



Advanced Lithium Ion Battery Packs

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ION Power

12V INDUSTRIAL Battery
164Amp Module Description



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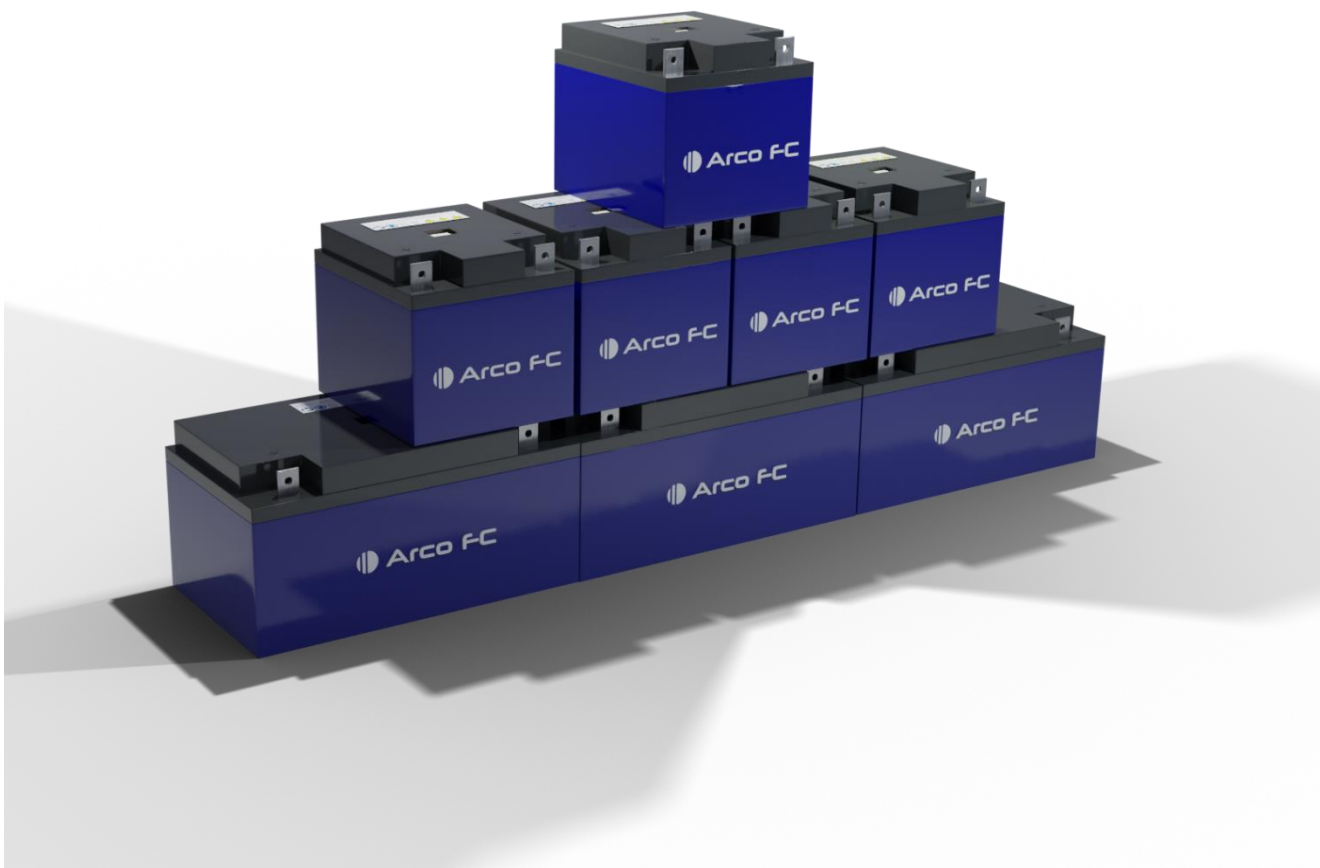
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ARCO FC 12V 82 Amp battery Module

1. Features

Safe

- Certified by  TÜVRheinland®
- Designed in compliance with: IEC 62619:2017
- Integrated autonomous BMS battery performance and safety
- Protects against: cell overvoltage, cell under voltage, charge, over and under temperature
- Monitors: whole cells parameters

High-Performance

- High-class Lithium-Ion LFP Prismatic Cells
- 1C Fast Charge Current
- Up to 3C Discharge Rate (depending by the temperature)
- Extremely Low Power Dissipation (Shelf-life of more than 5 years)
- Up to 1 Amp Passive Cell Balancing

Convenient

- Direct Lead Acid Replacement
- 8 mm holes Terminals
- 4000 cycle*
- Customized Warranty Pack
- Short Charging Times
- Long Life
- Standard Enclosure

* @ 25 °C 80% DOD cycle with clamp 1/4C -1/4C

2. Description

The ARCO battery Module is a compact, safe and robust lithium-ion battery Pack. This battery Module is designed for Mobility, Military, Solar, and railway, with high-power lithium-ion LFP cells.

The module is designed for hi energy intensive application.

The Proprietary **BMS** control the module ensures safe operation and protects the battery against over-charge, over-discharge, High temperature and Low temperature events.

The Module has been designed to fit into standard racks for larger systems.

The integrated **BMS** balances Passively the charge between all cells in the battery pack. Energy is transferred from the cells with the highest charge in the pack, to the lowest maximizing the runtime of the battery pack and extending its life. The **BMS** balancing is active during the charge and the **balancing** is **5-time faster** without increasing the overall recharge time to a significant extent.

This lithium-ion battery pack is maintenance-free. It has a longer run time with a shorter recovery time than equivalent lead acid battery packs.

ARCO battery packs provide increased range and product compatibility.

3. Specification

COMPLIANCE	
ENTITY	TUV Rheinland
CERTIFICATIONS:	IECEE CB
STANDARD	IEC 62619:2017
Classification	UN 38.3 CLASS9

ELECTRICAL	
Nominal Voltage	12,8V
Capacity 100% DOD @ 1C	164Ah
Energy	2100 Watt
Recommended SOC Window	10%~90%
Initial Resistance @ 30% SOC	≤0.5mΩ
CONFIG: 4 units 3,2 V 82 A in series	2P4S


PHISICAL	
Module Dimensions mm	L350 W190 H190
Weight	15kg

AMBIENT	
Storage Temperature	-20 + 45 °C
Charging temperature without coolant	0 °C ~ 55°C
Discharging temperature without coolant	-20 + 55 °C

CHARGE	
Charging the Battery with 40A up to 14,6V , then switch at constant voltage and end charge @ 4 Amp	

DISCHARGE	
Max discharging Current	492 A
Nominal discharging current	80Ah
Self Discharge	9,6%/Year
Cutoff Voltage	10 V

CAUTION:
Read the Instructions and Operating Guide before installing the battery pack
Charge the battery pack with the recommended charger only.
Do not expose the battery to fire.

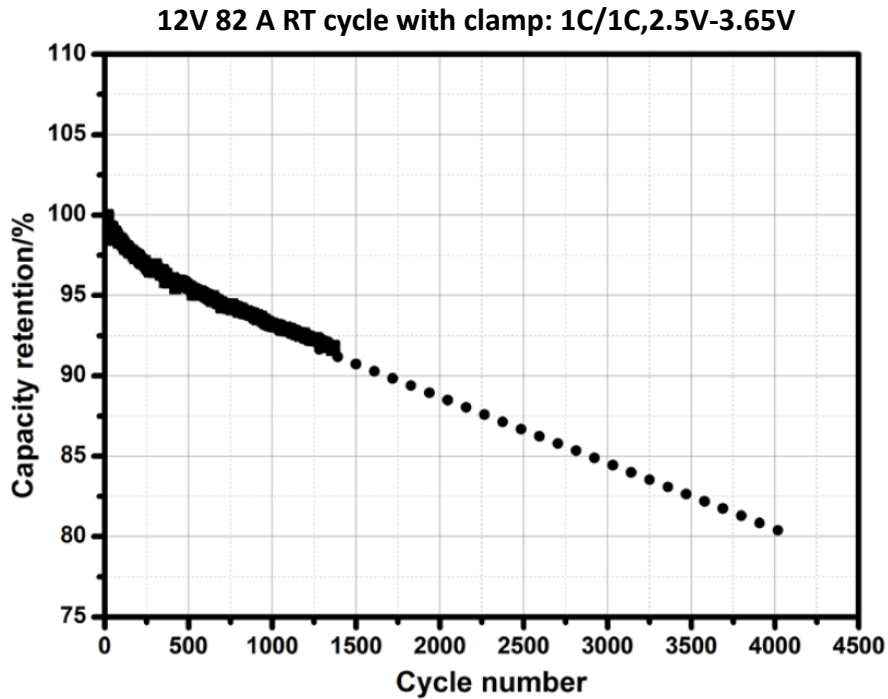
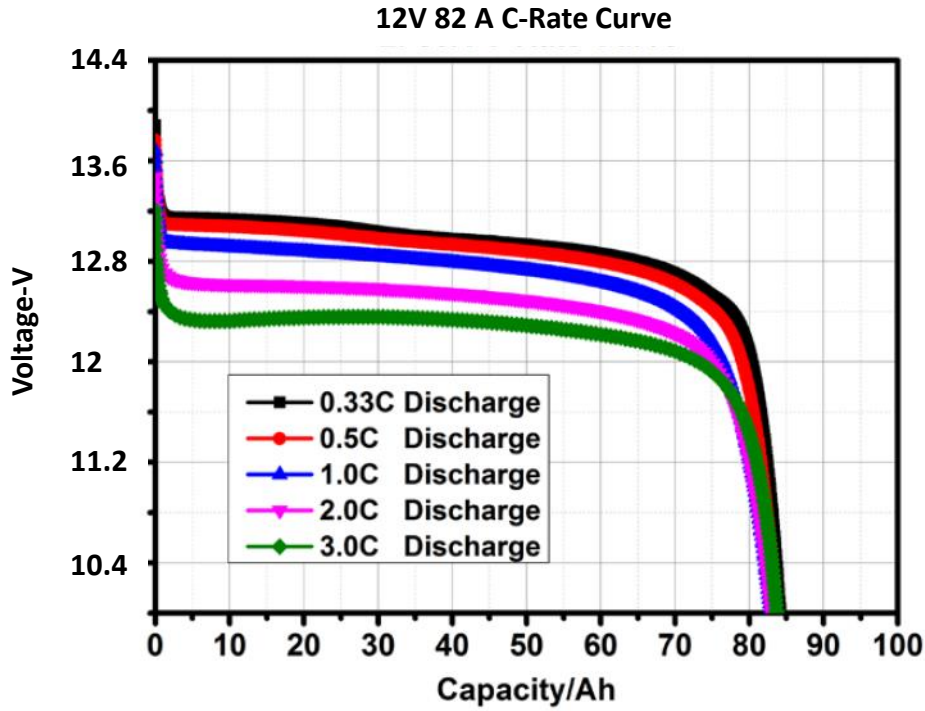


Relay port



ON- OFF Switch

4. Battery Performance Curve



5. General Usage Guidelines

USING

The ARCO FC battery Module can be used at ambient temperatures between -20 and 40°C.

6. Operations

MODES OF OPERATION

The ARCO FC battery Module has two modes of operation: Active Mode and Low Power mode. In Active Mode, all BMS monitoring operates normally. Active Mode is entered automatically when battery use is detected. Low Power mode maintains all battery and safety protections, but with a reduced measurement frequency. This reduces power consumption and increases shelf life without sacrificing safety. Low Power mode is entered automatically when the battery has not been used for 5 minutes.

DISCHARGING

The ARCO FC battery pack can provide up to 1C of continuous current.

CHARGING

The ARCO FC battery pack should only be charged with LiFePO4 chargers. Charging with ¼ C will result in a slightly longer battery lifetime, but our battery is compatible with up to 1C FAST charging for convenience.

CELLS MONITORING

The ARCO FC battery Module monitors temperature and voltages of each cell in the pack. For more information about monitoring specifications, Contact the Arco Service Department at service@arco-fc.com

STORING

Store between 0 and 35°C. To maximize battery lifetime, store at 50% to 100% charge capacity, and recharge the battery every 3 months.

PASSIVE CELL BALANCING

The integrated **BMS** provides Passive balancing of up to 1 Amp with higher capacity and longer runtime.

PRIMARY FAULT PROTECTION

The integrated **BMS** monitors the battery to ensure safe operation.

Protections include: cell under-voltage and overvoltage, low and high temperature. The cell thresholds are configured according to the lithium-ion cell chemistry. If a protection is triggered, the in line relays open to disconnect the battery from the system and ensure safety. All battery pack protection thresholds, timing and recovery conditions are contained in the **BMS** data available from the Arco Service Department.

The in line relay must to be installed by the costumer in the positive cable as show in the Figure 1. ARCO FC battery Assembly diagram

SECONDARY FAULT PROTECTION

The integrated **BMS** will permanently disconnect the battery pack from the system if the primary protection system is compromised, ensuring battery pack safety.

7. Block Diagram

The following block diagram shows the assembly components and their configuration. This diagram is for informational purposes only and does not reflect the physical placement of components. For details on our operating parameters, contact the Arco Service Department at service@arco-fc.com

The in line protection relay is not included, must be installed by the customer according to his requirement.

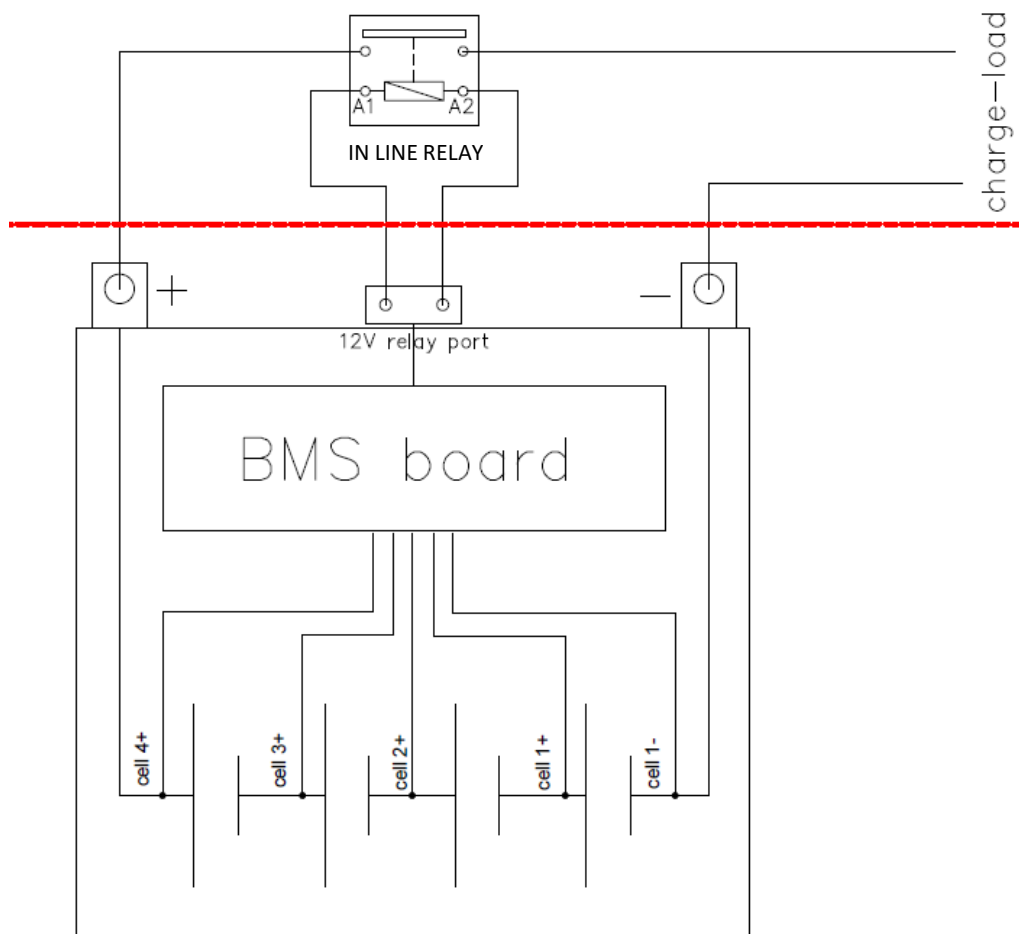
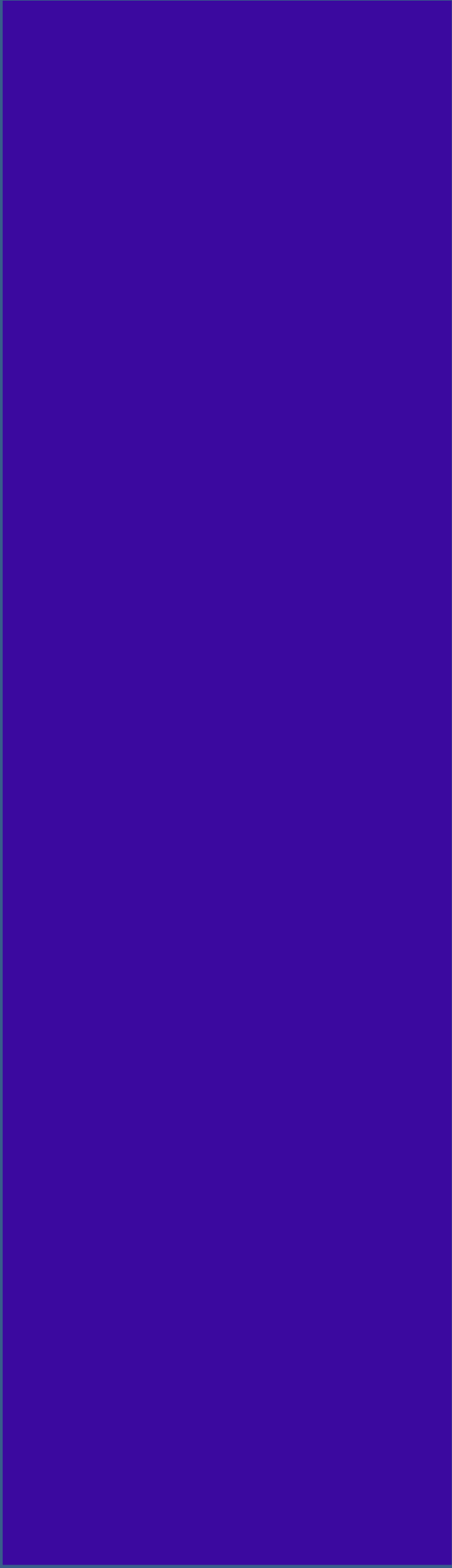


Figure 1. ARCO FC battery Assembly diagram



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