

**500 Amp Continuous Capability / Extremely Compact Footprint**

**Available With or Without Intuitive Front Facing Manual Override Knob with Ability to Lock Device ON or OFF for Servicing**

**Flexible Functionality via Dip Switches, utilize as a Relay/Battery Disconnect, Automatic Charging Relay, or Low Voltage Disconnect**

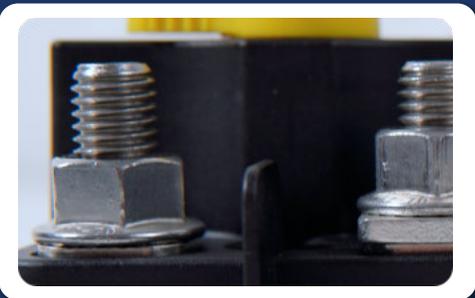
**Supports Single/Multiple Engine Installations with Dual Start/Engine Isolation Inputs**

**Remote ON/OFF/Auto Input Allows Forced Close or Open or Allowing Automatic Operation based on Voltage**

**Local and Remote LED Indicators**



**PATENT PENDING**



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

 **Simple & Robust Installation:** Sealed plug/harness included. Combined timer & high-amp relay reduces install time/costs. Optional output bus bar connects RT or CT fuse blocks.

 **Flexible Application Options:** Install as a Time Delay Relay, Battery Management Relay, Low Voltage Disconnect, or Simple Relay. On/Off trigger via external Ignition signal and/or alternator voltage sense and adjustable low voltage protection levels increase flexibility

 **Adjustable Optional OFF Time Delay:** 0 seconds to 4 hours.



**Diagnostic Feedback** via optional external led and on-board LEDs



**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 ELECTRICAL SYSTEM BEFORE INSTALLING
- (2) INSTALL A 7.5 - 10.0 A FUSE ON THE BLACK GROUND RETURN WIRE
- (3) DIP SWITCHES ARE SET FOR EACH INDIVIDUAL RELAY POSITION WITHIN AN XD RELAY WITH TWO OR MORE RELAY POSITIONS

DIP SWITCH ON BOTTOM OF DEVICE

OFF Delay Time	Low Volt Disc Setting
1 2	3 4 5
OFF	OFF
15 m	12.0/24.0
30 m	12.1/24.2
60 m	12.2/24.4
Charge Sense	12.3/24.6
ON	12.4/24.8
OFF	12.5/25.0
	12.6/25.2

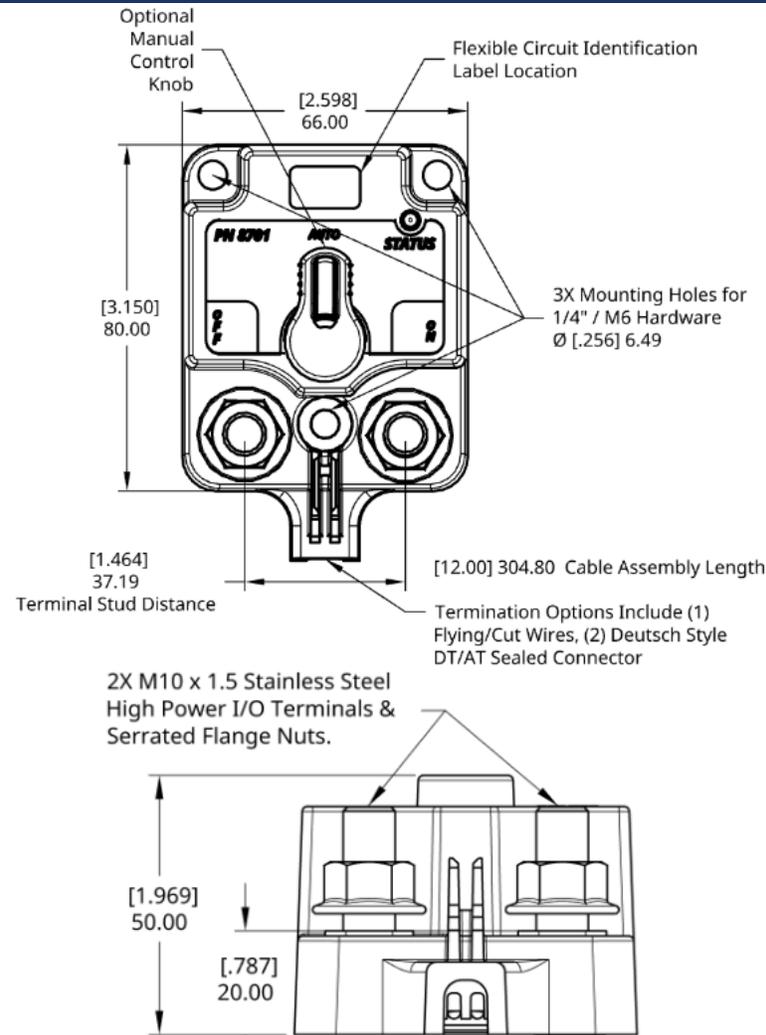
= Factory Default

DS1-DS2 sets delay between Off Trigger and Relay OFF. OFF is for install testing or pure relay functionality without time delay

DS3-DS5 defines LVD disconnect voltage (15 sec delay), overrides time delay if both are enabled)

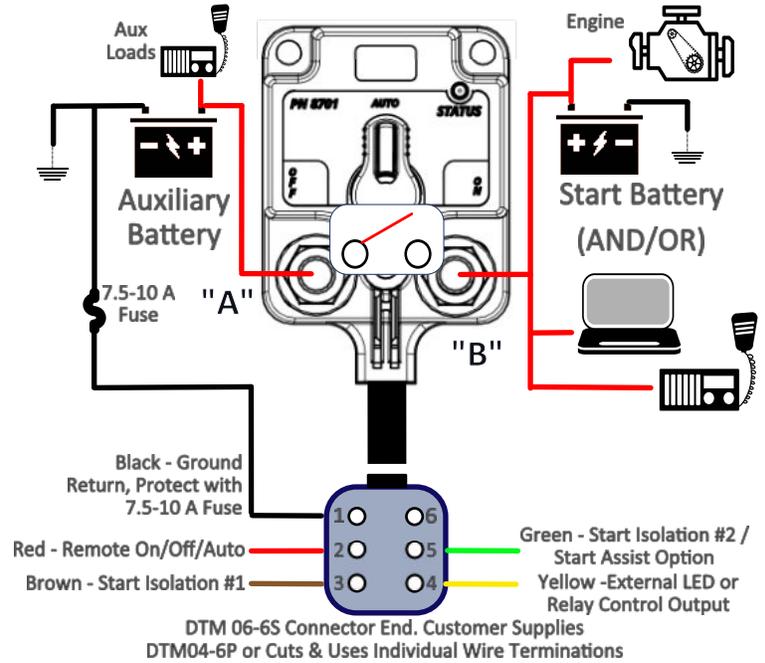
DS6 determines if input stud Voltage Sense will trigger Relay ON/OFF events. IF DS1-DS5 are OFF while DS6 is ON, device will act as an automatic charging relay (see next page for various modes of operation based on dip switches.

## Dimensions



\* Custom product configurations available including control harness wires, time delays, voltage settings, dip switch functionality, and control input functionality. Low minimum quantities and short lead time for samples or production. Contact support@egismobile.com

## System Diagram



## Specifications

Input Voltage Range (Vdc)	8.0 - 36.0 Auto-Ranging	
Nominal Voltage (Vdc)	12	24
V <sub>Close</sub> Voltage Trigger (Vdc)	13.1	26.2
V <sub>Open</sub> Voltage Trigger (Vdc)	12.7	24.4
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	1,000,000 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 Steel Self-Locking	
Terminal Stud Torque	120 in-lbs	
LED/Aux Output Max Drive Current	400 milli-Amps	
Min Source Current for Inputs	10 micro-Amps	

## Part Numbers Knob Connection Resell Pack Bulk Pack

Part Number	Knob	Connection	Resell Pack	Bulk Pack
XD Flex Relay/ACR	Yes	Tinned Wire	8710-1100	8710-1100B
XD Flex Relay/ACR	No	Tinned Wire	8710-1200	8710-1200B
XD Flex Relay/ACR	Yes	Deutsch DTM	8810-1100	8810-1100B
XD Flex Relay/ACR	No	Deutsch DTM	8810-1200	8810-1200B

## Related Products

Product	Knob	Resell Pack	Bulk Pack
XD Battery Disconnect Switch	Yes	8710-1500	8710-1500B
XD Battery Disconnect Switch	No	8801-1600	8810-1600B
XD Automatic Charging Relay ACR	Yes	8710-1300	8710-1300B
XD Flex - Relay / ACR / LVD	No	8810-1110	8810-1110B



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## Methods of Operation

### Remotely Operated Relay Mode- Specific Functions

Flex Relay Opens (Turns OFF) within 0-3 seconds if:

- 1) Rem Ctrl (Red) wire loses +Vdc and shift to Gnd or Floating Line

Flex Relay Closes (Turns ON) within 0-3 sec if:

- 1) Rem Ctrl (Red) wire is connected to +Vdc

### Automatic Charging Relay (ACR) Mode - Specific Functions

Flex Relay Automatically Opens (Turns OFF) after 10 sec if:

- 1) Voltage on Either Input to Relay < V\_Open and
- 2) Rem Ctrl (Red) wire is not connected to +Vdc

ACR Relay Automatically Closes (Turns ON) after 3 sec if:

- 1) Voltage on Either Input to Relay > V\_Close
- 2) Rem Ctrl (Red) wire is not connected to Gnd
- 3) Start Isolation Input Wires SI#1 (Brown) and SI#2 (Green) Not Connected to +Vdc

### Low Voltage Disconnect (LVD) Mode - Specific Functions

Flex Relay Closes (Turns ON) if:

- 1) Voltage on Either Input to Relay > V\_Close if V\_Sense = ON and Start Isolation Input Wires SI#1 (Brown) and SI#2 (Green) Not Connected to +Vdc and Rem Ctrl (Red) wire not connected to +Vdc
- 2) Rem Ctrl (Red) wire is connected to +Vdc

Flex Relay Automatically Opens (Turns OFF) after 15 sec if:

- 1) Voltage on Either Input to Relay < V\_LVD per DS3-DS4 and Rem Ctrl (Red) wire is not connected to +Vdc or Gnd

### Time Delay Off Mode - Specific Functionality

Flex Relay Begins Time Delay Countdown if DS1 or DS2 = ON and the following conditions occur and remain for T\_Delay per DS1 & DS2:

- 1) Voltage on Either Input to Relay < V\_Open DS6 (V\_sense) = ON and Rem Ctrl (Red) wire is not connected to +Vdc or Gnd, or:
- 2) V\_Sense =OFF and Rem Ctrl (Red) wire changes from +Vdc to Float or Gnd

### Flex Relay General Functionality

Flex Relay Opens (Turns OFF) immediately if:

- 1) 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 and Ctrl (Red) wire is not connected to Gnd
- 4) Start Isolation Input Wire SI#2 (Green) is Connected to +Vdc and Ctrl (Red) wire is not connected to Gnd

Start Isolation Triggering 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 Mode Prevents 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 the Relay from Manual to Auto/Rem Mode:

- 1) The remote LED will remain OFF regardless of the physical status of the Relay until the Relay 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.

\*\*\* Response time to Relay ON trigger may vary due to device hibernation timing. Response to successive ON/OFF triggers may be delayed due to internal relay timing protections

## Local / Remote LED Indicators

Flex Relay Status	Local LED	Rem LED
Relay OFF - Normal	Off	Off
Relay ON - Normal	On	On
Relay On - Pending Off	On w/3x 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 - Under/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

*Priority of Input Response: Flex Relay will utilize the following priority in general when deciding which inputs to follow when a conflict between inputs is present Responses*

- 1) Remote Ctrl (Red) Wire
- 2) Manual Knob control (if equipped)
- 3) Low Voltage Protection / Over-Voltage Protection
- 4) Start Isolation Lines SI#1 & SI#2
- 5) Automatic Operation via Voltage Sensing of Input Studs (if enabled)

## Flex Relay Configuration Options

Function	Time Delay	LVD Protect	Voltage Sense
	DS1-2	DS3-5	DS6
Remotely Operated Relay	All OFF	All OFF	OFF
Remotely Operated Relay with Off Time Delay	Enable	All OFF	OFF
Low Voltage Disconnect: Remotely Closed Relay with Voltage Based Off	All OFF	Enable	OFF
Remotely Operated Relay with Off Time Delay and Low Voltage Protection During Time Delay	Enable	Enable	OFF
Automatic Charging Relay (ACR) with Ability to Remotely Force On/OFF	All OFF	All OFF	ON
Remote or Voltage Triggered Relay with Off Time Delay	Enable	All OFF	ON
Low Voltage Disconnect: Remote or Voltage Triggered Closing Relay With voltage Based Off	All OFF	Enable	ON
Remote or Voltage Triggered Closing Relay with Remote and Voltage Based Off Trigger with Time Delay and Low Voltage Protection During Time Delay	Enable	Enable	ON



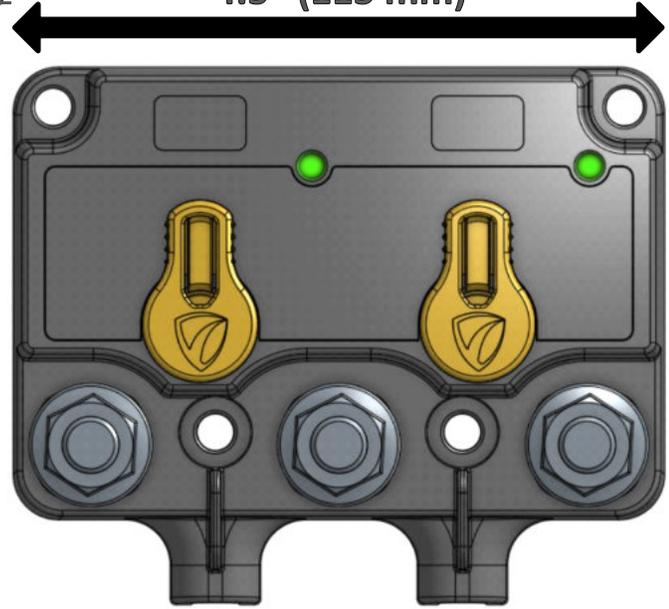
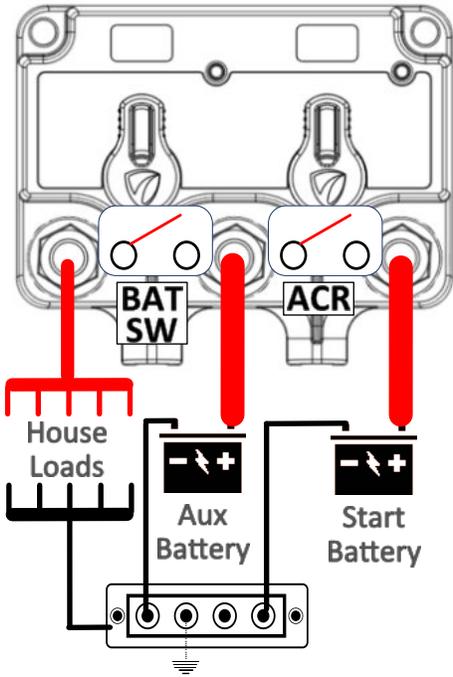
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### 8720 - Dual XD Relay

4.5" (115 mm)

Ex: 8720-1530

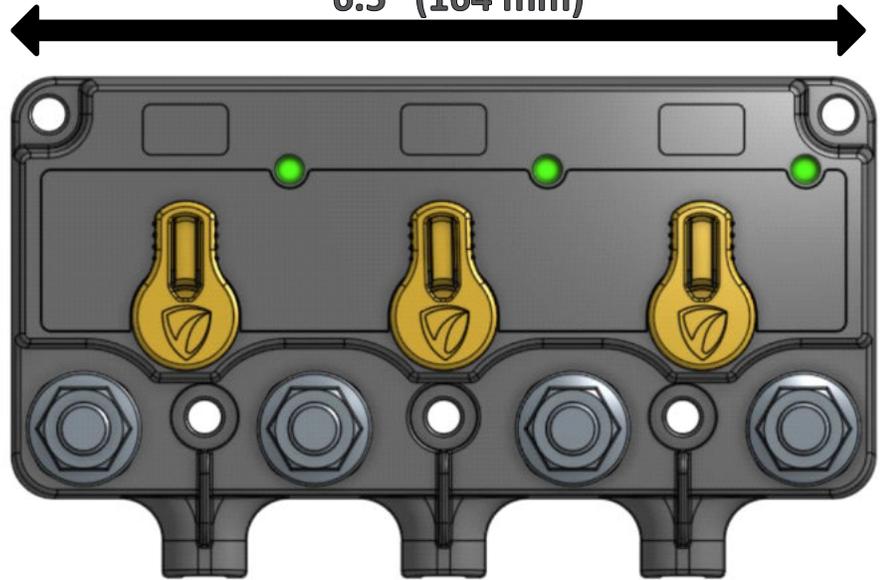
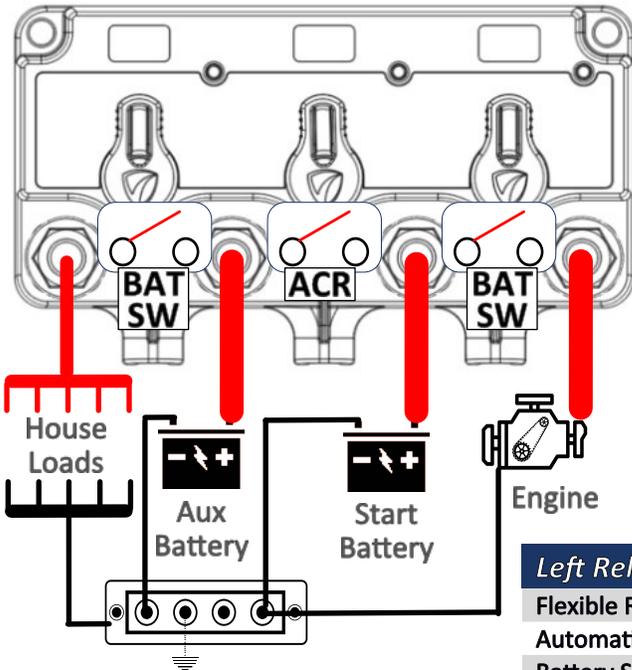


Left Relay Function	Right Relay Function	Part #
Flexible Relay/ACR/LVD	Flexible Relay/ACR/LVD	8720-1110B
Automatic Charge Relay	Battery Switch Relay	8720-1250B
Battery Switch Relay	Automatic Charge Relay	8720-1520B
Automatic Charge Relay	Automatic Charge Relay	8720-1330B

### 8730 - Triple XD Relay

6.5" (164 mm)

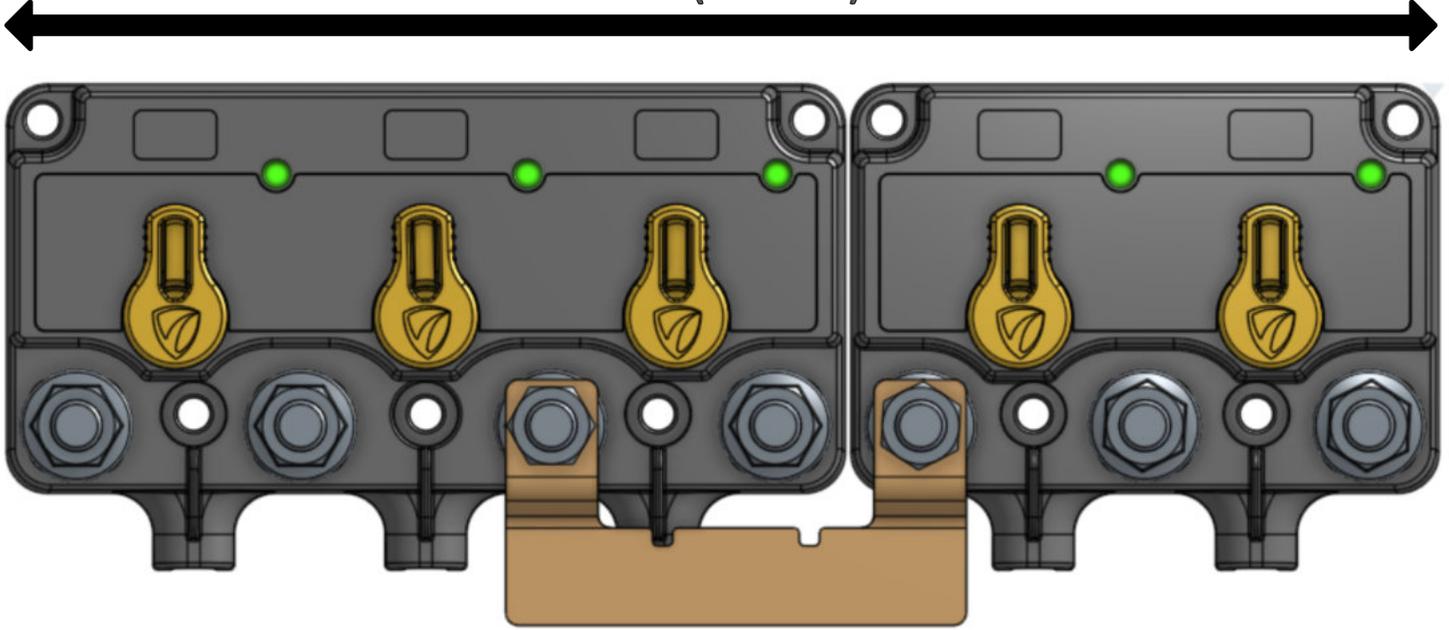
Ex: 8730-1535



Left Relay Function	Center Relay Function	Right Relay Function	Part #
Flexible Relay/ACR/LVD	Flexible Relay/ACR/LVD	Flexible Relay/ACR/LVD	8730-1111B
Automatic Charge Relay	Automatic Charge Relay	Automatic Charge Relay	8730-1333B
Battery Switch Relay	Automatic Charge Relay	Battery Switch Relay	8730-1535B

### Triple Battery Relay / ACR Cluster

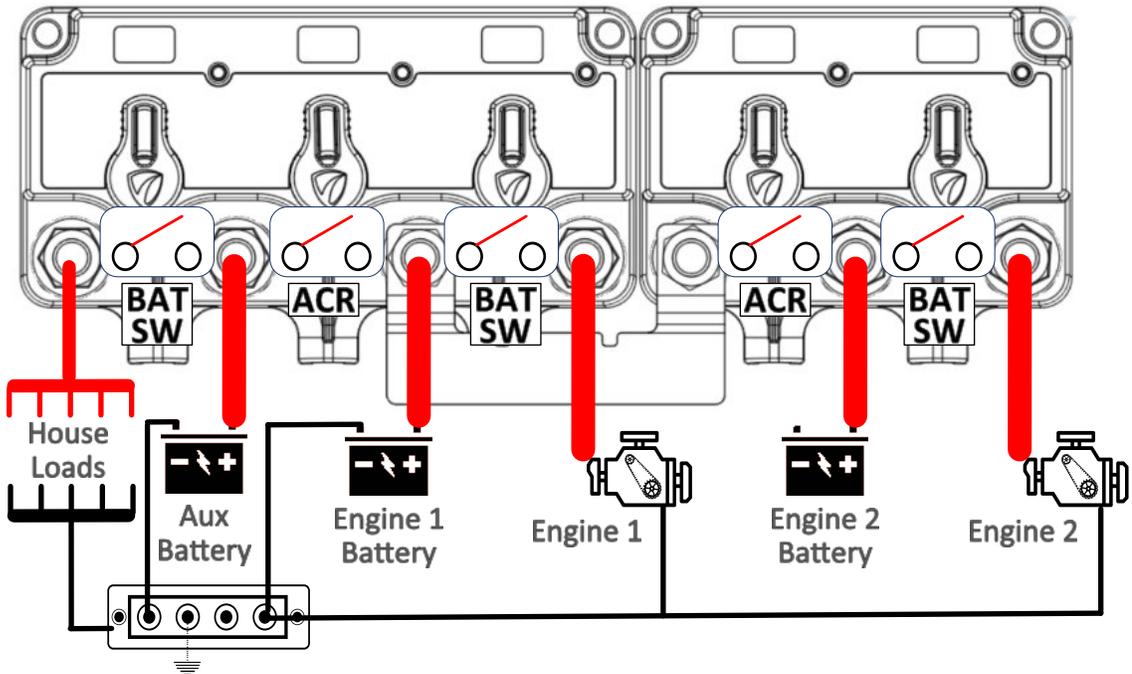
11" (280 mm)



901701 Cross-Over Busbar

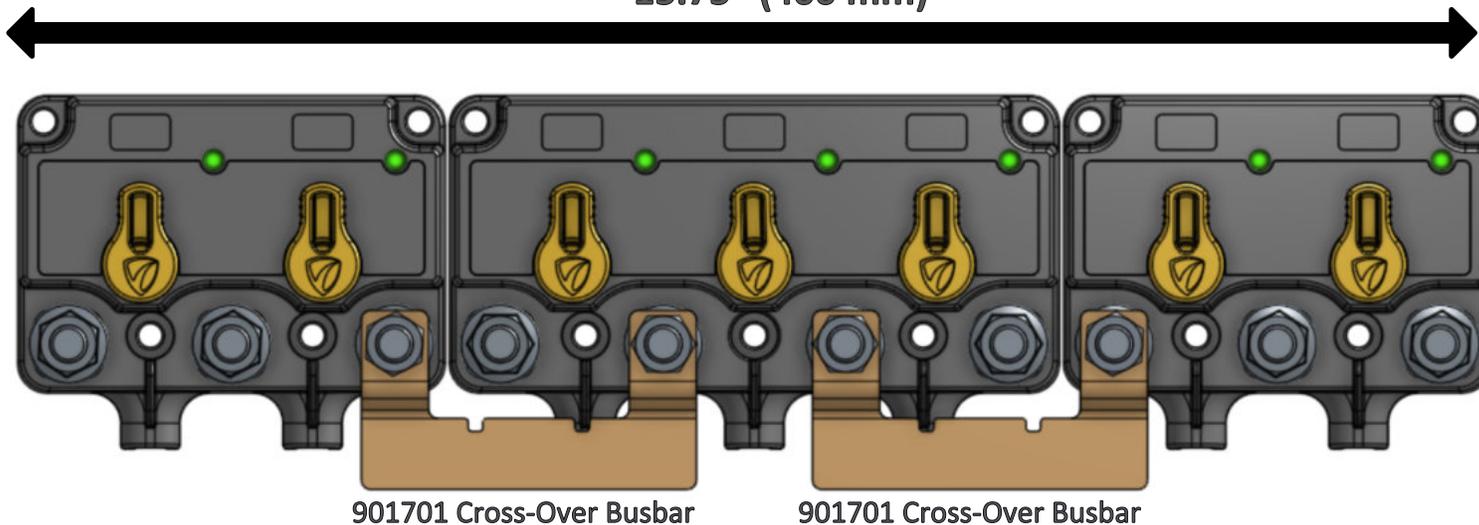
Ex: 8730-1535

Ex: 8720-1350



### Quad Battery Bank Relay / ACR Cluster

15.75" (400 mm)



Ex: 8720-1530

Ex: 8730-1535

Ex: 8720-1350

