

BATTERY SEPARATOR UNIVERSAL AUTO DETECT 12/24V INSTALLATION GUIDE

EN-VSR1224-160

Specifications:

- Easy installation
- Start help mode
- Automatic voltage detection 12 V / 24 V
- Power surge protection
- Bi-directional operation
- LED output
- Status input with 3 modes: Normal, on or off
- Small size
- Low power use

Connection:

The BS can be used in situations where two batteries are present, for example in boats, caravans and campers. The BS can also be used as a voltage-dependent switch.

The BS is a microprocessor-controlled high-power mechanical switch. If two batteries are used the BS will 'look' at the voltage of the primary battery. A battery that is not being charged will (in a 100% charged condition) have a voltage of approximately 12.6V (25.2V). When the vehicle or a boat is started the voltage will slowly increase to the maximum charging voltage of approximately 14.4 V (28.8V). Once the voltage has reached 13.2V (26.4V) for a minimum of five seconds the BS switch will close and the auxiliary battery will also be charged. As is usual in boats, caravans etc. all accessories are connected to the auxiliary battery. When the vehicle/boat has stopped, after a while the battery voltage drops and thus the switch opens again. This happens when the voltage reaches 12.8V (25.6V) or lower for a minimum of 60 seconds. Therefore the primary battery always remains 100% charged.

Bi-directional operation:

The Battery Separator has a second unique function. If in your application you have a battery charger connected to your auxiliary battery (often the case in boats and campers), once the voltage of the auxiliary battery exceeds 13.2V (26.4V) for a minimum of 5 seconds the start battery is also charged. This is a particular advantage if you remain stationary for a long period. In this case your primary battery also remains in optimum condition and once the charger is removed the switch will open if the voltage drops below 12.8V (25.6V) for a minimum of 60 seconds.

Start Help:

If you wish to make use of the start help option the battery separator has yet another connection. If you connect the start help terminal (Status) via the start switch to the plus terminal, the separator will also switch in the auxiliary battery during starting. Instead of the start switch an optional remote control panel can be supplied.

Voltage dependent switch:

In some cases it is desirable that power is only available via an extra terminal when the vehicle is operating. The BS is also very easy to use in this situation by connecting one terminal (A1 or A2) to the primary battery and the other terminal (A1 or A2) to your accessories. If the battery is now charged the battery voltage will quickly rise above 13.2V (26.4V) and the switch will close and the accessories will be powered.

Battery / Accessories protection:

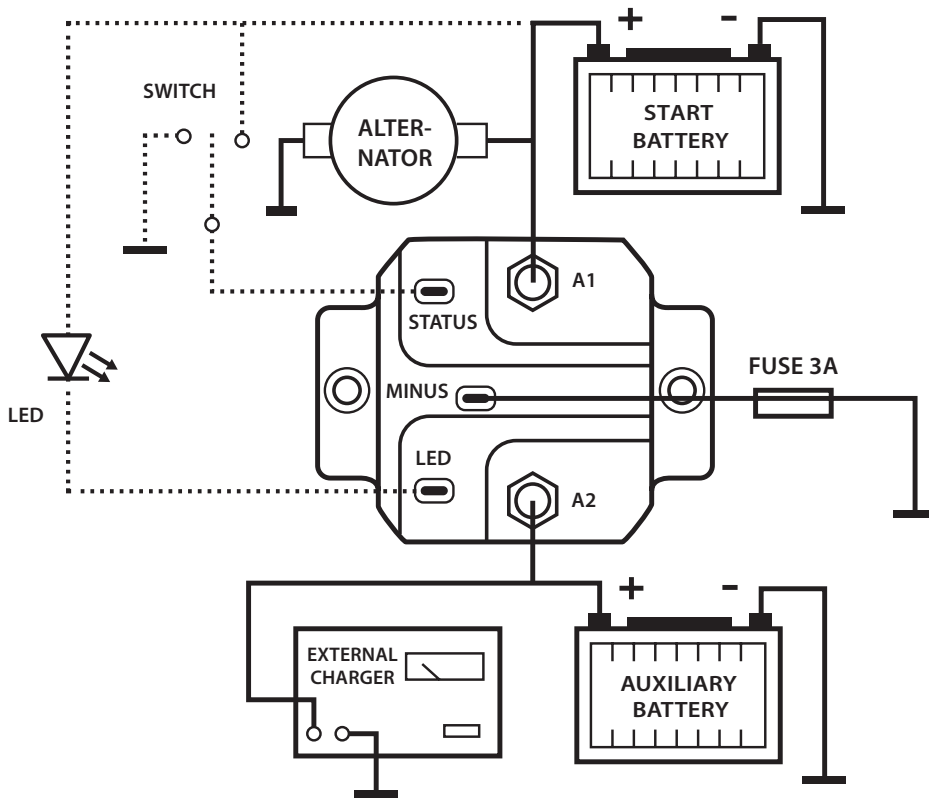
All our battery separators have a unique safety system for the auxiliary battery and the accessories. If the generator voltage regulator becomes defective, the charging voltage can rise well above the allowable battery voltage. This can/will damage the battery and the attached accessories. However the BS will immediately open the switch and prevent this unnecessary damage from occurring!

Technical specifications	EN-VSR1224-160
	10-bits precise μProcessor
Supply voltage	Auto detect 12 / 24 V
Connecting bolts for batteries	M8
Other terminals	6.3 mm spade terminals
Cable recommendations	Minimum 50 mm ² copper wire
Continuous current	160 A
Peak current	480 A / 250 msec
Switch-in voltage for 12V	13.2 V
Switch-in voltage for 24V	26.4 V
Switch-in delay	5 sec
Switch-out delay	60 sec
Fast switch-off at	11.8 V
Fast switch-off delay	4 sec
Switch-off for overvoltage	16 V for 12 V
	32 V for 24 V
Complete relay	Water and gas-tight
Current us, relay passive	1.8 mA for 12 V
	2.0 mA for 24 V
Current use, relay active	340 mA for 12 V
	170 mA for 24 V
Switch in current use	700 mA max 100 msec
Weight	470 g
Dimensions	(L) 108 mm x (B) 72 mm x (H) 58 mm

Accessories

Remote control with switch and LED indicator

Terminal arrangement / circuit diagram:



Terminal Contacts	
A1	Main / primary battery plus terminal
A2	Auxiliary battery plus terminal or, if used as a voltage-dependent switch, the accessory terminal.
Status	3 modes: <ol style="list-style-type: none"> Contact on plus, relay closed. No power on this pin, normal operation (voltage-dependent). Contact on minus, relay remains open.
LED	LED connection for the remote reading of the status of the relay (on or off)
Min	Earth or negative terminal. TAKE CARE! This must always be connected via a fuse of 3A, directly on the battery minus.

WARNING:

The EN-VSR1224-160 may only be installed by competent electricians / mechanics who are aware of the regulations for working with high battery voltages. Use sufficiently sturdy cable connections (heavy duty copper cable eyes) for the battery and accessories and make sure that the conductors are of sufficient diameter (see technical data) so that there is no excessive development of heat at the connections. Poor quality materials and excessively thin conductors may damage the BS. A short circuit between the plus and minus terminals of the battery could seriously damage your system. Make sure that the cables are securely fixed! Always use fuses!