

HDM's EQ24-12 Battery Equalizer is a bi-directional circuit which balances the voltage between two individual batteries connected in series during charge, discharge, and idle periods. EQ24-12 prevents severe under and over voltage, common in series connections, which can compromise the performance, reliability, and life of your battery system. Equalized batteries are able to receive a full, clean charge, increasing battery pack power, capacity, and life, therefore supporting your mission much better.



ELECTRICAL	NOMINAL BATTERY VOLTAGE	12VDC
	OPERATING	10.5-16.5VDC
	MAXIMUM EQUALIZATION CURRENT (I <sub>EQ</sub> )	5ADC <sup>1</sup>
	QUIESCENT CURRENT DRAW	<20mADC
	LOW VOLTAGE SHUTDOWN	<10.5(±5%)VDC
	OVERVOLTAGE SHUTDOWN	>16.5(±5%)VDC
	DIFFERENTIAL VOLTAGE AUTO SHUTDOWN	>4(±5%)VDC
	OPERATING MODES	CHARGE, DISCHARGE, IDLING
MECH	FUSE	(2x) 10A AGC
	DIMENSION (LxWxH")	7.25 x 2.34 x 1.1"
	WEIGHT	1.2 LBS
INTERF	CONSTRUCTION	BLACK COMPOSITE CASE
	24V CONNECTION	18" RED 12AWG WITH 3/8 STUD RING TERMINAL
	12V CONNECTION	18" RED 12AWG WITH 3/8 STUD RING TERMINAL
ENVIRON	GROUND CONNECTION	18" BLACK 12AWG WITH 3/8 STUD RING TERMINAL
	COOLING	NATURAL CONVECTION
	OPERATING TEMPERATURE	-40 ~ +50°C
	STORAGE TEMPERATURE	-40 ~ +85°C
WARRANTY		1YR

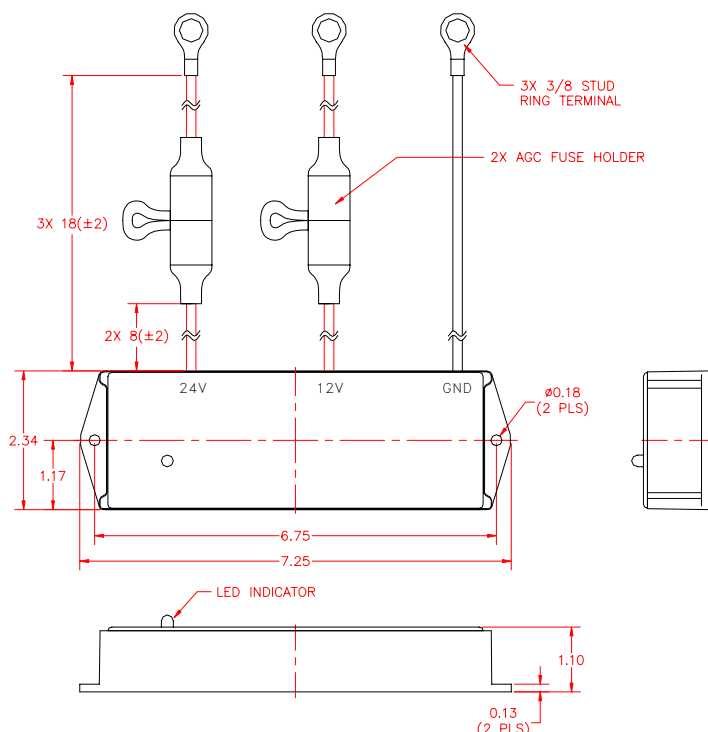
Specifications typical at 25°C unless otherwise stated and are subject to change without notice.

<sup>1</sup> Maximum current during equalization mode.

<sup>2</sup> EQ24-12 will auto-recover when parameters are within operating limits and LED will return to steady or blink Green.

<sup>3</sup> Battery low or over voltage warning indicates that the battery has exceeded the normal operating limit. Module may auto-recover and continue to equalize when external supply or load is removed. Manual reset is required to reset the warning indicator by disconnecting and reconnecting the module.

<sup>4</sup> Module will auto-shutdown, but LED may remain steady or blink Green due to residual voltage across internal filter capacitor.



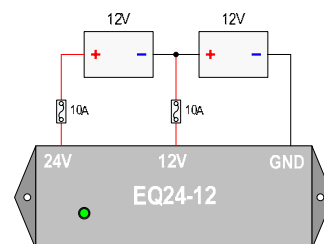
All dimensions in inches unless otherwise specified.







## INDUSTRY-LEADING FEATURES

- ♦ PATENTED EQUALIZATION TECHNOLOGY WHICH REDUCES SIZE, COST, AND WEIGHT
- ♦ EQUALIZES TWO 12V BATTERIES IN A SERIES STRING
- ♦ MULTI-MODULE DAISY-CHAIN CONNECTION FOR HIGH VOLTAGE SYSTEM CONFIGURATION
- ♦ STACKABLE / PARALLELABLE FOR HIGH CURRENT EQUALIZATION
- ♦ EASY INSTALLATION AND MOUNTING
- ♦ APPROPRIATE FOR SEALED, AGM, AND GEL BATTERIES
- ♦ EXTENDS BATTERY LIFE AND RUN TIME
- ♦ DUST AND WATERPROOF
- ♦ MAINTENANCE FREE

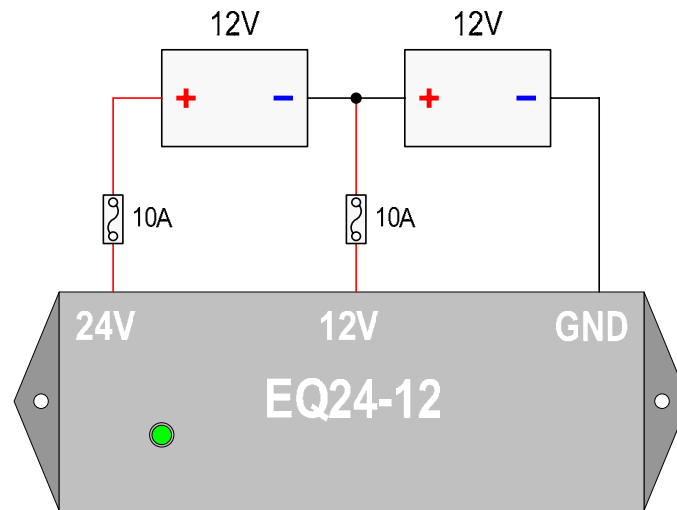
## STANDARD FEATURES

- ♦ AUTOMATIC EQUALIZATION DURING CHARGE, DISCHARGE, OR IDLING
- ♦ LOW VOLTAGE PROTECTION
- ♦ OVERVOLTAGE PROTECTION
- ♦ OVER CURRENT PROTECTION
- ♦ AUTOMATIC RECOVERY <sup>2</sup>
- ♦ REPLACEABLE EXTERNAL FUSE
- ♦ FLANGE MOUNTING



MODE	LED	LED INDICATOR	CONDITION
Balanced		Steady Green	Voltage Differential <0.3V (+/-0.2)
Equalizing		Blink Green Once Per 1 Sec	Voltage Differential >0.3V (+/-0.2)
Low/Over Auto-Shutdown (Gnd-12V Connection)		Green / Blink Orange Once Per 4 Sec	Gnd-12V Conn Beyond Normal Range <10.5V or >16.5V (+/-5%)
Low/Over Auto-Shutdown (12V-24V Connection)		Green / Blink Orange Twice Per 4 Sec	12V-24V Conn Beyond Normal Range <10.5V or >16.5V (+/-5%)
12V Disconnect		Blank	12V Lead Disconnected
Auto Shutdown		Steady Red	1) Diff Voltage >4V (+/-5%); 2) 24V Lead Disconnected <sup>3</sup>

MODEL	DESCRIPTION
EQ24-12	24V SYSTEM, 2x 12V BATTERY EQUALIZER, 3-WIRE



**⚠ CAUTION:** Always disconnect or turn OFF all external charging sources and/or DC loads before installing or removing the EQ24-12 module.

**⚠ CAUTION:** When connecting the EQ24-12 module, always follow the connection sequence to prevent damage to the module and/or void product warranty.

## BATTERY EQUALIZER INSTALLATION INSTRUCTIONS

1. Install battery equalizer in a location close to the main battery bank. Avoid installing in a location which may be exposed to high temperature such as near the engine.
2. Connect per connection diagram starting from the negative terminal of the **1<sup>st</sup>** battery in the series connected string.
  - a) Connect **GND** Wire (Black) of the module to the negative terminal of the **0V/Gnd** battery connection.
  - b) Connect **12V** Wire (Red) of the module to the positive terminal of the **12V** battery connection.
  - c) Connect **24V** Wire (Red) of the module to the positive terminal of the **24V** battery connection.
3. Module LED will be steady or blink Green indicating module is in equalization mode.

## BATTERY EQUALIZER REMOVAL INSTRUCTIONS

1. To remove EQ24-12 from the battery system, start disconnecting from the positive terminal of the **last** battery (highest voltage point).
  - a) Disconnect **24V** Wire (Red) of the module from the positive terminal of the **24V** battery connection.
  - b) Disconnect **12V** Wire (Red) of the module from the positive terminal of the **12V** battery connection.
  - c) Disconnect **GND** Wire (Black) of the module from the negative terminal of the **0V/Gnd** battery connection.