

INTRODUCING THE WORLD'S SAFEST LITHIUM-ION BATTERY!

MOAB



SETTING THE GLOBAL STANDARD FOR THE WORLD'S SAFEST LITHIUM BATTERY!

**ENERGY
STORAGE
SYSTEMS**



**DESIGNED, ENGINEERED
ASSEMBLED IN THE USA**



FR SERIES BATTERY FIRE RESISTANT LITHIUM

PROTECTION FROM FIRE ~ TEMPERATURE EXTREMES ~ SHOCK ~ VIBRATION

Introducing MOAB FR series --- the world's safest lithium-ion battery systems for the global portable, residential, commercial, industrial, transportation, emergency and disaster relief operations --- with maximum *Thermal, Shock* and *Vibration* protection, and the highest *Fire Safety* protection!

Designed for primary or emergency applications, the MOAB **Fire Resistant/Fire Retardant** [FR] Lithium Battery for Energy Storage is an advanced, rugged, long-life, Solar/AC/DC/Generator rechargeable battery. The MOAB battery is designed for internal and external applications, transportable or fixed.

The MOAB FR battery, in a dual-step process, provides the highest level of fire protection in a lithium battery product. The first and most basic process is of "encapsulating" each individual lithium cell or pack in specially constructed individual fire-proof cell or pack chambers, formed from a unique and proprietary fire-resistant polymer composite technology, to contain lithium battery fires caused by thermal runaway. The higher the capacity of the cell, more the need to isolate cells from each other to contain a chain reaction. The extinguishing process works by the encapsulating chamber simply squeezing the life out of the fire. This is followed by adding a second layer to the process above, by "*blanketing*" the cells/pack with a fireproof material capable of withstanding fires above 1000° C. This further isolates and shields the cells/pack from the exterior enclosure --- preventing heat and/or fire ingress or egress. This thermal insulation also drastically expands the range of hot and cold environments that the MOAB FR series can operate in, while providing the maximum impact, shock and vibration protection.

The MOAB POWER FR product line consists of 24V/7.5kWh and 48V/12kWh & 15kWh batteries, designed for off-grid solar or grid backup stationary applications as well as for mobile/transportable applications like truck, RV, marine or emergency power. Custom voltages and capacities available.



- **SMART DESIGN – MODULAR --- SCALABLE**
 - *State-of-the-Art, Programmable, Plug-n-Play System --- Easy to Install/Operate*
 - *Small Form Factor --- Rugged Design --- Compact, Lighter than SLA Batteries*
 - *Separate BMS and PDU modules allowing for independent mounting options*

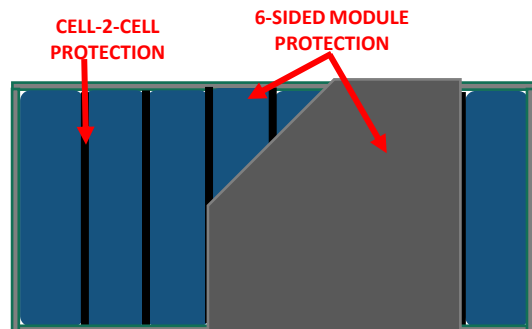
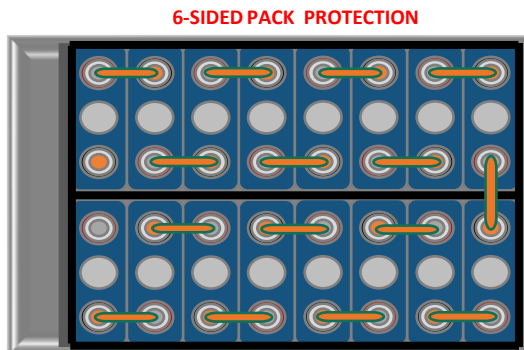
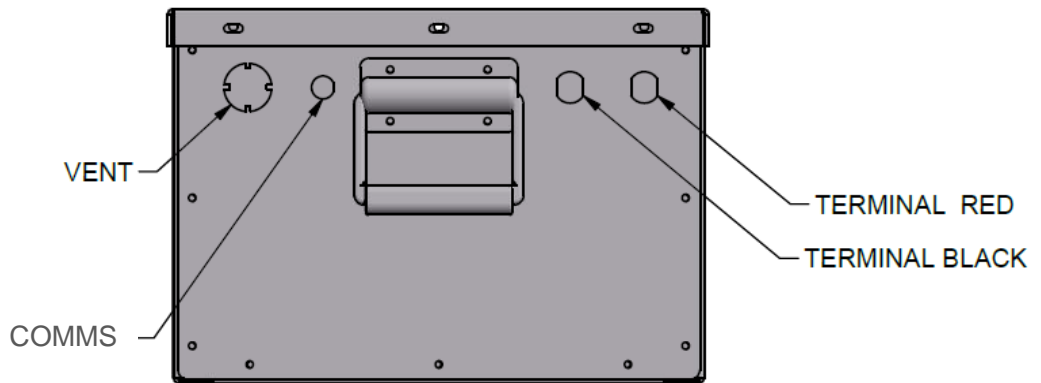
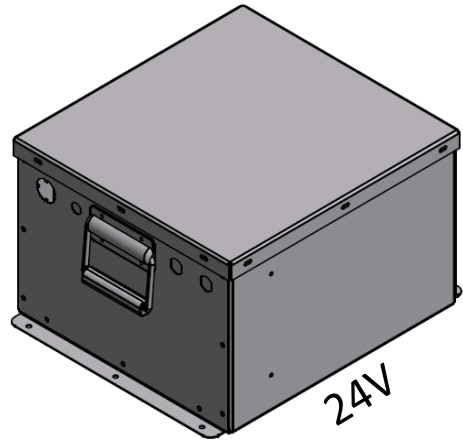
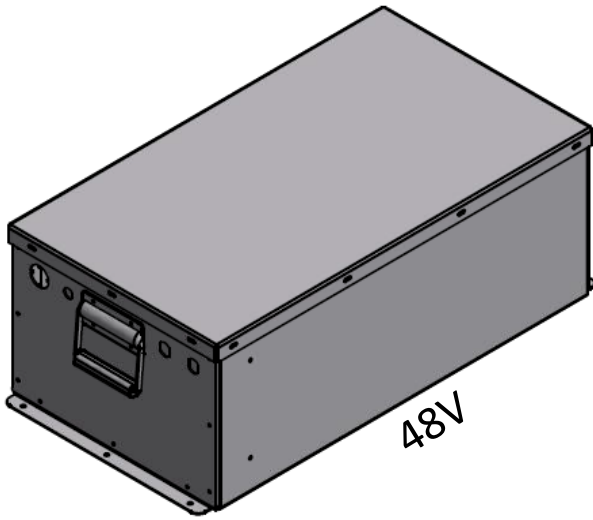
- **ADVANCED PRISMATIC LITHIUM CELL TECHNOLOGY --- LONG LIFE BATTERY**
 - *Life Cycle @ 80% DoD --- >7000 cycles for MOAB Lithium*
 - *Reduces Replacement, Labor and Logistical Costs associated with batteries*
 - *Field Replaceable Components*

- **PROTECTION – FIRE SAFETY, RELIABILITY & ENVIRONMENTAL**
 - *Specially formulated Internal insulation, to provide exceptional fire protection*
 - *Fire Resistant Encapsulation of Cells, Modules and Pack up to 1200 °F*
 - *Internal Safety Protection --- Built-in Safety Shutoffs at Cell & BMS Level*
 - *BMS + PDU PCBs --- Cell Protection Technology --- Robust --- No moving parts*
 - *High strength, fire resistant aluminum enclosure with 2-stage venting*

- **COMMUNICATIONS**
 - *Fully Programmable Software --- Field Programming & Diagnostics*
 - *Wireless Bluetooth --- Programming Functions & Systems Info via Mobile App*
 - *Wired CAN bus -- Programming Functions & Systems Information*
 - *Optional Remote Monitoring & Communications via Internal/External Plug-In Modules, Wi-Fi, GSM & Lo-Ra Mesh Network*

- **WARRANTY**
 - *10 Years Limited to defects in material or workmanship*

SEVEN LEVELS OF SAFETY & PROTECTION!



GAME CHANGING TECHNOLOGY!

MOAB

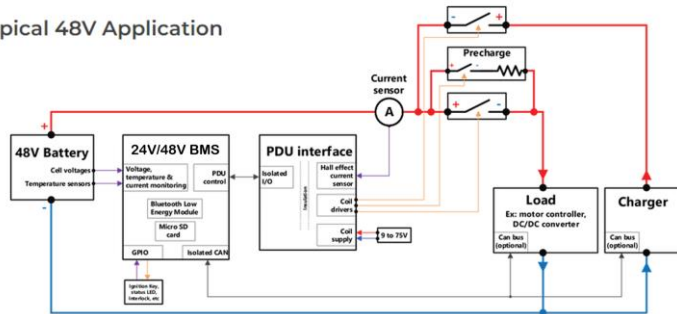
FR SERIES

PRIMARY OR EMERGENCY

NOISE-LESS
FUME-LESS
FUEL-LESS

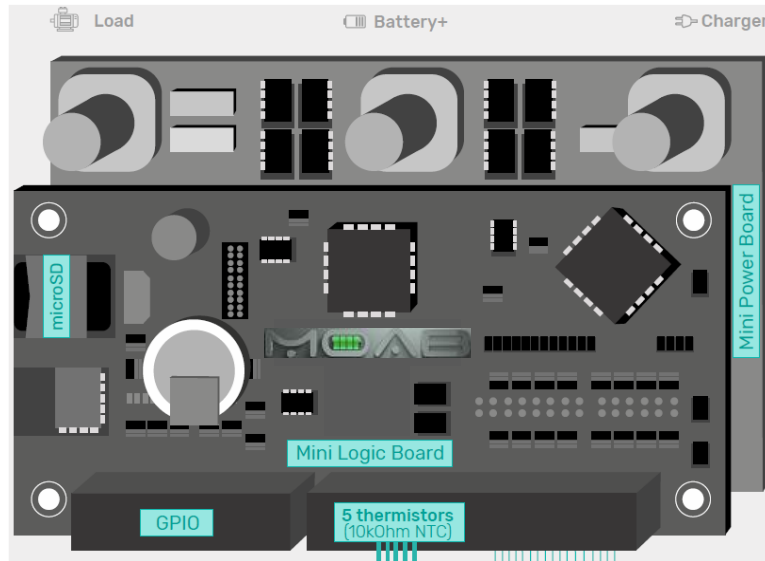
GRID/OFF-GRID OR PORTABLE

Typical 48V Application



PROTECTION FROM FIRE & EXTREME TEMPERATURES

PROTECTION FROM IMPACT SHOCK & VIBRATION



BLUETOOTH MONITORING

LOW TO NO MAINTENANCE

MODULAR & SCALABLE

CELLS / PACK:

[8-CELL / 16-CELL]

CHEMISTRY	LITHIUM FERROUS PHOSPHATE
NOMINAL VOLTAGE	25.6 VDC / 51.2 VDC
CHARGE VOLTAGE	28.8 VDC / 57.6 VDC
MAX VOLTAGE	30 VDC / 60 VDC
CAPACITY	7.5 KWH / 12 & 15 KWH
CONTINUOUS CURRENT	100A
MAX CURRENT	200A PULSE - 10 SEC

TEMPERATURE:

CHARGE	-20°C ~ 50°C
DISCHARGE	-20°C ~ 60°C
STORAGE	-20°C ~ 60°C

SAFETY:

FUSE	36V / 70V ~ 500A
VENT	2-STAGE[PRESSURE BALANCE+DEGAS]
SHORT CIRCUIT DETECTOR	CONFIGURABLE UP TO 450A

COMMUNICATION:

CAN-bus	2.0 A & B [SYSTEM INTEGRATION]
RS485	MODBUS / RTU
BLUETOOTH	4.1 [ANDROID DASHBOARD]

MECHANICAL:

[24V / 48V]

WIDTH	17" / 26"
DEPTH	14" / 14"
HEIGHT	10" / 10"
WEIGHT	100 LBS. / 220 LBS. APPROX.
CASE MATERIAL	0.90" T-5052 ALUMINUM

WARRANTY:

LIMITED 10-YEAR