

DMX Engineering LLC
<http://dmx.engineering>



Single Current Input 2-4 Output Current Share/Monitor



Product Description

Current Safe™ is a compact, 3.55" x 2.22" x 0.75" tall, self-contained solution for distributing a single constant current input—typically from an LED driver—across multiple output channels with active current monitoring and fault response. Designed for simplicity and reliability, it supports 2 to 4 output channels, each monitored for equal current sharing. Faults such as open or short circuits trigger a programmable system response and relay signaling.

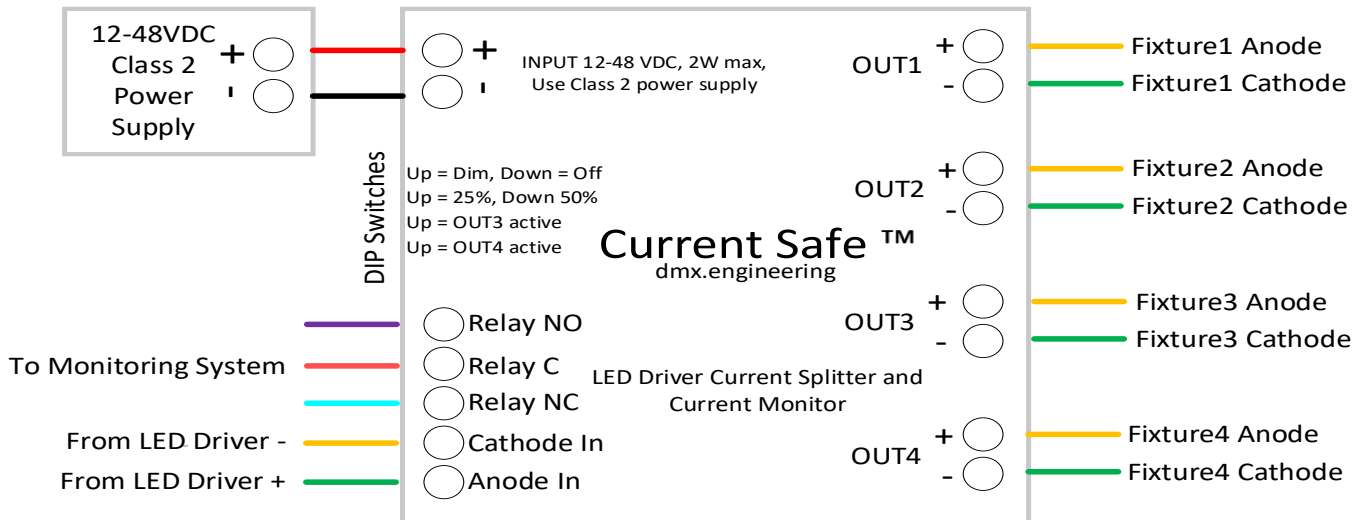
Key Features

- Equal Current Distribution: Splits one constant current input evenly across 2–4 outputs, requires that all LED fixtures draw the same current/power
- Active Monitoring: Detects imbalance across outputs and triggers fault response
- Configurable Behavior: DIP switch selects number of outputs and fault response mode
- Relay Output: Dry contact relay toggles on fault (NO and NC supported)
- Fallback Modes: Selectable response: Output shutdown, Dim to 25%, Dim to 50%
- No External Programming: DIP switch interface only—no host controller required
- Floating Current Path: Input/output current lines are isolated from DC supply ground

Installation Overview

- Connect constant current source to Anode In and Cathode In, up to 60VDC @ 5A
- Wire up to four LED fixtures to OUT1–OUT4
- Set DIP switches to match fixture count and desired fault behavior
- Optionally connect relay output to external fault signaling system

Typical Connection Diagram



Technical Data

DC Power Input

Voltage range: 12-48 VDC, Class 2

Current Input from LED Driver

2-wire floating Anode and Cathode

Max 60VDC, Up to 10A of input current max.

Outputs—2 to 4 (selectable)

All output loads (fixtures) must be the same current load
 Input current is split to active outputs, and monitored

Operating conditions

Ambient temperature, ta: -13...+113°F (-25...+45°C)

Max. case temperature, tc: +167°F (+75°C)

Storage temperature: -13...+167°F (-25...+75°C)

Max. relative humidity: 0...80%, non-cond.

Connectors

Wire range, solid & stranded: 0.5 - 1.5 mm

14 - 22 AWG, rated to 15A

Wire strip length: .25" (6 - 7 mm)

Tightening force: 0.4 Nm / 2.6 Lb-in

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Certifications

Conforms to UL STD 916

Certified to CSA STD



****RATED FOR INDOOR USE ONLY****

Theory of Operation

Current Safe is a pass-through LED driver interface that accepts the driver's output and distributes the same voltage and current across up to four output channels (OUT1–OUT4). Internal measurement components monitor current flow but do not alter output levels.

Load Distribution Rules:

If two fixtures are connected to OUT1 and OUT2, input current is split equally: 50% to each.

If three fixtures are connected to OUT1–OUT3, input current is divided into thirds.

If four fixtures are connected to OUT1–OUT4, input current is divided into fourths.

Fault Detection and Response:

Current Safe continuously samples input current and compares it to each active output channel.

If a channel shorts or goes open, the system detects imbalance and responds based on DIP1 and DIP2 settings.

DIP Switch Behavior:

DIP1 (Fault Response Mode):

Down: Relay toggles to alert state only. Use relay to disable the LED driver and protect fixtures.

Up: Enables current reduction based on DIP2.

DIP2 (Current Reduction Level):

Down: Reduces input current to 25% of original.

Up: Reduces input current to 50% of original.

Installation

Power Input Connect a Class 2 power supply (12–48 VDC) to the Current Safe input connector.

Driver Output Connection Connect the LED driver output to Anode In (+) and Cathode In (–), observing correct polarity. 10A maximum!

Relay Output (Optional Monitoring)

Use relay output for fault monitoring via dry contact closure.

C = Common, **NO** = Normally Open (closes on fault).

Multiple units can be paralleled via relay output.

Fixture Connections

Connect 2–4 LED fixtures to OUT1–OUT4.

Observe polarity: Anode = (+), Cathode = (–).=

Single fixture use is not recommended.

DIP Switch Configuration

DIP3: Set **Up** if OUT3 is used, **Down** if not.

DIP4: Set **Up** if OUT4 is used, **Down** if not.

Power-Up Sequence

Power on the Current Safesupply.

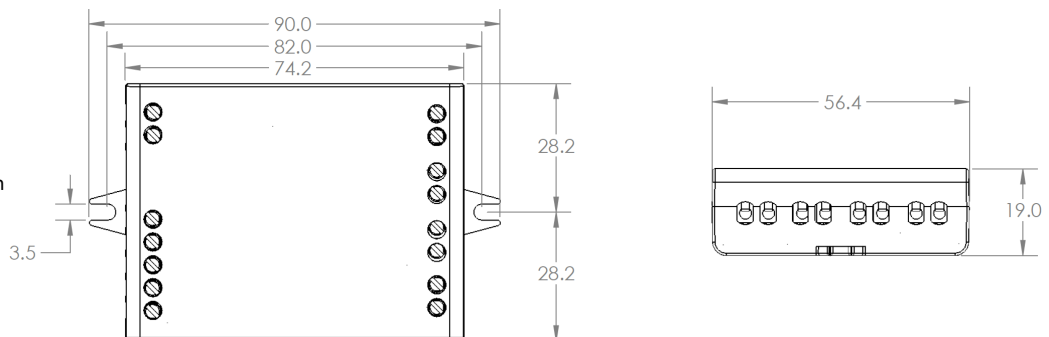
Power on the LED driver and verify fixture operation

Mechanical Data

Dimensions: 3.55 x 2.22 x 0.75 inch

90.0 x 56.4 x 19.0 mm

Weight: 2.0 oz (56 g)



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Current Safe User Guide v1.04 USA and Canada



WARNING:

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

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