

Dual Reversing Module



Introduction

The E-Plex 425DRM has been designed to simplify wiring in electronic systems by providing the reversing function local to the motor devices thus eliminating long cable runs back to common control systems. This is accomplished with four DPST relays with the common connections of two relays wired to either side of a motor. When one relay is active, power is supplied in one direction. When the motor is reversed the relays switch states allowing the power to flow in the opposite direction. A solid state switch monitors the current draw of the motors which allows for intelligent feedback as to the condition of the motor.

A typical operation would show an initial surge of current as the motor begins to move which decays to a steady state level as the motor gets underway. When it reaches its limit the motor will again begin to draw additional current which can be detected and the power halted stopping the motor from further movement. For additional safety, in the unlikely event of a thermal runaway condition, a thermal disconnect is used to remove power from the solid state outputs. Local electronic override capabilities allow independent operation of the device loads.

Key Features

- Relays switch polarities to drive motors in both directions.
- Local electronic override operation.
- 35A inrush capable.
- Current sensing of loads.
- LEN value 2.

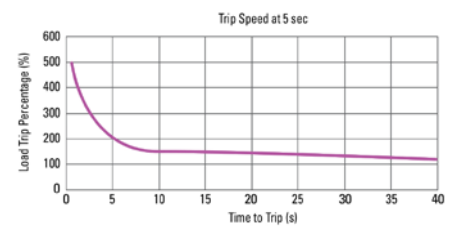
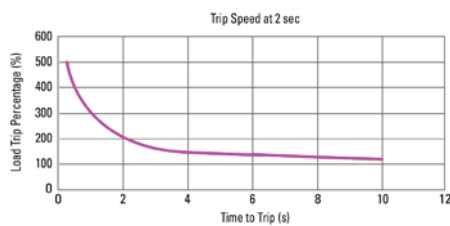
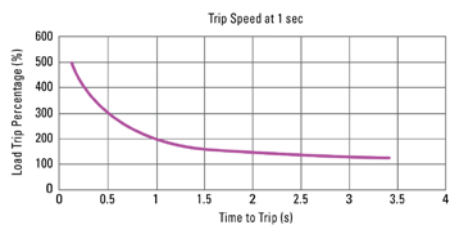
Design Specifications

- Shock: Mil Std 202 Method 213 test condition 1.
- Vibration: Tested to Lloyds Register Approval Vibration Test 2.
- Transient voltage suppression: EN6100-6-1.
- Moisture resistance: IP66.
- PCB characteristics: UL94V-0.
- Power distribution: UL 1077 compliant (except high-voltage dielectric test).
- Ignition protection: UL 1500 compliant.
- Salt spray: Tested to Lloyds Register Approval Salt Spray Test.
- Operating Temperature: -40°C to 60°C.
- Storage Temperature: -40°C to 85°C.
- Operating Humidity: 0% to 100% (condensing).
- Weight: 0.86 lb (390 grams).

Electrical Specifications

Description	Min	Nominal	Max	Absolute Max (Surge)
Voltage	7 VDC	12 / 24 VDC	32 VDC	45 VDC ²
Current, Total	0.025 A	–	16 A ¹	33 A ²
Current, per channel continuous	0	–	5 A	70 A ⁴
Current, per channel intermittent duty ³	0	–	8 A	70 A ⁴
Inrush capable per channel	–	–	35 A	70 A ⁴
Lead inductance	0	–	100 μ H ⁵	–
Load Inductance ⁶	0	–	15 mH	–

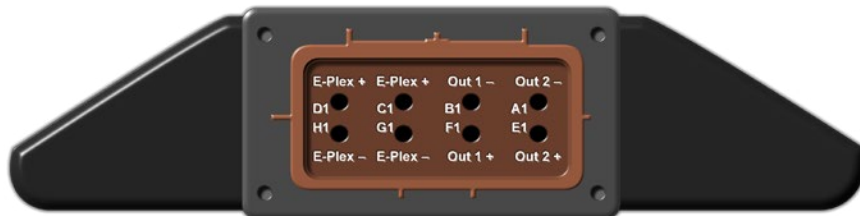
Trip Speed Characteristics



NOTES:

1. De-rate max current by 0.2A per °C above ambient, 25 °C.
2. Measured at 8.3ms single half sine wave. (JEDEC Method), 10,000 pulses.
3. Duty cycle at 1 minute on time, 5 minutes off. Trip delay must be set to maximum rating.
4. Single pulse only.
5. Specified as 50 feet of 2 AWG (43mm²) wires with a 6" diameter spool for both power and ground.
6. For resistance greater than 10 ohms load inductance is unlimited.

Wiring Specifications



Pin #	Pin Description
A1	Motor 2-
E1	Motor 2+
B1	Motor 1-
F1	Motor 1+
C1	E-Plex Data Bus +
G1	E-Plex Data Bus -
D1	E-Plex Data Bus +
H1	E-Plex Data Bus -
M5-T1	Batter Power
M5-T2	Battery Return

Outputs and Returns: 0 to 8A, 7-32VDC

Battery Power (+): 0.025A to 16A, 7-32VDC

Status LEDs:

ON - Channels 1-4 indicates Load ON, E-Plex channel indicates module responding.

OFF - Channels 1-4 indicates Load OFF, E-Plex channel indicates module not responding³.

BLINKING - Channels 1-4 indicates Load FAULT, E-Plex channel indicates module responding.

Power / Battery Connections: Must be fused at a maximum of 16A. Maximum wire size should be sized based on upstream fuse. When connecting the power source to the power studs on the module, torque the hex nuts to 18~20 in-lb (200~225 N-cm). Failure to properly torque hex nuts may result in intermittent operation due to terminals loosening over time.

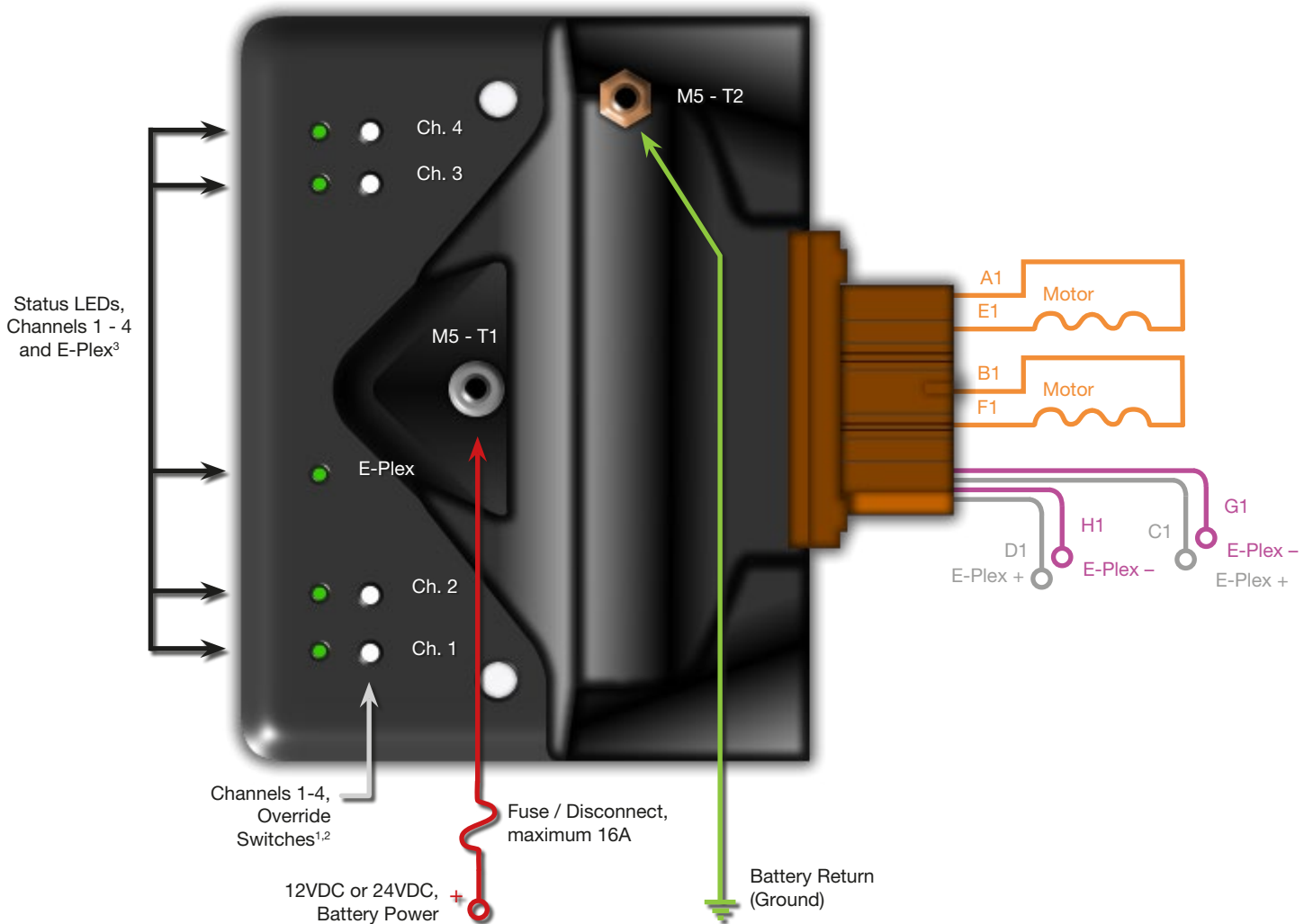
Note: External surge suppression is required when the module battery supply cable is longer than 50'.

Reversed Battery Conditions: The loads will turn on, but no damage will occur to the module if disconnected within 1 minute (Under nominal operating load conditions).

Pin Specifications

Cable Range AWG (mm ²)		Female Terminal	Terminal Insulation Range	Seal Insulation Range	Seal P/N
18-16	(1.0-0.75 mm ²)	15304716	1.70-2.25 mm	1.20-1.85 mm	15366063
				1.85-2.25 mm	15356064
16-12	(2.50-1.50 mm ²)	15304717	2.20-3.00 mm	2.09-2.66 mm	15366061
				2.70-3.2 mm	15336674

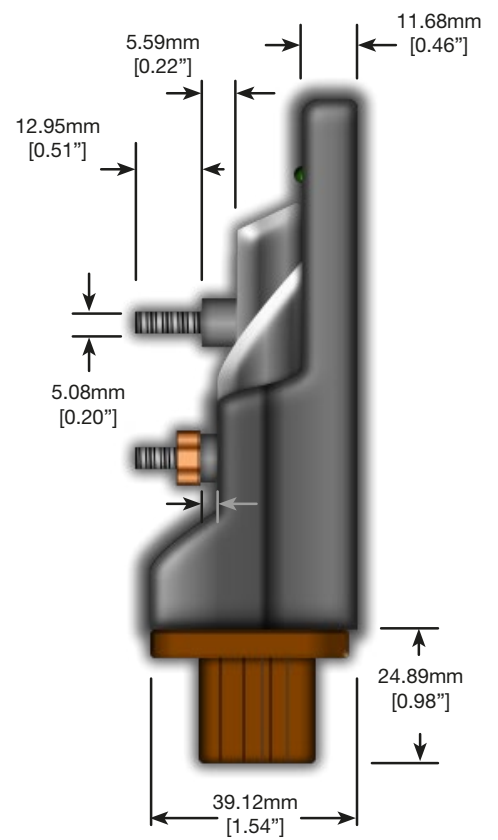
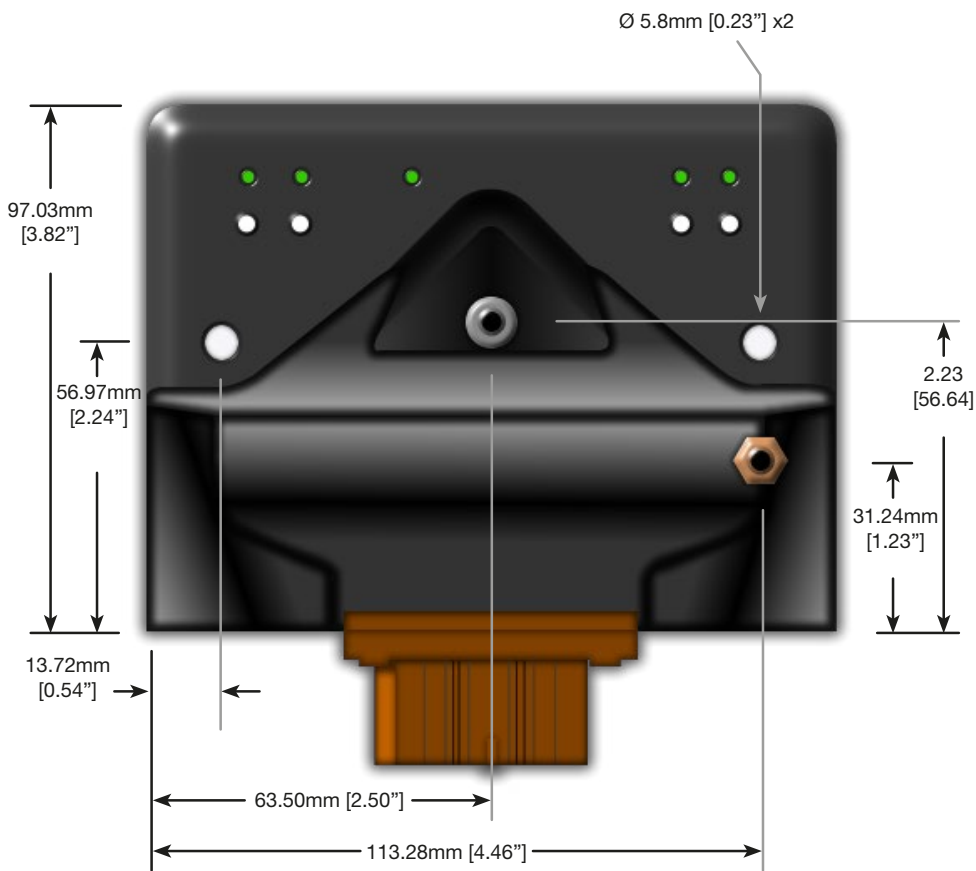
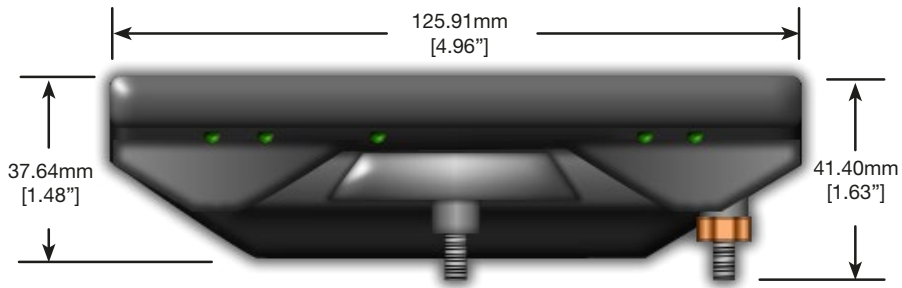
Typical Wiring Diagram



NOTES:

1. Switch is meant to be used as local electronic manual override in emergency situations.
2. Function may be defined in E-Logic as toggle or momentary operation.
3. LED will be off if system is not functioning / present however manual overrides will still function

Dimensional Diagram



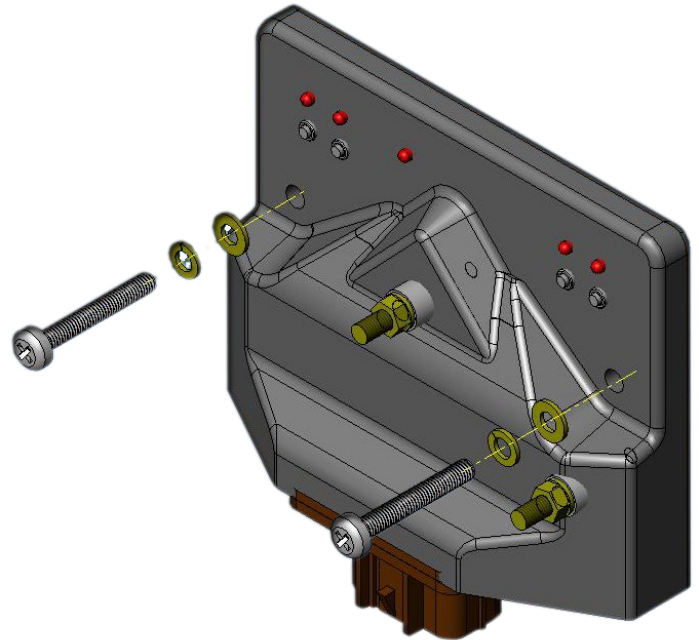
Mounting Specifications

Screw assembly to a flat mounting surface in two places, as shown in the illustration.

Mounting Instructions

Metric fasteners: Use M5 size screw, M5 split lock washer and M5 washer. Torque to 250~280 N-cm. Do not exceed this torque as it could cause damage to the electronics.

Imperial (English) fasteners: Use #10 size screw, #10 split lock washer, #10 washer. Torque to 20~22 in-lb. Do not exceed this torque as it could cause damage to the electronics.



Mechanical Specifications

Connectors:

J1 - Brown: Mates to Delphi P/N 15317308

J2 - Blue: Mates to Delphi P/N 15317304

Cavity Plug:

Delphi P/N 12059168

Power Stud Connections:

M5 nickel plated brass

Ordering Information

Description	E-Plex Part Number
425DRM Series - Quad Multi Module	EP-SW-REV-2CH-425DRM



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