

INGECON SUN STORAGE 1PLAY

Use and Settings of the ISS 1Play working with LG CHEM
RESU 3.3 / 6.5 /10 batteries

Table of contents

1	Introduction	3
2	Setting the battery pack.....	4
3	Connecting the battery pack to the inverter	5
3.1	Wiring of communication cable.....	5
4	Setting the inverter	8
4.1	DC Battery type	8
4.1.1	For ISS 1Play TL M	8
4.1.2	For ISS 1Play TL	8
5	Final check	10

1 Introduction

This document describes the process to configure the INGECON SUN STORAGE 1Play (TL and TL M version) to work with LG RESU 3.3 / 6.5 / 10 batteries.

The LG RESU and ISS 1Play equipment can be used in the following type of **single-phase** installations:

- Stand-alone installations
- UPS installations
- Self-consumption installations

The maximum power the inverter can transfer to/from the battery depends of the hardware version:

- For **ISS 1Play TL** is 2400W. This is due to the fact that the inverter is limited to transfer 50A to this 48V battery.
- For **ISS 1Play TL M** is 3168W. This is due to the fact that the inverter is limited to transfer 66A to this 48V battery.

The minimum FW versions to work with the ISS 1Play and LG RESU are the following:

Minimum Firmware Version used in the ISS 1Play TL:

- Inverter: ABH1002_R
- Display: ABH1003_H

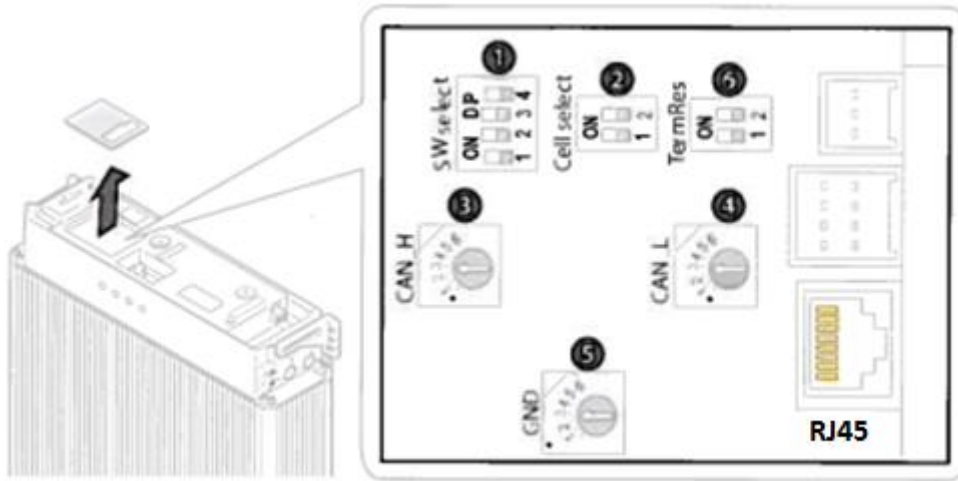
Minimum Firmware Version used in the ISS 1Play TL M:

- Inverter: ABH1007_

For further details, check the “List of approved lithium batteries” available on Ingeteam website.

2 Setting the battery pack

This chapter describes how to configure the rotary and DIP switches of the LG RESU battery to work with the ISS 1Play.



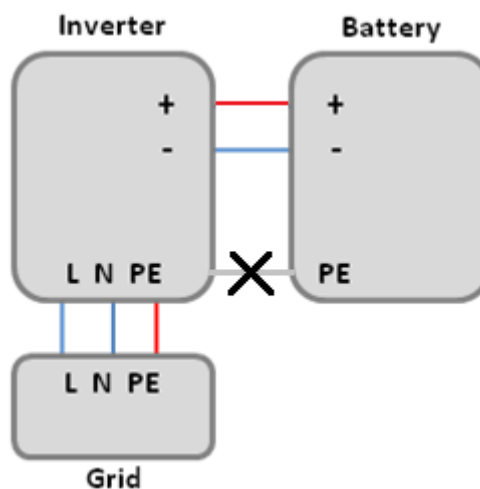
Part Name	Circuit Number	Settings	Description
Rotary Switch	SW3 (CAN H)	Nº 4	Communication Cable Pin Set
	SW4 (CAN L)	Nº 5	
	SW5 (GND)	Nº 2	
Dip Switch	SW1 (LGC Smart)	1: OFF 2: OFF 3: ON 4: ON	SW Protocol Set
	SW2 (Default)	1: OFF 2: OFF	Cell Type Set
	SW6 (Resistor used)	1: ON 2: ON	Terminator Resistor Set

3 Connecting the battery pack to the inverter

The instructions to connect the battery pack to the inverter are described in the “Installation Manual of LG RESU 3.3 / 6.5 /10”

Please, take into account the following technical notes:

- The inverter is turned OFF before connecting the battery pack to the inverter.
- The battery circuit breaker is on the OFF position.
- Do NOT connect any ground wire (PE) between the battery pack and the inverter. The battery pack must be isolated from the floor, for example with a wood panel. The ground wire (PE) is only connected between AC Grid and Inverter.



- Use 10-16 mm² for the positive and negative power wires following the indications given in the “Installation and Operation Manual” from the ISS 1Play.

3.1 Wiring of communication cable

LG Chem RESU batteries require a communication wire to the ISS 1Play.

The ISS 1Play will send the necessary keep-a-live command to the LG RESU battery, which is needed to keep its internal circuit breaker close. When the battery does not receives for 10 minutes such a command, its internal circuit breaker opens.

The ISS 1Play uses a three-pin CAN BAT connector and the LG RESU uses a RJ-45 connector. The pin-out is the following:

Pin-out	ISS 1Play TL M	ISS 1Play TL	LG RESU RJ-45
GND	----	J76 – CAN IN-GND	Pin 2
CAN-L	J8 – BMS CAN_L	J76 – CAN IN-L	Pin 5
CAN-H	J8 – BMS CAN_H	J76 – CAN IN-H	Pin 4

Use this method when making a communication wire to be connected between the LG RESU and the ISS 1Play:

- 1- Cut a cable shorter than 3 meters long.
- 2- Strip from 2.5 to 5cm of the outer sheath at the end of the cable
- 3- Untwist and separate each pair of wires.
- 4- Arrange the wires in this order:
 - 1) White with an orange stripe
 - 2) Orange
 - 3) White with a green stripe
 - 4) Blue
 - 5) White with a blue stripe
 - 6) Green
 - 7) White with a brown stripe
 - 8) Brown
- 5- Bring the sorted wires together and trim them to about 1.4cm in length.
- 6- Hold the RJ45 plug with the copper contact facing up, and insert the wires into the plug, making sure that they stay aligned and each color goes into its appropriate channel.
- 7- Put the plug into a network crimper and squeeze the handles until it clicks.
- 8- For the other end of the cable, crimp a tubular terminal in the following wires:
 - 1) Orange (GND)
 - 2) Blue (CAN-H)
 - 3) White with a blue stripe (CAN-L)

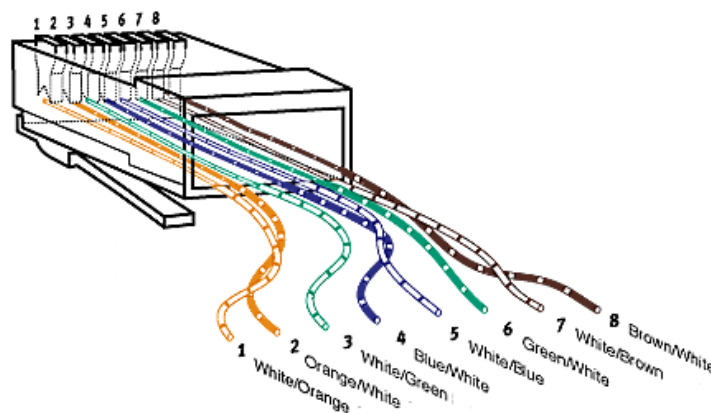


Figure: RJ45 pinout diagram

Connect the RJ45 terminal to the connector under the cover named “connection kit”, located inside the battery pack.



Connect the three wires to the inverter in the CAN communication terminal. Use a cable gland provided to insert the cable within the inverter.

Only for ISS 1Play TL, it is mandatory that its display is connected correctly. Otherwise, the LG RESU will open its internal circuit breaker after 10 minutes.

4 Setting the inverter

This chapter describes how to configure the inverter settings when the ISS 1Play has been wired to the LG RESU battery.

To do so, once all the previous steps have been completed, the following steps must be followed:

- 1) Make sure that the battery circuit breaker is in OFF or TRIP position.
- 2) Move the circuit breaker to ON position to turn the battery pack on.
- 3) Make sure that the battery pack is successfully initialized. To do so, the status indicator on the front should flash in blue.
- 4) After a few seconds the inverter should get powered.

4.1 DC Battery type



Please be careful to choose the right battery type when you set up the configuration in your inverter. The battery or inverter manufacturers have no responsibility on the damages caused due to incorrect configurations. For instance, if you select “Lead-acid” as a battery type in the inverter configuration and the battery being used is “Lithium-ion”, the battery might get damaged or experience performance degradation.

It is required to set the DC Battery type: **LG RESU 3.3/6.5/10**

4.1.1 For ISS 1Play TL M

This must be done using the web interface of the inverter. To perform any configuration change, the required installer access must be entered on the web. When the permission is given, go to:

CONFIGURATION > ADVANCED SETTINGNS > TYPE OF BATTERY > LG RESU 3.3/6.5/10

Confirm the desired selection by pressing the “Write” button. A message to confirm the modification will pop up.

4.1.2 For ISS 1Play TL

This can be done using the “Ingecon Sun Manager” software package (downloadable on www.ingetteam.com) or through the display:

Using Ingecon Sun Manager:

Settings → 1-.DC BATTERY TYPE: Type of Battery > Lithium: LG Resu LV Series 48V.

1- DC BATTERY TYPE	
Type of Battery	Lithium : LG Resu LV Series 48V
CAN Baud Rate for BMS	500 kb/s

Figure 1: DC Battery selection on Ingecon Sun Manager.

Click on the “Send” button. A screen informing that the configuration was successfully saved must appear when the settings are correctly applied to the inverter.

Using the Display:

To perform any configuration change through the display, the required installer password must be entered on:

MAIN MENU > CONFIGURATION > ENTER PASSWORD

The password is indicated on the “Installation and Operation Manual”, on the chapter dedicated to configuration.

When the permission is given, go to:

MAIN MENU > CONFIGURATION > BATTERY > LITHIUM > LG CHEM > RESU LV SERIES 48V

Confirm the desired selection by pressing the “OK” button. A message to confirm the modification will pop up. A final screen that shows that the process has been completed will be shown on the display.

5 Final check

This chapter describes the instructions to check that all the connections and settings have been successfully done.

- 1) Make sure that the CAN communication wire from the LG RESU battery to the inverter is connected.
- 2) Make sure that the battery circuit breaker is in ON position.
- 3) Make sure that the inverter is turn-on from the battery and doesn't show communication Error with BMS.