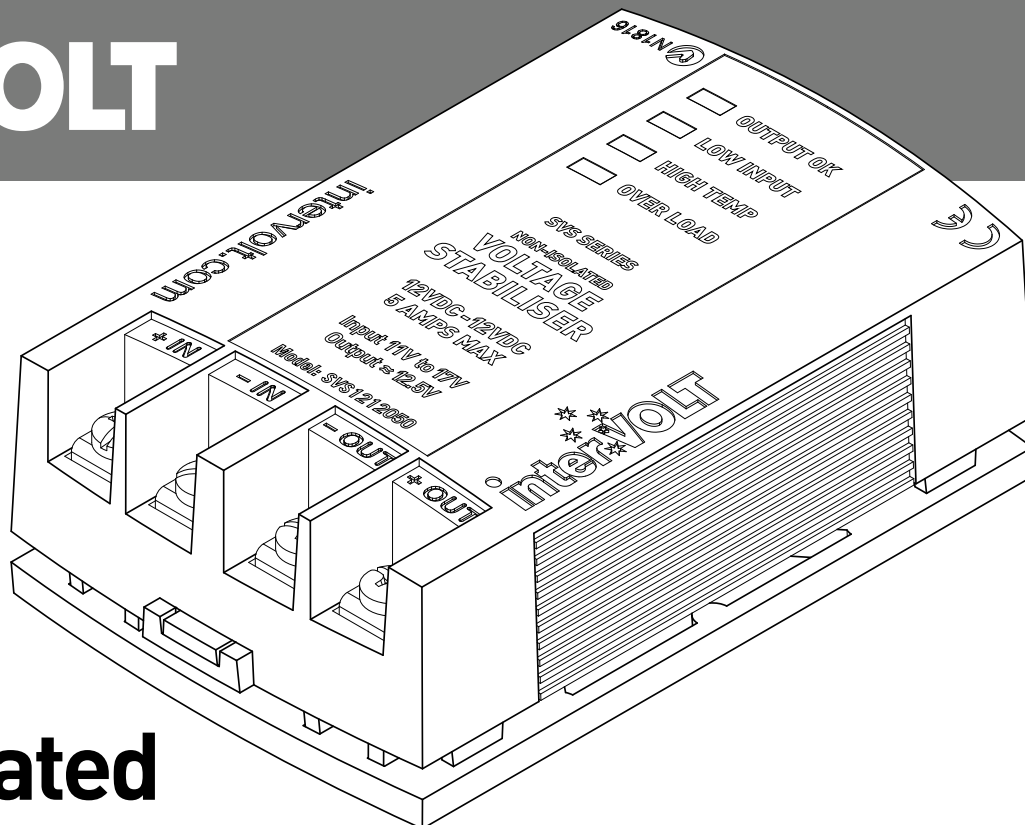


## SVS SERIES



# Non-Isolated Voltage Stabiliser

# INSTALLATION & OPERATION MANUAL

### Thank you for choosing an interVOLT product...

Amelec Australia Pty Ltd, a wholly owned and operated Australian private company, is the proud owner of the interVOLT brand, a trademark which is registered in over 20 countries worldwide. We have been producing specialised power control and conversion products for the transportation market for over 10 years. All our products are designed, developed and assembled in-house at our premises in Perth, Western Australia.

Our new SVS Series Switchmode Voltage Stabilisers are the latest release in our extensive line-up of dedicated power conversion products for the vehicular market. As always, the SVS is backed by an extensive research, engineering and testing program in order to deliver only the best products to our customers.

Our design ethos is based on quality, performance and value and we are committed to the ongoing development of products in our field. interVOLT products are designed to cope with the demands of the harshest applications, particularly in high temperature/high humidity environments. They are constructed of quality materials (marine grade where applicable) and designed to provide many years of continuous service.

Again, thank you for choosing an interVOLT product and supporting Australian innovation, technology and intellectual property.

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## Overview

The interVOLT SVS Switchmode Voltage Stabiliser is so much more than a humble voltage regulator. It is a sophisticated DC-DC converter designed to provide a constant, regulated and stable supply for protecting voltage sensitive equipment when connected between the vehicle's battery and the equipment in question.

The interVOLT SVS utilises buck/boost topology supported by an advanced driver circuit, in addition to control and monitoring functions previously unavailable in such a compact design. Effectively the device increases (boosts) the voltage in the event the supply falls or reduces (bucks) the voltage when it rises. Of course, this process is performed seamlessly, thereby providing a conditioned output voltage subject to input voltage parameters.

The SVS is unique in that it is not galvanically isolated, yet maintains a high degree of protection by design. The voltage cannot backfeed from output to input as it could in a traditional common negative down switching device. It also has built in thermal overload, current overload and short circuit protection in addition to low voltage detection, all of which are displayed via LED indicators to assist the installer/operator.

The SVS is an inexpensive investment for protecting your expensive electronic devices and equipment.

## Application

The interVOLT SVS is designed for use in any common negative vehicle/vessel system. There are separate versions available for either 12 or 24VDC applications. The SVS can be used, but is not limited to, applications including:

- LED Lighting Products
- Mobile Wi-Fi Devices
- Camera and Security Devices
- Navigation Equipment
- Data Loggers and Acquisition Equipment
- GPS and Location Monitoring Devices
- Gauges and Instrumentation
- In-Vehicle Computers and Monitors

The SVS must be correctly applied according to the maximum load, voltage and environmental conditions.

The 12VDC version model SVS1212050 provides 12.5V output @ 5.0 Amps max. (continuously rated).

The 24VDC version model SVS2424025 provides 25.0V output @ 2.5 Amps max. (continuously rated).

This manual contains comprehensive information on the installation and use of the SVS and is applicable to these models only. Whilst every care has been taken in the preparation of this manual, Amelec Australia offers no guarantee, express or implied, and accepts no liability for any inaccuracies, errors or omissions in its content. Specifications are subject to change without notice.

# Installation

The SVS must be properly installed in order to comply with environmental operating considerations and the manufacturer's warranty terms and conditions.

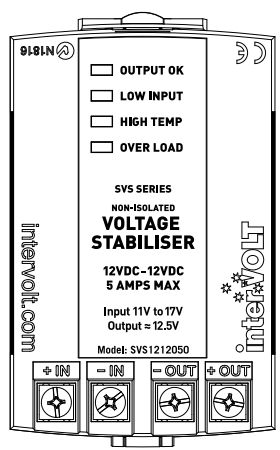
**IMPORTANT!** The SVS is constructed from marine grade materials and the printed circuit board has been conformally coated (tropicalised) to protect the SVS from condensation and humidity. **It is NOT however, waterproof.**

**LOCATION:** Select a suitable location where the SVS can be mounted. Ensure there is adequate ventilation and that the area is free from excessive moisture, dust, vibration and heat. The SVS is designed for installation in a protected environment only.

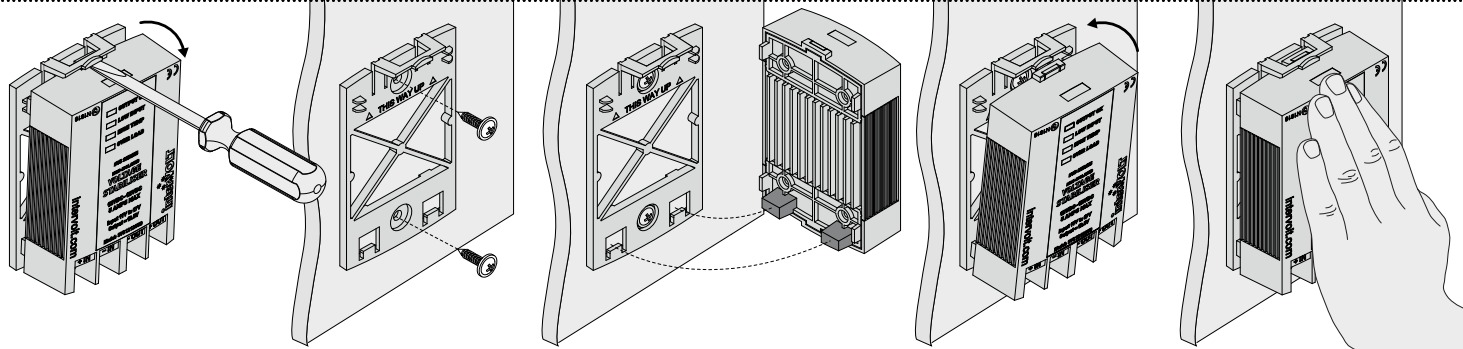
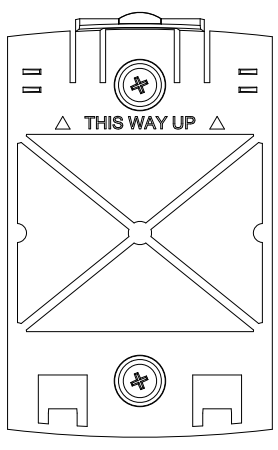
**ORIENTATION:** The SVS can be mounted vertically or horizontally. The device should be installed on a hard flat surface – do not install on an upholstered or insulated surface. Ensure at least 20mm of clearance all around from other equipment. There should be nothing restricting the aluminium heatsink. When mounted vertically the terminals should be facing downwards.

**MOUNTING:** The SVS is supplied with a unique easy-fit mounting plate [see figure on page 5]. The mounting plate provides a simple means of mounting the SVS in confined and/or hard-to-reach locations without increasing the footprint size. The mounting procedure is covered in detail on pages 6 and 7.

SVS Front View

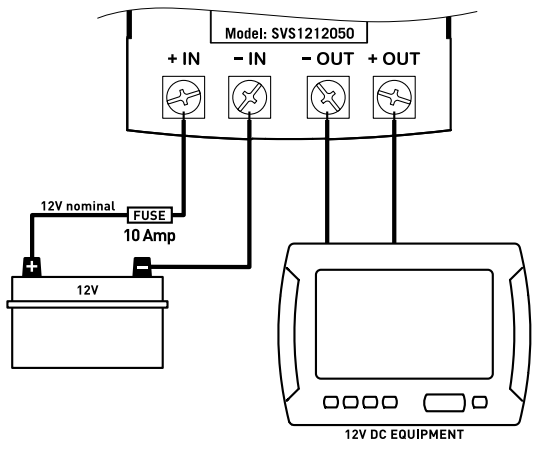


SVS Mounting Plate Front View

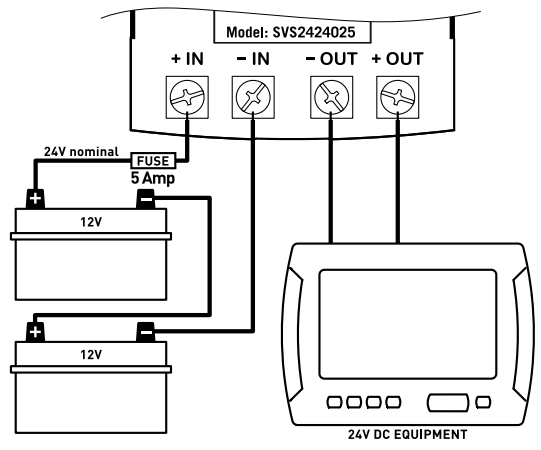


1. Gently insert a flat screwdriver between the retaining clip and SVS and carefully lever the clip outward until the retaining tab is clear. The SVS can then be released by pulling forward and upward.
2. Fix the mounting plate to the surface using **both** mounting holes. The hole diameter is 4.5mm. We recommend an 8 gauge (4.0mm) pan collar or flange head fastener be used. Do not overtighten.
3. The SVS has sockets on the terminal SVS almost the mounting guide the two into the two provided for two locating underside at end. Holding the parallel to plate surface, locating sockets recesses the locating tabs.
4. Once the locating sockets are in position in the mounting plate slide the SVS downward until the locating sockets are engaged with the locating tabs. This secures the terminal end of the SVS.
5. Apply pressure to the top-center of the SVS until the retaining clip engages over the retaining tab with an audible 'click'. A finger tab is provided to pull the mounting clip into position if needed.

## Typical Installation – 12VDC System



## Typical Installation – 24VDC System



## Wiring

In order to ensure safety, good performance and long life, the SVS should be wired and connected according to the method detailed below. Please refer to pages 8 and 9 for schematics of the wiring circuits.

Disconnect the battery supply at the source before attempting any connection to the input terminals of the SVS or equipment on the output.

Install an appropriately rated circuit breaker or fuse (see chart) as the input protection for the supply cable to the SVS.

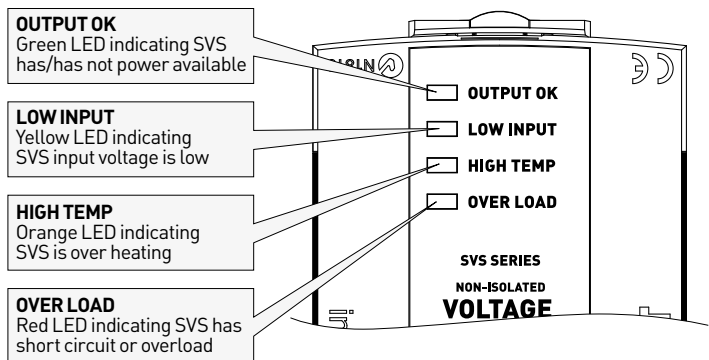
Connect all input wiring to the SVS ensuring adequate cable sizes are used for the model installed (consult your cable supplier for correct current ratings). To ensure good performance and long service life of the product, it is vitally important that the wiring is adequate.

The terminals utilize oversize M3 combination head screws for better contact area. It is recommended that correctly sized ring terminals are used rather than fork terminals if available. **Use a normal screwdriver (not battery powered) to tighten the screws (1.5Nm max.).**

Once correctly terminated, the SVS can be powered up. Upon reconnecting the supply, the green OUTPUT OK LED is illuminated continuously indicating the SVS is operational and has output. If any other LED is illuminated or the OUTPUT OK LED is not illuminated, refer to the troubleshooting guide overleaf.

## LED Indicator Layout

See following page for diagnostic and troubleshooting information.



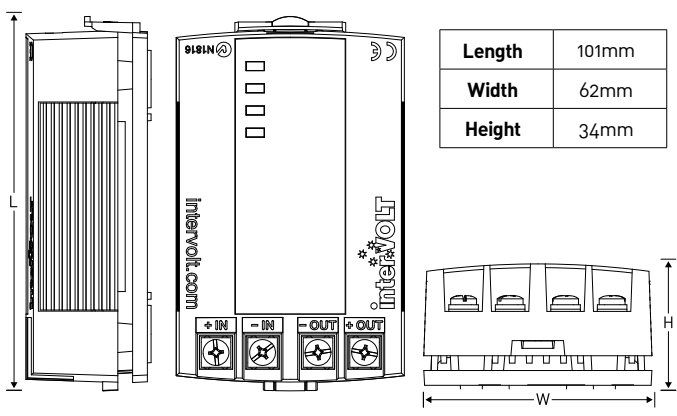
# Diagnostics and Troubleshooting

Legend	Colour	Mode	Output	Status
OUTPUT OK	Green	On – Steady	Yes	Device is operational
OUTPUT OK	Green	Off	No	Input supply issue or device has failed. Check supply, input voltage, fuse and termination.
LOW INPUT	Yellow	On – Flashing	Yes	Input voltage issue. Supply voltage low but within acceptable parameters.
LOW INPUT	Yellow	On – Steady	No	Input voltage issue. Supply voltage below acceptable parameters.
HIGH TEMP	Orange	On – Flashing	Yes	Thermal overload issue. Device is overheating and shut down is imminent. Check environmental condition and/or ensure adequate ventilation available.
HIGH TEMP	Orange	On – Steady	No	Thermal overload issue. Device has overheated and shut down. Check environmental condition and/or ensure adequate ventilation available.
OVER LOAD	Red	On – Flashing	No	Short circuit or overload issue. Check output wiring for short circuit and/or confirm equipment connected to output is within load rating of device.
OVER LOAD LOW INPUT HIGH TEMP	Red Yellow Orange	All On – Flashing	No	Device has automatically reset multiple times (x10) due to short circuit, overload, low input voltage or high temperature. Fault must be addressed and device must be re-powered to output.

## Specifications

Model	SVS1212050	SVS2424025
System Voltage	12VDC nominal	24VDC nominal
Current Rating	5.0 Amps maximum	2.5 Amps maximum
Standby Current	Idle current 70mA @ 13.0V input	Idle current 70mA @ 26.0V input
Input Voltage	Input 11V to 17V (will dip to 8V)	Input 22V to 33V (will dip to 16V)
Output Voltage	12.5VDC ±1%	25.0VDC ±1%
Efficiency @ 25°C	Up to 93% efficiency @ 13.0V in @ 5A load	Up to 95% efficiency @ 26.0V in @ 2.5A load
Output Ripple	10mV rms (nominal) @ 13.0V input, 5A load	10mV rms (nominal) @ 26.0V input, 2.5A load
Load Regulation	0.1% up to full load @ 13.0V input	0.1% up to full load @ 26.0V input
Line Regulation	1.5% of rated output @ 11V-17V input	1.5% of rated output @ 22V-33V input
Operating Temperature	-20°C – 50°C	
Operating Humidity	Ideally should not exceed 95% (non-condensing).	

Model	SVS1212050	SVS2424025
Transient Voltage	Filtering – purpose designed circuitry	
Overload/Short Circuit Protection	Shutdown – automatic reset and fault indication	
Input Under Voltage Protection	Shutdown – automatic reset and fault indication	
Over Temperature Protection	Shutdown – automatic reset and fault indication	
Tropicalisation	Conformally coated PCBA (acrylic lacquer)	
Termination	Screw terminal – M3 with combination screw	
Construction	ABS/PC alloy and 6063-T5 anodised aluminium	
Conformity	EMC – AS/NZS CISP 11 and EN55011	
Certification	Australian C Tick mark and European CE mark	
Length	101mm overall	
Width	62mm overall	
Height	34mm including mounting plate	
Weight	160 grams	



interVOLT products are warranted for a period of 24 months against faulty materials and/or workmanship from date of purchase by the end user subject to proof of purchase. In the event proof of purchase is not provided, and at the discretion of the manufacturer, the warranty shall be 24 months from manufacturer's date of sale to the merchant from whom the product was purchased. interVOLT's 24 month warranty is subject to the following terms and conditions.

The goods must be installed and operated in accordance with the manufacturer's recommendations and instructions set out within this booklet.

In the event of a claim the goods are to be returned to the original point of purchase with a copy of the merchant invoice or the relevant merchant invoice number.

In the event of a claim any associated expenses including diagnosis, removal, and/or installation of the goods is the responsibility of the client including any freight costs.

The warranty shall be void where the goods have been used for a purpose for which they are not intended, or altered in any way that is detrimental, or opened or tampered with by an unauthorised party, or damaged by mechanical abuse, or contaminated by water or other substances, or damaged by incorrect application.

Save and except for the express warranty set out above and to the maximum extent permitted by law, all conditions and warranties which may at any time be implied by the common law, Trade Practices Act, Fair Trading Act or any other State or Federal Act are excluded. To the extent that these cannot be excluded and where the law permits, the manufacturer in respect of any such condition or warranty shall be limited at their option to the repair or the replacement of the goods or the supply of equivalent goods or refunding the cost of the goods.



Manufactured by Amelec Australia Pty Ltd  
16 Parkinson Lane, O'Connor, WA 6163, Australia