



# Cygni Energy

Electric Rickshaw Batteries



**INTRODUCING E-RICKSHAW BATTERIES,**

**WITH ADVANCED**

**LITHIUM – ION TECHNOLOGY**

# MARKET OPPORTUNITY FOR ELECTRIC RICKSHAW

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RENTAL VEHICLE / E-  
MOBILITY OPERATORS

BATTERY RETAILERS

LOAD CARRIER

PASSENGER VEHICLES

Automobile industry is one of the key segments driving economic growth; Make India pollution free and independent on overseas oil, with renewable resources.

# WHY CYGNI POWERED EV BATTERY?



## SAVE MONEY

Eliminate your fuel costs, electricity is less expensive than gasoline & better battery life.



## CHARGING & DISCHARGING

Quick charging and discharging depending on speed. Can run more rides, and earn more money.



## INTELLIGENT BMS

Microprocessor based intelligent Battery management system to overall control and protection.



## INCREASE DURABILITY

Electric vehicles can be fueled by electricity from renewable sources, and increase durability and avoid co2 emissions.



# TECHNICAL SPECIFICATION

## CYGNI E-RICKSHAW BATTERY

- ❑ **3.12 kWh - Lithium Ion Battery**
- ❑ Battery Capacity: 65 Ah
- ❑ Battery Pack Nominal voltage: 48 V
- ❑ Efficiency: >98%
- ❑ Discharge up-to 90% of the rated capacity
- ❑ No. of cycles: 1000+
- ❑ IP Rating: IP65
- ❑ Weight: ~35 Kg
- ❑ Dimensions (L x W x H): (532 x 262 x 190)mm





# STATE-OF-THE-ART MANUFACTURING FACILITY



- ❑ 25,000 sq. feet Manufacturing Facility in Hyderabad
- ❑ R&D Center in IITM Research Park in Chennai
- ❑ Separate Production Line for EV Battery Manufacturing
- ❑ Strong Manufacturing and Operations Leadership team
- ❑ Strong focus on Product Quality for reliable and rugged products
- ❑ Technology collaboration with IITM

# CYGNI UNIQUE SELLING POINT

- ❑ Cygni EV Battery is Microprocessor based intelligent Battery Management System (BMS)
- ❑ Cell / Region Level Temperature Monitoring
- ❑ Cell Level Voltage Monitoring
- ❑ Swappable battery
- ❑ Better Thermal management
- ❑ Rugged design suitable for Indian road conditions
- ❑ Customizable as per vehicle requirement
- ❑ Dependable after sales service support



# FEATURES OF CYGNI E-RICKSHAW BATTERIES

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- ☐ Smart software & Hardware for batteries with BMS Control
- ☐ Swappable Battery
- ☐ High energy density
- ☐ Quick Charging capacity
- ☐ Multi-motor compatible
- ☐ Maintenance free
- ☐ Long Life
- ☐ Low Overall Cost





# CYGNI BATTERY MANAGEMENT SYSTEM (BMS)

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## Current & Voltage Protection

Protects the battery pack from over-charge and over-discharge thereby extending cycle life



## State Of Charge Monitoring

Coulomb counting and dynamic drift correction are used to monitor the state of charge



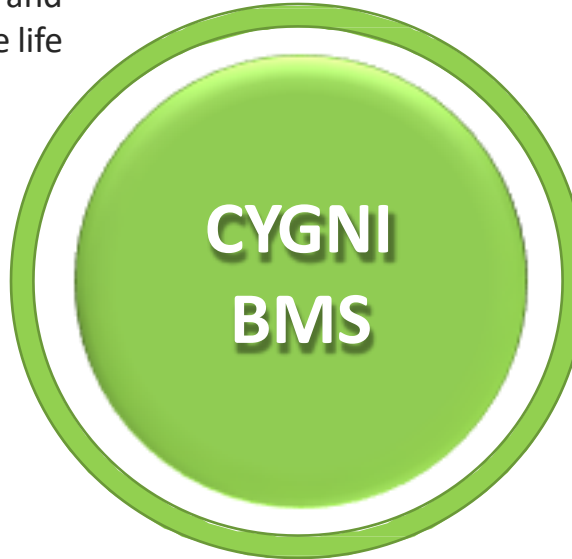
## Thermal Management

Over-temperature and under-temperature protection during charging / Discharging



## Field Programmable

Parameters such as voltage ranges, current limits and many other settings are easily field changeable.



## Intelligent Cell Balancing

Efficient passive balancing is used to maximize the usable capacity of battery packs

# SAFETY SPECIFICATION

## E-RICKSHAW BATTERY

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- ☐ Cell over voltage protection
- ☐ Pack over voltage protection
- ☐ Cell under voltage protection
- ☐ Pack under voltage protection
- ☐ Over current in charge protection
- ☐ Over current in discharge protection
- ☐ Short circuit protection
- ☐ Over temperature in charge protection
- ☐ Over temperature in discharge protection
- ☐ Under temperature in charge protection
- ☐ Under temperature in discharge protection

# QUALITY TEST STRATEGY



## Salient features of overall Quality Testing:

- ☐ 100% testing of Li-Ion cells for technical parameters, Dimensions, Weight etc. tests as per IS2500 standard
- ☐ In-Process Quality Check
- ☐ Testing of Semi-finished PCB boards
- ☐ Final Testing of Finished Goods (FG) product
- ☐ Pre-Dispatch Inspection (PDI)
- ☐ On-road Test Drive

## Cygni Typical quality Tests:

- ☐ Over Charge Test
- ☐ Short Circuit Test
- ☐ Vibration Test
- ☐ Shock Test
- ☐ Penetration test – Cell level
- ☐ Energy Consumption Test
- ☐ Pack Internal Resistance: 5, 50 and 100% SOC

# TEST DRIVE WITH CYGNI E-RICKSHAW BATTERY

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Keep the Battery pack  
inside the vehicle !



Give the connection,  
Turn ON the vehicle  
and drive !



Swap / recharge  
the battery,  
Ready for the  
next drive !

# BENEFITS OF E-RICKSHAW REVOLUTION

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**L**

## **LOW RUNNING COST**

E-rickshaw runs on a battery and not another kind of fuel like diesel or petrol. So, low running cost and there is no question of smoke emission while it functioning.

**L**

## **LESS MAINTENANCE REQUIRED**

An e-rickshaws does not require much heavy maintenance. It has less moving parts and more robust as compared to other traditional rickshaws.

**G**

## **GENERATE HIGHER INCOME AT LESS EXPENDITURE**

E-Rickshaws generating an appreciable income at low operational expenses. No Frequent repairing, no need to purchase high-cost fuels like diesel and petrol.

**I**

## **INCREASE DURABILITY**

Ensure the life of E-Rickshaw and increase the durability, gives value for your investment.

**G**

## **GREATER TURNING RADIUS**

Turning radius of E-Rickshaw has much greater than traditional Rickshaw. Therefore, it is more convenient to use in busy and congested areas.

**R**

## **RECYCLE**

Main Advantage of this vehicle is that battery on which it runs can be easily recycled after its useful life. It is safer to use and 100% environment-friendly.



# 2020

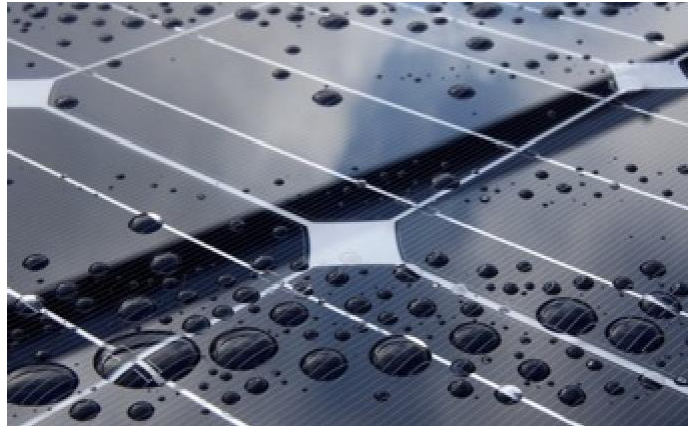


## FROM THE CURRENT TO THE FUTURE

The unquestionable Lithium Ion (Li-Ion) and the 48V battery system, and the power electronics will play a very important role, which might see a lot of adoption in India and world-wide.

## CONSUMERS -> PROSUMERS

- ☐ Instead of relying on grid-supplied electricity, we might see an increased uptake in self-generation of electricity.
- ☐ Second-generation smart meters, have the ability to not only to measure consumption but also record electricity generation from a "prosumer."



## REMOVAL OF ICEs 100% EV BY 2030

The first target is to replace diesel vehicles with EV's. On top of that, the government also looks to phase out all ICE vehicles by 2030.



# 2025

# 2030

# KEY CLIENTELE

## Educational Institutes



## Realtors



## Electric Vehicles



## Banks and MFIs



## Niche Projects



## CSR



# Awards & Recognition



IEEE – Empower a billion Lives



Diamond Award - Best Rural Electrification Projects by Industry



Greater Good Award for remote Micro-Grid



Emerging Entrepreneur Awards



SME Excellence Awards



First company to avail of the benefits offered by the government under **Start-up India** Action Plan



Round 5 Winner

# CONTACT US

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# THANK YOU

Have a nice day