Up to 500 Amp Continuous Capability Per Relay / Extremely Compact Footprint

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

Flexible Functionality via Dip Switches: Low Voltage OFF Set-Point, Delay Off Time, and Voltage Differential for Warning Signal

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

LED Indicator Provides Helpful Diagnostics

Remote External Warning Alarm Control Signal Provides Warning of Impending Voltage-Based Shutdown

PN: 8710-1800

PATENT PENDING

PN: 8810-1700

Check Out The Rest of the Award Winning XD Series Relay Product Line

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

Simple & Robust Installation: Sealed DTM/ATM plug option. Standard product provided with tinned wire leads

Flexible Application Options: Simple dip switches on rear of device allow adjustable low-voltage disconnect set-points allow pinpoint system response. Additionally adjustable settings include variable time delay after crossing the LVD threshold, and adjustable set-points for triggering a pre-shutdown warning light or alarm.

Diagnostic Feedback via on-board LED

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

Meets Stringent OEM Standards for electrical transient self-protection

4 **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

PN: 9.0-36.0 Vdc Auto-Ranging DC:

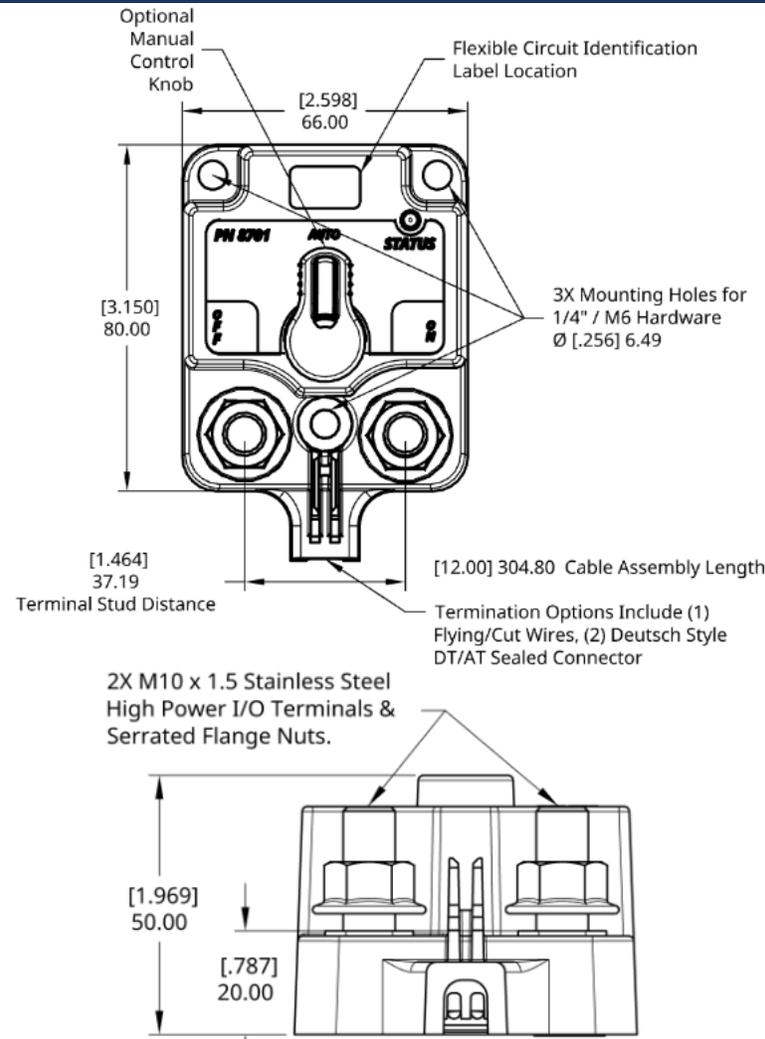| Off Delay 1 2 Time	Low Volt Disc 3 4 5 Setting
0 s	OFF
2 m	11.2/22.4
5 m	11.6/23.2
10 m	11.8/23.6
Warning 6 △V	12.0/24.0
0.2/0.4	12.2/24.4
0.4/0.8	12.4/24.8
	12.7/25.4

= Factory Default

CE   egismobile.com

DS1-DS2: Determines OFF Time Delay after Low Volt Disconnect setting is reached. If LV setting OFF, Delay Time will determine time to Open after Remote ON signal is removed.
DS3-DS5: Determines Low Voltage Disconnect Setting. If external control signal inputs are not applying Forced ON signals, device will initiate Open sequence if voltage is less than this setting, and timing of opening will occur based on DS1-DS2
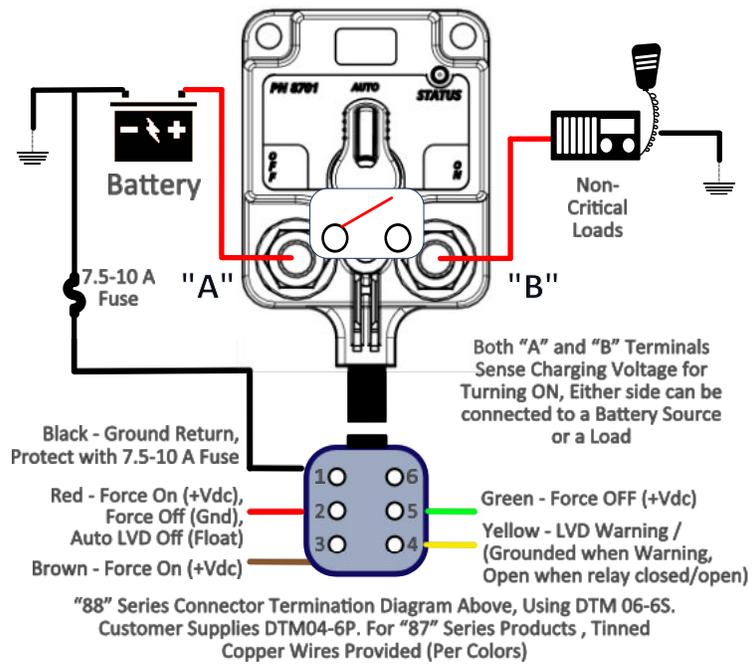**DS6:** Determines Low Voltage Warning level. The number is the voltage above the Low Voltage Disconnect Setting, below which the yellow alarm wire will connect an external LED/Buzzer alarm wire to ground

Dimensions

Optional Manual Control Knob

Flexible Circuit Identification Label Location

[2.598] 66.00

[3.150] 80.00

3X Mounting Holes for 1/4" / M6 Hardware Ø [.256] 6.49

[1.464] 37.19 Terminal Stud Distance

[12.00] 304.80 Cable Assembly Length

Termination Options Include (1) Flying/Cut Wires, (2) Deutsch Style DT/AT Sealed Connector

2X M10 x 1.5 Stainless Steel High Power I/O Terminals & Serrated Flange Nuts.

[1.969] 50.00

[.787] 20.00

* 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

Typical Connection and Wiring Diagram

Battery

7.5-10 A Fuse   "A"   "B"

Non-Critical Loads

Both "A" and "B" Terminals Sense Charging Voltage for Turning ON, Either side can be connected to a Battery Source or a Load

Black - Ground Return, Protect with 7.5-10 A Fuse

Red - Force On (+Vdc), Force Off (Gnd), Auto LVD Off (Float)

Brown - Force On (+Vdc)

Green - Force OFF (+Vdc)

Yellow - LVD Warning / (Grounded when Warning, Open when relay closed/open)

"88" Series Connector Termination Diagram Above, Using DTM 06-6S. Customer Supplies DTM04-6P. For "87" Series Products , Tinned Copper Wires Provided (Per Colors)

1) Relay Turns ON **Automatically** is Voltage on Terminal A or B > 13.1 Vdc (26.2 Vdc)
2) Forcing Red, Brown, or Green wires to Open or Close relay overrides Auto ON or OFF operation while input line asserted to +Vdc / Gnd

Specifications

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	1,000,000 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	

Description	Knob	Connection	Resell Pack	Bulk Pack
XD Series LVD	Yes	Tinned Wire	8710-1700	8710-1700B
XD Series LVD	No	Tinned Wire	8710-1800	8710-1800B
XD Series LVD	Yes	Deutsch DTM	8810-1700	8810-1700B
XD Series LVD	No	Deutsch DTM	8810-1800	8810-1800B

Related Products	Knob	Flying Wires	DTM Terminal
XD Flex 2 ACR/Relay	Yes	8710-1300B	8810-1300B
XD Flex 2 Relay/ACR	Yes	8710-1500B	8810-1500B
XD Flex 2 Relay/ACR	No	8710-1600B	8810-1600B
XD Flex 2 Triple Relay/ACR/Relay	Yes	8730-1535B	8830-1535B

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Detailed Operational Modes & Responses

LVD Relay Closes (Turns ON) after 3 sec if:

1) Voltage on Relay Studs > V_on as determined by DS4-DS6 <u>and</u>

2) Rem Ctrl (Red) wire is not connected to +Vdc or Gnd

3) The Force Open wire (Green) is Not Connected to +Vdc

LVD Relay Opens (Turns OFF) after Off Time Delay (DS1-DS2) if:

1) Voltage on Relay Studs < LVD Setting per DS3-DS5 <u>and</u>

2) Rem Ctrl (Red) wire is not connected to +Vdc or Gnd **and**

3) Force ON #2 wire (Brown) is Not Connected to +Vdc

LVD Relay Closes (Turns ON) Immediately if:

1) Rem Ctrl (Red) wire is connected to +Vdc <u>or</u>

2) Force ON #2 wire (Brown) is connected to +Vdc

LVD Relay Opens (Turns OFF) immediately if:

1) Rem Ctrl (Red) wire is connected to Gnd

2) Force OFF #2 wire (Green) is Connected to +Vdc

LVD Relay Warning Wire (Yellow) Internally Connects to Ground in order to Pull down a +Vdc powered Remote Warning Indicator (not supplied) if ALL of the following are true.

1) The Voltage Measured on Primary Input #1 or Input #2 is Less than Low Voltage Disconnect Setting (DS3-DS5) + Warning Delta Voltage (DS6)

2) Rem Ctrl (Red) wire is Floating (not connected to Ground or +Vdc)

3) The Force Closed wire (Brown) is Not Connected to +Vdc

4) The Force Open wire (Green) is Not Connected to +Vdc

5) The Voltage Measured on Primary Input #1 or Input #2 Has Not Been Less Than Low Voltage Disconnect Setting (DS3-DS5) for longer than the Off Time Delay per DS1-DS2

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

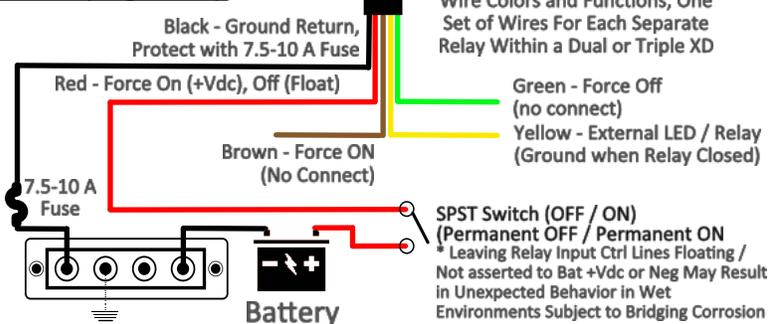**Upon Startup or Returning the LVD from Manual to Auto/Rem Mode:**

1) The remote LED will remain OFF regardless of the physical status of the LVD until the ACR 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.

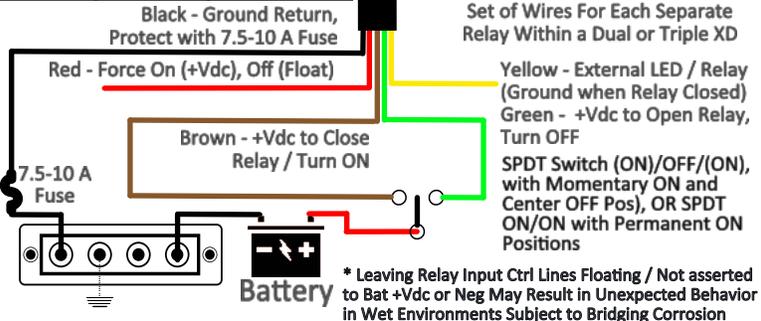## Local LED Signal Indicators vs LVD Status

Relay OFF - Normal	Off
Relay ON - Normal	On
Relay On - Pending Off	On w/3x Off Flashes
Relay Off - Over-Voltage Mode	Off w/5x On Flashes
Manual Override Engaged	Off w/2x On Flashes
Relay Off - Power Hibernation Mode	Off w/1x On Flash
Power Up / Manual Mode Exited and Pending On or Off Event	Continuous Flashing
Low Voltage Disconnect Warning Voltage Threshold Reached	On

Control Wiring Options (Optional)

Option #1 (Single Wire) SPST Switch

Black - Ground Return, Protect with 7.5-10 A Fuse

Red - Force On (+Vdc), Off (Float)

7.5-10 A Fuse

Brown - Force ON (No Connect)

Battery

Wire Colors and Functions, One Set of Wires For Each Separate Relay Within a Dual or Triple XD

Green - Force Off (no connect)

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

SPST Switch (OFF / ON) (Permanent OFF / Permanent ON) * Leaving Relay Input Ctrl Lines Floating / Not asserted to Bat +Vdc or Neg May Result in Unexpected Behavior in Wet Environments Subject to Bridging Corrosion

Option #2 (Dual Wire) SPDT Switch

Black - Ground Return, Protect with 7.5-10 A Fuse

Red - Force On (+Vdc), Off (Float)

7.5-10 A Fuse

Brown - +Vdc to Close Relay / Turn ON

Battery

Wire Colors and Functions, One Set of Wires For Each Separate Relay Within a Dual or Triple XD

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

Green - +Vdc to Open Relay, Turn OFF

SPDT Switch (ON)/OFF/(ON), with Momentary ON and Center OFF Pos), OR SPDT ON/ON with Permanent ON Positions

* Leaving Relay Input Ctrl Lines Floating / Not asserted to Bat +Vdc or Neg May Result in Unexpected Behavior in Wet Environments Subject to Bridging Corrosion

Fig 3 - XD Series Part Number Guide

8 7 1 0 - 1 1 1 0 B

Protective Terminal Covers Included!

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

1 = Standard Configuration
2-9 = Special Connector Solution

B = Bulk Packed
(Blank) = Retail Shelf Pack

First Position   Second Position   Third Position

87 = XD Series w/Tinned Control Wires
88 = XD Series w/DTM Control Connector

0 = Mechanical Contactor (No Remote)
3 = Flex 2 Set as ACR w/Knob
4 = Flex 2 Set as ACR No Knob
5 = Flex 2 Set as Battery Switch w/Knob
6 = Flex 2 Set as Battery Switch No Knob
7 = Low Voltage Disconnect w/ Knob
8 = Low Voltage Disconnect No Knob
9 = Mechanical Only Switch w/Knob

87   88

No Knob   w/Knob

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