

XD Series Flex 2 Single/Double/Triple Bi-Stable Relays & VSR/ACRs

500 Amp Continuous Capability Per Relay / Extremely Compact Footprint

Available With or Without Intuitive Front Facing Manual Override Knobs with Ability to Lock Relays ON or OFF for Servicing

Flexible Functionality via Dip Switches, utilize each as a Relay/Battery Disconnect, Voltage Sensing Relay, or Low Voltage Disconnect

Improved Alternative Replacement to Legacy Remote Switching Solutions.

Remote ON/OFF/Auto Inputs Allows Forced Close or Open or Allowing Automatic Operation Based on Voltage Sensing

Local and Remote LED Indicators Per Relay

Mechanical Only Contactor Options











Ultra-Low Power Draw: Lowest off-state current draw in industry (1.3 mA) combined.



Simple & Robust Installation: Sealed plugs/ harnesses included.



Flexible Application Options: Install as a Remote Battery Disconnect Switch, Voltage Sensing Relay, or Low Voltage Disconnect. On/Off trigger via external signal and/or alternator voltage sense.



Diagnostic Feedback via optional external LEDs control lines and on-board LEDs for each relay



Bullet-proof Construction: Sealed unit, high temperature materials allow mounting anywhere on vehicle. Integrated thermal overload protection



Optional Kill Switch eliminates need for using thermal circuit breakers as service maintenance switches, reducing voltage drop to electrical loads.



Meets Stringent OEM Standards for electrical transient self-protection



4 Year Industry Leading Warranty

Install Guidelines & Dip Switch Settings

(1) DISCONNECT BATTERY FROM POWER DISTRIBUTION SYSTEM BEFORE INSTALLING PRODUCT TO PREVENT ELECTRICAL SHOCK OR PRODUCT DAMAGE (2) INSTALL A 7.5 - 10.0 A FUSE ON THE BLACK GROUND RETURN WIRE

(3) DIP SWITCHES ARE SET FOR INDIVIDUAL RELAYS WITHIN AN XD RELAY WITH TWO OR MORE RELAY POSITIONS



DS1 determines the function of the device. If DS1 = OFF, relay will act as a simple Battery Disconnect SwitCh Remote Relay. If DS1 = ON, relay will operate as a Voltage Sensing Relay (VSR) and will utilize DS2-DS6 to determine VSR response per individual application requirements

VSR "ON	VSR "OFF"		
2 3 Voltage	e 456 Voltage		
12.5/	11.4/22.8		
12.9/	11.7/23.4		
	12.0/24.0		
26.2	12.3/24.6		
13.5/	12.4/24.8		
VSR or	12.5/25.0		
	12.6/25.2		
	12.7/25.4		
Relay	= Default		

DS2-DS3: Determines 120 sec ON Trigger Voltage, 30 sec ON Voltage is 0.6 (1.2) Vdc higher. Once above this voltage, time delay to turning the relay ON is counting until ON event. If voltage is less than this setting, time delay is re-set to 0.

DS4-DS6: Determines OFF Trigger Voltage. See methods of operation for device response to voltages below this setting. Setting below 12.7 (25.4) Vdc allows accessory loads partial use of start battery energy, while ensuring sufficient starting ability.

General Specifications (Each Relay)

Input Voltage Range (Vdc)	8.0 - 36.0 Auto-Ranging		
Nominal Voltage (Vdc)	12	24	
Over Voltage Protection (Vdc) (5 sec)	17.0	34.0	
State Change Current (20 msec)	5.0 A	3.0 A	
Standby Current (mA)	1.3	1.3	
Live Current Switching -50,000 cycles	12V/300A	24V/300A	
Mechanical Switching Life	1,000,00	0 cycles	
2/0 AWG - 30sec/5min/Continuous	1000 / 400 / 225 Amps		
4/0 AWG - 30sec/5min/Continuous	1100 / 400	/ 300 Amps	
2x 4/0 AWG - 30sec/5min/Cont.	1600 / 700	/ 500 Amps	
Hardware Material	Stainless Stee	l Self-Locking	
Terminal Stud Torque	120 i	n-lbs	
LED/Aux Output Max Drive Current	400 mil	li-Amps	
Typ Source Current for All Ctrl Lines	10 micr	o-Amps	
Operating Temperature Range	-40 to	105 C	
Ignition Protection	SAE J1171	/ ISO 8846	

_LED Indicators	Local LED	Rem LED
Relay OFF - Normal	Off	Off
	On w/3x Off	011
Relay On - Pending Off	Flashes	On
Relay Off - Pending On	Off w/3x On Flashes	Off
Relay Off - Start Isolation Mode	Off w/4x On Flashes	Off
Relay Off - Over-Voltage Mode	Off w/5x On Flashes	Off
Manual Override Engaged	Off w/2x On Flashes	Off w/2x On Flashes
Relay Off - Power Hibernation Mode	Off w/1x On Flash	Off
Power Up / Manual Mode Exited and Pending On or Off Event	Continuous Flashing	Off

Detailed Operational Modes & Responses

Relay Mode - Relay Closes (Turns ON) Immediately if:
1) Voltage on Either Input to Relay > 9 Vdc (minimum operating Voltage) and either any of the following two conditions exist:
2) Rem On/Off Ctrl (Red) wire is connected to +Vdc (maintain if desire is for device to stay Closed) or
3) Momentary ON Signal Wire (Brown) is Connected to +Vdc Until Device Closes, Up to 3 seconds. (+Vdc may then remain or be removed while device remains Closed either way)

- 4) DS1 = Off, Setting Device as an Simple Relay Relay Mode - Relay Open (Turns OFF) Immediately if:
- (clay Mode Relay Open (Turns OFF) Immediately II:
 1) Voltage on Either Input to Relay > 9 Vdc (minimum operating Voltage) and either any of the following three conditions exist:
 2) Rem On/Off Ctrl (Red) wire changes from +Vdc to Floating or
 3) Rem On/Off Ctrl (Red) wire is connected to Ground (may be momentarily or permanently connected for device to stay Closed) or
 4) Momentary OFF Signal Wire (Green) is Connected to +Vdc Until Device Opens, Up to 1 Second (+Vdc may then remain or be removed while device will remain Open either way)
 5) Rem Ctrl (Red) wire and Momentary ON Signal Wire (Brown) must not have +Vdc applied, they will override Off Signal from Green Wire
 6) DS1 = Off, Setting Device as an Simple Relay
- VSR Mode Relay Closes (Turns ON) after 120 sec if:
 - 1) Voltage on Either Input > V_On as determined by DS2-DS3 and 2) Rem Ctrl (Red) wire is not connected to +Vdc or Gnd and 3) Start Isolation Input Wires SI#1 (Brown) and SI#2 (Green) Not Connected to +Vdc
- 4) DS1 = On, Setting Device as an Voltage Sensing Relay (VSR) VSR Mode - Relay Closes (Turns ON) after 30 sec if:
 - 1) Voltage on Either Input to Relay > V_on + 0.6 V (1.2V if on 24V System) as determined by DS4-DS6 and
 - 2) Rem Ctrl (Red) wire is not connected to +Vdc or Gnd
 3) Start Isolation Input Wires SI#1 (Brown) and SI#2 (Green) Not Connected to +Vdc

4) DS1 = On, Setting Device as an Voltage Sensing Relay (VSR) VSR Mode - Relay Automatically Opens (Turns OFF) if: 1) Voltage on Either Input < V_Off as determined by DS4-DS6 and

- 1) Voltage on Either Input < V_Off as determined by DS4-DS6 and 2) Rem Ctrl (Red) wire is not connected to +Vdc or Gnd and 3) Start Isolation Input Wires SI#1 (Brown) and SI#2 (Green) are Not
- Connected to +Vdc and 4) DS1 = On, Setting Device as an Voltage Sensing Relay and 5) At least 120 sec has passed since the device was either forced Closed by the Red input wire or the device automatically Closed and 6) The advanced charge management algorithm has determined that any electrical charging, if operating, is not equal to or great than the electrical loads discharging the connected batteries. SB Mode Relay Opena (Turne OEE) after 15 cosi if
- VSR Mode Relay Opens (Turns OFF) after 15 sec if: 1) Voltage on Either Input to Relay > Over-voltage set point for 15 continuous seconds and
- 2) Rem Ctrl (Red) wire is not connected to +Vdc or Gnd
- VSR Mode Relay Immediately Closes (Turns ON) Immediately if: 1) Voltage on Either Input > 9 Vdc (minimum operating Vdc) and 2) Rem Ctrl (Red) wire is connected to +Vdc
- 2) Rem Ctrl (Red) wire is connected to +Vdc
 VSR Mode Relay Immediately Opens (Turns OFF) immediately if:

 Voltage on Either Input to Relay > 9 Vdc (minimum operating Voltage) and either any of the following three conditions exist:
 - 2) Rem Ctrl (Red) wire is connected to Gnd
 - 3) Start Isolation Input Wire SI#1 (Brown) is Connected to +Vdc
 4) Start Isolation Input Wire SI#2 (Green) is Connected to +Vdc
- 4) Start Isolation Input Wire SI#2 (Green) is Connected to +Vdc
 VSR Mode Start Isolation Prevents Voltage Based Automatic Closing:
 1) For as long as one or more of the two Start Isolation Lines SI#1 and/or SI#2 have +Vdc applied on the wires
- 2) For 3 minutes after +Vdc is no longer applied to both Start Isolation Lines SI#1 and/or SI#2 have +Vdc applied on the wires Manual Override Prevents Remote or Voltage Based Open or Closing:
- 1) For as long as the manual knob (if equipped) is not positioned in the "Auto/Rem" orientation

Upon Startup or Returning Device from Manual to Auto/Rem Mode:
1) The remote LED will remain OFF regardless of the physical status of the VSR until the VSR is remotely forced ON/OFF or automatically attempts to turn itself ON/OFF.
2) The local LED will rapid flash if the device has an input voltage that would dictate a pending ON or OFF is necessary.







Fig 1 - Relay Mode - Control Wiring Options





www.egismobile.com 360.768.1211 Bellingham, WA U.S.A



Fig 2 - Mechanical Only Contactor Option



Fig 4 - Triple XD Series - Dimensions

Fig 5 - Dual XD Series - Dimensions









Fig 7 - Triple XD - 88 Series (DTM Connectors) Diagram (Matches Legacy Remote Relay Solutions)









Fig 9 - Triple XD - 87 Series (Mech Only Bat Sw)

Fig 10 - Triple XD - 88 Series (Mech Only Versions)



12 Pin Connector Functions (Fig 11)	#	Color
Ground (Required), Protect w/ 7.5 - 10.0 A Fuse	1	Black
Relay 1 Rem Ctrl Signal (Optional / Recommended)	2	Red
Relay 1 Rem Indicator (Active Low), (Optional)	3	Yellow
Relay 2 Rem Ctrl Signal (+Vdc/Float/Gnd)	4	Red
Relay 2 Rem Indicator (Optional / Recommended)	5	Yellow
Relay 2 Start Isolation #1 Input (Optional)	6	Brown
Relay 2 Start Isolation #2 Input (Optional)	7	Green
Relay 3 Rem Ctrl Signal (Optional / Recommended)	8	Red
Relay 3 Rem Indicator (Active Low), (Optional)	9	Yellow



6 Pin DT Connector Eurotions (Eig 10)		vvire	
	#	Color	
Ground (Required), Protect w/ 7.5 - 10.0 A Fuse	1	Black	
Relay 2 Rem Ctrl Signal (Optional / Recommended)	2	Red	
Relay 2 Start Isolation #1 / Relay Mode OFF (+Vdc)	3	Brown	
Relay 2 Rem Indicator (Active Low), (Optional)	4	Yellow	
Relay 2 Start Isolation #2 / Relay Mode ON (+Vdc)	5	Green	
Relay 2 Rem Ctrl Signal (Optional / Recommended) Relay 2 Start Isolation #1 / Relay Mode OFF (+Vdc) Relay 2 Rem Indicator (Active Low), (Optional) Relay 2 Start Isolation #2 / Relay Mode ON (+Vdc)	2 3 4 5	Red Brown Yellow Green	

Settings (Fig 9 & 10)							
<u>Left Relay</u> <u>Center Relay</u> <u>Right Relay</u>							
s							
В							
В							
В							
В							

Triple XD Relay Part Numbers and Dip Switch							
<u>Settings (Fig 10)</u>							
<u>Left Relay</u> <u>Center Relay</u> <u>Right Relay</u>							
Knob	Setting	Knob	Setting	Knob	Setting	Bulk PNs	
Yes	Relay	Yes	VSR	Yes	Relay	8830-2535B	
Yes	Relay	No	VSR	Yes	Relay	8830-2545B	
Yes	Relay	Yes	Relay	Yes	Relay	8830-2555B	
No	Relay	Yes	VSR	No	Relay	8830-2636B	
No	Relay	No	VSR	No	Relay	8830-2646B	
No	Relay	No	Relay	No	Relay	8830-2666B	







Fig 12 - Dual XD - 87 Series (Flying Wires)



Brown - (VSR Mode) Start Isolation #1 (+Vdc) (Relay Mode) Turn ON (+Vdc)

Yellow - External LED / Relay (Ground when Relay Closed)

Fig 13 - Dual XD - 88 Series (DTM Connectors) (Matches Legacy Remote Relay Solutions)



6P or Cuts & Uses Individual Wire Terminations



www.egismobile.com 360.768.1211 Bellingham, WA U.S.A

Dual XD Relay Part Numbers and Dip Switch Settings (Fig 12)

left	≚ Relav	Riah	t Relay		
		<u>Might Aciay</u>			
Knob	Setting	Knob	Setting	Bulk PNs	
Yes	VSR	Yes	VSR	8720-1330B	
No	VSR	No	VSR	8720-1440B	
Yes	VSR	Yes	Relay	8720-1350B	
Yes	Relay	Yes	VSR	8720-1530B	
No	VSR	Yes	Relay	8720-1450B	
Yes	Relay	No	VSR	8720-1540B	
Yes	Relay	Yes	Relay	8720-1550B	
No	Relay	No	Relay	8720-1660B	
Yes	VSR	Yes	Mech Only	8720-1390B	
No	VSR	Yes	Mech Only	8720-1490B	
Yes	Relay	Yes	Mech Only	8720-1590B	

Mechanical Only (Mech Only) locations do not have an active remotely controllable relay or an automatic operation relay but instead offer only an "on-device" mechanical disconnect for that specific location

Dual XD Relay Part Numbers and Dip Switch						
Settings (Fig 13)						
<u>l</u>	<u>Left Relay</u>	<u>/</u>		Right Relay	<u>′</u>	
Knob	Setting	Term Seq	Knob	Setting	Term Seq	Bulk PNs
Yes	VSR	В	Yes	VSR	В	8820-1330B
No	VSR	В	No	VSR	В	8820-1440B
Yes	VSR	В	Yes	Relay	Α	8820-1350B
Yes	Relay	Α	Yes	VSR	В	8820-1530B
No	VSR	В	Yes	Relay	Α	8820-1450B
Yes	Relay	Α	No	VSR	В	8820-1540B
Yes	Relay	Α	Yes	Relay	Α	8820-1550B
No	Relay	Α	No	Relay	Α	8820-1660B
Yes	VSR	В	Yes	Mech Only	-	8820-1390B
No	VSR	В	Yes	Mech Only	-	8820-1490B
Yes	Relay	В	Yes	Mech Only	-	8820-1590B

Mechanical Only (Mech Only) locations do not have an active remotely controllable relay or an automatic operation relay but instead offer only an "on-device" mechanical disconnect for that specific location



6P or Cuts & Uses Individual Wire Terminations

R



Fig 14 - Dual XD - 88 Series (Mounts Left of Triple)

Fig 15 - Dual XD - 88 Series (Mounts Right of Triple)













A) 8710-1xxx Part Numbers Provide Flying Wires With Colors Matching the Same Functions Outlined on the Connector End Diagram, But Without the Connector.
 B) 8810-1xxx Part Numbers Use a DTM 06-6S Connector End. Customer Supplies DTM04-6P or Cuts & Uses Individual Wire Terminations.

C) 8810-6xxx Part Numbers Use an AT04-6P or DT04-6P Connector End. Customer Supplies AT06-6S or DT06-6S or Cuts & Uses Individual Wire Terminations.

6 Pin Connector Pin-Out Functions	Pin #	Wire Color
Ground Reference (Required)	1	Black
Single Wire Close/Open (See Pg 3, Relay Mode)	2	Red
Relay Close (See Pg 3 it Relay Mode, If Changed to VSR then Start Isolation #1 Function)	3	Brown
Remote Indicator	4	Yellow
Relay Open (See Pg 3 it Relay Mode, If Changed to VSR then Start Isolation #2 Function)	6	Green

<u>Single XD Part Numbers</u>						
Knob	Default Setting	Termination	Bulk PNs			
Yes	Relay	Flying Wires	8710-1500B			
Yes	Relay	6P ATM/DTM Conn	8810-1500B			
Yes	Relay	6P AT/DT Conn	8810-6500B			
No	Relay	Flying Wires	8710-1600B			
No	Relay	6P ATM/DTM Conn	8810-1600B			
No	Relay	6P AT/DT Conn	8810-6600B			
Yes	Mechanical Only	None	8710-1900B			

• Mechanical Only (Mech Only) locations do not have an active remotely controllable relay or an automatic operation relay but instead offer only an "on-device" mechanical disconnect for that specific location. No control wire terminations are present

Fig 17 - Single XD - 87/88 Voltage Sensitive Relay (VSR/ ACR) (DTM Version Matches Legacy Blue Sea System ACRs)



A) 8710-1xxx Part Numbers Provide Flying Wires With Colors Matching the Same Functions Outlined on the Connector End Diagram, But Without the Connector.

B) 8810-1xxx Part Numbers Use a DTM 06-6S Connector End. Customer Supplies DTM04-6P or Cuts & Uses Individual Wire Terminations.

C) 8810-6xxx Part Numbers Use an AT04-6P or DT04-6P Connector End. Customer Supplies AT06-6S or DT06-6S or Cuts & Uses Individual Wire Terminations.

6 Pin Connector Pin-Out Functions	Pin #	Wire Color
Ground Reference (Required)	1	Black
VSR ON/Auto/Off (If Changed to Relay Mode then Single Wire Close/Open (See Pg 3)	2	Red
Start Isolation #1 Function (If Changed to Relay then Relay Close (See Pg 3)	3	Brown
Remote Indicator	4	Yellow
Start Isolation #2 Function (If Changed to Relay then Relay Open (See Pg 3)	5	Green

Single XD Part Numbers			
Knob	Default Setting	Termination	Bulk PNs
Yes	VSR	Flying Wires	8710-1300B
Yes	VSR	6P ATM/DTM Conn	8810-1300B
Yes	VSR	6P AT/DT Conn	8810-6300B
No	VSR	Flying Wires	8710-1400B
No	VSR	6P ATM/DTM Conn	8810-1400B
No	VSR	6P AT/DT Conn	8810-6400B





