

HDM's EQ48-24 Battery Equalizer is a bi-directional circuit which balances the voltage between two individual batteries connected in series during charge, discharge, and idle periods. EQ48-24 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	24VDC
	OPERATING	18-33VDC
	MAXIMUM EQUALIZATION CURRENT (I _{EQ})	5ADC ¹
	QUIESCENT CURRENT DRAW	<20mADC
	LOW VOLTAGE SHUTDOWN	<18(±5%)VDC
	OVERVOLTAGE SHUTDOWN	>33(±5%)VDC
	DIFFERENTIAL VOLTAGE AUTO SHUTDOWN	>8(±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
	48V CONNECTION	18" RED 12AWG WITH 5/16 STUD RING TERMINAL
	24V CONNECTION	18" RED 12AWG WITH 5/16 STUD RING TERMINAL
ENVIRON	GROUND CONNECTION	18" BLACK 12AWG WITH 5/16 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.

¹ Maximum current during equalization mode.

² EQ48-24 will auto-recover when parameters are within operating limits and LED will return to steady or blink Green.

³ 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.

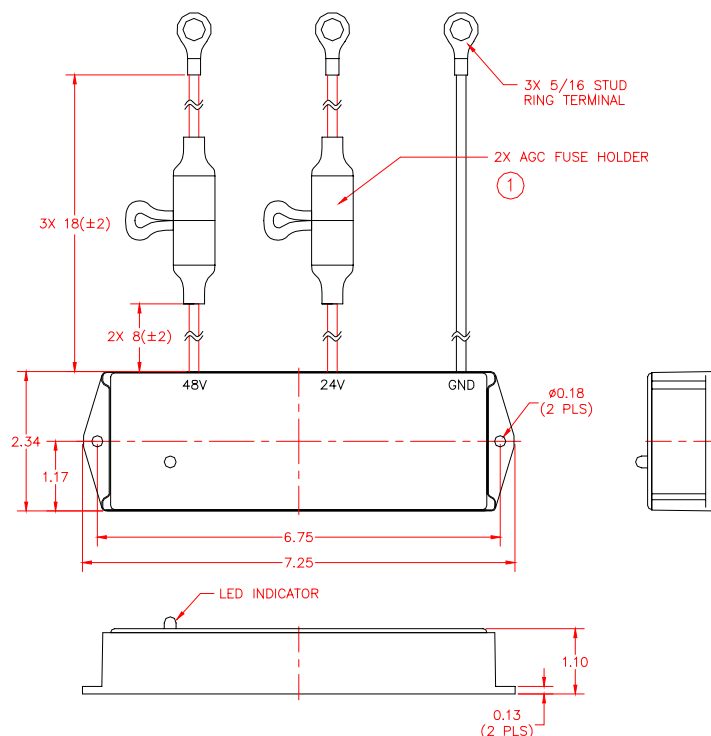
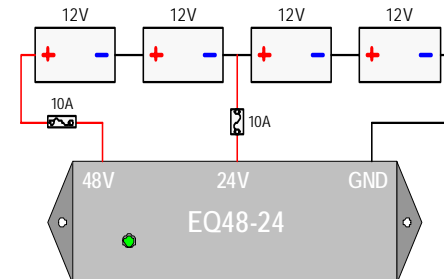
⁴ Module will auto-shutdown, but LED may remain steady or blink Green due to residual voltage across internal filter capacitor.







INDUSTRY-LEADING FEATURES

- ♦ PATENTED EQUALIZATION TECHNOLOGY WHICH REDUCES SIZE, COST, AND WEIGHT
- ♦ EQUALIZES TWO 24V 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

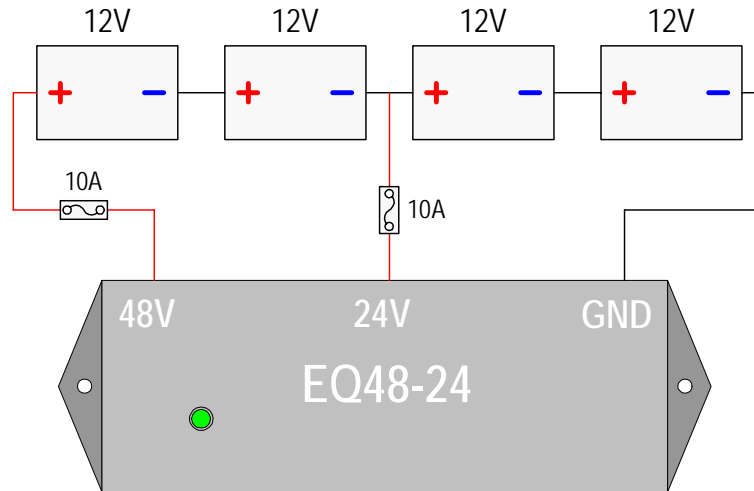
- ♦ AUTOMATIC EQUALIZATION DURING CHARGE, DISCHARGE, OR IDLING
- ♦ LOW VOLTAGE PROTECTION
- ♦ OVERVOLTAGE PROTECTION
- ♦ OVER CURRENT PROTECTION
- ♦ AUTOMATIC RECOVERY ²
- ♦ REPLACEABLE EXTERNAL FUSE
- ♦ FLANGE MOUNTING



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-24V Connection)		Green / Blink Orange Once Per 4 Sec	Gnd-24V Conn Beyond Normal Range <18V or >33V (+/-5%)
Low/Over Auto-Shutdown (24V-48V Connection)		Green / Blink Orange Twice Per 4 Sec	24V-48V Conn Beyond Normal Range <18V or >33V (+/-5%)
24V Disconnect		Blank	24V Lead Disconnected
Auto Shutdown		Steady Red	1) Diff Voltage >8V (+/-5%); 2) 48V Lead Disconnected ³

All dimensions in inches unless otherwise specified.

MODEL	DESCRIPTION
EQ48-24	48V SYSTEM, 2x 24V BATTERY EQUALIZER, 3-WIRE



⚠ CAUTION: Always disconnect or turn OFF all external charging sources and/or DC loads before installing or removing the EQ48-24 module.

⚠ CAUTION: When connecting the EQ48-24 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 **1st** 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 **24V** Wire (Red) of the module to the positive terminal of the **24V** battery connection.
 - c) Connect **48V** Wire (Red) of the module to the positive terminal of the **48V** battery connection.
3. Module LED will be steady or blink Green indicating module is in equalization mode.

BATTERY EQUALIZER REMOVAL INSTRUCTIONS

1. To remove EQ48-24 from the battery system, start disconnecting from the positive terminal of the **last** battery (highest voltage point).
 - a) Disconnect **48V** Wire (Red) of the module from the positive terminal of the **48V** battery connection.
 - b) Disconnect **24V** Wire (Red) of the module from the positive terminal of the **24V** battery connection.
 - c) Disconnect **GND** Wire (Black) of the module from the negative terminal of the **0V/Gnd** battery connection.