

DC to DC VOLTAGE REGULATOR/CONVERTER

This device accepts any voltage input from 6.3 to 36 volts DC, and converts that to a fixed output voltage of 13.8 volts DC. If the input voltage is below 13.8v, eg 6.5v, it takes and converts extra current from the battery into the required higher voltage (13.8v). Conversely, if the input voltage is higher than 13.8v, eg 24v, it converts this extra voltage into available current at the 13.8v output voltage. This means that if the Input is 6.3v, the Regulator must draw more current from the battery than the radio connected to it actually draws. For example, 6.3v to 13.8v is a gain of 2.2. If the radio itself is drawing 4 amps at 13.8v, the Regulator will need $4 \times 2.2 = 8.8$ amps at 6.3v. Actually it will need more, because in physics nothing can be 100% efficient. At 80% efficiency we must add another 20% to our 8.8 amps. These figures illustrate the importance of using correct cable sizes, low resistance connections, and good quality switches and fuse-holders. Switches must be capable of 15 amps at 12vdc, and battery connections as direct as possible, whether direct or via a relay if one is used.

INSTALLATION

**** THIS UNIT CAN BECOME VERY WARM WITH NORMAL OPERATION ** THIS UNIT IS NOT WATERPROOF ****

Secure to a rigid surface, preferably metal, where it is protected from water and contaminants, and with some natural airflow for cooling. The Input and Output wires are internally completely isolated, and also isolated from the frame of the Regulator, enabling the unit to be installed in a positive or negative chassis vehicle without modification, or the need to try and isolate it or the radio from the vehicle chassis.

CABLE SIZE: The length below is the total of the distances from Regulator to battery positive, and the Regulator to battery negative

Total cable run length up to .5 meter (1 1/2 foot) use 1mm² (18 AWG) Cable

Total cable run length .5 to 1 meter (1 1/2 to 3 foot) use 1.5mm² (16 AWG) Cable

Total cable run length 1 to 2 meters (3 to 6 foot) use 2 mm² (14 AWG) Cable

Total cable run length 2 to 4 meters (6 to 13 feet) use 5mm² (10 AWG) Cable

REMEMBER - YOU CAN USE LARGER SIZE CABLES THAN THOSE SUGGESTED ABOVE - THE BIGGER THE BETTER

INPUT CONNECTIONS

Connect your INPUT voltage to the Yellow and Black wires exiting the unit via the grommet marked DC INPUT 6.3 to 36v.

THE YELLOW INPUT WIRE MUST ALWAYS BE CONNECTED TO BATTERY POSITIVE.

It does not matter if the Battery positive is also connected to the car chassis (as with a positive chassis vehicle).

This Yellow positive wire must have a fuse installed, maximum rating 15 amps

THE BLACK INPUT WIRE MUST ALWAYS BE CONNECTED TO BATTERY NEGATIVE

It does not matter if the Battery negative is also connected to the car chassis (as with a negative chassis vehicle).

The Regulator draws a small amount of power even when your radio is turned off, so it is recommended to install an on-off switch on the input wiring side. An ignition switch with an accessory position seems like a convenient option, however it may not be able to pass the current required (up to 12 amps) without damage, or introducing too much voltage drop in the circuit (a .4v drop may stop the regulator).

A better option would be to use the ignition switch ACC position to provide power to a 6v relay coil, with the relay contacts then switching the actual input power to the Regulator, via the required fuse of course. The relay contacts must be able to withstand at least 10 amps

OUTPUT CONNECTIONS

Connect the Red and Black OUTPUT wires via an appropriate connector and fuse to your Radio. A switch is an optional item here.

A Fuse must be installed in the RED wire to the radio and the rating of the fuse must not exceed 10 AMPS.

THE RED OUTPUT WIRE MUST ALWAYS GO TO THE POSITIVE OF THE RADIO, NOT TO THE RADIO FRAME

THE BLACK OUTPUT WIRE MUST ALWAYS GO TO THE FRAME OF THE RADIO.

Do not attempt to isolate the radio from the car chassis. Besides being almost impossible to do safely, it is not necessary.

SPECIFICATIONS

Model SR6138V

Input Voltage Allowable 6.3 to 36 volts, DC only

Output Voltage Fixed at 13.8 volts DC, $\pm 2\%$

Maximum Output Current 5 Amps - do not use with a device attempting to draw greater than 5 Amps

Over Temperature Protection

Input/Output Isolation 500 volts

Ambient Temperature allowable from -20 to +80 degrees C (-4 to +175 F)

Standby Current (no output load) 50mA

Dimensions 150 x 48 x 68 mm (6 x 1.8 x 2.6 in)

Weight 435 Grams (1.2 lb)

All specifications subject to change or design improvements without notice

WARRANTY

In the event of malfunction or failure Cruising Electronics will, at their sole discretion, either repair or replace the unit, providing that:

Malfunction has occurred within 12 months from the date of purchase

Any or all of the above listed ratings of the unit have not been exceeded

The unit has been properly and permanently installed, with correctly rated cables, fuses, switches and any other ancillary items which could reasonably be regarded as necessary to effect a safe and workmanlike installation.

The unit has not been exposed to any fluid, corrosive or hazardous substance, or excessive airborne particles

The unit is returned freight paid to Cruising Electronics or their nominated agent

Proof of purchase is provided.

DISCLAIMER

Under no circumstances can Cruising Electronics be held responsible or accept liability for any consequential damages or loss whatsoever incurred as a result of installing and/or operating this device in any situation, with or without any other device attached

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