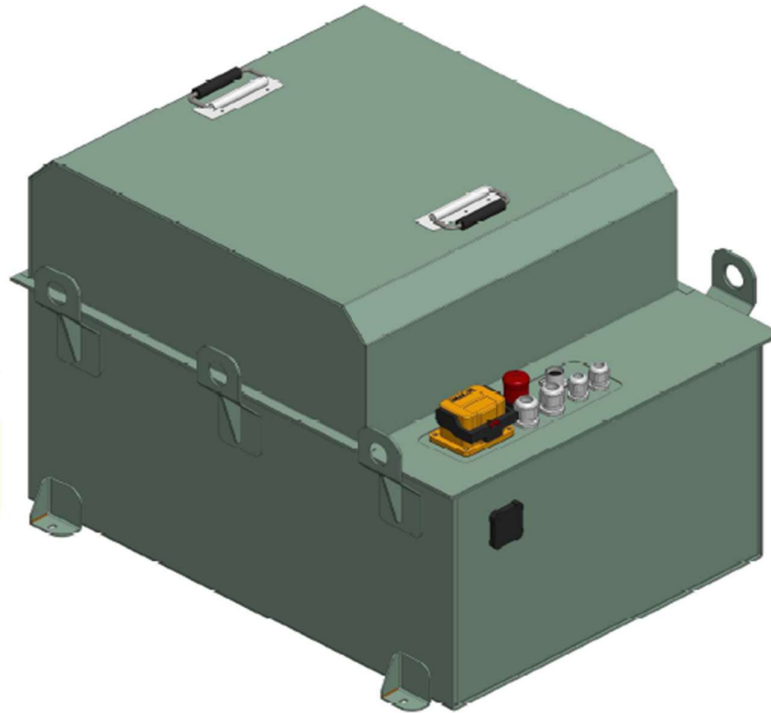


TECHNICAL SPECIFICATIONS

RESEARCH & DEVELOPMENT

PRODUCT SPECIFICATION



| | |
|-----------------------|------------------------------------|
| Model: | NEFL80400BL |
| Voltage: | 80V |
| Capacity: | 400Ah |
| Communication: | CAN, CNLINKO LP-24 |
| Application: | Material Handling Equipment |

NEURON ENERGY PVT. LTD.

OFFICE : 303 & 505, SAI HERITAGE, TILAK ROAD, GHATKOPAR (E), MUMBAI - 400 077

BRANCH : DELHI | MUMBAI | CHENNAI | VARANASI | KOLKATA | **TOLL FREE NUMBER :**
1800-102-2139 |

EMAIL : SALES@NEURONENERGY.IN

Technical Specification

| | | |
|----------------------------|--|-------------------------------|
| General Characteristics | Model Name | 80V 400Ah |
| | Nominal Voltage (V) | 80 |
| | Capacity (Ah) | 400 |
| | No. of cell in series | 25 |
| | No. of cell in parallel | 4 |
| | Total No. of cell | 100 |
| | Cell Type | Prismatic High star – (100Ah) |
| | Chemistry | LFP |
| Electrical Characteristics | Maximum cut-off voltage (V) | 90.0 (-2.6) |
| | Minimum cut-off voltage (V) | 70.0 (+2.6) |
| | Charging Voltage (V) | 90 |
| | Charging Mode | CC-CV |
| | Recommended charging current (A) | 160 |
| | Maximum Continuous discharging current (A) | 400.0 |
| | Peak discharging current (A) | 500.0 for 10Sec |
| | Cycle Life (0.5C/0.5D) | 1500 |
| | DOD Level (%) | 90 |
| | Cell over voltage Protection | 3.65 |
| | Cell over voltage release | 3.55 |
| | Cell under voltage Protection | 2.8 |
| Cell under voltage release | 2.9 | |
| Protection | Cell under voltage protection | Yes |
| | Cell over voltage Protection | Yes |
| | Over current protection | Yes |
| | Short circuit protection | Yes |
| | Temperature protection | Yes |

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| | | |
|-------------|--------------------------|--|
| Temperature | Working Temperature (°C) | 0 – 55 |
| | Storage Temperature (°C) | 0 - 45 |
| | Weight (Kg) | 300 Approx. |
| Others | Baud Rate | 250kbps |
| | Dimension (Lx W x H) | (950x553.6x278) mm |
| | IOT | Yes |
| | Pressure Vent | Yes |
| | IP Rating | IP67 |
| | Power Connector | REMA SR-350 for charging and discharging |
| | Communication Connector | CNLINKO LP24 (12Pin) |



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BMS Parameter

| Feature | Test items | specification | | | Unit |
|-------------------------------|--|---------------|---------|-----|------|
| | | MIN | Typical | MAX | |
| Operating Voltage | Voltage Range | 90 | | 70 | V |
| Operating Current(continuous) | Charge Current | | | 160 | A |
| | Discharge Current | | | 400 | A |
| Charge Protection | Charger Voltage (CC-CV) | 90 | | | V |
| | Overcharge protection voltage | | 3.65 | | V |
| | Overcharge protection delay time | | 1 | | S |
| | Overcharge protection recovery voltage | | 3.55 | | V |
| Discharge Protection | Over discharge protection voltage | | 2.8 | | V |
| | Over discharge protection delay time | | 1 | | S |
| | Over discharge protection recovery voltage | | 2.9 | | V |
| Equalization function | Equalization turn-on voltage | | 3.40 | | V |
| | Equalization current | | 50 | | mA |

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| | | | | | |
|-----------------------|--|---|----|-----|----|
| | Temperature protection value for charge | / | / | 55 | °C |
| Temperature(built-in) | Temperature protection release value for charge | / | / | 50 | °C |
| | Temperature protection value for discharge | | | 65 | °C |
| | Temperature protection release value for discharge | | | 55 | °C |
| Internal resistance | Discharge circuit internal resistance | / | 5 | 20 | mΩ |
| Self-consumption | Operating mode | / | 50 | 100 | uA |
| Operating temperature | Normal working range | 0 | | 55 | °C |
| Storage temperature | Humidity below 90% | 0 | | 45 | °C |

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BMS Features

- BMS provides complete management and protection for the battery.
- Voltage, Current, Temperature warning and protection.
- Maximum operating current can be customized. Note: Customization must be done after written permission from Neuron Energy. Failure to do so will void the warranty of the product.
- Short circuit protection function.
- Balance function. Control and balance the voltage between cells during charging and idle.
- It can be connected to the cluster to display the SOC and various working conditions of the battery.
- Communication function (CAN, RS485)
- Connect to computer through PC BMS software and dedicated cable.
- PC BMS software could realize: Monitor all parameters of battery Monitor battery status, alarms, protection, errors.

Operating Instructions

- Check if the battery pack is switched off while installation.
- Clean cable and connector connections before installing the new battery pack, and do not ground the terminals to any metal mounting, fixture, or any other body part.
- Connect the battery cables and connect the ground cable at last to avoid any case of sparking.
- Once connected in specified part of vehicle turn on the battery pack by Pushing and rotating the PUSH button on the pack. And to turn off rotate and pull the button back at its original position.
- Before connecting the charger, please read the instructions manual that comes with the charger.
- While the battery is turned off connect the charger with the pack and make sure the connections are tight. Once done turn on the charger and then turn on the pack.
- While connecting the battery for discharging, first turn on the battery and then turn on the load.
- In case of any fault the battery would cut off the operation as command received from BMS.
- If not in operating condition keep the battery in off condition to avoid the minimal current discharge from the BMS/IoT.

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Battery Maintenance

- Observe and record the operational duration provided by a newly charged battery for powering your device. Utilize this updated battery runtime as a benchmark for comparing the durations of older batteries. The operational duration of your battery will fluctuate based on the product's setup and the applications in use.
- Regularly assess the charge status of the battery. Exercise caution in monitoring batteries that are approaching the conclusion of their anticipated lifespan. Contemplate the replacement of the battery with a new one if you observe either of the following conditions:
 - The battery runtime falls below approximately 80% of the original runtime.
 - The charging time for the battery experiences a significant increase.
- In the event that a battery is stored or remains unused for an extended period, adhere to the storage guidelines outlined in the next section. Failure to comply with the instructions, and finding the battery devoid of any remaining charge during inspection, should be considered as damage. Do not endeavour to recharge or use it. Instead, opt for connecting to our service team.
- Charge or discharge the battery to approximately 50% of capacity before storage. Charge the battery to approximately 50% of capacity at least once every two months. Remove the battery and store it separately from the product. Store the battery at temperatures between 5 °C and 20 °C (41 °F and 68 °F).

Safety Warnings

- During their use, the batteries should be kept away from heat sources and high voltages.
- Do not dismantle or assemble the batteries by yourself.
- Do not heat and burn of the batteries and throw them in fire.
- Damping of the battery is prohibited.
- Avoid charging battery near a fire source or in direct sunlight.
- The battery should not be damaged by means of methods like knocking metallic things into the battery, hammering the battery, knocking it violent or etc.
- Welding is not allowed to be conducted on the battery.
- Do not directly contact with the leaking battery.

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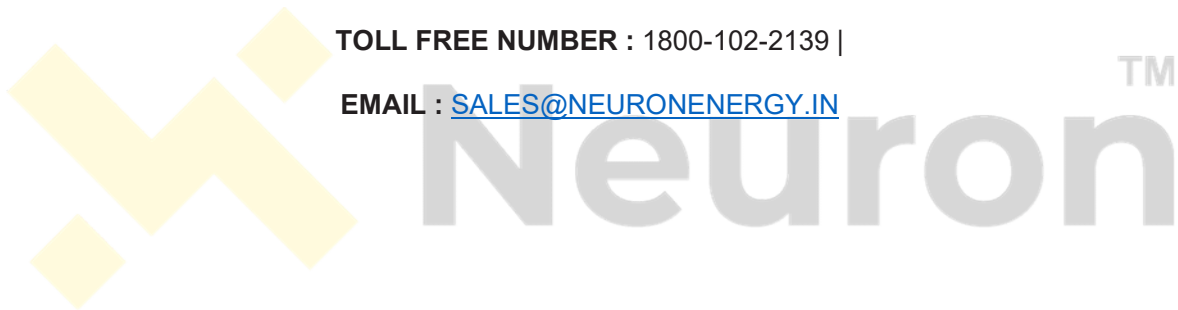
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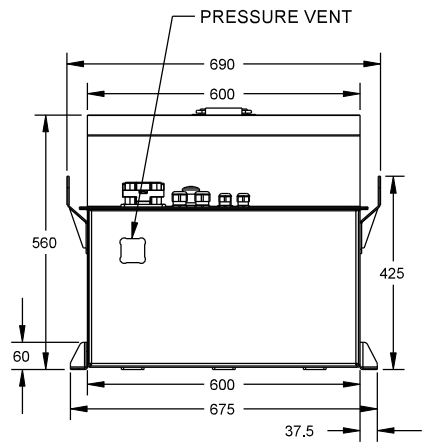
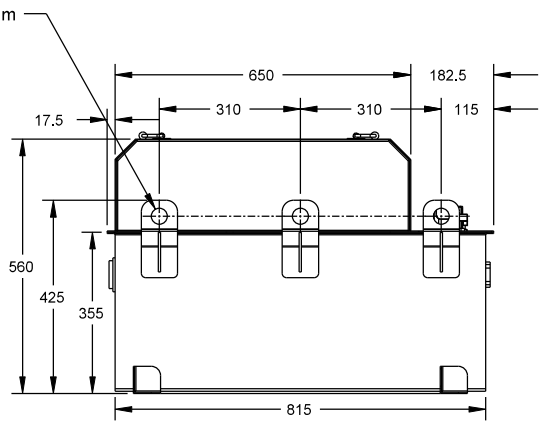
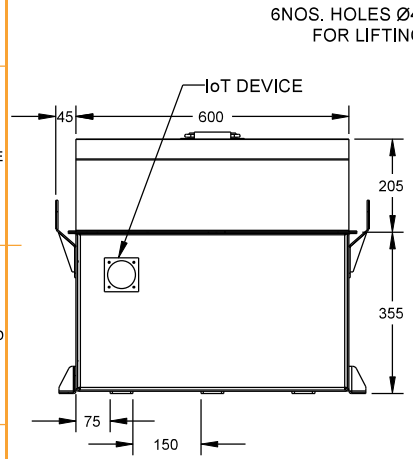
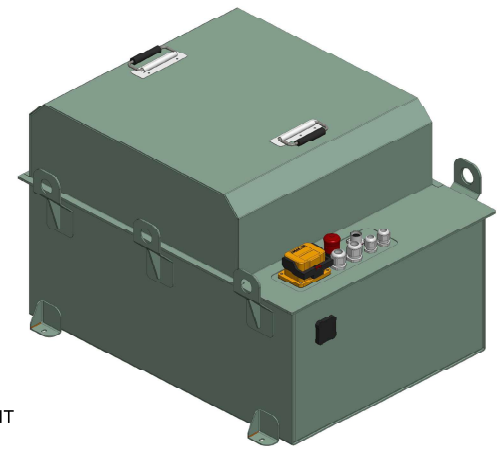
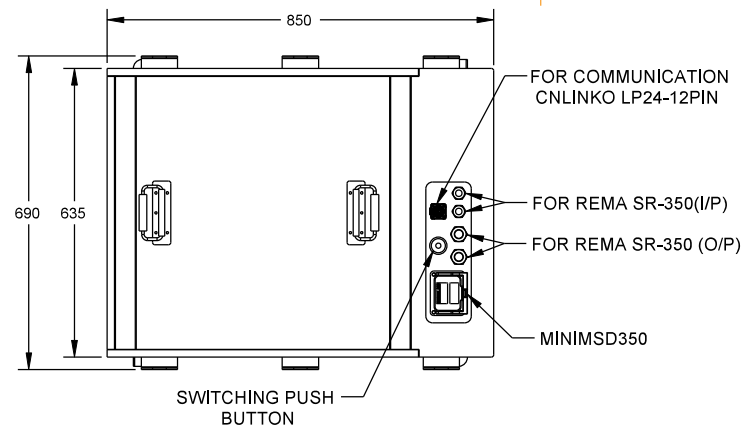
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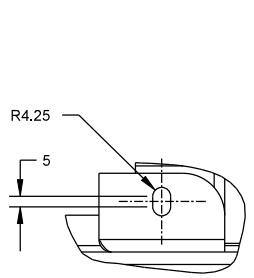
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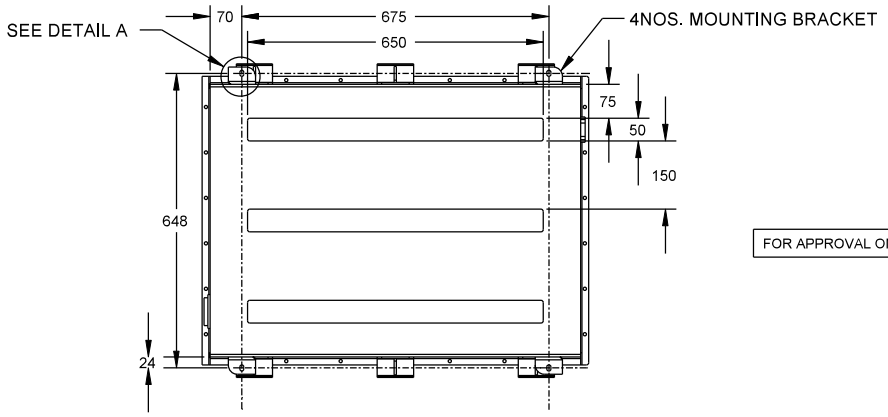
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| BATTERY DETAILS | |
|---------------------------|----------------------|
| Model Name | 80V 400Ah |
| Total Battery Capacity | 32kWh |
| Nominal Voltage | 80V |
| Capacity | 400Ah |
| No. of cell in series | 25 |
| No. of cell in Parallel | 4 |
| Total No. of Cells | 100 |
| Chemistry | LFP |
| Maximum cut-off Voltage | 90.0V |
| Minimum cut-off Voltage | 70V |
| Battery Weight (Approx) | 300kg |
| Communication | Cnlinko LP24, 12-Pin |
| BMS & Version | A565-G, 25S |
| IP Rating | IP67 |
| Cell Rating | 3.2V 100Ah |
| Max Charging Current | 150A |
| Nominal Discharge Current | 200A |
| Max Discharge Current | 500A For 10 sec |
| Connector | Rema SR350 |



DETAIL A
1:2
(X4)

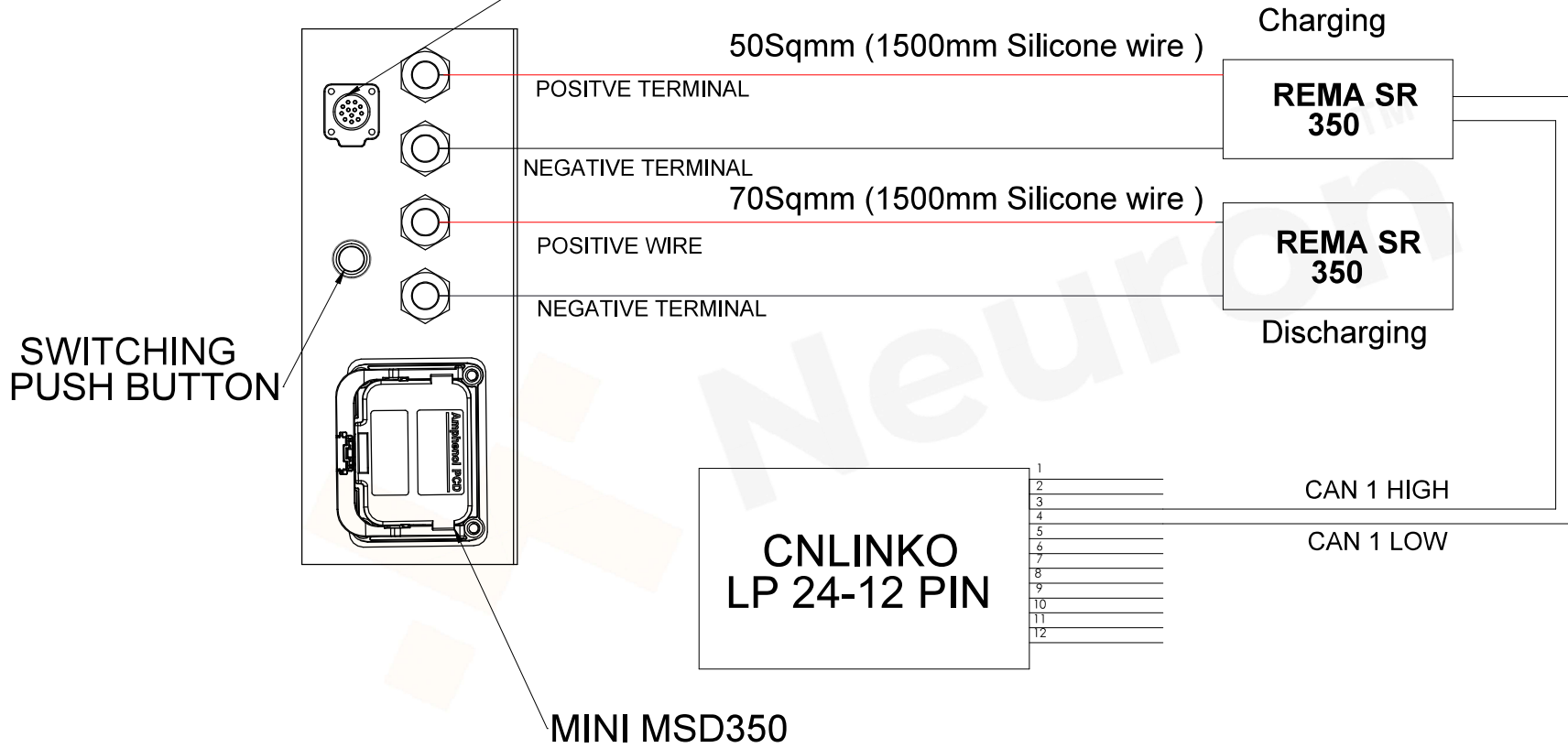


FOR APPROVAL ONLY

| | | | | | | | | | |
|--|----------|---------|------|---------|------------------------------------|----------------------|------------|--------------------|--|
| UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH TOLERANCES (IN ISO 2768-MK) LINEAR: ANGULAR: | | | | FINISH: | DEBURR AND BREAK SHARP EDGES | DO NOT SCALE DRAWING | REVISION 0 | | |
| REV. | DRAWN BY | ECN NO. | CHKD | APRVD | DATE | TITLE | | | |
| | | | | | | NEFL80400BL | | | |
| DRAWN | | | | | | | | DWG NO. | |
| CHKD | | | | | | | | 9001-NUE-FL-BE-270 | |
| APRVD | | | | | | SCALE 1:10 | | | |
| | | | | | | SHEET 1 OF 1 | | | |

Description: 80V/400Ah BATTERY HARNESS DRAWING

FOR COMMUNICATION
CNLINKO LP 24-12 PIN



General tolerance chart (in mm)

| Length or Dia | 0-6 | 6-30 | 30-120 | 120-315 | 315-1000 | 1000-2000 | 2000-2300 |
|---------------|------|------|--------|---------|----------|-----------|-----------|
| Tolerance | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2.5 |

| Rev | Amendment | Sign/Date | All dimensions are in mm | | |
|-----|-----------|-----------|--------------------------|-----------|------------|
| | | | Material: | | |
| | | | Finish: | | |
| | | | Qty: 1 Nos | Signature | Date |
| | | | Drawn | KALPESH | 02/01/2024 |
| | | | Checked | AKASH | 02/01/2024 |
| | | | Approved | HARSHAL | 02/01/2024 |

| | | |
|---|-------------------------------------|----------------------------|
| Title: 80V/400Ah BATTERY HARNESS DRAWING | Scale: NTS | THIRD ANGLE PROJECTION |
| | P. NO: - TBD | |
| Neuron ™ | SHEET THICKNESS: | |
| | Sheet: 1 OF 1 | Weight: - |
| | Drg. No: _____ Rev NEURON P/C: - | |

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Description: 80V/400Ah BATTERY PIN DETAIL

COMMUNICATION PIN DETAILS FOR 80V/400Ah


| Connector Pin No. | BMS Communication pin | Signal Detail |
|-------------------|-----------------------|-----------------|
| 1 | CAN O High | Debug Low |
| 2 | CAN O Low | Debug High |
| 3 | CAN 1 High | Charger CAN H |
| 4 | CAN 1 Low | Charger CAN L |
| 5 | CAN 1 GND | Charger CAN GND |
| 6 | CAN 2 High | Vehicle CAN H |
| 7 | CAN 2 Low | Vehicle CAN L |
| 8 | CAN 2 GND | Vehicle CAN GND |

General tolerance chart (in mm)

| Length or Dia | 0-6 | 6-30 | 30-120 | 120-315 | 315-1000 | 1000-2000 | 2000-2300 |
|---------------|------|------|--------|---------|----------|-----------|-----------|
| Tolerance | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2.5 |

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| Rev | Amendment | Sign/Date | All dimensions are in mm | | |
|-----|-----------|-----------|--------------------------|-----------|------------|
| | | | Material: | | |
| | | | Finish: | | |
| | | | Qty: 1 Nos | Signature | Date |
| | | | Drawn | KALPESH | 02/01/2024 |
| | | | Checked | AKASH | 02/01/2024 |
| | | | Approved | HARSHAL | 02/01/2024 |

| | | |
|--|------------|--|
| Title: 80V/400Ah BATTERY PIN DETAIL | Scale: NTS |  THIRD ANGLE PROJECTION |
| P. NO: - TBD | | SHEET THICKNESS: |
| Sheet: 1 OF 1 | Weight: - | Rev |
| Drg. No: | | |
| NEURON P/C: - | | |

