BEP DVSR

BEP Digital Voltage Sensing Relay (DVSR) 12/24V Instruction Manual

Model: DVSR 12/24V

1. Introduction

The BEP Digital Voltage Sensing Relay (DVSR) is designed to automatically combine two battery banks when a charging voltage is detected and isolate them when charging stops. This ensures that the starting battery is always kept isolated and fully charged, while allowing the auxiliary battery bank to be charged from the same source. The DVSR is suitable for both 12V and 24V systems, automatically detecting the system voltage.

This image displays the BEP Digital Voltage Sensing Relay (DVSR) unit. The front face clearly indicates 'DIGITAL VOLTAGE SENSITIVE RELAY', '12-24V AUTO', 'IGNITION PROTECTED', '125A CONT', '140A MAX', and 'BEP 2ND BATTERY CHARGING RED-ON'. The unit is dark gray with a circular central label.

2. Setup

2.1 Safety Precautions

- Always disconnect all power sources before installing or servicing the DVSR.
- Ensure proper wire gauge is used for all connections to handle the maximum current.
- Install appropriate fuses or circuit breakers on both battery positive lines as close to the battery terminals as possible.
- Wear appropriate personal protective equipment (PPE) during installation.

2.2 Mounting

The DVSR can be mounted on a surface or panel. Choose a location that is dry, well-ventilated, and protected from direct exposure to water or excessive heat. Ensure sufficient space for wiring connections. Use appropriate fasteners for the chosen mounting surface.

2.3 Wiring Connections

The DVSR typically has four connection points:

1. **Start Battery Positive:** Connect this terminal to the positive terminal of your starting battery.
2. **House Battery Positive:** Connect this terminal to the positive terminal of your auxiliary (house) battery bank.
3. **Ground:** Connect this terminal to a common negative ground point in your electrical system.
4. **Ignition/Remote (Optional):** This terminal can be connected to an ignition switched positive source or a manual override switch. When connected to ignition, it provides ignition protection, preventing the relay from combining batteries during engine cranking.

Ensure all connections are clean, tight, and properly insulated to prevent short circuits and corrosion.

3. Operating Instructions

3.1 Automatic Operation

The DVSR operates automatically based on sensed voltage levels:

- When the voltage on either battery bank rises above a preset threshold (indicating charging), the DVSR will combine the battery banks, allowing both to charge simultaneously.
- When the voltage drops below a preset threshold (indicating no charging or discharge), the DVSR will isolate the battery banks, ensuring the starting battery remains charged.
- The DVSR automatically detects whether the system is 12V or 24V and adjusts its thresholds accordingly.

3.2 LED Indicator

The DVSR features an LED indicator, typically labeled '2ND BATTERY CHARGING RED-ON'.

- When the LED is illuminated (RED-ON), it indicates that the DVSR has combined the battery banks and the auxiliary (second) battery is currently receiving a charge.
- When the LED is off, it indicates that the battery banks are isolated.

3.3 Ignition Protection

If the optional ignition/remote terminal is connected to an ignition switched positive, the DVSR will prevent the battery banks from combining when the engine is cranking. This protects sensitive electronics and ensures

maximum power is available for engine starting.

4. Maintenance

The BEP DVSR is designed for minimal maintenance. However, periodic checks are recommended to ensure optimal performance and longevity.

- **Connection Inspection:** Annually inspect all wiring connections for tightness, corrosion, and damage. Clean any corroded terminals and re-tighten connections.
- **Housing Inspection:** Check the DVSR housing for any signs of physical damage, cracks, or water ingress.
- **Cleaning:** Keep the exterior of the DVSR clean and free of dust or debris. Use a dry cloth for cleaning. Do not use harsh chemicals or solvents.

5. Troubleshooting

If you encounter issues with your DVSR, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
DVSR LED not illuminating when charging.	• No charging voltage detected. • Faulty wiring connection. • Blown fuse.	• Verify charging source (alternator, shore power charger) is active and producing voltage. • Check all wiring connections for tightness and continuity. • Inspect and replace any blown fuses in the battery lines.
Batteries not combining.	• Low voltage on both banks. • Faulty DVSR unit. • Incorrect wiring.	• Ensure at least one battery bank is receiving a charge above the combine threshold. • Test the DVSR unit if possible, or consult a qualified technician. • Double-check wiring against the installation instructions.
Batteries not isolating.	• Constant charging voltage. • Stuck relay.	• Ensure all charging sources are off. If voltage remains high, investigate the charging system. • If the relay remains combined after charging stops, the unit may be faulty and require replacement.

6. Specifications

Feature	Specification
Model	DVSR
System Voltage	12V / 24V Auto Sensing
Continuous Current Rating	125 Amperes
Maximum Current Rating	140 Amperes

Feature	Specification
Operation Mode	Automatic
Ignition Protection	Yes
Mounting Type	Surface Mount, Panel Mount
Connector Type	Screw Terminals
Item Weight	8 ounces (approx. 227 grams)

7. Warranty and Support

For warranty information and technical support, please refer to the official BEP Marine website or contact your authorized BEP dealer. Keep your proof of purchase for warranty claims. Do not attempt to open or repair the unit yourself, as this may void the warranty.