

**Two Independent ACRs in One Device** reduce installation space and time. Significantly lowers off-state current draw

**Adjustable Auxiliary Battery Priority** provides variable voltage points for each relay to share engine battery energy without sacrificing ability to start

**Start/Engine Isolation and Start Assist** functions are optional for each relay; allowing protection of sensitive electronics from engine starting events or the option to boost cranking effectiveness .



US 11,352,998 B2



**Eliminates Dead Start Batteries** by sharing charge sources with all batteries and isolating batteries when no charge sources are present



**Simple & Robust Installation:** Integrated sealed plug eliminates corrosion, included DT04 harness. Single device reduces installation time, space, cost and points of potential failure



**Additional Low Amp Output** can be used to report device status remotely.



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



**Ultra Low Off-State Current:** Compare two typical ACRs (20 mA) vs Dual ACR @ 1.3 mA



**Adjustable Off-Voltage for Auxiliary Battery Priority** provides ability to share start battery energy for auxiliary without risking engine starting ability.



**Start/Engine Isolation** input option for ensuring sensitive electronics do not experience voltage sags and spikes from the cranking event.



**Start Assist** input option to ensure maximum cranking amps available when necessary.

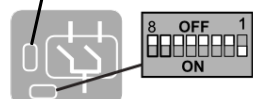


**4 Year Industry Leading Warranty**

## Dip Switch Setting Options & Features

**\* DISCONNECT BATTERY FROM POWER DISTRIBUTION SYSTEM BEFORE INSTALLING PRODUCT TO PREVENT ELECTRICAL SHOCK OR PRODUCT DAMAGE**

|   |            |
|---|------------|
| 4 | LED OUT +  |
| 3 | EXT INP #2 |
| 2 | EXT INP #1 |
| 1 | GROUND     |



### ACR #1 Dip Switch Options

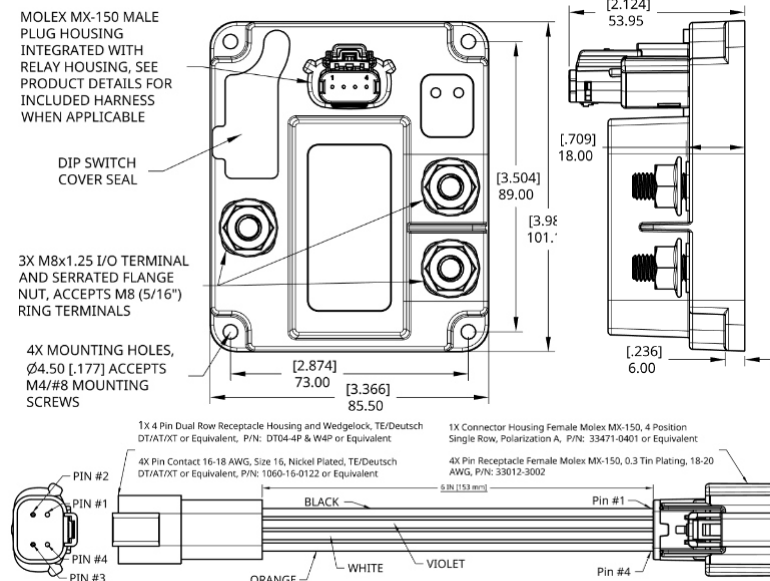
|                     |     |   |         |
|---------------------|-----|---|---------|
| Ext Input Function  | 4   | 3 | UV Lock |
| Start Assist        | ON  |   |         |
| Start/Eng Isolation | OFF |   |         |

### ACR #2 Dip Switch Options

|                     |     |   |         |
|---------------------|-----|---|---------|
| Ext Input Function  | 8   | 7 | UV Lock |
| Start Assist        | ON  |   |         |
| Start/Eng Isolation | OFF |   |         |

Factory Default

## Dimensions



## Methods of Operation

ACRs #1 or #2 turn ON after 30 (or 120) seconds if:

- 1) If UV Lock = OFF: V-sense A or V-sense B/C > 13.1 Vdc, or
- 2) If UV Lock = ON: V-sense A and V-sense B/C > 9.6 Vdc and V-sense A or V-sense B/C > 13.1 Vdc (120 sec), 13.7 Vdc (30 sec)

ACRs #1 or #2 turn OFF after 30 (or 10) seconds if:

- 1) V-sense B or C < "Off Voltage" (30 sec) per DS1-DS2 or DS5-DS6, or 10 sec if V-sense B or C < "Off Voltage" minus 0.4 Vdc

Start / Engine Isolation Opens ACR #1 or ACR #2 Immediately if:

- 1) If DS4 = OFF and Pin #2 > 8.0 Vdc (for ACR #1), or
- 2) If DS8 = OFF and Pin #3 > 8.0 Vdc, (for ACR #2)
- 3) Isolation can be connected to engine cranking signal or running signal depending on desired duration of isolation

Start Assist Closes ACR #1 or ACR #2 Immediately if:

- 1) If DS4 = ON and Pin #2 > 8.0 Vdc (for ACR #1), or
- 2) If DS8 = ON and Pin #3 > 8.0 Vdc, (for ACR #2)
- 3) Start Assist closes ACR for 30 sec before returning ACR to auto operation, connect to Key Accy signal to ensure close before crank

**DS1-DS2:** ACR #1 OFF Voltage Trigger. Lower settings allow partial battery energy sharing yet ensuring minimum capacity for starting.

**DS3:** Under-voltage Lock-Out Enable. If DS3=ON, ACR #1 will NOT close if either terminal < 9.6 Vdc.

**DS4:** Determines Pin #2 Response Function. DS4=ON, triggers CLOSE if Pin #2 > 8.0 Vdc. DS4=OFF triggers OPEN if Pin #2 > 8.0 Vdc.

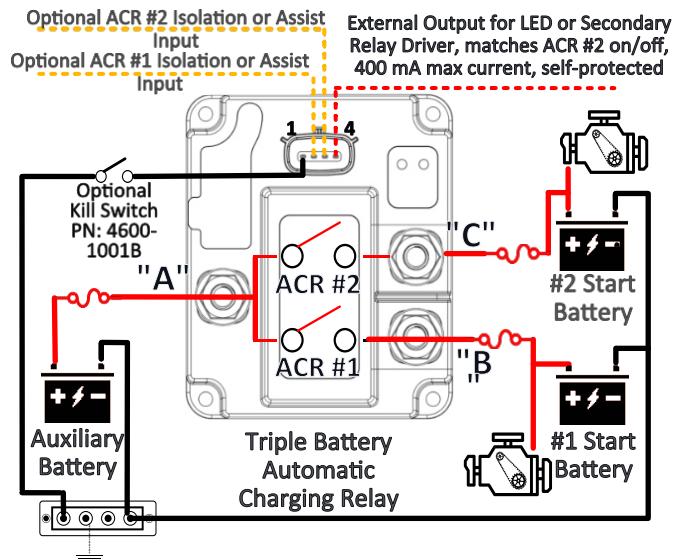
**DS5-DS6:** ACR #2 OFF Voltage Trigger. Lower settings allow partial battery energy sharing yet ensuring minimum capacity for starting.

**DS7:** Under-voltage Lock-Out Enable. If DS7=ON, ACR #2 will NOT close if either terminal < 9.6 (19.2) Vdc.

**DS8:** Determines Pin #3 Response Function. DS8=ON triggers CLOSE if Pin #3 > 8.0 Vdc. DS8=OFF triggers OPEN if Pin #3 > 8.0 Vdc.

( ) = 24V Setting

## System Diagram



## Status LED Indicator Functions

### Bicolor LED



|                             |                                                |
|-----------------------------|------------------------------------------------|
| Red Solid / Green Flash     | Relay Off, Pending Voltage Based On            |
| Red Flash / Green Solid     | Relay On, Pending Voltage Based Off            |
| Single Red Flash / No Green | Under-Volt Lockout or Start Isolation Engaged  |
| Single Green Flash          | Start Assist Applied                           |
| No LED                      | Unit OFF/Open, voltage below turn ON threshold |
| Red Rapid Flash             | High Current / Temperature OFF/Open            |

## Specifications

|                                           |                              |             |
|-------------------------------------------|------------------------------|-------------|
| Nominal Voltage (Vdc)                     | 12                           | 24          |
| Input Voltage Range (Vdc)                 | 8.0-18.0                     | 16.0-36.0   |
| Continuous Current (Amps)                 | 80A / 160A                   |             |
| Max 5 Min Current (Per Circuit/Total)     | 120 A / 240A                 |             |
| Operating Current (Per Circuit)           | 170 mA                       | 85 mA       |
| Operating Current, Relays Open            | 1.3 mA                       | 1.3 mA      |
| Over Voltage Protection (Vdc) (5 sec)     | 17.0                         | 35.0        |
| Under-Voltage Lockout (Vdc) (if ON)       | 9.6                          | 19.2        |
| Min Source Current (Ignition/Kill Inputs) | 10 micro-Amps                |             |
| Max 5 Min Current (Amps)                  | 240                          |             |
| Operating Current (mA) Standby / Open     | 1.3                          |             |
| ACR #1/#2 Close Delay                     | 120 s (Long), 30 s (Short)   |             |
| ACR #1/#2 Close Voltage (Vdc)             | 12.8 - 13.35                 | 25.6 - 26.7 |
| ACR #1/#2 Open Delay                      | 30 s (Long), 10 s (Short)    |             |
| ACR #1/#2 Open Voltage (Vdc)              | 12.2 - 12.75                 | 24.4 - 25.5 |
| Hardware Material                         | Stainless Steel Self-Locking |             |
| Terminal Stud Torque                      | 80 in-lbs                    |             |
| Aux Output Max Drive Current              | 400 m-Amps                   |             |
| Maximum Cable Size                        | 2/0 AWG                      |             |
| Cable Size to Meet Ratings                | 6 AWG/2 AWG                  |             |

### Part Numbers

|                                 | Resell Pack | Bulk Pack  |
|---------------------------------|-------------|------------|
| 12V 2x80A Triple Battery ACR    | 7612        | 7612B      |
| 24V 2x80A Triple Battery ACR    | 7612-24     | 7612-24B   |
| Kill Switch Kit for (-) Control | 4600-1001   | 4600-1001B |

\* Custom product configurations available including stud sizes, 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 us at support@egismobile.com for more information