



**TEAM VELOCIRACERS**  
COEP Technological University Pune,  
Wellesley Road, Shivajinagar,  
Pune – 411005  
Mail us at: [coep.velociracers@gmail.com](mailto:coep.velociracers@gmail.com)  
Contact: +91 93077 66113



## COEP TECHNOLOGICAL UNIVERSITY

(Formerly College of engineering, Pune)  
Shivajinagar, Pune – 411005  
Ph: 9309724368

**Ref: VRX-REEV-FY25-26-D 506**  
**Date: 15 /12/25**

### CALL FOR QUOTATION

Name of Component - Battery + BMS + Charger

Respected Sir,  
You are requested to submit your most competitive quotation for the below-  
Mentioned essentials for Team Velociracers-X as per the given terms and conditions.

| Name                       | Specification              | Quantity |
|----------------------------|----------------------------|----------|
| Battery + BMS<br>+ Charger | As mentioned in Datasheet. | 1        |

|                                       |   |
|---------------------------------------|---|
| Quotation No &<br>Date                | Reference No. VRX-REEV-FY25-26-enq-D<br>Date: |
| Issue of Quotation<br>Forms           | From: 23/12/2025                              |
| Last Date of Receipt<br>of Quotations | 30/12/2025                                    |
| Opening of<br>Quotation               | 30/12/2025                                    |

|                           |   |
|---------------------------|---|
| Correspondence<br>Address | Team Velociracers, Smithy Shop, Manufacturing Dept, COEP<br>Tech University, Shivajinagar, Pune- 411005 |
|---------------------------|---|

TERMS AND CONDITIONS:

1. Sealed quotation to be addressed to "COEP Technological University" and to be submitted in Team Velociracers, Smithy Shop, Manufacturing Dept, COEP Tech University, Pune, Shivajinagar, Pune 411005 before 5 PM
2. The Institute reserves the right to accept the Quotations or may reject any or all Quotations and to order any of the item in any quantity without assigning reasons.
3. The Vice-chancellor has the authority to cancel any quotation anytime without any reason.
4. The quotation shall be sent in a sealed envelope mentioning the name of the firm along with the stamp. In case the envelope is not sealed then Team Velociracers reserves the right to cancel it.
5. The relevant supporting documents should be enclosed along with the offer.
6. All interested vendors must possess a valid pan card number and a GST number.
7. The taxes, transportation charges etc. if any must be mentioned separately.
8. GST amount will be only provided for the deliverables that come under GST rule and not for all deliverables. Also, a valid GST number and certificate has to be produced, failing to do this will lead to no payment of the GST amount.
9. 100% payment shall be made for the goods only in good condition after Delivery of the Product.
10. Quotation opening date, time and venue will be notified.
11. Quotations received after last date of submission will be rejected.
12. Quotations should be signed by the authorized signatory.
13. Quotations rates will be valid for six months. Quotation rates shall include transportation, handling and delivery charges. No additional charges shall be quoted.
14. No advance payment will be given.
15. All items must be delivered completely before any payment is processed. No payment shall be made prior to delivery.

## DATASHEET of BATTERY:

### CELLS SPECIFICATION

| ITEM                          | SPECIFICATION       |
|-------------------------------|---------------------|
| Capacity                      | 15Ah                |
| Cell Chemistry                | LiFePO <sub>4</sub> |
| Nominal voltage               | 3.2 V               |
| Charge voltage                | 3.65V               |
| Discharge ending voltage      | 2.5 V               |
| Energy density                | 210Wh/Kg            |
| Standard. charge current      | .5c (24 W)          |
| Max Charger current           | 1c (48W)            |
| Rated Discharge Current       | 1c(48W)             |
| Max Discharge Current@ 25 deg | 2c(96W)             |

### Battery pack Technical specification-

|                               |                                       |
|-------------------------------|---------------------------------------|
| Battery pack configuration    | 16S 6p                                |
| Battery nominal voltage       | 51.2 V                                |
| Battery capacity              | 90 Ah                                 |
| Battery operating voltage     | 44.8V to 58V                          |
| Life cycle                    | 2000                                  |
| Casing type                   | Metal                                 |
| Battery operating temperature | 0°C - 65°C                            |
| Continuous discharge current  | 200A(can be change as per bms Rating) |
| Pulse discharge current       | 300A                                  |

| Cell Type                            | Units | Cylindrical- Lfp                |
|--------------------------------------|-------|---------------------------------|
| Nominal Energy                       | KWh   | 4.6                             |
| Charge Voltage Range                 | V     | 44.8V- 58V                      |
| Discharge Voltage Range              | V     | 58V- 44.8V                      |
| Max Charge Current                   | A     | 50                              |
| Max Discharge Current(Continuous)    | A     | 100                             |
| Max Discharge Current(Instantaneous) | A     | 300                             |
| Weight                               | Kg    | 38(approx.)                     |
| Operating Temperature                | °C    | 0~60 Charge<br>-10~65 Discharge |

|                           |        |                           |
|---------------------------|--------|---------------------------|
| Storage Temperature       | °C     | -40~60                    |
| Humidity                  | %      | <85 RH No<br>Condensation |
| Thermal Management        |        | Passive                   |
| Battery Management System |        | Included                  |
| Design Life               | Years  | 5                         |
| Cycle Life                | Cycles | ~2000(80% DoD)            |

**DATASHEET of CHARGER:**

|                |                                   |
|----------------|-----------------------------------|
| Charger Type   | LiFePO <sub>4</sub> CC-CV Charger |
| Output Voltage | 58.4 V DC                         |
| Output Current | 40-50 A                           |
| Power Rating   | 3-3.2 Kw                          |
| Input          | 230 VAC, 50 Hz                    |
| Protections    | OVP, OCP, SCP, OTP                |
| Compatibility  | 16S LFP battery with BMS          |

# BMS Datasheet

## General Specification

| SN | PARAMETER                                     | VALUE                    | UNIT | REMARKS  |
|----|---|--------------------------|------|--|
| 1  | Nominal battery voltage                       | 51.2                     | V    | 16S cell configuration   |
| 2  | Operating current – active                    | 8                        | mA   | Battery voltage 50V  |
| 3  | Operating current – Sleep                     | 500                      | μA   | Battery voltage 50V  |
| 4  | Power MOSFET configuration                    | SPST                     | -    | Negative terminal, Low side  |
| 5  | Internal resistance<br>(Terminal to terminal) | 5.0<br>3.0<br>1.5<br>1.1 | mΩ   | ERX1-LFP16S30A<br>ERX1-LFP16S50A<br>ERX1-LFP16S70A<br>ERX1-LFP16S100A<br>Max resistance<br>T <sub>BMS</sub> = 50°C |
| 6  | Battery temperature sensors                   | 4                        | -    |  |
| 7  | Onboard data logging period                   | 90                       | Days |  |
| 8  | Communication                                 |                          |      | CAN, RS-485  |
| 9  | Communication isolation                       | NO                       | -    | Non isolated channels  |

## Absolute Maximum Rating

| SN | PARAMETER                             | MIN  | MAX | UNIT |
|----|---------------------------------------|------|-----|------|
| 1  | Battery voltage                       | -1   | 75  | V    |
| 2  | Cell voltage $V_N - V_{N-1}$          | -0.2 | 5   | V    |
| 3  | Operating ambient temperature         | -20  | 70  | °C   |
| 4  | Maximum load inductance <sup>#1</sup> |      | 100 | μH   |

## 4.3 Measurement Accuracy

| SN | PARAMETER                           | TYP       | MAX       | TEST CONDITION                        |
|----|-------------------------------------|-----------|-----------|---------------------------------------|
| 1  | Cell voltage accuracy               | 4mV       | 10mV      | -10°C to 60°C, 0V to 4.5V             |
| 2  | Battery voltage accuracy            | 0.2%      | 0.35%     | -10°C to 60°C, 10V to 30V             |
| 3  | Current accuracy (0A – 120%)        | 2% ± 0.1A | 4% ± 0.2A | 25°C ambient, T <sub>BMS</sub> < 60°C |
| 4  | Current accuracy (> 120%)           | 3%        | 5%        | 25°C ambient, T <sub>BMS</sub> < 60°C |
| 5  | Current thermal drift               | -         | 0.03%/°C  | T <sub>BMS</sub> 25°C to 90°C         |
| 6  | Temperature accuracy                | 1°C       | 3°C       | -10°C to 60°C                         |
| 7  | Measurement bandwidth <sup>#2</sup> | 5Hz       |           |                                       |
| 8  | Data readout frequency              | 1Hz       |           |                                       |

# Electrical Specification

| SN                                | PARAMETER   | VALUE                 | UNIT                 | REMARKS  |
|-----------------------------------|---|-----------------------|----------------------|--|
| <b>PACK VOLTAGE SPECIFICATION</b> |   |                       |                      |  |
| 1                                 | Over-charge entry threshold                                 | 58.1                  | V                    | Equivalent to 3.63V/Cell   |
| 2                                 | Over-charge exit threshold                                  | 55.2                  | V                    | Equivalent to 3.45V/Cell   |
| 3                                 | Over-discharge entry threshold                              | 44.8                  | V                    | Equivalent to 2.80V/Cell   |
| 4                                 | Over-discharge exit threshold                               | 48.0                  | V                    | Equivalent to 3.00V/Cell   |
| 5                                 | Sleep mode entry threshold                                  | 41.6                  | V                    | Equivalent to 2.60V/Cell   |
| 6                                 | Sleep mode exit threshold                                   | 44.0                  | V                    | Equivalent to 2.75V/Cell   |
| <b>CELL VOLTAGE SPECIFICATION</b> |   |                       |                      |  |
| 7                                 | High voltage entry threshold                                | 3.65                  | V                    |  |
| 8                                 | High voltage exit threshold                                 | 3.50                  | V                    |  |
| 9                                 | Low voltage entry threshold                                 | 2.75                  | V                    |  |
| 10                                | Low voltage exit threshold                                  | 2.90                  | V                    |  |
| <b>CURRENT SPECIFICATION</b>      |   |                       |                      |  |
| 11                                | Continuous current rating<br>Discharge   Charge             | 30<br>50<br>70<br>100 | 15<br>25<br>35<br>50 | A<br>ERX1-LFP16S30A<br>ERX1-LFP16S50A<br>ERX1-LFP16S70A<br>ERX1-LFP16S100A |
| 12                                | Over current capacity                                       | 120<br>150<br>300     | %                    | Overload duration: 60s<br>Overload duration: 20s<br>Overload duration: 1s  |
| 13                                | Short circuit current threshold                             | 550                   | %                    | % of continuous rating   |
| 14                                | Short circuit reaction time                                 | 8                     | μs                   |  |
| 15                                | Short circuit auto-restart time                             | 3                     | s                    | Auto restart after short removal   |
| 16                                | Over load auto-restart time                                 | 10                    | s                    |  |
| 17                                | Max output load for successful hot-start after a fault trip | 70                    | %                    | % of rated load current  |
| <b>PRECHARGE SPECIFICATION</b>    |   |                       |                      |  |
| 18                                | Precharge resistance  | 54                    | Ω                    |  |
| 19                                | Maximum precharge duration                                  | 2                     | s                    |  |
| 20                                | Precharge repeat time                                       | 5                     | s                    |  |
|                                   | Maximum load capacitance for successful one shot precharge  | 4,500                 | μF                   |  |
| <b>BALANCER SPECIFICATION</b>     |   |                       |                      |  |
| 21                                | Balancer type   | Passive               |                      |  |
| 22                                | Typical balancing current                                   | 30                    | mA                   | When balancing non adjacent cells  |
| 23                                | Balancer ON $\Delta V_{Cell}$ threshold                     | 40<br>20              | mV                   | Corse balancing<br>Fine balancing  |
| 24                                | Balancer OFF $\Delta V_{Cell}$ threshold                    | 10                    | mV                   |  |
| 25                                | Low $V_{Cell}$ stop threshold                               | 3.30                  | V                    | Balancing stops below this voltage   |

|    |                                 |      |   |   |
|----|---------------------------------|------|---|---|
| 26 | High V_Cell discharge threshold | 3.65 | V | Forced discharge is initiated on cells above this voltage regardless of cell voltage differential |
|----|---------------------------------|------|---|---|

## Thermal Specification

| SN | PARAMETER   | VALUE      | UNIT | REMARKS  |
|----|---|------------|------|--|
| 1  | Maximum heat dissipation at rated current                                   | 5<br>8     | W    | ERX1-LFP16S30A<br>ERX1-LFP16S50A<br>70A,100A BMS to be updated |
| 2  | Thermal resistance $R_{\theta_{CA}}$<br>Case to ambient (vertical mounting) | 5.0<br>3.0 | °C/W | ERX1-LFP16S30A<br>ERX1-LFP16S50A<br>70A,100A BMS to be updated |
| 3  | $\Delta T$ max at rated current   | < 30       | °C   |  |
| 4  | Working temperature range (ambient temperature)                             | -20 to 60  | °C   | Derate maximum permissible current above 50°C                  |

