

# RETHIUM POWER TECH LLP

*Battery Solution For Better World*



**THE LITHIUM-ION POWER AND ENERGY UNIT FOR  
RAILWAYS**

**PRODUCT CATALOGUE**

**R-POWER**

**Registered Office:**

**RETHIUM POWER TECH LLP**, No.102, Panchavati Layout, Chikkagubi, Kothannur, Bangalore – 560077

Tel: 0091 80 28443133 Email: [contact@rethium.com](mailto:contact@rethium.com) URL: [www.rethium.com](http://www.rethium.com)

AAF-9295 GST ID: 29AATFR7801D1ZV

## R-POWER

### BATTERY PACK

Each battery pack embeds a Lithium Ferrous Phosphate (LiFePO<sub>4</sub>) battery plus an internal BMS which communicates and controls its own operations.

- a. Cell temperature & resistance
- b. Low voltage cut-off
- c. High voltage cut-off
- d. High balancing current
- e. Communication

#### Key features:

- “Plug-and-Play” and flexible system
- Easy and quick deployment
- Smart monitoring and management
- Safe and robust technology
- Battery status display
- High balance current

#### Application

- Diesel Locomotive and Electric Locomotive
- Railway Signalling
- End On Generation (EOG)
- Electric Multiple Unit
- Traction Distribution Battery
- Train Lighting Battery



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- The Rethium's R-POWER is an innovative Lithium-Ion railroad battery is designed to replace traditional lead acid batteries. The R-Power is designed to meet the tough environments inside the railroad locomotive. The Railway coach battery system for train lighting is designed to withstand the vibrations and heat are generated as the train is speeding along the tracks facing the cold and the heat from different parts across India. Present day lead acid locomotive batteries weigh thousands of kgs. Whereas R-Power has significantly smaller overall dimensions and weighs 60% lesser than lead acid battery.

The R-Power Lithium-Ion battery has numerous advantages including:

- Higher energy density
- Significantly reduced weight and size
- Cycle life >3000
- No sulfation issues.
- Most importantly, completely maintenance free locomotive battery which greatly enhances personnel safety and reduces operational costs.
- Contains no acid and is completely sealed. Thus, personnel handling of the Lithium-Ion batteries will not be exposed to acid burns.
- With an onboard Battery Management System (BMS) with a custom software developed inhouse, R-Power offers the most modern battery with the best service life in the industry. BMS allows the battery cell to be performed within the given limits and keeps the cells balanced at all times and also monitors cell temperature to offer maximum service life to the battery pack.
- R-Power is supplied with a charger capable of working in 110/220 volts. With the modern technology inbuilt in R-Power, charging time is reduced 70% when compared to a standard lead acid battery. R-Power is provided with a power ON/ OFF switch which can turn off the unit when not in use, thus extending the battery life. With digital LCD display, the user can read the State Of Charge (SOC) and can determine the capacity of the battery before the unit is put for charging.
- R-Power can be customized based on customer requirements.

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### SPECIFICATION:

#### Diesel Locomotive Trains/ Technical Specification/ Lithium Ion Battery

SI No.	Voltage	Capacity	Discharge Current		Charge Current	Charge Time	Cycle Life
			Initial Cranking Current	Initial Cranking Current			
1	64V	100Ah	2300A	1400A	30A	3 hrs 20 min	3000

#### Electric Locomotive & EMU/ Technical Specification/ Lithium Ion Battery

SI No.	Voltage	Capacity	Discharge Current		Charge Current	Charge Time	Cycle Life
			Peak Current	Continuous Current			
1	110V	75Ah	50C (10 sec)	10C	22	3hrs 25min	3000

#### Train Lighting/ Technical Specification/ Lithium Ion Battery

SI No.	Voltage	Capacity	Discharge Current		Charge Current	Charge Time	Cycle Life
			Peak Current	Continuous Current			
1	110V	250Ah – 750Ah	10C (10 Sec)	0.5C	150A	3hrs 20min	3000

#### Air Condition Train/ Technical Specification/ Lithium Ion Battery

SI No.	Voltage	Capacity	Discharge Current		Charge Current	Charge Time	Cycle Life
			Peak Current	Continuous Current			
1	110V	500Ah – 750Ah	10C (10 Sec)	0.5C	225A	3hrs 20min	3000

**Note:** Data in this document are subject to change without notice and become contractual only after written confirmation by Rethium

Operating Temperature	Charging	0 ~ 10°C	@ <0.2P
		10 ~ 35°C	@ 0.5P
		35 ~ 45°C	@<0.5P
	Discharging	-20°C ~ 55°C	
Storage Temperature SOC @>50% (Follow the given SOP)		-20 ~ 25°C	1 Year
		-20 ~ 35°C	6 Months
		-20 ~ 45°C	3 Months
		-20 ~ 60°C	< Week
Communication		RS485/ CAN	
Power Consumption of the BMS "ON" Mode		~ 20mA	
Power Consumption of the BMS "Off" Mode		~ 20µA	

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Rethium has supplied the batteries to Metros and Railways for Track Inspection Vehicles (TIV) application through vehicle OEMs. Below is the photo for your reference.



Track Inspection Vehicle

Li-Ion Battery



Li-Ion Battery (Inside View)

**Battery Specification:**

Chemistry: Lithium Ferrous Phosphate

Battery Nominal Voltage: 48V DC

Battery Capacity: 100Ah

Communication: CAN

Charge Time: 4 hrs

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