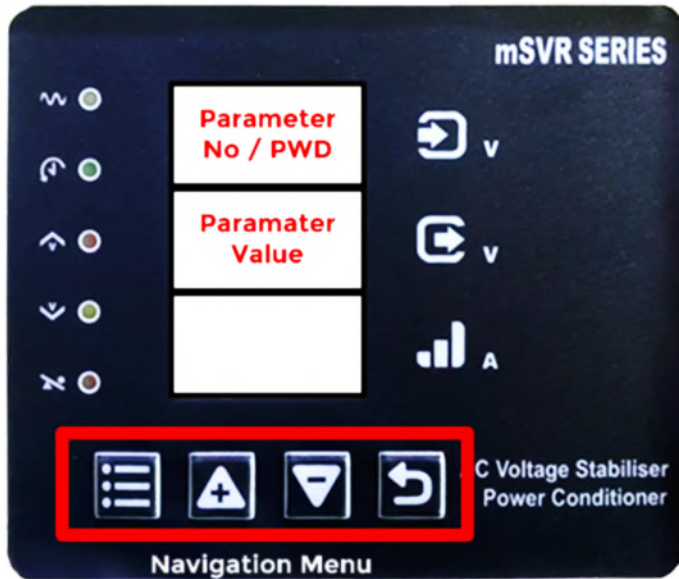
Once you have the Returns Number and Shipping Address you should ensure that the unit is securely packed (*ideally in the packing carton the Stabiliser / Conditioner was originally supplied*). It is imperative that you ensure that the Returns Number is clearly shown on the packing carton and also a note is added in the box to advise where and to whom should be returned the item on its repair or replacement.

Kindly ensure that all products returned to Sinalda UK are done on a transportation prepaid basis.

Complying with the above will ensure that you're Stabiliser / Conditioner will be treated promptly and efficiently. Without a Returns Number it will not be possible to trace a unit or check progress on the repair of the item.



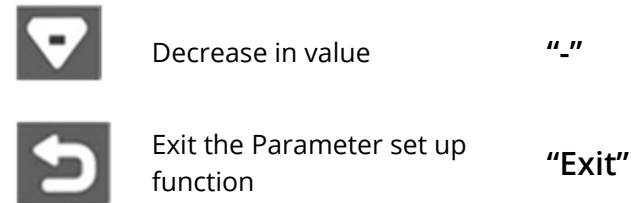
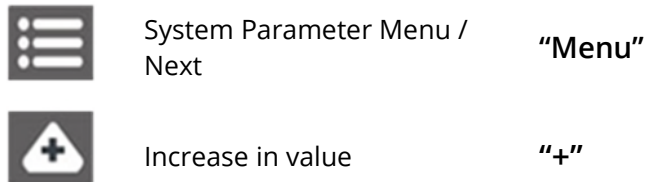
## Appendix 1: Adjusting System Parameters



By accessing the menu on the Front Display Panel, it is possible to change the systems operating parameters.

The navigation buttons are situated on the left-hand side at the bottom of Front Display Panel.

The buttons are -

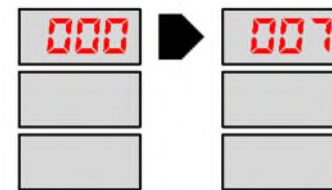


### Password

To access the System Parameter settings press the **"Menu"** button.

For security, on accessing the menu, you will be asked for a password.

The top digital meter will show **"000"**. By pressing the **"+"** button this value should be increased to **"007"** the factory-set password.



### Parameter Settings

Then press the **"Menu"** button again to access the Parameter settings.

In total, there are 7 settings that can be accessed and adjusted from the menu.

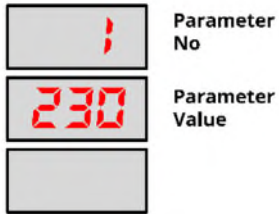
No.	Parameter	Note
1	* Output Voltage (V)	
2	Output Accuracy (%)	
3	* Under Voltage (V)	- set on Output Voltage
4	* Over Voltage (V)	- set on Output Voltage
5	* Overload (Amp)	- set on Input Current
6	Speed of Response (001 to 004)	- 001 slowest to 004 Fastest
7	Time Delay (Secs)	- settable 1 to 999

\* RS/232 Output



By pressing the **“Menu”** button, you will be able to scroll, one at a time, through the parameter settings.

The first setting that will be displayed is No 1 the Output Voltage



To adjust the Parameter's value simply press the **“+”**, or **“-”** button, to change the values. Once the correct value is displayed, press **“Menu”** to advance to the next parameter.

Having changed the parameter values, press the **“Exit”** button to exit Parameter Set-Up.

## Appendix 2: Recommended System Parameter Settings

### Default Setting – H Series (230V) and L Series (120V) Models

Unless specified at the time of ordering, all H Series Models are supplied set for an output voltage of 230V and L Series models 120V – *with the parameters set accordingly* -

Model No	Rating VA/W	Parameter No						
		1	2	3	4	5	6	7
<b>H Series</b>		*		*	*	*		
mSVR-1H	1000	230	1	207	253	6	004	5
mSVR-2H	2000	230	1	207	253	12	004	5
mSVR-3H	3000	230	1	207	253	18	004	5
mSVR-5H	5000	230	1	207	253	30	004	5
mSVR-7.5H	7500	230	1	207	253	45	004	5
mSVR-10H	10000	230	1	207	253	60	004	5
mSVR-15H	15000	230	1	207	253	90	004	5
<b>L Series</b>								
mSVR-1L	1000	120	1	108	132	11	004	5
mSVR-3L	3000	120	1	108	132	33	004	5
mSVR-5L	5000	120	1	108	132	55	004	5

\* RS/232 Output

### Alternative Setting

Should you require to set the mSVR Stabiliser / Conditioner for another permissible Output Voltage you should adjust the following settings. It is strongly recommended you should leave the other settings at the, as supplied, default values.



## H Series Models

### 220V Output

Model No	Rating VA/W	Parameter No		
		1 Output Voltage	3 Under Voltage	4 Over Voltage
<b>H Series</b>				
mSVR-1H	1000	220	198	242
mSVR-2H	2000	220	198	242
mSVR-3H	3000	220	198	242
mSVR-5H	5000	220	198	242
mSVR-7.5H	7500	220	198	242
mSVR-10H	10000	220	198	242
mSVR-15H	15000	230	198	242

### 240V Output

Model No	Rating VA/W	Parameter No		
		1 Output Voltage	3 Under Voltage	4 Over Voltage
<b>H Series</b>				
mSVR-1H	1000	240	216	264
mSVR-2H	2000	240	216	264
mSVR-3H	3000	240	216	264
mSVR-5H	5000	240	216	264
mSVR-7.5H	7500	240	216	254
mSVR-10H	10000	240	216	264
mSVR-15H	15000	240	216	264

## L Series Models

### 110V Output

Model No	Rating VA/W	Parameter No		
		1 Output Voltage	3 Under Voltage	4 Over Voltage
<b>L Series</b>				
mSVR-L	1000	110	99	121
mSVR-3L	3000	110	99	121
mSVR-5L	5000	110	99	121

### 115V Output

Model No	Rating VA/W	Parameter No		
		1 Output Voltage	3 Under Voltage	4 Over Voltage
<b>L Series</b>				
mSVR-L	1000	115	104	127
mSVR-3L	3000	115	104	127
mSVR-5L	5000	115	104	127

### 127V Output

Model No	Rating VA/W	Parameter No		
		1 Output Voltage	3 Under Voltage	4 Over Voltage
<b>L Series</b>				
mSVR-L	1000	127	114	140
mSVR-3L	3000	127	114	140
mSVR-5L	5000	127	114	140



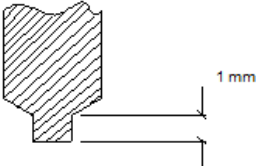
## Appendix 3: Service & Maintenance

To ensure reliability and optimise the service life of the unit, we recommended that the Voltage Stabilizer is subject to periodic (annual or biennial) inspections and maintenance.

**WARNING** The procedures detailed below should only be carried out by duly qualified personnel.  
The Stabiliser can contain potentially dangerous and life-threatening voltages – up to 300 V AC. Use extreme caution when opening the covers and do not leave the unit unattended with the doors open or covers off

Before attempting any maintenance, it is imperative that the mains supply to the AC Automatic Voltage Stabiliser is switched off.

Basic maintenance procedures should include –

<b>Visual Inspection</b>	Check to ensure that there are no obvious signs of damage to any of the components in the system. Check all wiring connections to ensure none have worked loose. As required, tighten any loose connections. Check any cooling fans to ensure they are rotating freely.
<b>Cleaning</b>	Ensure the Stabiliser is kept free from dust and dirt. Blow out any dust or dirt ideally with compressed air or alternatively remove with a soft brush.
<p><b>Carbon Brush Inspection</b></p> <p><b>WARNING</b> <i>Do not attempt to force the Brush Gear manually, and associated Carbon Brushes, to rotate. Rotation will</i></p>	<p>Ensure that the tips on the variable transformers carbon brushes are at least 1mm in thickness.</p> 

<i>damage the Servo Motor and associated Brush Gear.</i>	If 1mm, or less, replace the carbon brush. Ideally, spare carbon brushes should be held on site – see <b>Appendix 4 – Recommended Spares.</b>
<b>Output Voltage Adjustment</b>	Upon repowering the machine, check the output voltage settings. If necessary, adjust the output voltage – as described in <b>Appendix 1 – Adjusting System Parameters</b> of this manual.

## Appendix 4. Recommended Spares

By holding a front-line spares kit on site you can be assured of the highest level of responsiveness and system uptime. By investing in a spares kit, in the unlikely event of a system problem, you'll always have quality replacement parts on hand for a quick swap-out.

Our recommended Spare Parts holdings include –

### Part No: Kit A [Model No]

Consisting of -

- Carbon Brush(es)
- Fuse(s) (as applicable)
- Exhaust Fan (as applicable)
- Surge Arrestor

### Part No: Kit B [Model No]

Consisting of -

- Power Supply PCB
- Microprocessor Control & Display PCB
- Power Relay
- RS-232 PCB

### Part No: Kit C [Model No]

Consisting of -

- Motorised Variable Transformer Assembly

For more detailed individual model spares listings and pricing, please contact the Service Department at Sinalda UK, or the resale partner from whom you purchased the equipment.

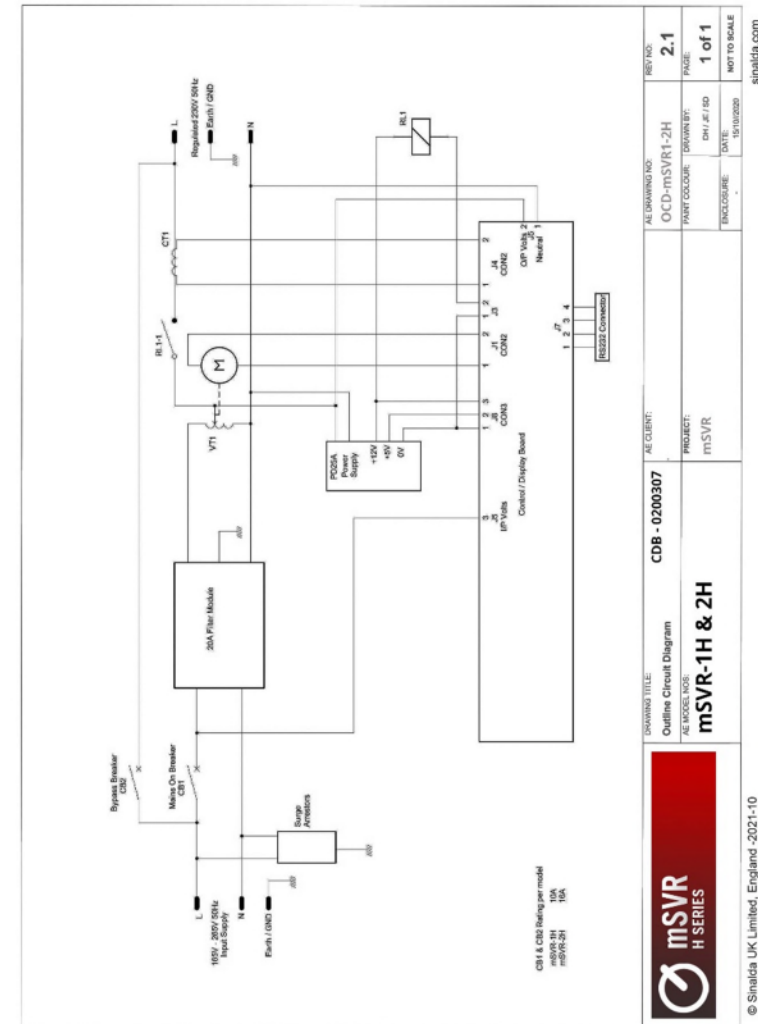
## Warranty Spares Availability

For spares required under valid warranty claim situations, spares are supplied free of charge. Delivery of these spares is normally arranged through the express door to door courier services of UPS, DHL or FedEx.

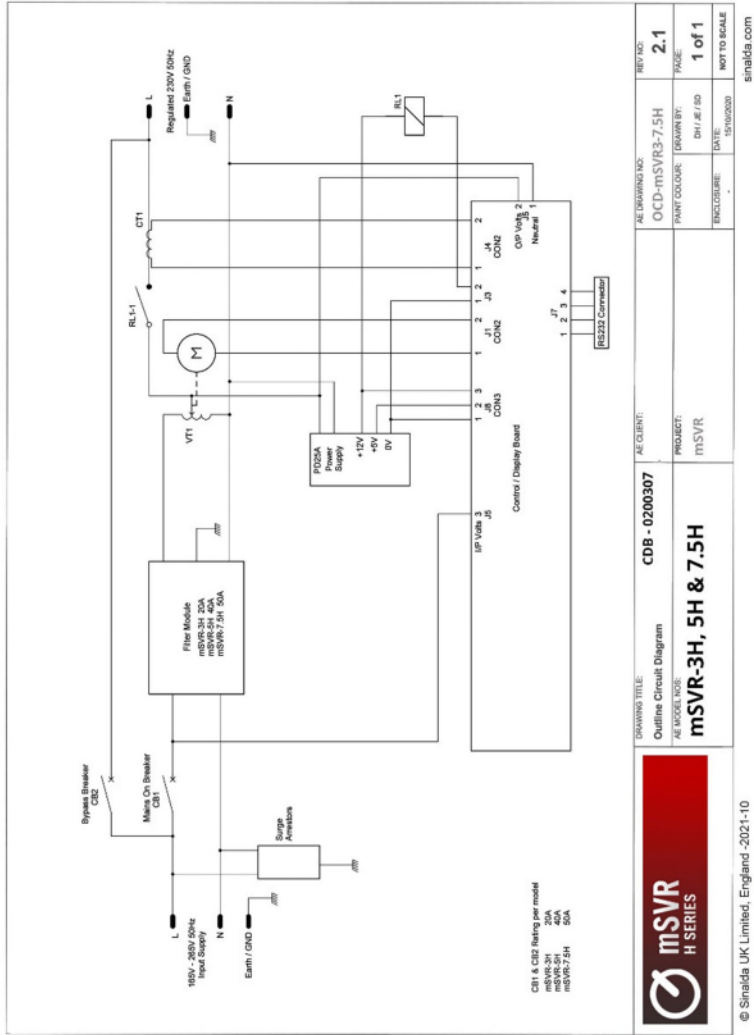
We have strategic inventory locations and accurate process and stock control to deliver near total availability on commonly requested spares. For most requests we are able to offer delivery direct from inventory and strive to offer in emergency situations a next working day turn around on shipment.

## Appendix 5: Circuit Diagrams

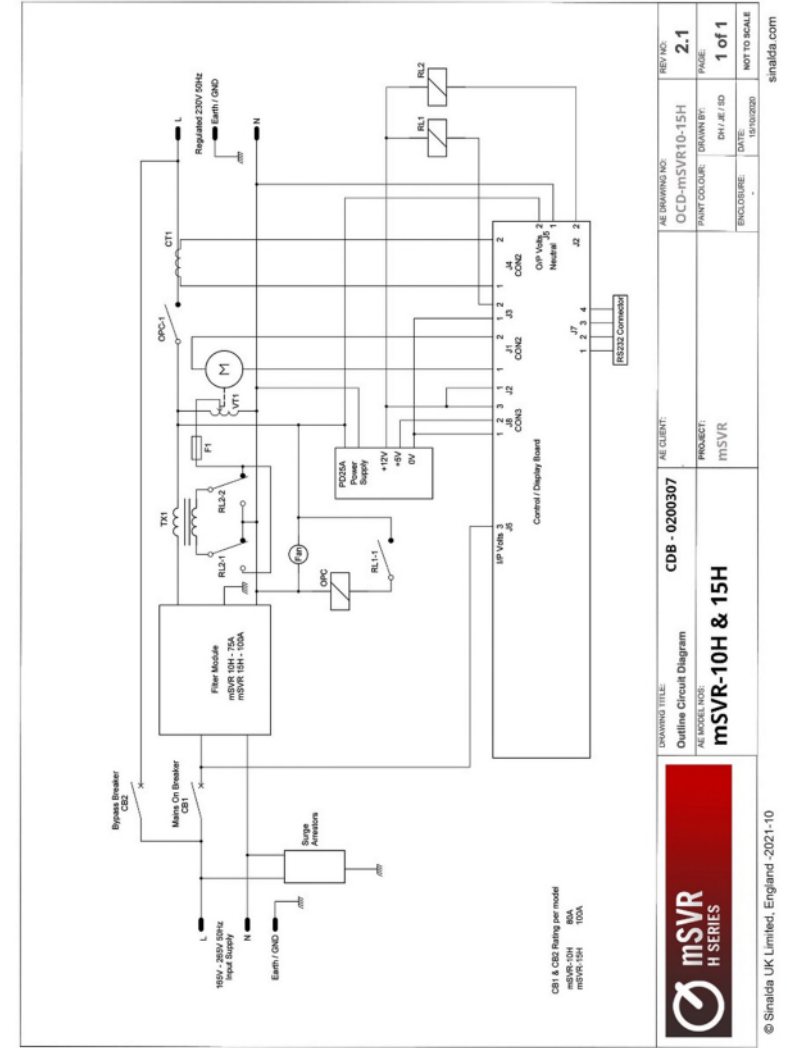
### A5.1 – mSVR-1H & 2H Models



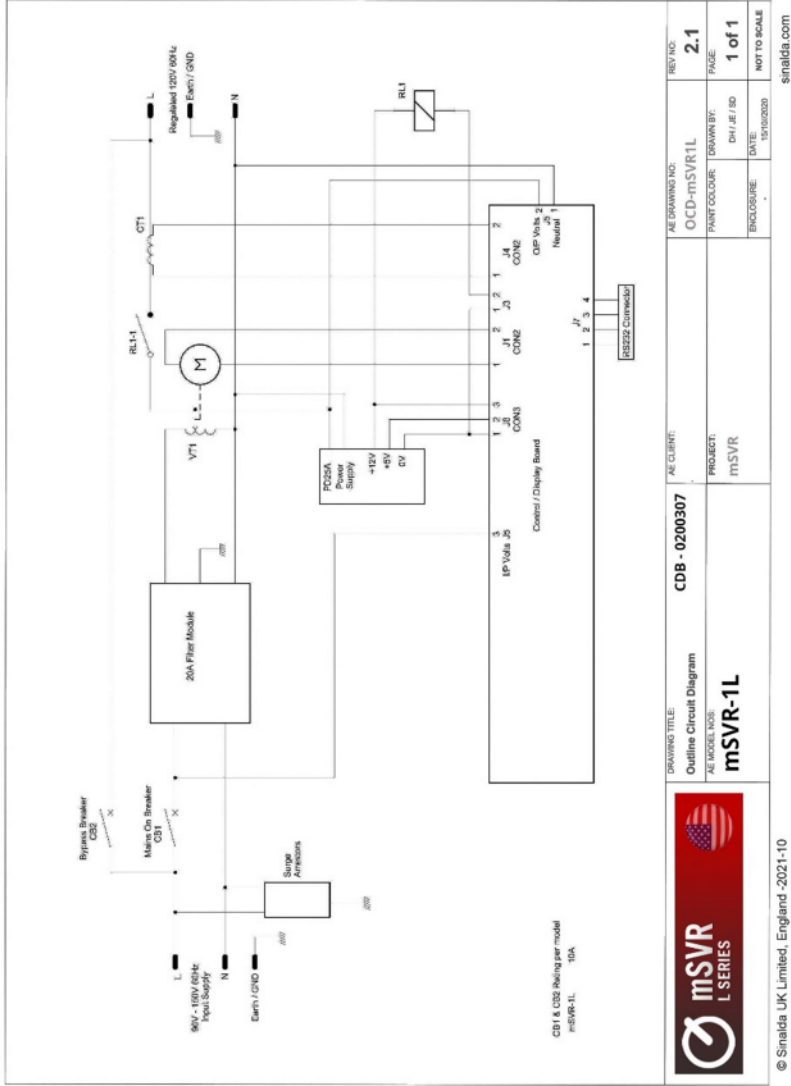
## A5.2 – mSVR-3H, 5H & 7.5H Models



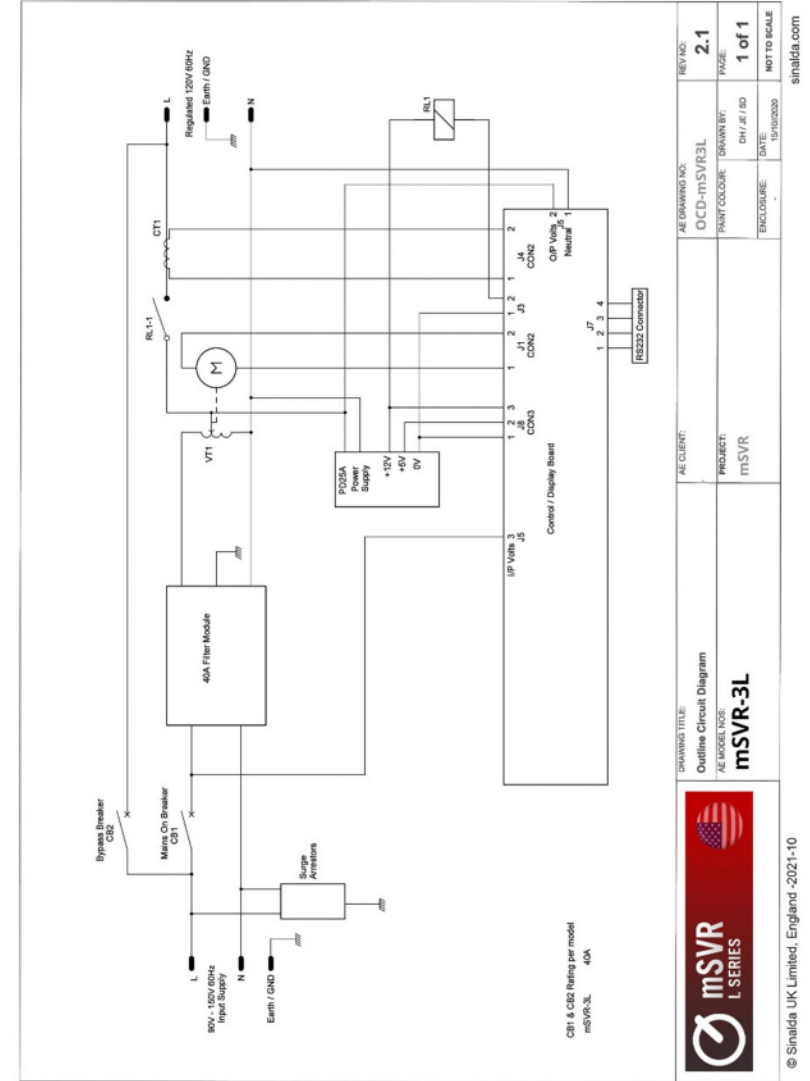
## A5.3 – mSVR-10H & 15H Models



## A5.4 – mSVR-1L Models

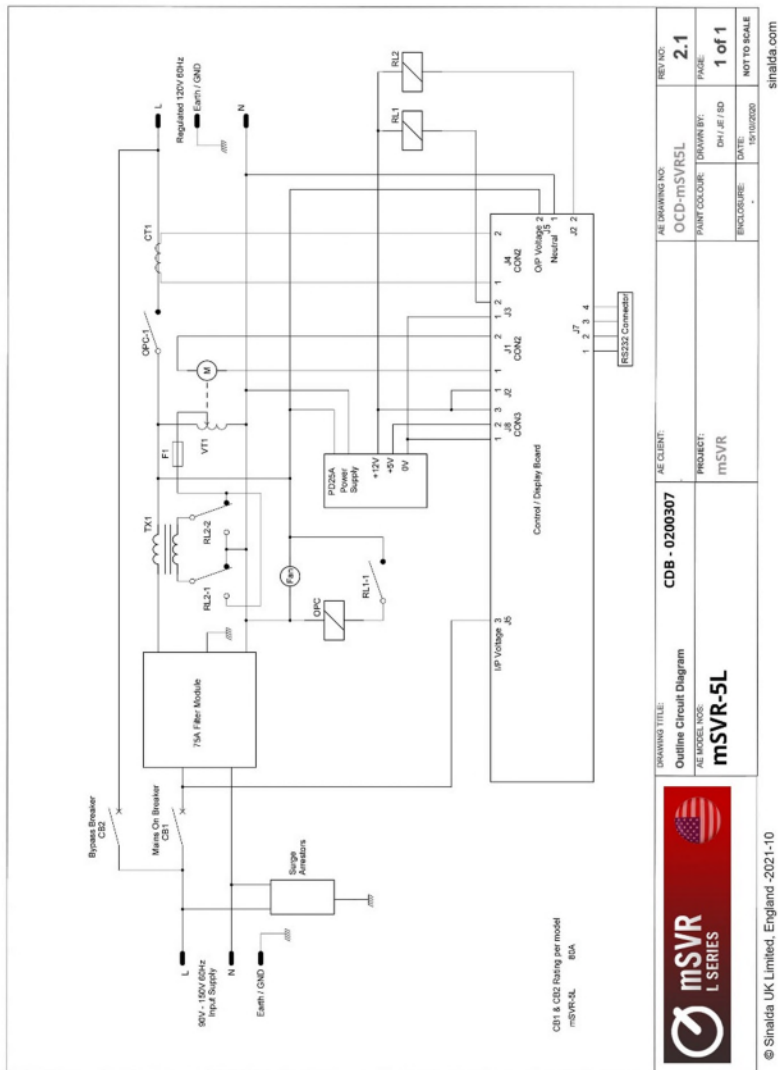


## A5.5- mSVR-3L Models





## A5.6- mSVR-5L Models



## Appendix 6: Communications Interface

### RS232 Interface Parameter Settings:

Baud Rate: 2400  
Data Bits: 8 Bits  
Stop Bits: 1 Bit  
Check Bit: None

The RS232 communications DB9 port allows the mSVR Voltage Stabiliser / Conditioner set up parameters to be read (set up of the parameters is carried out via the front display panel) together with the actual operational values of the input and output voltages and the current.

*Note the '\_' below indicates a space.*

### Set System Parameters

To check the set system parameters loaded the following ASCII Query Command must be used:

(RAT<cr>

This will provide the response (output voltage set 000\_ under voltage set 000\_over voltage set 000\_current set <cr> (the <cr> indicates the end of the transmission).

eg. (230 208 253 045 <cr> Output volts set at 230V, under voltage set at 208V, over voltage set at 253V and current set at 45A.

### Actual Operational Values

To monitor the actual voltage and current readings of the mSVR Voltage Stabiliser / Conditioner the following Query Command must be used:

(QAD<cr>

This will provide the response (input voltage 000\_ output voltage 000\_current 000 <cr> (the <cr> indicates the end of the transmission).

eg. (210 230 42.6 <cr> Input volts 210V, Output volts 230V, Current 42.6A.



## Notes:

*[Left Intentionally Blank for User Notes]*

# sinalda

Products available include -

## Voltage Stabilisers & Power Line Conditioners

0.5 to 5000 kVA

- Servo Electronic Design 1 to 600 kVA
- Static Digital Electronic Design 0.5 to 3125 kVA
- Industrial Magnetic Induction Design 250 to 5000 kVA

## Variable & Fixed Output Voltage & Frequency Converters

2 to 400 kVA

## Variable Transformers

3 to 800 Amps

## Constant Voltage Compensators

3 to 1500 kVA

## Automatic Voltage Optimisers

10 to 1000 kVA

[www.sinalda.com](http://www.sinalda.com)

