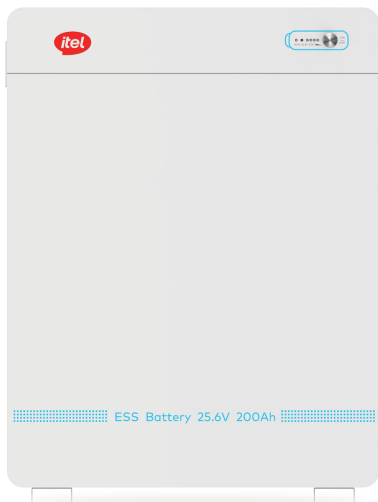




# User Guide

ESS Battery **IPL-25200X**



# CONTENT

---

|                                                                            |    |
|----------------------------------------------------------------------------|----|
| 1. Product Overview .....                                                  | 01 |
| 1.1 Introduction .....                                                     | 01 |
| 1.2 Features .....                                                         | 01 |
| 1.3 Specification and Performance .....                                    | 02 |
| 1.3.1 Parameters .....                                                     | 02 |
| 1.3.2 Interface Definition .....                                           | 03 |
| 1.3.3 Wall-mounted Installation Instructions .....                         | 05 |
| 1.3.4 Packing List .....                                                   | 07 |
| 2. Battery Management System .....                                         | 08 |
| 2.1 Description of the LED Indicator Light .....                           | 08 |
| 2.2 Status Indication .....                                                | 09 |
| 2.3 The LED Indicator Light Flashing Description .....                     | 09 |
| 3. Communication .....                                                     | 10 |
| 3.1 Communication Instructions .....                                       | 10 |
| 3.1.1 Parallel RS485 .....                                                 | 10 |
| 3.1.2 Independent RS485 .....                                              | 10 |
| 3.2 Parallel Wiring Method .....                                           | 10 |
| 3.2.1 Parallel Communication Connection Method .....                       | 10 |
| 3.2.2 Positive and Negative Wire Connection Method .....                   | 11 |
| 3.2.3 Power ON/OFF Sequence .....                                          | 11 |
| 3.3 Dial Switch Settings .....                                             | 12 |
| 3.4 Interface Definition .....                                             | 13 |
| 4. Battery Use Instructions .....                                          | 18 |
| 4.1 Charging .....                                                         | 18 |
| 4.2 Discharging .....                                                      | 18 |
| 4.3 Discharging temperature .....                                          | 19 |
| 5. Notes for Product Use .....                                             | 19 |
| 5.1 Warnings .....                                                         | 19 |
| 5.2 Charging and Discharging .....                                         | 20 |
| 5.3 Storage .....                                                          | 20 |
| 5.4 Processing .....                                                       | 20 |
| 6. Electrical performance parameters of the whole series of products ..... | 21 |

# 1. Product Overview

## 1.1 Introduction

---

The model LiFePO<sub>4</sub> battery pack is designed specifically for energy storage systems, with higher efficiency and higher reliability. With the intelligent battery management system, the intelligent battery detection system. This model of LiFePO<sub>4</sub> battery pack is ideal for off-grid and hybrid utilization, providing a long-term built solution, and has the ability to deploy and use in a variety of scenarios, such as homes, farms, factories, data rooms, hotels, etc.

## 1.2 Features

---

- ★ LiFePO<sub>4</sub> chemicals give batteries a safer performance, longer life and energy density.
- ★ The fully intelligent battery management system (BMS) protects the battery pack and the battery from over-discharge, over-charge, over-current, and high/low temperature.
- ★ The intelligent monitoring system, which can monitor and download the data to the computer in real time.
- ★ The battery comes with a balance function that greatly extends the service life of the battery.
- ★ The battery has no memory effect, and can deeply charge and release the battery.
- ★ The self-discharge consumption is very small, more than 24 hours without the battery will automatically enter the low power mode.
- ★ Environmentally friendly, free of heavy metals and harmful substances, and meets the ROHS requirements.
- ★ The battery can be used in parallel for any scenario requiring a large power backup.
- ★ Battery do not require active maintenance, one-time purchase guarantees life (assuming you use the right battery and follow the guidelines).
- ★ Cell meets IEC62619, CE standards, and ROHS requirements.

## 1.3 Specification and Performance

---

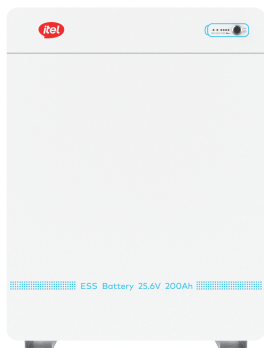
### 1.3.1 Parameters

| Project                                | Conventional Parameters             |
|----------------------------------------|-------------------------------------|
| Battery Type                           | LiFePO <sub>4</sub>                 |
| Model                                  | IPL-25200X                          |
| Compound Mode                          | 2P8S                                |
| Rated Capacity                         | 200Ah                               |
| Nominal Voltage                        | 25.6V                               |
| Energy                                 | 5.12KWh                             |
| Operation Voltage Range                | 20~29.2V                            |
| Maximum Charging Persistent Current    | 200A                                |
| Maximum discharging Persistent Current | 200A                                |
| Recommend Charging Current             | 100A                                |
| Operating Temperature Range            | Charge: 0~55°C, Discharge: -20~60°C |
| Storage Temperature Range              | -10~50°C                            |
| Dimension (W*D*H)                      | 454*585*150mm                       |
| Weight                                 | 48±3%KG                             |
| Live Capacity of Products Shipped      | 40% -60% Electricity Delivery       |
| Packaging Material                     | Carton                              |
| Communication                          | RS485 / RS232                       |

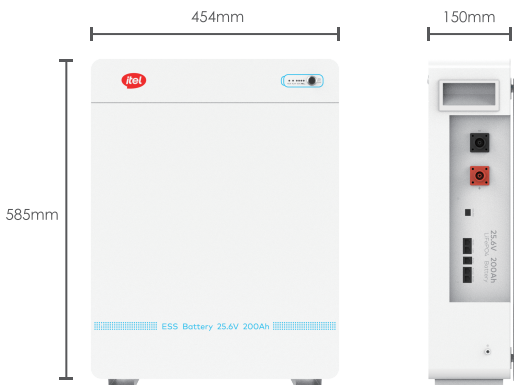


## 1.3.2 Interface Definition

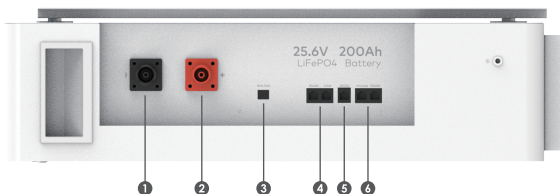
### A) Battery Appearance



### B) Battery Size



C) Panel Interface Refer to the Following Figure

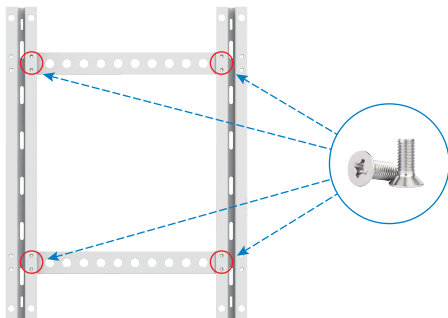


| Number | Project                  | Description                                                                                                                                                                                             |
|--------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Negative Terminal        | A pair of terminals with the same function, one connected device is expanded in parallel with other batteries. For each individual module, each terminal can realize the charge and discharge function. |
| 2      | Positive Terminal        | A pair of terminals with the same function, one connected device is expanded in parallel with other batteries. For each individual module, each terminal can realize the charge and discharge function. |
| 3      | Dial Key                 | When the battery pack is connected to the inverter, manual code selection is available to select the corresponding inverter protocol, with a maximum of 15 options.                                     |
| 4      | RS485/CAN                | RJ45 interface, the interface connected to the inverter.                                                                                                                                                |
| 5      | RS232                    | RJ11 interface, used for battery status monitoring.                                                                                                                                                     |
| 6      | Parallel Operation RS485 | RJ45 interface, used for parallel communication or battery status monitoring, manufacturer commissioning, and service.                                                                                  |

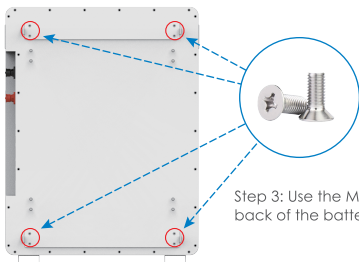
### 1.3.3 Wall-mounted Installation Instructions



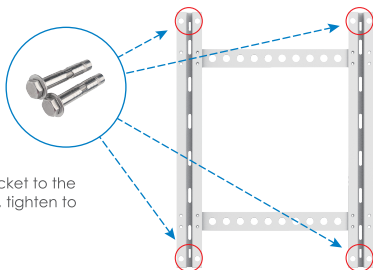
Step 1: Use the M5\*10 screws from the accessories to mount Square tube onto the battery pack, tighten to a torque of 2.5 N.m.



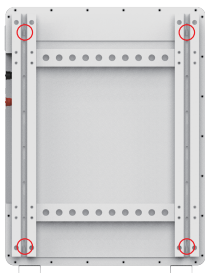
Step 2: Use the M4\*8 screws from the accessories to mount support and cross bar, tighten to a torque of 1.5 N.m.



Step 3: Use the M4\*8 screws Install the hook on the back of the battery, tighten to a torque of 1.5 N.m.

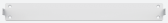


Step 4: Secure the mounting bracket to the wall using expansion bolts M6\*50, tighten to a torque of 12 N.m.



Step 5: Secure battery to the mounting bracket.

### 1.3.4 Packing List

| Project                                                                             | Description                                 |
|-------------------------------------------------------------------------------------|---------------------------------------------|
|    | Main unit *1                                |
|    | Battery negative terminal cable *1          |
|    | Battery positive terminal cable *1          |
|    | Battery parallel communication cable *1     |
|    | Battery and inverter communication cable *1 |
|    | User manual *1                              |
|    | Warranty card *1                            |
|    | M6*50 expansion screw *8                    |
|    | M4*8 screw *16                              |
|    | M5*10 screw *4                              |
|  | Wall-mounted bracket *2                     |
|  | Hook bracket *2                             |
|  | Supporting bracket *2                       |
|  | Square pipe stand bracket *2                |

## Battery Management System

### 2.1 Description of the LED Indicator LTight

| State           | Normal<br>/Report An<br>Emergency<br>/Protect | RUN        | ALM        | Battery Indicator LED                                                   |     |     |     | Illustration                                                                                  |
|-----------------|-----------------------------------------------|------------|------------|-------------------------------------------------------------------------|-----|-----|-----|-----------------------------------------------------------------------------------------------|
|                 |                                               |            |            | L4                                                                      | L3  | L2  | L1  |                                                                                               |
|                 |                                               | ●          | ●          | ●                                                                       | ●   | ●   | ●   |                                                                                               |
| Shutdown Status | Resting State                                 | OFF        | OFF        | OFF                                                                     | OFF | OFF | OFF | All OFF                                                                                       |
| Stand By        | Normal                                        | Flashing 1 | OFF        | According to the Electricity Instruction                                |     |     |     | Position in Readiness                                                                         |
|                 | Report An Emergency                           | Flashing 1 | Flashing 3 |                                                                         |     |     |     | Module Low Voltage                                                                            |
| Charge          | Normal                                        | ON         | OFF        | According to the Electricity Instruction (Top Indicator LED Flashing 2) |     |     |     | Maximum battery LED flashing (flashing 2), ALM does not flash when overcharging alarm occurs. |
|                 | Report An Emergency                           | ON         | Flashing 3 |                                                                         |     |     |     |                                                                                               |
|                 | Overcharge Protection                         | ON         | OFF        | ON                                                                      | ON  | ON  | ON  | If there is no urban electricity, the indicator light is in standby mode.                     |
|                 | Over Current Protection                       | OFF        | ON         | OFF                                                                     | OFF | OFF | OFF | Stop Charging                                                                                 |
| Discharge       | Normal                                        | Flashing 3 | OFF        | According to the Electricity Instruction                                |     |     |     |                                                                                               |
|                 | Report An Emergency                           | Flashing 3 | Flashing 3 |                                                                         |     |     |     |                                                                                               |
|                 | Undervoltage Protection                       | OFF        | OFF        | OFF                                                                     | OFF | OFF | OFF | Stop Discharging                                                                              |
|                 | Over Current Protection                       | OFF        | ON         | OFF                                                                     | OFF | OFF | OFF | Stop Discharging                                                                              |
| Efficiency      |                                               | OFF        | ON         | OFF                                                                     | OFF | OFF | OFF | Stop Charging and Discharging                                                                 |

## 2.2 Status Indication

| Stand By                      |            | Charging  |           |           |           | Discharging |     |     |     |
|-------------------------------|------------|-----------|-----------|-----------|-----------|-------------|-----|-----|-----|
| Capacity Indicator Light      |            | L4●       | L3●       | L2●       | L1●       | L4●         | L3● | L2● | L1● |
| Quantity of Electricity       | 0% ~ 25%   | OFF       | OFF       | OFF       | Flashing2 | OFF         | OFF | OFF | ON  |
|                               | 25% ~ 50%  | OFF       | OFF       | Flashing2 | ON        | OFF         | OFF | ON  | ON  |
|                               | 50% ~ 75%  | OFF       | Flashing2 | ON        | ON        | OFF         | ON  | ON  | ON  |
|                               | 75% ~ 100% | Flashing2 | ON        | ON        | ON        | ON          | ON  | ON  | ON  |
| Run the Indicator Light, the● |            | ON        |           |           |           | Flashing 3  |     |     |     |

## 2.3 The LED Indicator Light Flashing Description

| Flashing Mode | ON    | OFF   |
|---------------|-------|-------|
| Flashing1     | 0.25S | 3.75S |
| Flashing2     | 0.5S  | 0.5S  |
| Flashing3     | 0.5S  | 1.5S  |

## 3. Communication

### 3.1 Communication Instructions

---

#### 3.1.1 Parallel RS485

You can view the information of PACK. The default baud rate is 9600 bps. If you need to communicate with the monitoring device via RS485, the monitoring device acts as the host and polls the data based on the address. The address setting range is from 1 to 15.

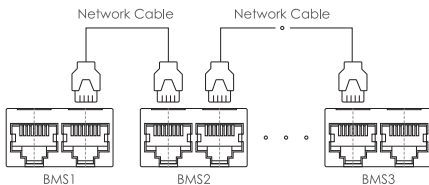
#### 3.1.2 Independent RS485

The default baud rate is 9600 bps. This interface is used for communication with the inverter. The monitoring device acts as the host and can aggregate data from the slave devices and communicate with the inverter.

### 3.2 Parallel Wiring Method

---

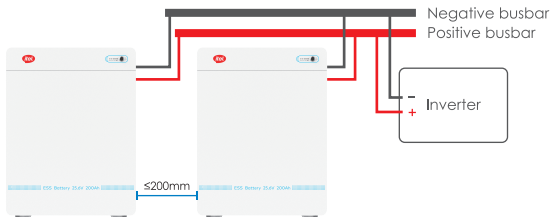
#### 3.2.1 Parallel Communication Connection Method



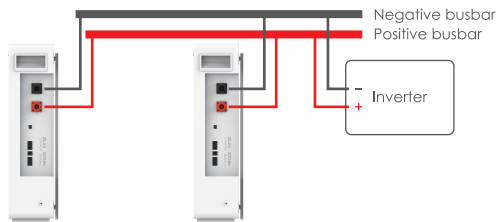


### 3.2.2 Positive and Negative Wire Connection Method

Front view

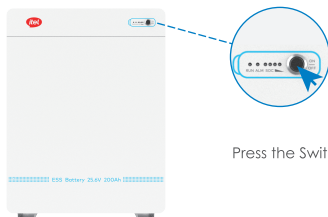


Side view



- ★ Ensure before parallel connection circuit breaker in "OFF" state.
- ★ Suggested installation spacing:  $\leq 200\text{mm}$

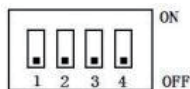
### 3.2.3 Power ON/off Sequence



Press the Switch button (SW) on equipment

### 3.3 Dial Switch Settings

When connecting to the inverter, the communication protocol can be selected by using the dip switch on the BMS. For details, please refer to (Inverter Protocol List).



| DIP Address Bit | Agreement Brand | 485 (Name of the Agreement)                         | CAN (Name of the Agreement)               | Note                                     |
|-----------------|-----------------|-----------------------------------------------------|-------------------------------------------|------------------------------------------|
| 0000            | /               | /                                                   | /                                         | Optional protocols for the host computer |
| 1000            | PYLON           | PYLON RS485 LV<br>V3.5-2019.12.23-9600<br>(Default) | PYLON CAN Inverter<br>EMS (Default)       |                                          |
| 0100            | Growatt         | Growatt RS485<br>V2.02-2019.07.24                   | Growatt CAN LV<br>V1.05-2019.08.28        |                                          |
| 1100            | Voltronic       | Voltronic RS485 Inverter<br>V1.5-2022.01.18         | PACE CAN TY<br>V1.0-2016.12.16            |                                          |
| 0010            | Luxpowertek     | Luxpowertek RS485<br>Inverter V0.3-2020.07.06       | Luxpowertek CAN<br>V1.0-2020.02.11        |                                          |
| 1010            | WOW             | WOW RS485 Modbus<br>V1.3-2017.06.27                 | PACE CAN TY<br>V1.0-2016.12.16            |                                          |
| 0110            | Schneider       | Schneider V2.0                                      | PACE CAN TY<br>V1.0-2016.12.16            |                                          |
| 1110            | Victron         | PACE_RS485_<br>Modbus_UN (PACEIC)                   | VictronCAN<br>2021.01.07                  |                                          |
| 0001            | Sorotec         | PACE_RS485_<br>Modbus_UN (PACEIC)                   | Sorotec CAN<br>Inverter V1.0              |                                          |
| 1001            | SMA             | PACE_RS485_<br>Modbus_UN (PACEIC)                   | SMA CAN V2.0                              |                                          |
| 0101            | GoodWe          | PACE_RS485_<br>Modbus_UN (PACEIC)                   | GoodWe CAN Inverter<br>LV V1.7-2020.02.28 |                                          |
| 1101            | STUDER          | PACE_RS485_<br>Modbus_UN (PACEIC)                   | STUDER CAN<br>V1.02-2018.06.14            |                                          |

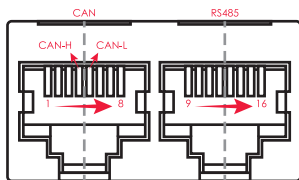
| DIP Address Bit | Agreement Brand | 485 (Name of the Agreement)    | CAN (Name of the Agreement)             | Note |
|-----------------|-----------------|--------------------------------|-----------------------------------------|------|
| 0011            | MUST            | PACE_RS485_ Modbus_UN (PACEIC) | MUST CAN PV1800F                        |      |
| 1011            | GINLONG         | PACE_RS485_ Modbus_UN (PACEIC) | GINLONG CAN LV V1.0-2019.12.2 (GINLONG) |      |
| 0111            | PYLON           | PYLON-V03                      | PYLON CAN Inverter EMS                  |      |
| 1111            | Reserve         | Reserve                        | Reserve                                 |      |

Note:

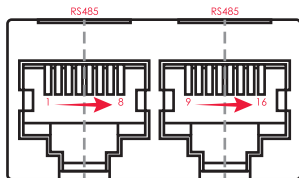
"0" represents the optional protocol for the upper computer, corresponding to the brand and manufacturer of the current protocol list. When the 485/CAN protocols are not simultaneously available, it will be supplemented with the Peicheng protocol.

## 3.4 Interface Definition

### (1) Interface Diagram



CAN and RS485 interfaces



Parallel communication port

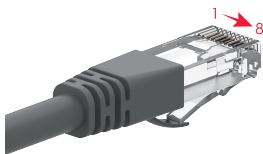
| CAN--Adopting 8P8C vertical RJ45 socket   |                        |
|-------------------------------------------|------------------------|
| RJ45 pin                                  | Definition description |
| 1, 7, 3, 6, 8                             | NC                     |
| 5                                         | CANL                   |
| 4                                         | CANH                   |
| 2                                         | GND                    |
| RS485--Adopting 8P8C vertical RJ45 socket |                        |
| RJ45 pin                                  | Definition description |
| 1, 7, 3, 6, 8                             | NC                     |
| 5                                         | CANL                   |
| 4                                         | CANH                   |
| 2                                         | GND                    |

**CAN and RS485 interfaces**

| RS485--Adopting 8P8C vertical RJ45 socket |                        |
|-------------------------------------------|------------------------|
| RJ45 pin                                  | Definition description |
| 1, 8                                      | RS485-B                |
| 2, 7                                      | RS485-A                |
| 3, 6                                      | GND                    |
| 4                                         | GND                    |
| 5                                         | DN_OP+                 |
| RS485--Adopting 8P8C vertical RJ45 socket |                        |
| RJ45 pin                                  | Definition description |
| 9, 16                                     | RS485-B                |
| 10, 15                                    | RS485-A                |
| 11, 14                                    | GND                    |
| 13                                        | UP_IN                  |
| 2                                         | GND                    |

**Parallel communication port**

## (2) Communication Cable Interface Definition



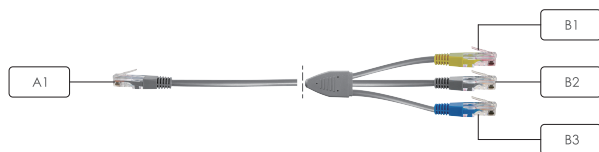
Battery parallel communication cable



| A-Side   |                        | B-Side   |                        |
|----------|------------------------|----------|------------------------|
| RJ45 pin | Definition Description | RJ45 pin | Definition Description |
| 1        | RS485-B                | 1        | RS485-B                |
| 2        | RS485-A                | 2        | RS485-A                |
| 3        | GND                    | 3        | GND                    |
| 4        | NC                     | 4        | NC                     |
| 5        | NC                     | 5        | NC                     |
| 6        | GND                    | 6        | GND                    |
| 7        | RS485-A                | 7        | RS485-A                |
| 8        | RS485-B                | 8        | RS485-B                |

**Battery parallel communication port**

## Battery and Inverter communication cable



| A1       |                        |                   |                           | B1       |
|----------|------------------------|-------------------|---------------------------|----------|
| RJ45 pin | Definition Description |                   |                           | RJ45 pin |
|          | RS485 Communication    | CAN Communication | RS485 / CAN Communication |          |
| 1        | RS485-B                | NC                | RS485-B                   | 3        |
| 2        | RS485-A                | GND               | RS485-A                   | 5        |
| 3        | GND                    | NC                | GND                       | 8        |
| 4        | NC                     | CAN_H             | CAN_H                     | 6        |
| 5        | NC                     | CAN_L             | CAN_L                     | 7        |

### Battery and Inverter communication port - A1-B1

| A1       |                        |                   | B2                  |                   |          |
|----------|------------------------|-------------------|---------------------|-------------------|----------|
| RJ45 pin | Definition Description |                   |                     |                   | RJ45 pin |
|          | RS485 Communication    | CAN Communication | RS485 Communication | CAN Communication |          |
| 1        | RS485-B                | NC                | RS485-B             | NC                | 1        |
| 2        | RS485-A                | GND               | RS485-A             | GND               | 2        |

| A1          |                        |                      | B2                     |                      |             |
|-------------|------------------------|----------------------|------------------------|----------------------|-------------|
| RJ45<br>pin | Definition Description |                      |                        |                      | RJ45<br>pin |
|             | RS485<br>Communication | CAN<br>Communication | RS485<br>Communication | CAN<br>Communication |             |
| 3           | GND                    | NC                   | GND                    | NC                   | 3           |
| 4           | NC                     | CAN_H                | NC                     | CAN_H                | 4           |
| 5           | NC                     | CAN_L                | NC                     | CAN_L                | 5           |
| 6           | GND                    | NC                   | GND                    | NC                   | 6           |
| 7           | RS485-A                | NC                   | RS485-A                | NC                   | 7           |
| 8           | RS485-B                | NC                   | RS485-B                | NC                   | 8           |

**Battery and Inverter communication port - A1-B2**

| A1          |                        |                      | B3                           |             |
|-------------|------------------------|----------------------|------------------------------|-------------|
| RJ45<br>pin | Definition Description |                      |                              | RJ45<br>pin |
|             | RS485<br>Communication | CAN<br>Communication | RS485 / CAN<br>Communication |             |
| 4           | NC                     | CAN_H                | CAN_H                        | 4           |
| 5           | NC                     | CAN_L                | CAN_L                        | 3           |
| 7           | RS485-A                | NC                   | RS485-A                      | 6           |
| 8           | RS485-B                | NC                   | RS485-B                      | 5           |

**Battery and Inverter communication port - A1-B3**

## 4. Battery Use Instructions

### 4.1 Charging

---

- ★ Charging current: cannot exceed the maximum charging current specified in this specification.
- ★ Charging voltage: shall not exceed the maximum charging voltage specified in this specification.
- ★ Charging temperature: the battery must be charged within the ambient temperature range specified in this specification.
- ★ The battery adopts constant current and constant pressure charging mode, and forbids reverse charging. If the positive electrode of the battery meets the negative electrode in the opposite, it will damage the battery.

### 4.2 Discharging

---

- ★ Discharging current: the discharging current shall not exceed the maximum discharging current specified in this instruction. Excessive current discharging will reduce the battery capacity and cause the battery to heat up.
- ★ If the battery enters over discharging protection, it should be charged within 3 days. If it could not be charged in a timely manner, all connections on the battery must be disconnected.



## 4. 3 Discharging Temperature

---

★ Battery discharging must be within the temperature range specified in this specification. Immediately charging after a short time of excessive discharging will not affect the use, but a long time of excessive discharging will lead to the loss of battery performance and battery function.

If the battery is not used for a long time, it may be in a certain discharging state due to its self-power consumption characteristics. In order to prevent the occurrence of over discharging, the battery should maintain a certain amount of electricity.

## 5. Notes for Product Use

### 5.1 Warnings

---

- ★ Do not put the battery into the water or wet it.
- ★ Forbids charging and using the battery outside our specified temperature range. Do not store, charge, and use the product near the fire sources or heat sources.
- ★ When the battery pack emits an odor or leakage, it should immediately stop using or stop charging, and move to the open and ventilated place, stay away from the fire source, and contact us in time.
- ★ The optimal service temperature of products is  $25 \pm 5^{\circ}\text{C}$ , if the product is not in this temperature range during use.
- ★ Load use, do not connect positive and negative poles.
- ★ Do not short-circuit the positive and negative electrodes of the battery pack with a

metal conductor.

- ★ Do not fire the battery pack or heat it.
- ★ It is strictly prohibited to dissect the battery pack, puncture the battery pack with nails or sharp objects, use hammers or other external forces, and trample or fall the battery pack.
- ★ Strictly prohibited putting battery packs in a microwave or pressure vessel.

## 5.2 Charging and Discharging

---

- ★ The battery must be charged using an appropriate charger.
- ★ Do not use a modified or damaged charger.
- ★ During charging and use, please stop charging and using it immediately.

## 5.3 Storage

---

- ★ Store the battery in a cool, dry, and well-ventilated place. If more than three months of long storage, it is recommended that you should charge the battery extra.

## 5.4 Processing

---

- ★ Different countries have different regulations, please handle according to the local regulations.

If there is any fault or abnormality during use, please contact us and do not remove the battery pack without permission.

## 6. Electrical performance parameters of the whole series of products

| Setting                                                   | JPL-51100A | JPW-51100 | JPW-25100 | JPL-51200X | JPL-25200X |
|-----------------------------------------------------------|------------|-----------|-----------|------------|------------|
| Charger source priority                                   | SNU        | SNU       | SNU       | SNU        | SNU        |
| Maximum charging current (Solar and Utility)              | 50A*n      | 50A*n     | 50A*n     | 100A*n     | 100A*n     |
| Maximum utility charging current                          | 50A*n      | 50A*n     | 50A*n     | 100A*n     | 100A*n     |
| Bulk charging voltage (C.V voltage)                       | 57.6V      | 57.6V     | 28.8V     | 57.6V      | 28.8V      |
| Floating charging voltage                                 | 55.2V      | 55.2V     | 27.6V     | 55.2V      | 27.6V      |
| Low DC cut off battery voltage                            | 47V        | 47V       | 23.5V     | 47V        | 23.5V      |
| Battery stop discharging voltage (when grid is available) | 47V        | 47V       | 23.5V     | 47V        | 23.5V      |
| Battery stop charging voltage (when grid is available)    | 57.6V      | 57.6V     | 28.8V     | 57.6V      | 28.8V      |

★"n" means the number of battery in parallel.

# itel Lithium Battery Warranty

This limited warranty covers the itel rechargeable Li-ion battery models: IPL-25200X

This warranty does not include any accessories and tool kit items provided along with the product.

This warranty only covers the repair or replacement of a defective product. The repaired or replaced product will continue the original remaining warranty period. In either case, it shall not justify as a renewal of the warranty period.

The warranty continues for a certain period of years from the earlier of: 1.The date of installation of the Product; or 2.Six (6) months after the date the Product was manufactured.

## Warranty conditions

1. The battery is intended to be used indoors only. Outdoor use will render the warranty void.
2. The batteries must have not be contaminated with any foreign corrosive matter.
3. The warranty does not cover the damage due to neglect or abuse such as improper installation, freezing, fire, flooding, or any acts of nature.
4. The warranty does not cover surges or spikes from the inverter or charging device that could damage the battery.
5. If the battery or batteries were not installed correctly and not according to the manual with correct settings, it could result in damage. Incorrect installation and setup will invalidate the warranty.
6. Batteries must be provided with a refresh charge every 5-6 months, while in storage, prior to final installation.

7. Warranty will be void if the firmware or BMS on the device has been deliberately tampered with to try and reset cycle values or any data for warranty evaluation purposes.

8. If it is found that the battery is being overloaded through large current draws outside of the intended specification parameters (200Amps), it will lead to the warranty being void.

9. The warranty is non-transferable, and only applies to the original purchaser of the equipment.

10. The warranty will be void if the serial number has been tampered with or has been removed from the device.

11. The battery will not be considered effective unless it fails to deliver 50% or less of its rated capacity during claimed warranty period.

12. If the battery is interconnected or mixed with other non-Intel batteries the warranty is void.

13. Warranty will be void if the installation or commissioning has not been performed by an Intel approved installer.

14. In the event that the battery needs to be relocated it must be disconnected, moved and re-installed by an Intel approved installer.

15. A standard 5-year warranty is provided for the BMS and trip switch. The warranty of the trip switch does not cover excessive manual use or overuse of the trip switch. The trip switch is intended to protect the Lithium Battery.

16. The operating temperature for the battery is designed to be 0 to 50 degrees Celsius, however, it is recommended to keep the battery below 25 degrees Celsius to maximise the design life and life cycle of the battery. The cycle life cannot be guaranteed if the battery is operated in temperatures exceeding 25 degrees Celsius.

## Warranty Claim Process

In the event of a possible warranty claim, the following steps should be taken:

1. Claims under this warranty must be within 48 hours of a defect being discovered, notification must be provided to the approved re-seller of a claim.
2. The end user must submit the invoice for the procurement of the Product to the approved re-seller indicating date of delivery.
3. The reseller must send or arrange with the end user to send the battery to one of our service centres.
4. The service centre will evaluate the battery and validate if a claim is substantiated.
5. If a claim has been validated, repair and servicing of the battery will be performed.
6. Any replacement parts will become the property of itel.
7. It is for the client to arrange delivery and collection of the unit. If the client wishes to dispute to final evaluation decision, the product must be evaluated by a certified 3rd party testing company. You will bear the cost of any 3rd party evaluation service charge. (Unless your claim is proven to be valid, in which case itel will be responsible for the testing costs)

If any testing of the Products capacity is required, the testing must occur in the following conditions:

- a) The test is based on a single module.
- b) The ambient temperature of the Battery Module must be  $[25^{\circ}\text{C}\pm 2^{\circ}\text{C}]$ .
- c) The initial temperature of the battery modules pods must be  $[25^{\circ}\text{C}\pm 2^{\circ}\text{C}]$ .
- d) 100A constant current charge to 3.6V for cell, or a total voltage of 28.8V; then switch to constant voltage (28.8Vdc), charge until charge current declines to 10A.
- e) Constant current discharging at 100A until the voltage of a single battery cell is less than or equal to 2.70V or the total voltage is less than or equal to 21.6V.