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XD Series
NMEA 2000

Bi-Stable Relays & Advanced VSRs/ACRs w/NMEA 2000

Quick Links:

Installation Instructions | Product Specs

NMEA 2000 controllable, while also responding to optional discrete remote controls

Reports switch status, status of manual override knobs, and battery voltage on input terminals to the NMEA 2000 network

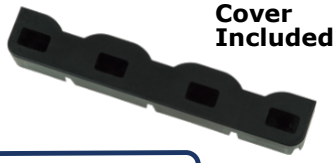
Optional manual override knobs provide ability to lock switches ON or OFF for servicing or if control power is lost

Simple programming via dip switches for NMEA 2000 instance selection and battery voltage reporting, and Close/Open set-points on voltage sensing relays in Dual/Triple XDs

Local LED, optional Remote LED, and NMEA 2000 On/Off indication for each switch

500 Amp max continuous current per switch

Protective Terminal Cover Included!



PATENT PENDING

Flexible Application Options: Configure each XD switch as a Relay or Voltage Sensing Relay (VSR). On/Off triggers via NMEA 2000 digital switching signals, external analog control signal or automatic voltage sensing via advanced algorithm (when set as VSR).

Diagnostic Feedback: via NMEA 2000 messaging and on-board LEDs for each switch.

Simple & Robust Installation: Sealed DT/AT and standard M12 NMEA 2000 connectors.

4 Year Industry Leading Warranty

Low Power Draw: Low standby power draw of 15 mA combined.

Meets Stringent Electrical Standards: Standards for electrical load dump, mutual coupling, transients, and EMI Emissions and Immunity.

Bullet-proof Construction: Sealed unit, high temperature materials allow mounting anywhere. Tin plated copper alloy condustors and stainless steel hardware.

Battery Voltage Reporting: Via NMEA 2000 network messaging, outputs to report are selectable via local dip switches.

Rev 6.2 - March 19th, 2025

General Specifications (Each Switch)

Nominal Voltage (Vdc)	12	24
State Change Current (A) (20 msec)	5.0	3.0
Standby Current (mA)	15	15
Live Current Switching - 50,000 cycles	300 A	150 A
Input Voltage Range (Vdc)	8.0 - 36.0 Auto-Ranging	
Mechanical Switching Life	1,000,000 cycles	
2/0 AWG - 30sec/5min/Continuous	1000 / 400 / 225 A	
4/0 AWG - 30sec/5min/Continuous	1100 / 400 / 300 A	
2x 4/0 AWG - 30sec/5min/Cont.	1600 / 700 / 500 A	
Hardware Material	Stainless Steel Self-Locking	
Terminal Stud Torque	120 in-lbs	
Ignition Protection	SAE J1171 / ISO 8846	
Typ Source Current for All Ctrl Lines	10 micro-Amps	
Operating Temperature Range	-40 to 105 C	
Ingress Protection	IP67 / IP6K9K	
CE Marked	Yes	
ROHS Compliant	Yes	
REACH Compliant	Yes	
N2K Load Equivalency Number (LEN)	1	

Local & Remote LED Indication and PGN Messages

Switch Status	Local LED	Remote LED	127501
Relay or VSR Mode - OFF	Off	Off	0 ("OFF")
Relay or VSR Mode - ON	On	On	1 ("ON")
VSR Mode - ON - Low Vdc Pending Off	On w/3x Off Flashes	On	1 ("ON")
VSR Mode - OFF - High Vdc Pending On	Off w/3x On Flashes	Off	0 ("OFF")
Manual Override Engaged	Off w/2x On Flashes	Off w/2x On Flashes	2 ("Error Status")
Device Off - Power Hibernation Mode (right-most LED of Device Only)	Off w/1x On Flash	Off	0 ("OFF")
Power Up State or Manual Mode Exited and Pending On or Off Event (VSR Mode Only)	Continuous Flashing	Off	0 ("OFF")
Power Up State (Relay Mode), Until Remote Switch On/Off State Change	Off	Off	0 ("OFF")
VSR Temporary Override - 2m 30s Duration	4x On/Off Flash	On/Off Per Switch State	On/Off Per Switch State

NEMA 2000 PGN List

	Receive	Transmit	Period (Sec)
59392 ISO Acknowledgement	X	X	
59904 ISO Request	X		
60160 ISO Transport Protocol (DT)	X		
60416 ISO Transport Protocol (CM)	X		
60928 ISO Address Claim	X	X	
65240 ISO Commanded Address	X		
126208 NMEA Group Function	X	X	
126464 PGN List		X	
126993 Heartbeat		X	60
126996 Product Information		X	
126998 Configuration Information		X	
127501 Binary Status Report		X	10
127502 Switch Bank Control	X		
127508 Battery Status		X	3

Installation Guidelines

1. Disconnect battery from power distribution system before installing device to prevent electrical shock or product damage.
2. Install a 7.5-10 A fuse on the black ground return wire.
3. Dip switches are used to determine switch communications and response settings. Each device size (single, dual, triple) has a unique approach for dip switch settings. Refer to each device size page for specific dip switch details. Below is a general summary of dip switch settings and features.
4. After install, local and/or MFD virtual switches may blink until each relay and VSR has changed on/off state via remote switch or automatically. Remotely turn on/off all XD relays where feasible to ensure on/off sync.

NMEA 2000 DEVICE INSTANCE # AND SWITCH BANK #: When all dip switches are OFF (factory default), Instance # is set to 100 and, as an alternative, device will also accept a NMEA 2000 Instance # change command programmed from a laptop over the network. All other dip switch combinations result in an a fixed instance # that cannot be changed through NMEA 2000. XD devices utilize the same NMEA device instance # as the NMEA switch bank # for reporting ON/OFF status via 127501.

GROUP A vs GROUP B: The XD NMEA 2000 devices contain dip switches on the back surface which allow installers to select the most appropriate device and battery ID instance numbers for the specific XD switch on their N2K network. Due to the limited number of dip switch positions, and therefore the limited number of device and battery ID instance number options, additional "Group" part numbers are offered for some devices. The GROUP A part numbers will provide one set of dip switch options, while the GROUP B part numbers will provide a different set of options

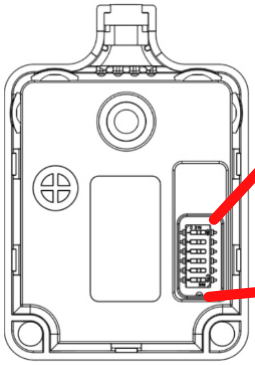
BATTERY INSTANCE (INST) #: All devices are able to report the DC voltage on some or most of the high power input/output studs over NMEA 2000 via 127508. The left-most possible reporting stud's battery instance # is selected with the dip switches, all reportable studs to the right are assigned the next higher sequential battery instance #.

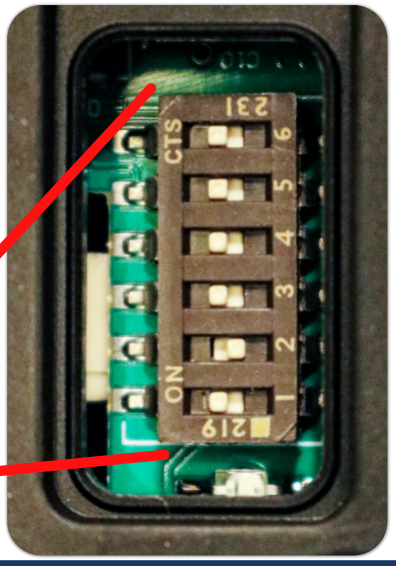
REPORT (RPT) STUD # VDC: If a dip switch is set to "Report", device will report voltage on that stud via 127508. Instance # is determined per above.

Relay or VSR: The center switch of a Triple XD NMEA 2000 can be configured via Dip Switch #1 as either a simple Relay or a Voltage Sensing Relay (VSR), for automatically connecting and disconnecting batteries based on the presence of a charge source. Single and Dual XD NMEA 2000 devices are also available with VSR functionality.

VSR "ON" & "OFF" VOLTAGES: If switch is configured as a VSR (see above), and one of the two studs connected to the VSR exceeds the ON voltage, the VSR will close in a time frame based on how much above the Voltage Set Point the stud measures. If the VSR is closed and the voltage on the studs connected to the VSR are less than the OFF voltage, the VSR will open based on our advanced OPEN algorithm.

DIP SWITCH POSITIONS: Each dip switch has two settings - ON and OFF. Only the ON position is written on the dip switch module in white letters. In the image to the right, dip switch 2 is OFF, while all of the other dip switches are ON.





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Detailed Operational Modes & Responses

1) Relay or VSR Mode - Switch closes (turns ON) immediately if:

Switch is open, voltage on any input stud > 9 Vdc (minimum operating voltage), manual knob is in remote (AUTO/REM) position, and **either** of the following two conditions exist:

a. NMEA 2000 PGN 127502 is received commanding the device's NMEA Switch Bank # and Switch Instance # with a 1 (ON) status (left-most switch is Switch #1, subsequent relays to the right are +1 increm.) **or**

b. Momentary ON signal wires (Brown connected to +Vdc or Green connected to Gnd) until switch closes, up to 3 seconds. (+Vdc or Gnd may then remain or be removed and switch will remain closed)

2) Relay or VSR Mode - Switch opens (turns OFF) immediately if:

Switch is closed, voltage on any inputstud > 9 Vdc (minimum operating voltage), manual knob is in remote (AUTO/REM) position, and **either** of the following two conditions exist:

a. NMEA 2000 PGN 127502 is received commanding the device's NMEA Switch Bank # and Switch # with a 0 (OFF) Status (left-most switch is Switch #1, subsequent relays to the right are +1 incremented) **or**

b. Momentary OFF signal wires (Green connected to +Vdc or Brown connected to Gnd) until switch opens, up to 1 second (+Vdc or Gnd may then remain or be removed and switch will remain open)

3) VSR Mode - Switch automatically closes (turns ON) after 30 sec if:

a. Switch is open, manual knob is in remote (AUTO/REM) position, voltage on either switch input > V_On **and**

b. Remote OFF signal wires (Green is not connected to +Vdc or Brown is not connected to Gnd) and wires have not been connected to +Vdc or gnd for the past 2.5 minutes **and**

c. Switch has not received a valid 127502 Reset 0 (OFF) command in the past 2.5 minutes

4) VSR Mode - Switch closes (turns ON) after 10 sec if:

a. Switch is open, manual knob is in remote (AUTO/REM) position, voltage on either switch input > V_On + 0.6 V **and**

b. Remote OFF signal wires (Green is not connected to +Vdc or Brown is not connected to Gnd) and wires have not been connected to +Vdc or gnd for the past 2.5 minutes **and**

c. Switch has not received a valid 127502 Reset 0 (OFF) command in the past 2.5 minutes

5) VSR Mode - Switch automatically opens (Turns OFF) if:

a. Switch is closed, manual knob is in remote (AUTO/REM) position, voltage on either switch input < V_Off **and**

b. Remote ON signal wires (Brown is not connected to +Vdc or Green is not connected to Gnd) and wires have not been connected to +Vdc or gnd for the past 2.5 minutes **and**

c. Switch has not received a valid 127502 Set 1 (ON) command in the past 2.5 minutes **and**

d. At least 2.5 min has passed since the VSR automatically closed per #3 or #4 above **and**

e. The advanced charge management algorithm has determined that any electrical charging, if operating, is not equal to or greater than the electrical loads discharging the connected batteries

6) VSR Mode - Switch opens (turns OFF) after 5 sec if:

a. Manual knob is in remote (AUTO/REM) position, voltage on either input to switch > Over-Voltage set point continuously **and**

b. Remote ON signal wires (Brown is not connected to +Vdc or Green is not connected to Gnd) **and**

c. No NMEA PGN ON Command has been received for the last 5 seconds

NOTE: Voltage on BOTH VSR terminal studs must be < 15 Vdc (30 Vdc in 24V Systems) before VSR returns to automatic functionality

7) Knob ON or OFF prevents remote or voltage based open or close:

a. For as long as the manual knob (if equipped) is not positioned in the "AUTO/REM" position

8) Upon startup or knob returning from Manual to Auto/Rem Mode:

a. In Relay Mode: Switch will return to the previous switch state before rotation of knob.

b. In VSR Mode: The local LED will rapid flash until either the device senses a charge voltage and Closes (Turns ON) or senses a voltage below the Off Voltage Setpoint and Opens (Turns OFF)

Fig 1 - Analog Control Wiring

Wire colors and functions, one set of wires for each separate switch within a Dual or Triple XD device (only one black ground return wire per device)

Many types of simple physical switches, lighted and non-lighted, are compatible with the XD NMEA 2000 product. Recommended switch types include:

1. SPST Momentary OFF/(ON)
2. SPDT Momentary (ON)/OFF/(ON)
3. SPST Permanent OFF/ON (only if locking out of NMEA 2000 control is desired)
4. Analog control lines must not be connected to other loads or system circuits other than control switches or digital switching outputs.
5. XD analog input circuits source a very low amount of current. Certain brands of electronic intelligent switches desinged with internal circuit protection may as a result not operate correctly. Check with your switch manufacturer if the planned switch will work with a micro-amp load before installation.

Each XD NMEA 2000 device switch may also be driven either by:

1. +12 Vdc or Gnd outputs from a digital switching system, or
2. Separate analog signals via separate sources. Multiple remote signal sources may be connected to any one analog control line.

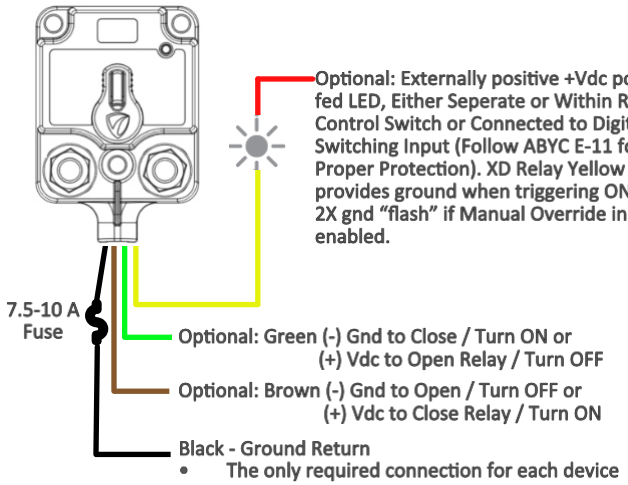
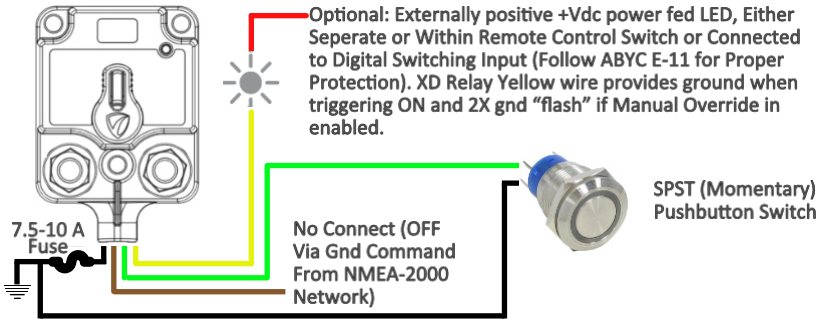
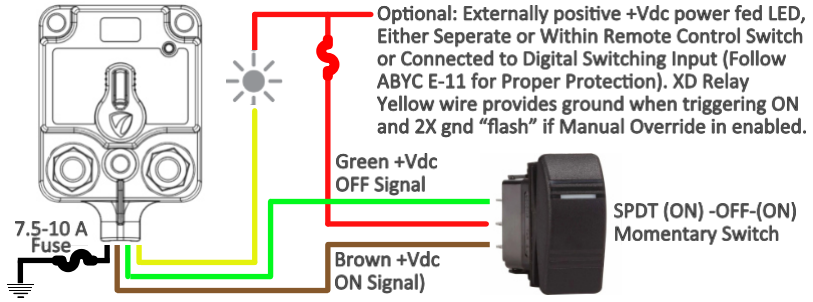


Fig 1 - (Continued) Analog Control Examples

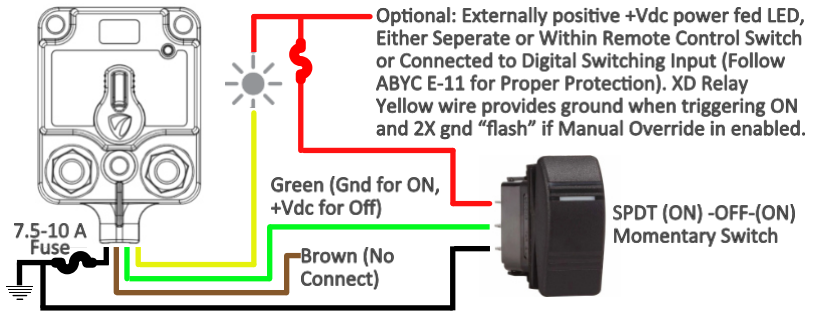
Example #1 - Momentary Pushbutton ON, Gnd Control, NMEA-2000 Network for OFF



Example #2 - Dual Throw Switch, +Vdc Powered, Two Wire Control

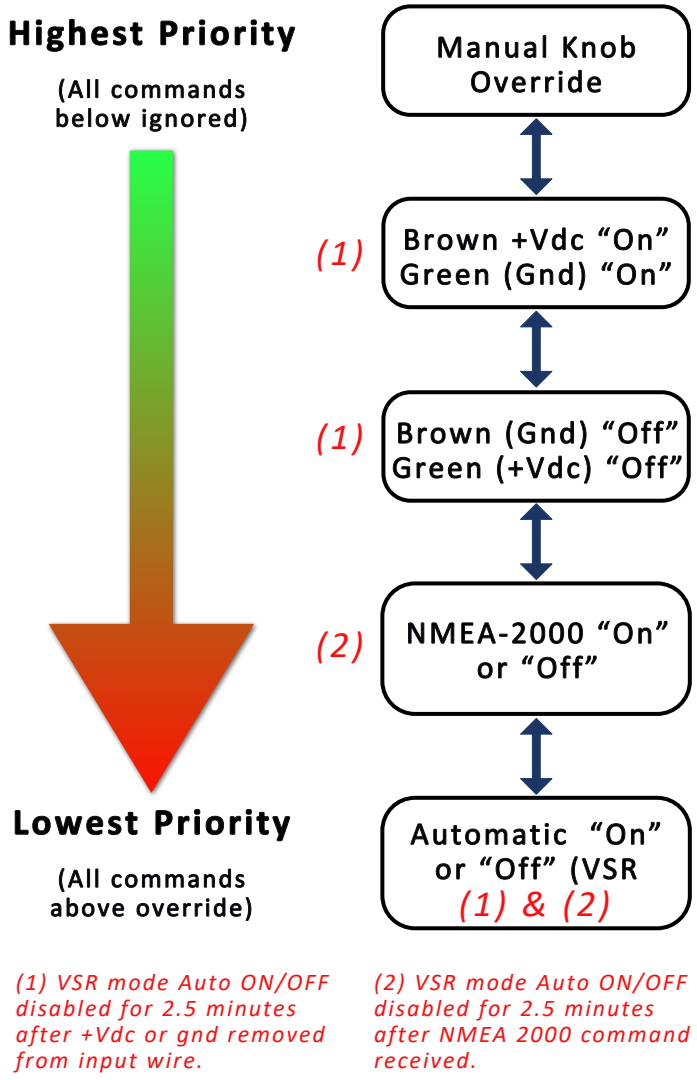


Example #3 - Dual Throw Switch, +Vdc & Gnd Powered, Single Wire Control



(*) Above examples are not exhaustive of all possible remote switching control options. Permanent switches provide fixed override to NMEA-2000 & automatic operation while asserted, while momentary switches allow subsequent switch state change from NMEA-2000 system or automatic VSR operation. Ground or +Vdc control methods are both viable.

Fig 2 - Operational Priority vs Input Modes



(1) VSR mode Auto ON/OFF disabled for 2.5 minutes after +Vdc or gnd removed from input wire.

(2) VSR mode Auto ON/OFF disabled for 2.5 minutes after NMEA 2000 command received.

Fig 3 - XD NMEA 2000 Part Number Guide

9 8 3 1 - 2 5 3 5 B

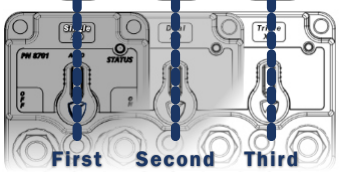
Protective Terminal Cover Included!

 # = Unique Designator, Varies by Device Size

1 = Single Circuit XD Device
2 = Dual Circuit XD Device
3 = Triple Circuit XD Device

2-9 = Number of Connector Pins

98 = XD Series NMEA 2000 w/DT Control Connector



0 = Not Applicable (no relay in position)
3 = XD NMEA Set as VSR w/Knob
4 = XD NMEA Set as VSR No Knob
5 = XD NMEA Set as Bat Switch w/Knob
6 = XD NMEA Set as Bat Switch No Knob

B = Bulk Packed
(Blank) = Retail Shelf Pack

* Custom product configurations available including control harness wires, time delays, voltage settings, dip switch functionality, and control input functionality. Contact support@egismobile.com

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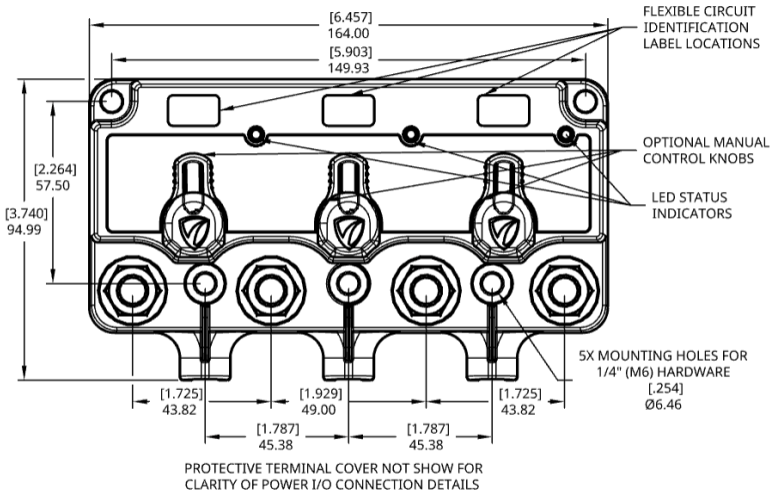
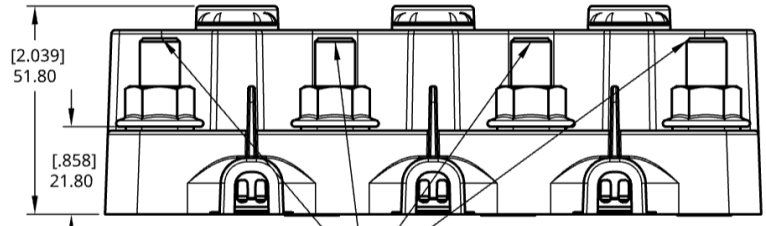
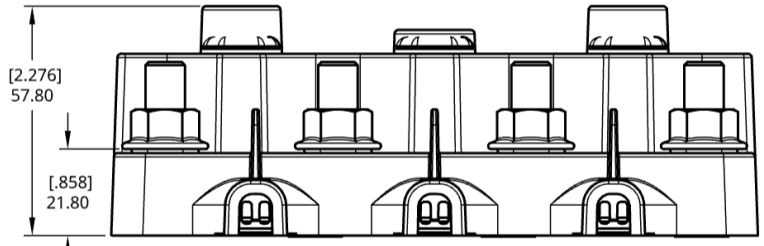
Fig 4 - Triple XD Series - Dimensions

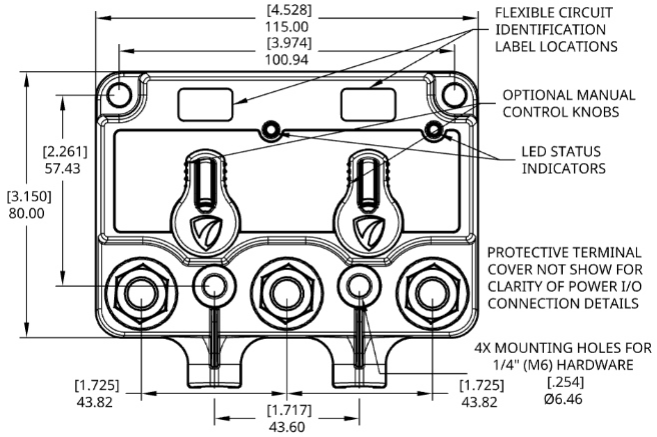






Versions With Mechanical Only Switches

Fig 5 - Dual XD Series - Dimensions



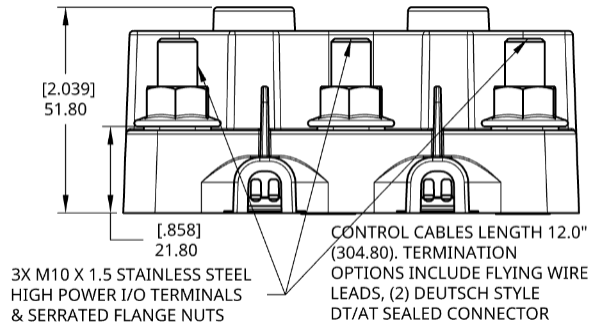
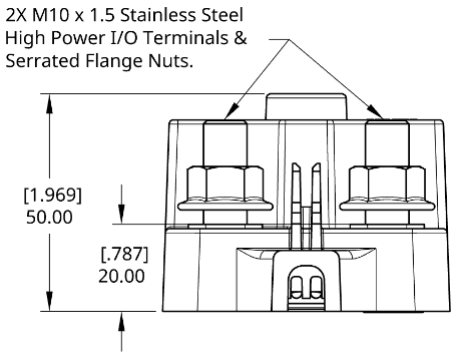
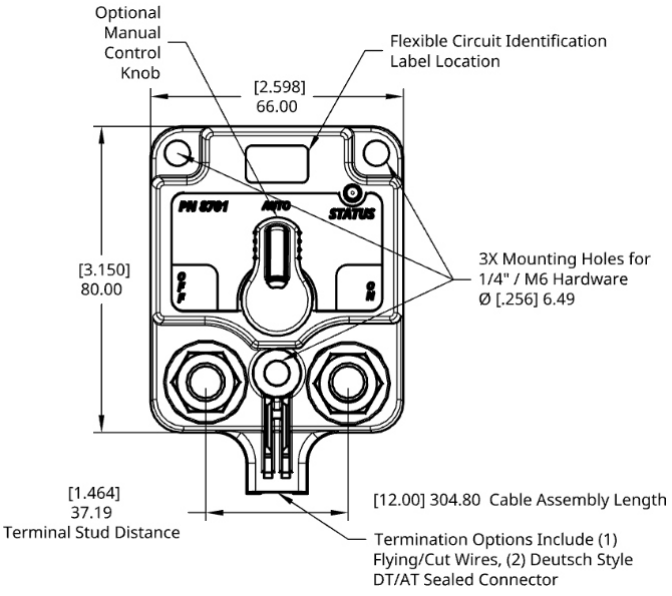


Fig 6 - Single XD Series - Dimensions





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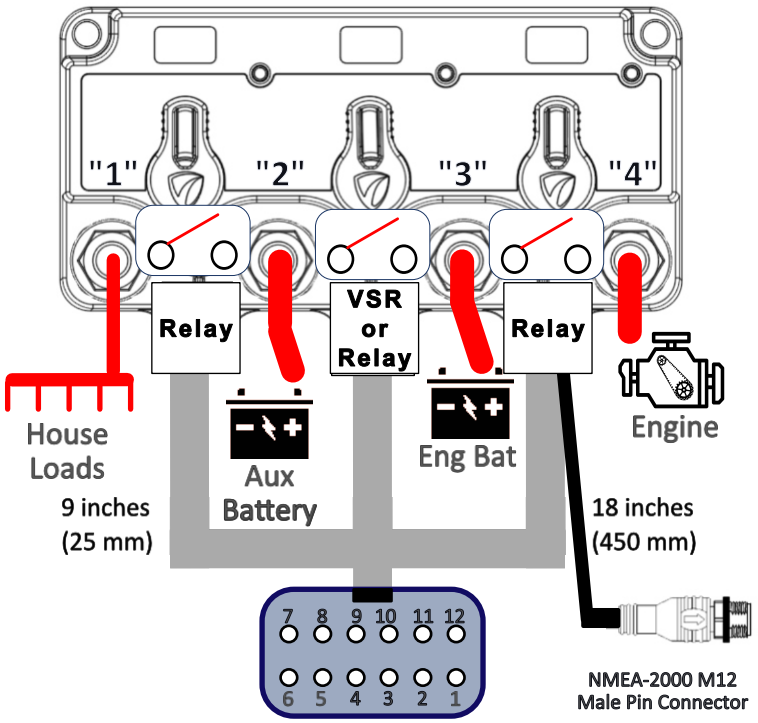
Triple XD NMEA 2000

Left Relay / Center (Relay or VSR) / Right Relay

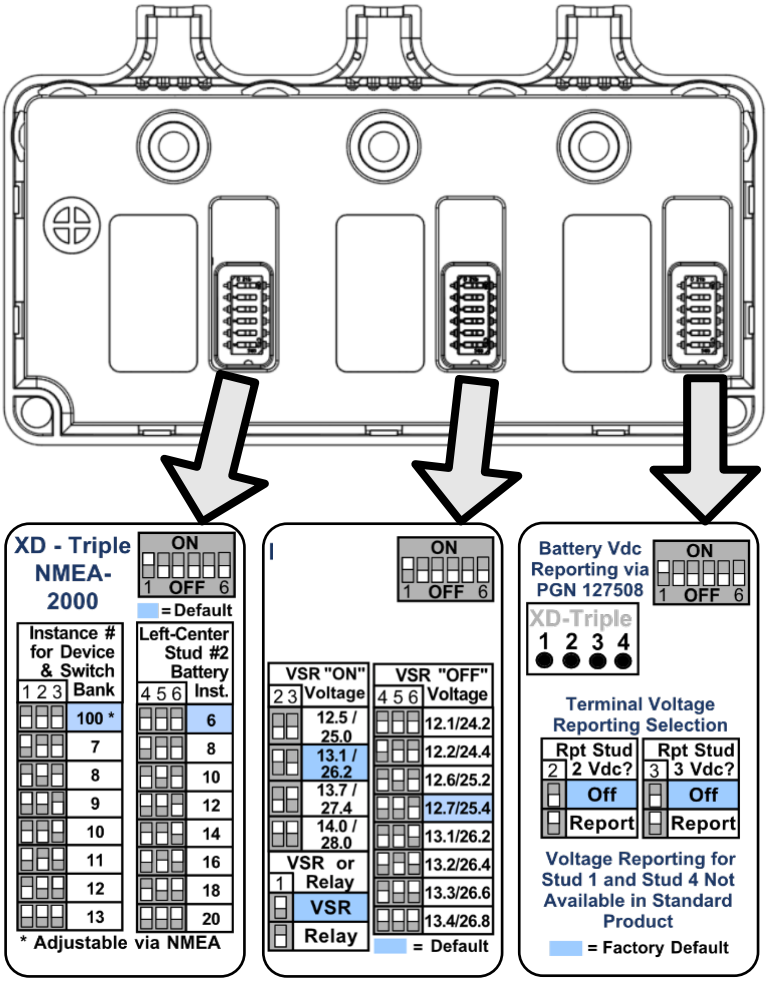
Fig 7 - Triple XD Generic Wiring

Example Wiring Schematic, Many different approaches are possible depending on system requirements. VSR senses voltage on both connected adjacent studs to determine automatic On.



DT 04-12P connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-12S or cuts & uses individual wire terminations. See table below for wiring.

Fig 8 - Triple XD Dip Switches



SEE DIP SWITCH EXPLANATION ON PAGE 2

*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

12 Pin Connector Functions	*Pin #*	*Wire Color*
Ground (Required), Protect w/ 7.5 - 10.0 A Fuse	1	Black
No Connect (Cavity Plug)	2	-
No Connect (Cavity Plug)	3	-
Switch 1 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	4	Brown
Switch 1 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	5	Green
Switch 2 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	6	Brown
Switch 2 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	7	Green
Switch 3 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	8	Brown
Switch 3 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	9	Green
Switch 1 External LED (Pulls Down to Ground, Optional)	10	Yellow
Switch 2 External LED (Pulls Down to Ground, Optional)	11	Yellow
Switch 3 External LED (Pulls Down to Ground, Optional)	12	Yellow

Part Numbers

Left Switch	*Center Switch*		*Right Switch*	
Knob	*Knob*	*Setting*	*Knob*	*Group A Bulk PNs*
Yes	Yes	VSR	Yes	***9831-2535B**
Yes	No	VSR	Yes	9831-2545B
Yes	Yes	Relay	Yes	9831-2555B
No	Yes	VSR	No	9831-2636B
No	No	VSR	No	9831-2646B
No	No	Relay	No	9831-2666B

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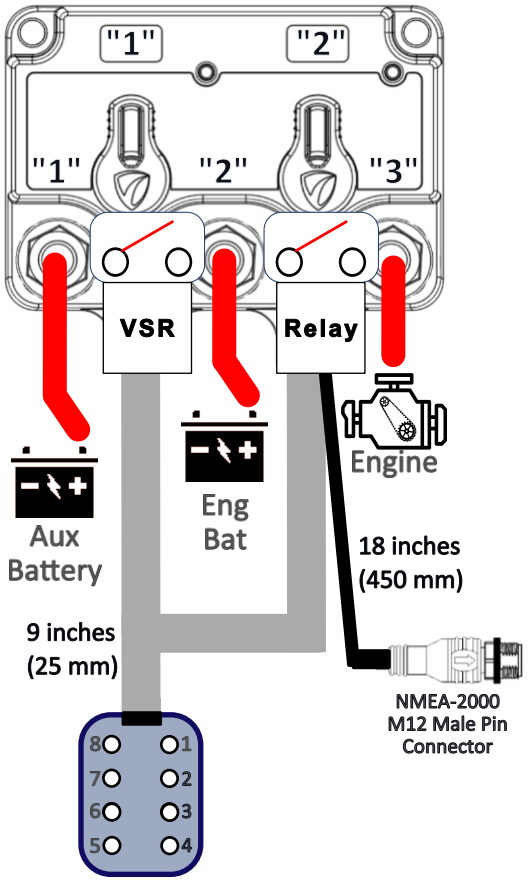
Dual XD NMEA 2000
Left VSR / Right Relay

Fig 9 - Dual XD Generic Wiring

Example Wiring Schematic, Many different approaches are possible depending on system requirements. VSR senses voltage on both connected adjacent studs to determine automatic On.

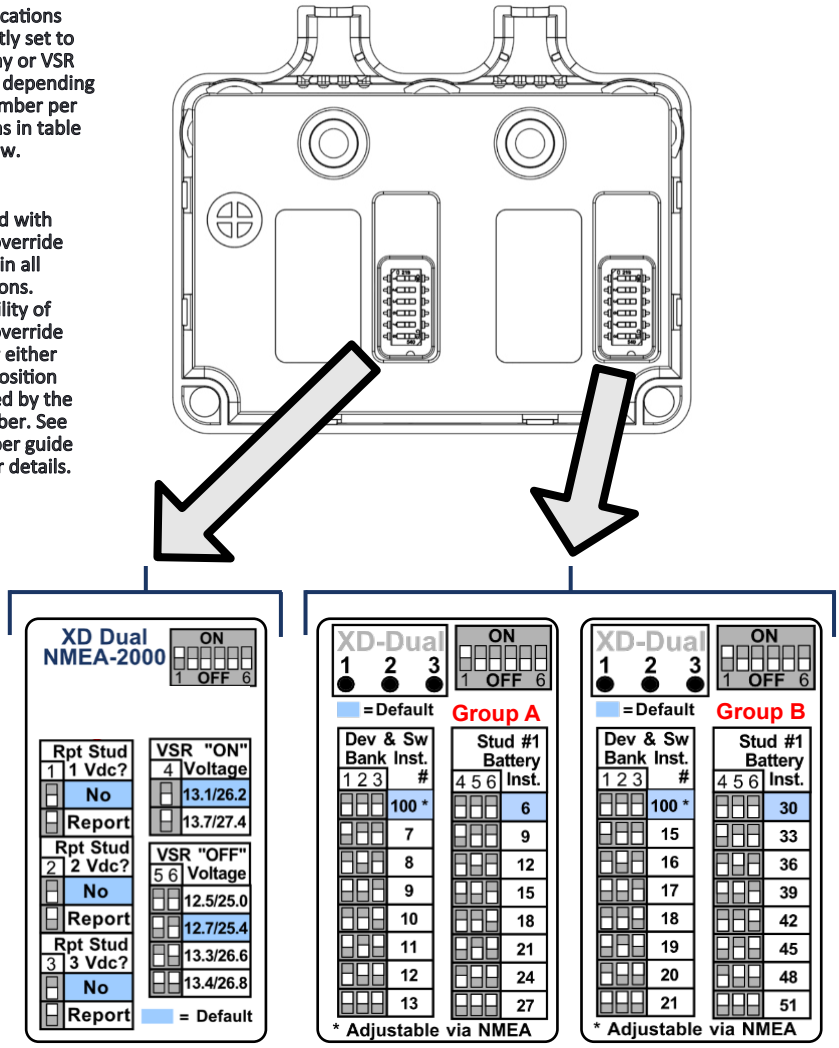


Connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-8S plug mating connector or cuts & uses individual wire terminations. See table below for wiring.

Fig 10 - Dual XD Dip Switches

Switch locations permanently set to either Relay or VSR functionality depending on part number per designations in table below.

Depicted with manual override knobs in all locations. Availability of manual override knob for either switch position determined by the part number. See part number guide for further details.



SEE DIP SWITCH EXPLANATION ON PAGE 2

6 Pin Connector Functions	Pin #	Wire Color
Ground, Protect w/ 7.5 - 10.0 A Fuse (Required)	1	Black
Switch 1 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	2	Brown
Switch 1 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	3	Green
Switch 2 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	4	Brown
Switch 2 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	5	Green
Switch 1 External LED (Pulls Down to Ground, Optional)	6	Yellow
Switch 2 External LED (Pulls Down to Ground, Optional)	7	Yellow
No Connect (Cavity Plug)	8	-

*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

Part Numbers

Left Switch		Right Switch		Group A	Group B
Knob	Setting	Knob	Setting	Bulk PNs	Bulk PNs
Yes	VSR	Yes	Relay	***9821-8350B**	9822-8350B
No	VSR	Yes	Relay	9821-8450B	9822-8450B
Yes	VSR	No	Relay	9821-8360B	9822-8360B
No	VSR	No	Relay	9821-8460B	9822-8460B

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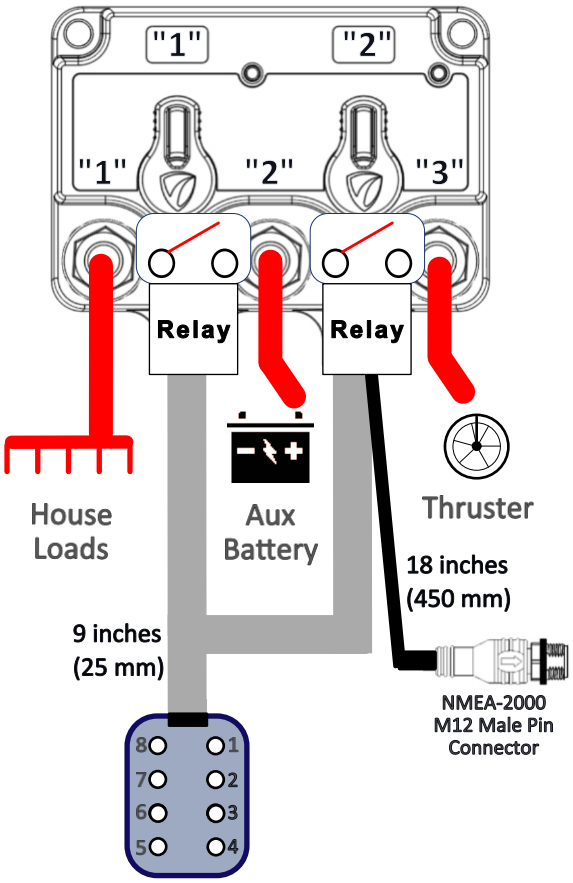
Dual XD NMEA 2000
Left Relay / Right Relay

Fig 11 - Dual XD Generic Wiring

Example Wiring Schematic, Many different approaches are possible depending on system requirements.

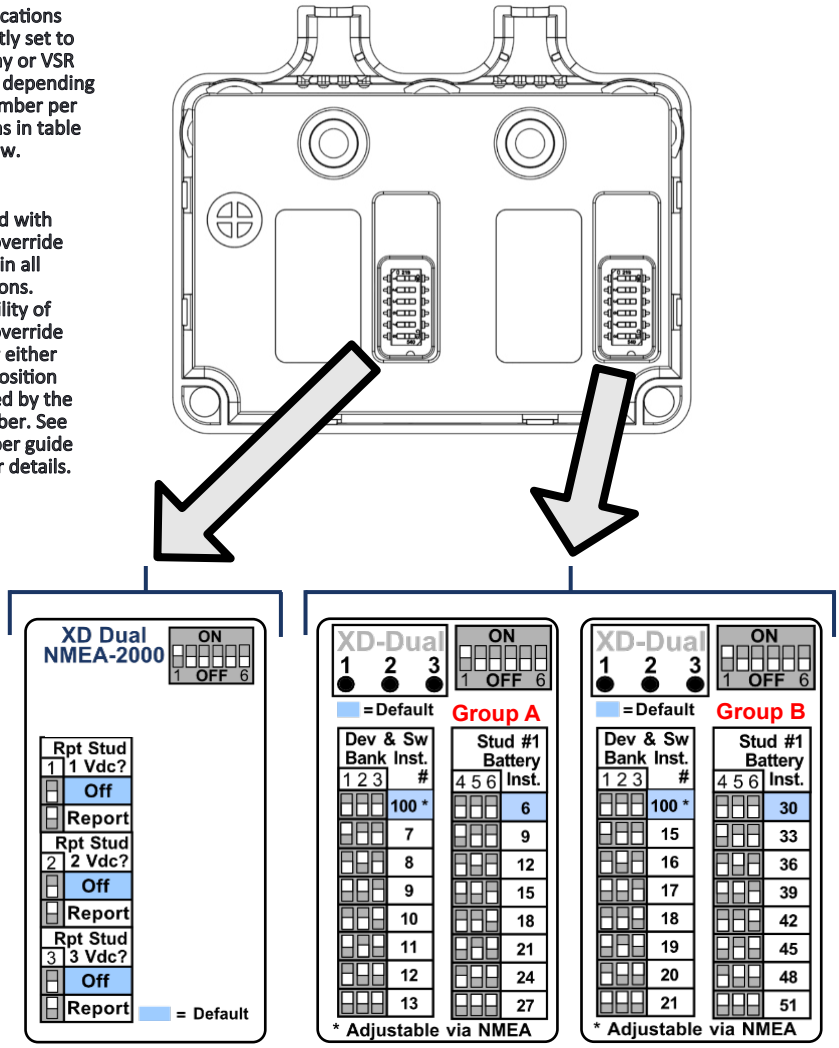


Connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-8S plug mating connector or cuts & uses individual wire terminations. See table below for wiring.

Fig 12 - Dual XD Dip Switches

Switch locations permanently set to either Relay or VSR functionality depending on part number per designations in table below.

Depicted with manual override knobs in all locations. Availability of manual override knob for either switch position determined by the part number. See part number guide for further details.



SEE DIP SWITCH EXPLANATION ON PAGE 2

6 Pin Connector Functions	Pin #	Wire Color
Ground, Protect w/ 7.5 - 10.0 A Fuse (Required)	1	Black
Switch 1 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	2	Brown
Switch 1 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	3	Green
Switch 2 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	4	Brown
Switch 2 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	5	Green
Switch 1 External LED (Pulls Down to Ground, Optional)	6	Yellow
Switch 2 External LED (Pulls Down to Ground, Optional)	7	Yellow
No Connect (Cavity Plug)	8	-

*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

Part Numbers

Left Switch		Right Switch		Group A	Group B
Knob	Setting	Knob	Setting	Bulk PNs	Bulk PNs
Yes	Relay	Yes	Relay	*9821-8550B	9822-8550B
No	Relay	Yes	Relay	9821-8650B	9822-8650B
Yes	Relay	No	Relay	9821-8560B	9822-8560B
No	Relay	No	Relay	9821-8660B	9822-8660B

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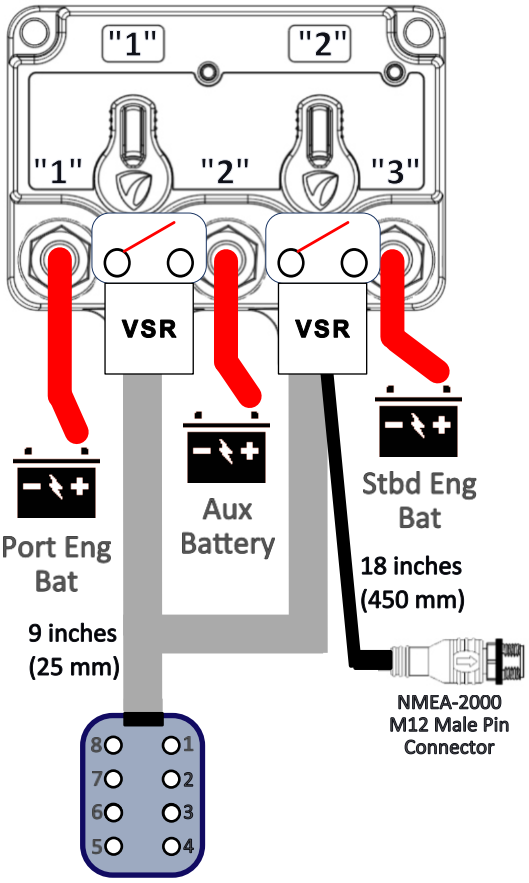
Dual XD NMEA 2000
Left VSR / Right VSR

Fig 13 - Dual XD Generic Wiring

Example Wiring Schematic, Many different approaches are possible depending on system requirements. VSRs senses voltage on both connected adjacent studs to determine automatic On.

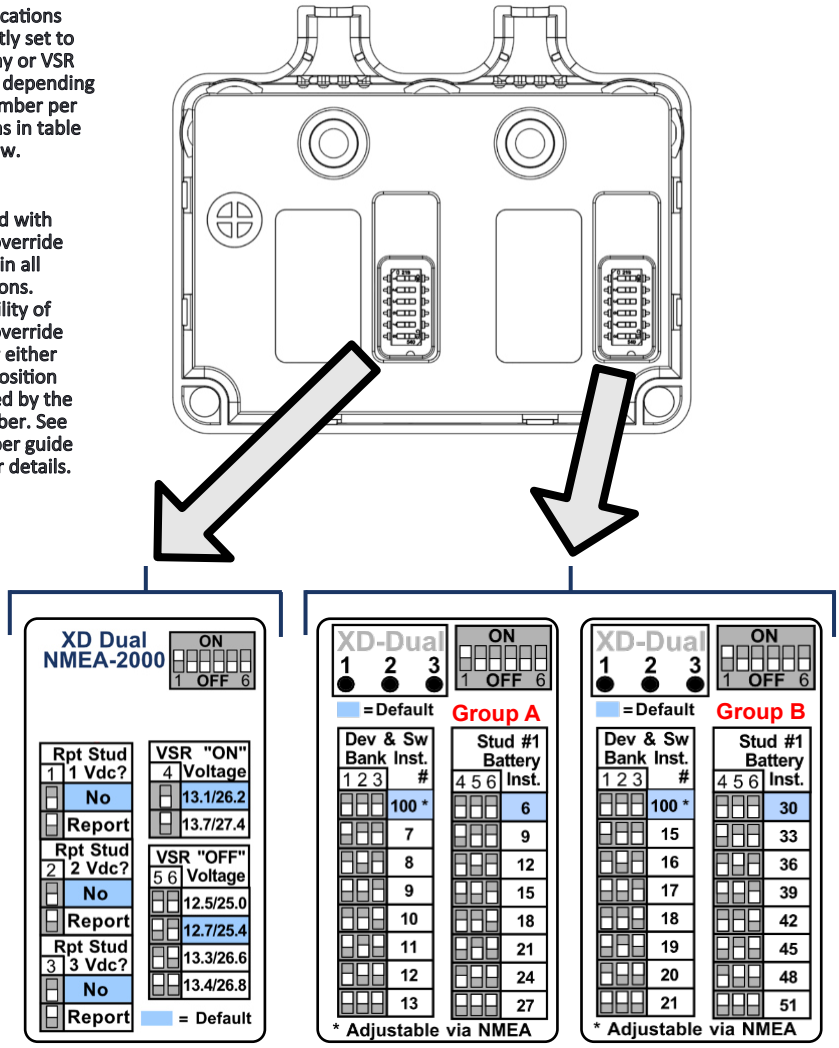


Connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-8S plug mating connector or cuts & uses individual wire terminations. See table below for wiring.

Fig 14 - Dual XD Dip Switches

Switch locations permanently set to either Relay or VSR functionality depending on part number per designations in table below.

Depicted with manual override knobs in all locations. Availability of manual override knob for either switch position determined by the part number. See part number guide for further details.



SEE DIP SWITCH EXPLANATION ON PAGE 2

6 Pin Connector Functions	*Pin #*	*Wire Color*
Ground, Protect w/ 7.5 - 10.0 A Fuse (Required)	1	Black
Switch 1 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	2	Brown
Switch 1 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	3	Green
Switch 2 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	4	Brown
Switch 2 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	5	Green
Switch 1 External LED (Pulls Down to Ground, Optional)	6	Yellow
Switch 2 External LED (Pulls Down to Ground, Optional)	7	Yellow
No Connect (Cavity Plug)	8	-

*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

Part Numbers

Left Switch		*Right Switch*		*Group A*	*Group B*
Knob	*Setting*	*Knob*	*Setting*	*Bulk PNs*	*Bulk PNs*
Yes	VSR	Yes	VSR	***9821-8330B**	9822-8330B
No	VSR	No	VSR	9821-8440B	9822-8440B

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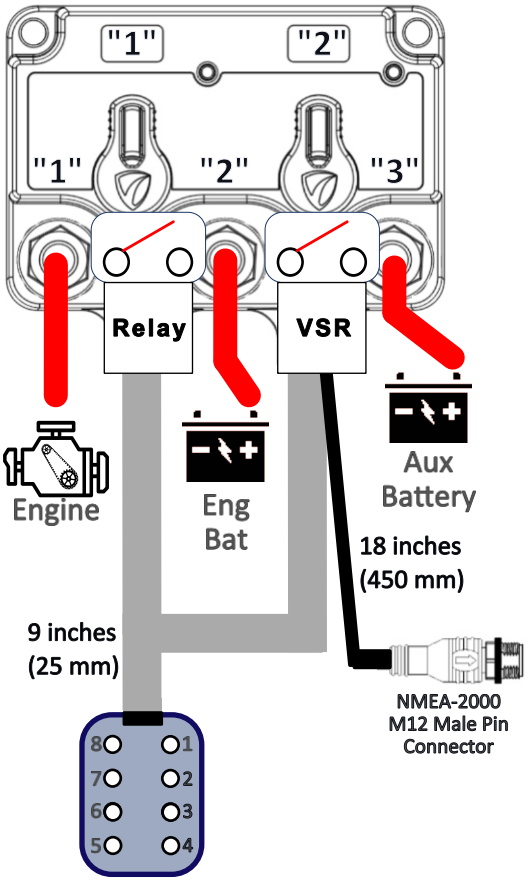
Dual XD NMEA 2000
Left Relay / Right VSR

Fig 15 - Dual XD Generic Wiring

Example Wiring Schematic, Many different approaches are possible depending on system requirements. VSR senses voltage on both connected adjacent studs to determine automatic On.

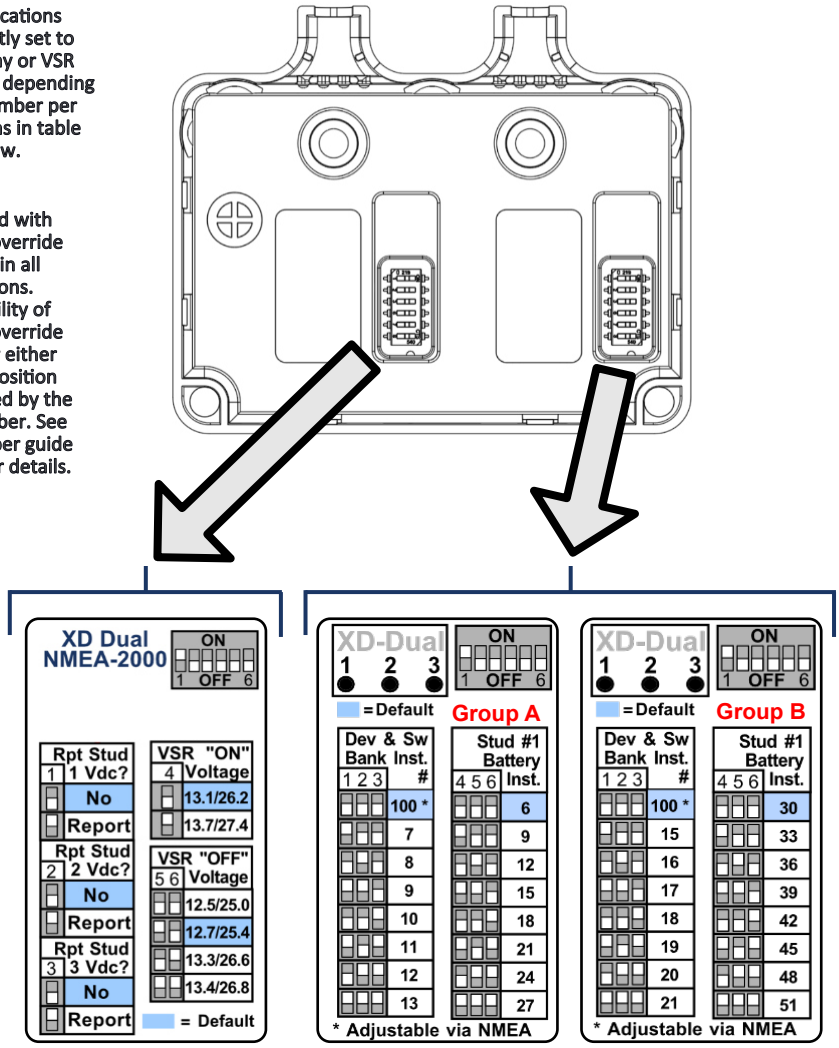


Connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-8S plug mating connector or cuts & uses individual wire terminations. See table below for wiring.

Fig 16 - Dual XD Dip Switches

Switch locations permanently set to either Relay or VSR functionality depending on part number per designations in table below.

Depicted with manual override knobs in all locations. Availability of manual override knob for either switch position determined by the part number. See part number guide for further details.



SEE DIP SWITCH EXPLANATION ON PAGE 2

6 Pin Connector Functions	Pin #	Wire Color
Ground, Protect w/ 7.5 - 10.0 A Fuse (Required)	1	Black
Switch 1 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	2	Brown
Switch 1 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	3	Green
Switch 2 Rem Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	4	Brown
Switch 2 Rem Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	5	Green
Switch 1 External LED (Pulls Down to Ground, Optional)	6	Yellow
Switch 2 External LED (Pulls Down to Ground, Optional)	7	Yellow
No Connect (Cavity Plug)	8	-

*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

Part Numbers

Left Switch Knob	Left Switch Setting	Right Switch Knob	Right Switch Setting	Group A Bulk PNs	Group B Bulk PNs
Yes	Relay	Yes	VSR	*9821-8530B	9822-8530B
Yes	Relay	No	VSR	9821-8540B	9822-8540B
No	Relay	Yes	VSR	9821-8630B	9822-8630B
No	Relay	No	VSR	9821-8640B	9822-8640B

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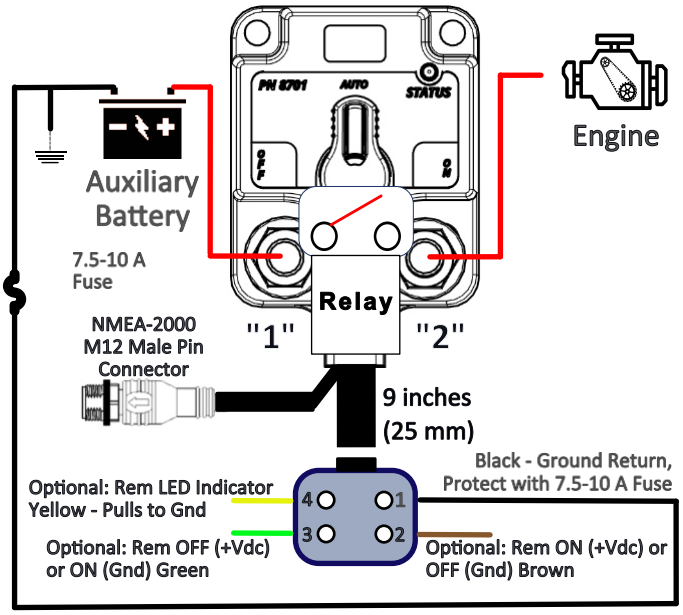
Single XD NMEA 2000
Relay

Fig 17 - Single XD Generic Wiring



Connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-4S plug mating connector or cuts & uses individual wire terminations. See table below for wiring.

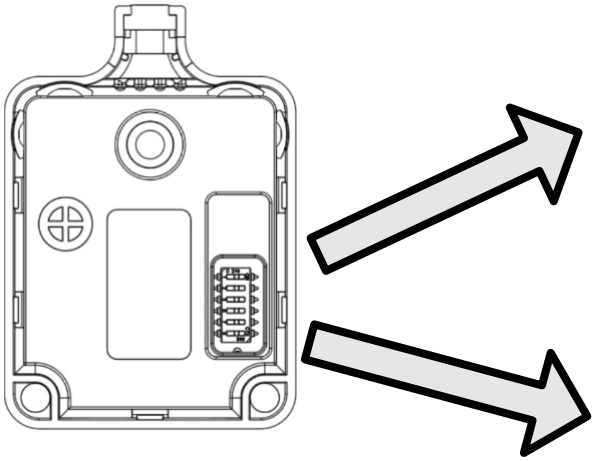
4 Pin Connector Functions	Pin #	Wire Color
Ground, Protect w/ 7.5 - 10.0 A Fuse (Required)	1	Black
Remote Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	2	Brown
Remote Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	3	Green
External LED (Pulls Down to Ground, Optional)	4	Yellow

Part Numbers

Switch Configuration	Device ID Group Variation	With Knob PNs	No Knob PNs
Relay	Group A	*9811-4500B	9811-4600B
Relay	Group B	9812-4500B	9812-4600B

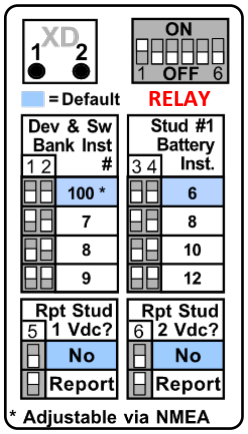
*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

Fig 18 - Single XD Dip Switches

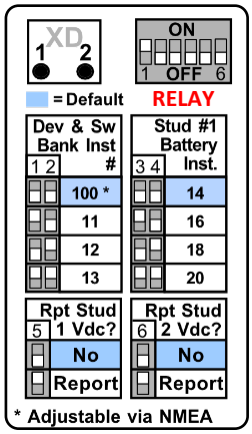


SEE DIP SWITCH EXPLANATION ON PAGE 2

Group A Options



Group B Options



SEE DIP SWITCH EXPLANATION ON PAGE 2

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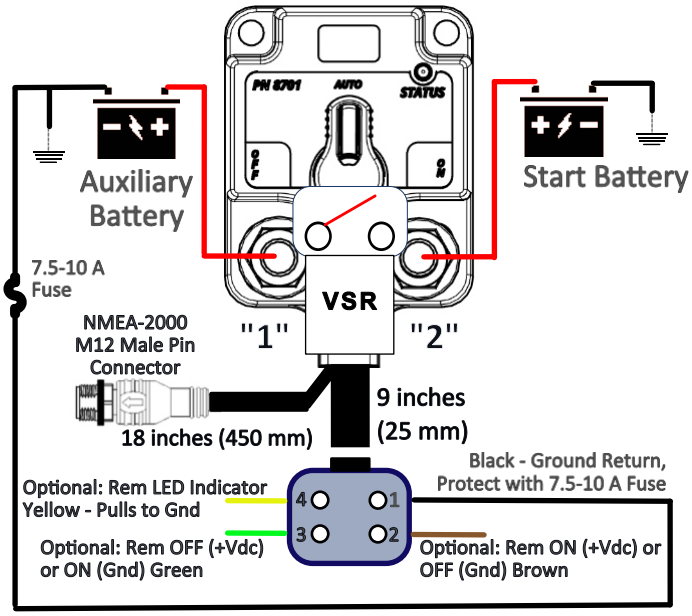
Single XD NMEA 2000
AGM VSR & LITHIUM VSR

Fig 19 - Single XD Generic Wiring



Connector end. Pin-out shows view from mating end of connector. Customer supplies DT06-4S plug mating connector or cuts & uses individual wire terminations. See table below for wiring.

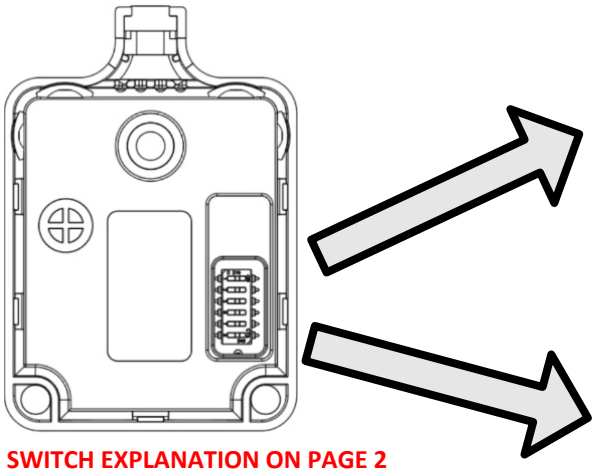
4 Pin Connector Functions	Pin #	Wire Color
Ground, Protect w/ 7.5 - 10.0 A Fuse (Required)	1	Black
Remote Ctrl ON(+Vdc) / OFF(Gnd) Signal (Optional)	2	Brown
Remote Ctrl OFF(+Vdc) / ON(Gnd) Signal (Optional)	3	Green
External LED (Pulls Down to Ground, Optional)	4	Yellow

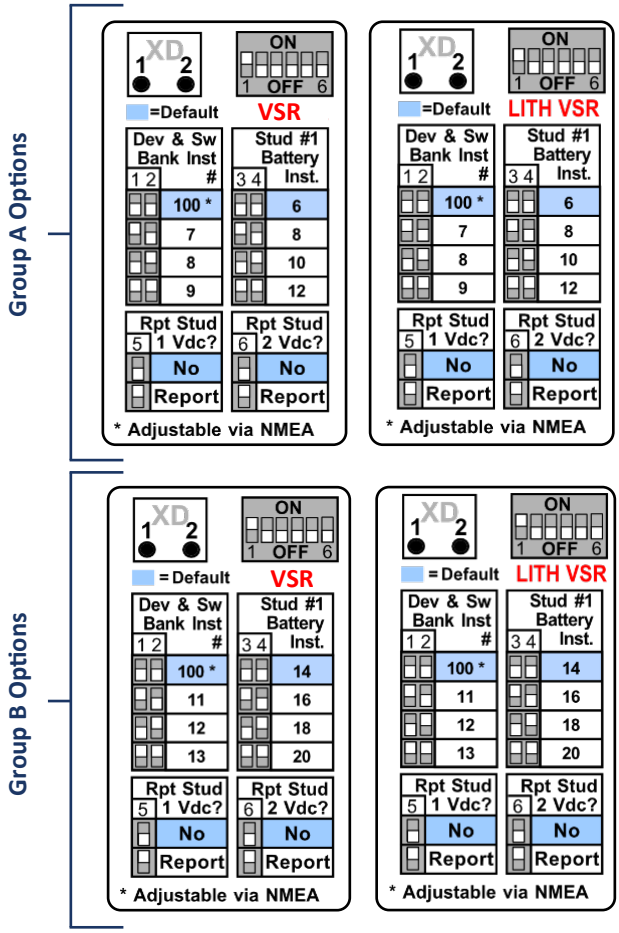
Part Numbers

Switch Configuration	Device ID Group Variation	With Knob PNs	No Knob PNs
VSR	Group A	*9811-4300B	9811-4400B
VSR	Group B	9812-4300B	9812-4400B
Lithium VSR	Group A	*9815-4300B	9815-4400B
Lithium VSR	Group B	9816-4300B	9816-4400B

*Standard Recommended Product Variation. Consult factory for availability of other part numbers shown or other custom solutions including control wire termination or removing knobs from one or more switch locations.

Fig 20 - Single XD Dip Switches





SEE DIP SWITCH EXPLANATION ON PAGE 2

VSR ON/OFF VOLTAGES: The single XD NMEA 2000 device does not have the ability to adjust ON or OFF voltages when set from the factory as a VSR. This is due to the dip switches being used for NMEA 2000 configuration. The ON and OFF VSR voltages are set from the factory as the following:

Standard VSR
ON 13.1 Vdc (26.2 Vdc)
OFF 12.7 Vdc (25.4 Vdc)

Lithium VSR
ON 13.6 Vdc (27.2 Vdc)
OFF 13.3 Vdc (26.6 Vdc)

SEE DIP SWITCH EXPLANATION ON PAGE 2

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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.