

XD Series Relays NMEA 2000 Bi-Stable Relays & VSRs Single/Dual/Triple

1. Product Overview

The Egis Mobile Electric XD Series NMEA 2000 is a high-performance, bi-stable battery relay and Voltage Sensing Relay (VSR/ACR) system with integrated NMEA 2000 network control and monitoring. Devices are available in single, dual, and triple configurations. Manual override knobs are optional depending on model.

Each XD Series NMEA 2000 device is manufactured with a functional configuration defined by its part number.

- Single devices are purchased as either a Relay or a VSR.
- Dual devices are purchased in one of four configurations: Left Relay / Right Relay, Left Relay / Right VSR, Left VSR / Right Relay, or Left VSR / Right VSR.
- Triple devices are purchased in a predefined Relay / VSR / Relay configuration (left-to-right). The center position may be configured as either a Relay or a VSR based on the part number ordered.

For Single and Dual devices, relay and VSR functionality is fixed at manufacture and cannot be changed in the field. For Triple devices, the center position functionality is defined by the part number but can be modified in the field with the DIP switches on the back of the device.

DIP switches are used to configure network-related parameters (such as NMEA 2000 instance numbers and battery voltage reporting selection) and to set VSR ON and OFF voltage thresholds, similar to other XD Series products.

Each relay position may support:

- Battery Disconnect Relay (Remote ON/OFF)
- Voltage Sensing Relay (VSR/ACR)
- Manual ON / LOCK OFF override control
- Local & remote LED status indicationN / LOCK OFF override control (if equipped)

XD Series NMEA 2000 devices report relay state, manual override status, and battery voltage directly to compatible MFDs and network controllers.

XD NMEA 2000 relays feature:

- Integrated NMEA 2000 control and monitoring
- Battery voltage reporting via PGN 127508
- Ultra-low standby current: 1.3 mA combined (per device)
- High-current ratings up to 500 A continuous (with dual 4/0 AWG wiring)
- Bi-stable latching coil (draws current only when changing state)
- Stainless-steel M10 studs
- IP67 / IP6K9K sealed housing
- Integrated thermal overload protection

2. Safety Information

- ⚠ Disconnect all battery negative connections before installation.
- ⚠ Install a 7.5A fuse in the BLACK main DC(-) wire.
- ⚠ Mount away from explosive gases, battery fumes, or direct water spray.
- ⚠ Do not install in an area where the device may be submerged.

Always install Egis Mobile Electric components in accordance with applicable industry standards and regulatory codes, including but not limited to ABYC, NEC, and NFPA requirements. Failure to comply with applicable codes may limit or void product warranties. For additional information or technical support, contact support@egismobile.com.

3. Mounting Instructions

- Mount the XD device as close to the battery bank as practical.
- Ensure connecting cables are supported and strain-relieved.
- Allow accessibility to XD device so that emergency override knobs can be used, if equipped.
- Avoid mounting directly above vented lead-acid batteries.
- The mounting surface must be continuously flat, with no openings, recesses, or cutouts behind the device, to ensure proper sealing of the DIP switch cover.

4. High-Current Wiring

Steps

1. Connect battery positive conductor to either cable mounting stud of relay.
2. Connect load, additional battery bank, or distribution bus to the opposite mounting stud.
3. Start cable fastening nuts by hand to ensure cross-threading does not occur. Do not use power, pneumatic, or impact driver tools to drive or tighten the nut. Tighten terminal nuts to 120 in-lbs.
4. Use wire sized appropriately for system rating:
 - 2/0 AWG → ~225 A continuous
 - 4/0 AWG → ~300 A continuous
 - Dual 4/0 AWG → up to ~500 A continuous

5. Manual Override Knob Operation

XD NMEA 2000 devices may or may not have manual knobs in any position.

Knob Positions

- AUTO / REMOTE – Relay follows remote control signals, NMEA 2000 commands, or VSR logic.
- LOCK ON – Relay is mechanically forced ON; all remote/N2k/VSR control is ignored.
- LOCK OFF – Relay is mechanically forced OFF; all remote/N2k/VSR control is ignored. Use for service.

Mechanical-Only Positions

- LOCK ON – Relay is mechanically forced ON.
- LOCK OFF – Relay is mechanically forced OFF.

Power-Up Behavior

Upon first time power-up or after exiting manual override, LEDs will indicate a "pending" (flashing) state until the next remote ON/OFF control signal is received.

6. Control Wiring & Network Connections

XD NMEA 2000 devices use a sealed flying-lead harness with a Deutsch connector. The NMEA 2000 pigtail will be accompanied by the wiring below. Only one NMEA 2000 pigtail will be present per device.

XD Series NMEA 2000 devices accept switch control commands from the NMEA 2000 network and report relay state, manual override status, and battery voltage to compatible displays and controllers.

Relay or VSR Configuration

Wire	Function	Notes
Black	XD Device DC(-)	Must be fused with 7.5 in-line fuse
Brown	Momentary ON Momentary OFF	Apply +V until relay closes Apply DC(-) until relay opens
Green	Momentary OFF Momentary ON	Apply +V until relay opens Apply DC(-) until relay closes
Yellow	LED Output	Provides path to (DC-) when relay is ON

7. DIP Switch Configuration

XD NMEA 2000 devices include DIP switches used to configure network-related parameters and VSR operating thresholds, including:

- NMEA device instance number
- Battery instance number
- Battery voltage reporting
- VSR ON and OFF voltage threshold settings (XD Triple configuration only)

DIP switches do NOT change relay or VSR functionality for Single and Dual XD NMEA 2000 devices. Relay and VSR operation for these devices is fixed by the device part number and cannot be modified after manufacture.

For Triple XD NMEA 2000 devices only, DIP switches do change the functional behavior of the center position, allowing it to operate as either a Relay or a VSR, as defined in the product specification. The left and right positions remain fixed as remote relays with no VSR functionality.

When more than one XD NMEA 2000 device is installed on the same NMEA 2000 network, the installer must adjust DIP switch settings to ensure that each device has unique Device Instance and Battery Instance values. This prevents network conflicts and ensures proper control and reporting on compatible displays. Failure to properly set DIP switch values can result in N2k system failure.

Devices ship with factory default DIP settings suitable for single-device installations. DIP switch adjustments are required when multiple XD devices share the same NMEA 2000 network.

Refer to the full product specification sheet for multi-device configuration.

9. Control Priority

- Manual override knob has highest priority and overrides all commands.
- NMEA 2000 network commands take priority over discrete analog inputs.
- Discrete analog inputs operate only when not overridden by manual or network control.

8. LED & Network Status Summary

Condition	LED Behavior (Local & Remote)
Relay ON	Solid ON local LED, network reports ON
Relay OFF	Local LED OFF, network reports OFF
Pending VSR action	Flashing LED
Manual Override Active	2x repeating flash pattern
Over-Voltage Condition	5x repeating flash pattern

10. Operating Summary

Relay Position

Relay ON when:

- Brown = +V (momentary)
- Green = DC(-) (momentary)

Relay OFF when:

- Brown = DC(-) (momentary)
- Green = +V (momentary)

VSR Position

Relay automatically engages (ON) when:

- Voltage > ON threshold for 120 sec, or
- Voltage > ON threshold +0.6 V for 30 sec

Relay automatically disengages (OFF) when:

- Voltage < OFF threshold, and
- 120 sec has passed since last forced ON input signal was received

Manual knob always overrides remote control. After power-up or exiting manual override, LEDs may indicate a pending state until the next valid ON or OFF command or VSR action.

11. Warranty

Egis Mobile Electric warrants its products to be free from defects in materials and workmanship for 4 years from the date of purchase, provided proof of purchase is supplied. This warranty does not apply to products that have been improperly installed, used beyond their rated specifications, applied incorrectly, or damaged due to environmental exposure or mechanical misuse such as galling or stripping hardware. Products meeting warranty criteria will be replaced or credited. For full warranty terms or to initiate a claim, visit egismobile.com/warranty.

