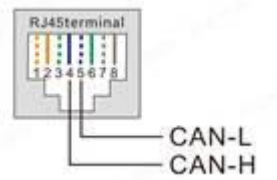
Communication Ports for Battery Connection

As the demand for clean and reliable energy solutions continues to grow, the compatibility of Solis inverters with batteries from different manufacturers has become a pivotal concern for those seeking versatile and efficient energy storage solutions. In this article, we will delve into the various methods and considerations for seamlessly connecting Solis inverters with batteries from multiple manufacturers, empowering you to tailor your energy storage system to your unique requirements.

If you want to connect your battery with Solis inverters, the communication ports on the **inverter side** are as follows:

CAN-H (Controller Area Network High) on Pin 4 (blue)
CAN-L (Controller Area Network Low) on Pin 5 (blue/white)



When it comes to understanding the CAN communication details for your batteries, we recommend referring to the individual battery manuals provided by each manufacturer. Different battery manufacturers may have unique specifications and requirements for CAN communication, so it's crucial to consult the specific documentation for the batteries you are using.
We understand that this can be a bit complex, but we have compiled a list of communication connection details for several battery manufacturers to assist you.

High Voltage (for S6-EH3P(5-10)K-H-EU and RHI-3P(5-10)K-HVES-5G devices):

1: BYD (Battery-Box-Premium - HVS/HVM)
2: Pylon Tech (Force-H2)
3: Soluna (Module 10K Pack HV)
4: Weco (WeCo5K3-LV-HV)
5: Dyness (Tower Series)
6: LG Energy Solutions (Resu 10H Prime)

Low Voltage: (for RHI-(3-4.6)K-48ES-5G, S5-EH1P(3-6)K-L and S6-EA1P(3.6-6)K-L devices):

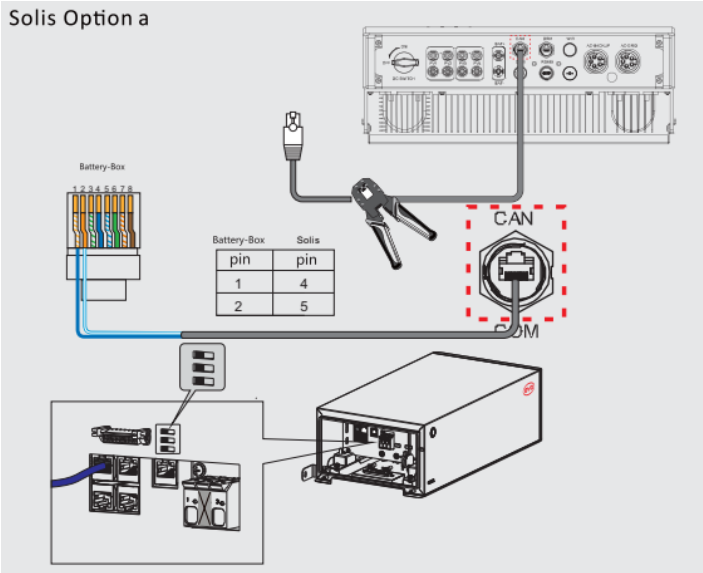
1: BYD (Battery-Box-Premium - LVS/LVM)
2: Pylon Tech (Force-L1)
3: Pylon Tech (US5000)
3: Fox (LV5200)
4: LG Energy Solutions (Resu3.3, Resu 6.5, Resu 10)
5: Puredrive (PureStorage II Hybrid 5kWh)
6: Green Solutions (HomeE10)
7: UZ Energy (Power Lite)
8: WeCo (5K3XP/4K4 LT)

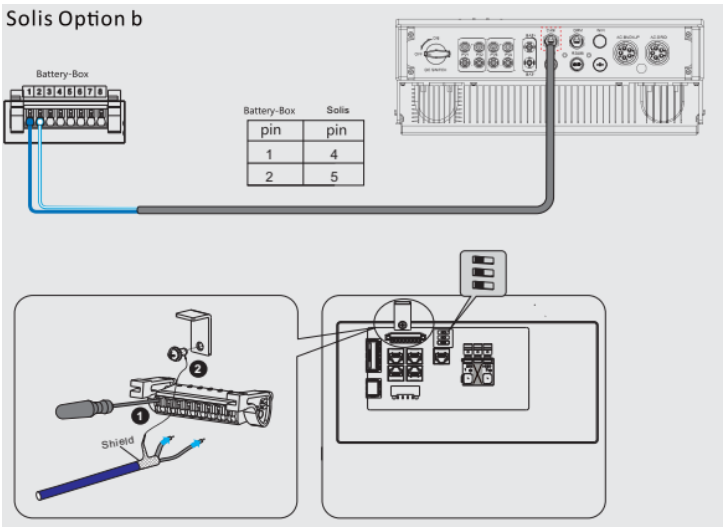
HIGH VOLTAGE BATTERIES:

BYD:
Battery-Box-Premium
HVS 5.1, 7.7, 10.2, 12.8
HVM 8.3, 11.0, 13.8, 16.6, 19.3, 22.1

If you want to connect your **BYD battery** with Solis inverters, the communication ports on the inverter side and BMS side are as follows:

CAN-H (Controller Area Network High) on Pin 1 (blue)
CAN-L (Controller Area Network Low) on Pin 2 (blue/white)

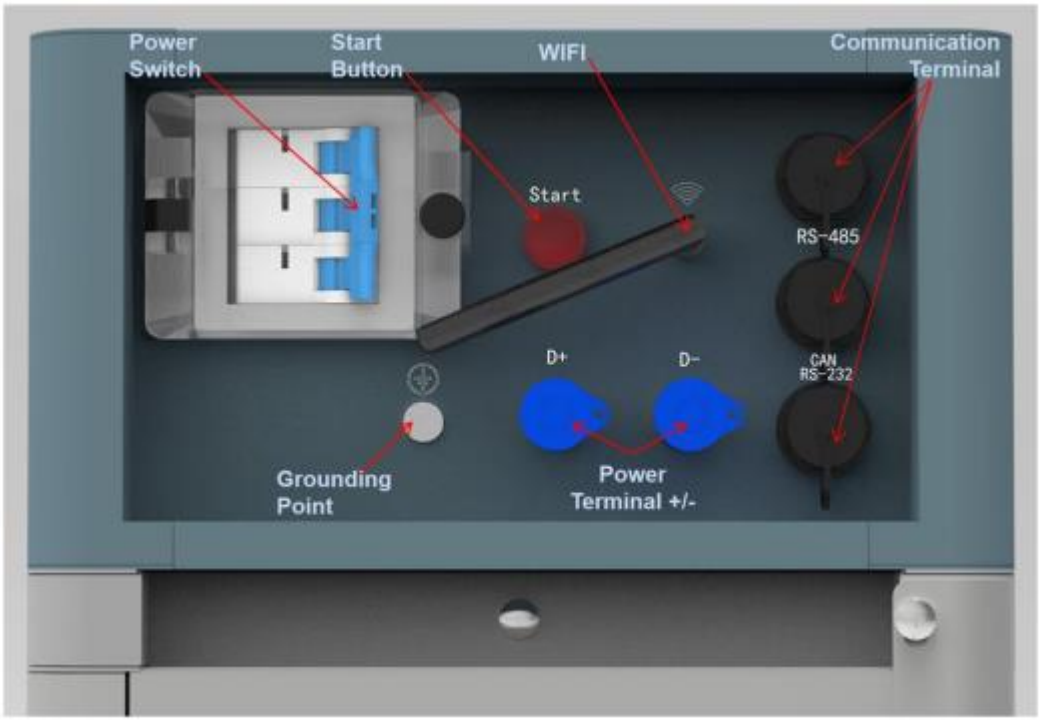



Solis Option b
Battery-Box
Battery-Box
pin
1
2
Solis
pin
4
5
Shield

PylonTech:
Force-H2

If you want to connect your **Pylon battery** with Solis inverters, the communication ports on BMS side are as follows:

BMS:



Communication Terminals:

RS485 Communication Terminal: (RJ45 port) follow MODBUS 485 protocol, for communication between battery system and inverter.

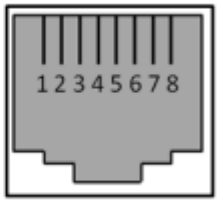
CAN Communication Terminal: (RJ45 port) follow CAN protocol, for communication between battery system and inverter.

RS232 Communication Terminal: (RJ45 port) for manufacturer or professional engineer to debug or service.

Definition of RJ45 Port Pin

CAN-H (Controller Area Network High) on Pin 4 (blue)
CAN-L (Controller Area Network Low) on Pin 5 (blue/white)

No.	CAN	RS485	RS232
1	---	---	---
2	GND	---	---
3	---	---	TX
4	CANH	---	---
5	CANL	---	---
6	---	---	RX
7	---	RS485A	---
8	---	RS485B	---



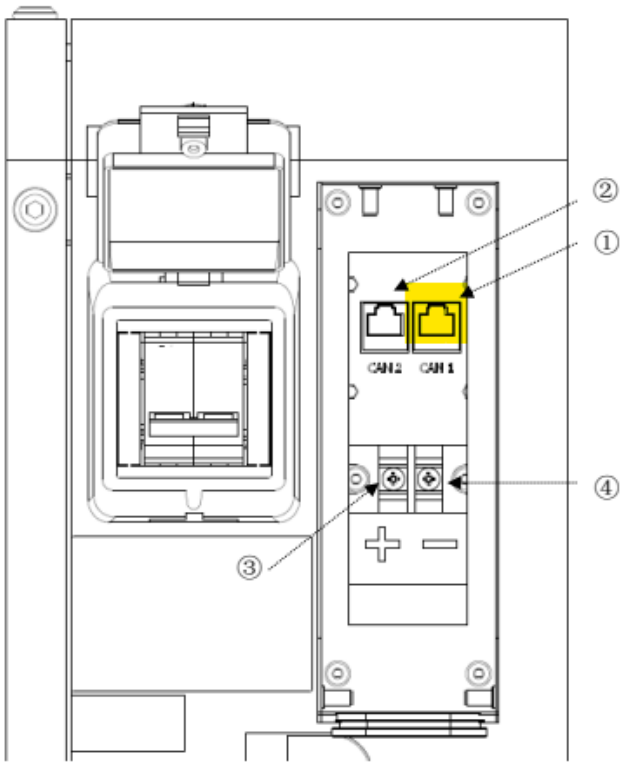
RJ45 Port

RJ45 Plug

Soluna:
Module 10K Pack HV

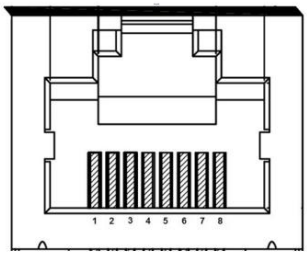
BMS:

Please make sure that you are using the correct COM Port (CAN 1 port)



Number	Name	Remark
①	CAN1 port	For external communication (inverter)
②	CAN2 port	For internal communication (BMS)
③	Battery+	
④	Battery-	

The CAN communication interface for Soluna battery is as follows:

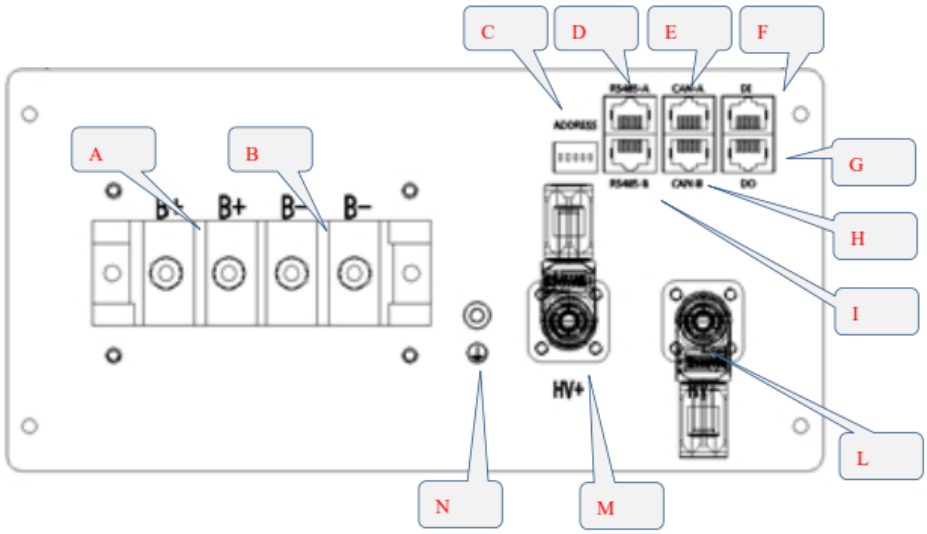


CAN 1 port for inverter communication

1	2	3	4	5	6	7	8
—	—	—	CAN1H	CAN1L		—	—

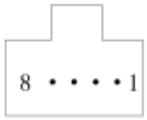
WECO:
WeCo5K3-LV-HV

When establishing a connection between your Weco battery and Solis inverters, the communication ports on the BMS side are configured as follows:



LOW VOLTAGE Wiring definition table		
Interface	Name	Function
A	LV POLE +	LOW VOLTAGE POSITIVE (+) Screw Terminal
B	LV POLE +	LOW VOLTAGE NEGATIVE (-) Screw Terminal
C	DIP SWITCH	DIP SWITCH Address HUB 8 PINS (LV PARALLEL ID SET UP and HV ADDRESS PATH)
D	RS 485 A LV	LOW VOLTAGE COMMUNICATION PORT RS 485
E	CAN A	CAN – BMS to LOW VOLTAGE INVERTER
F	D/I	Digital Input
G	D/O	Digital Output
H	CAN B	HIGH VOLTAGE SERIAL IDENTIFIER RJ45 CAN PORT
I	RS 485 LV	LOW VOLTAGE COMMUNICATION PORT RS485
L	HV POLE -	HIGH VOLTAGE POSITIVE (+) Fast Connector Terminal for serial connection
M	HV POLE +	HIGH VOLTAGE NEGATIVE (-) Fast connector Terminal for serial connection
N	GND	Ground terminal

RJ45 port corresponding to the CAN bus pin definition

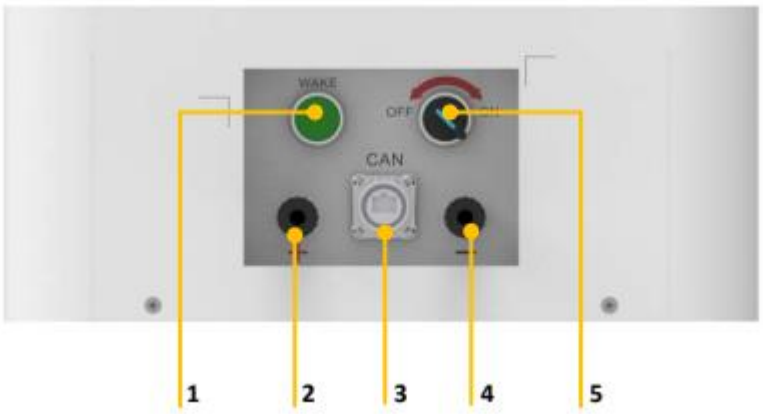


Pin	8	7	6	5	4	3	2	1
Definition						GND	CAN L	CAN H

Dyness:
Tower Series

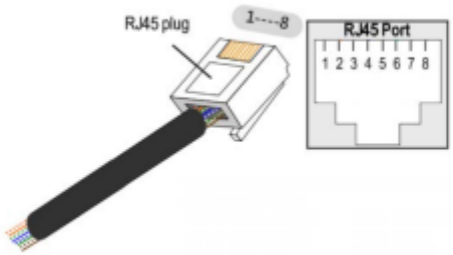
If you're looking to link a Dyness Tower battery with Solis inverters, here are the communication port specifications on the BMS side:

BMS Interface:



1: Power/ Wake button
2: Battery connection positive
3: CAN Communication port
4: Battery connection negative
5: Power on switch

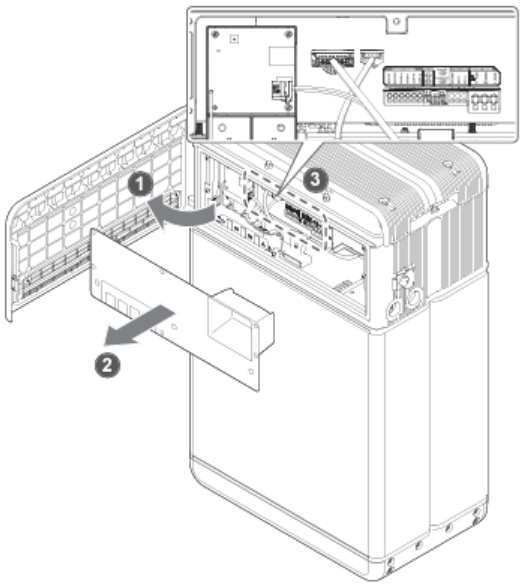
Pin definition for CAN communication:



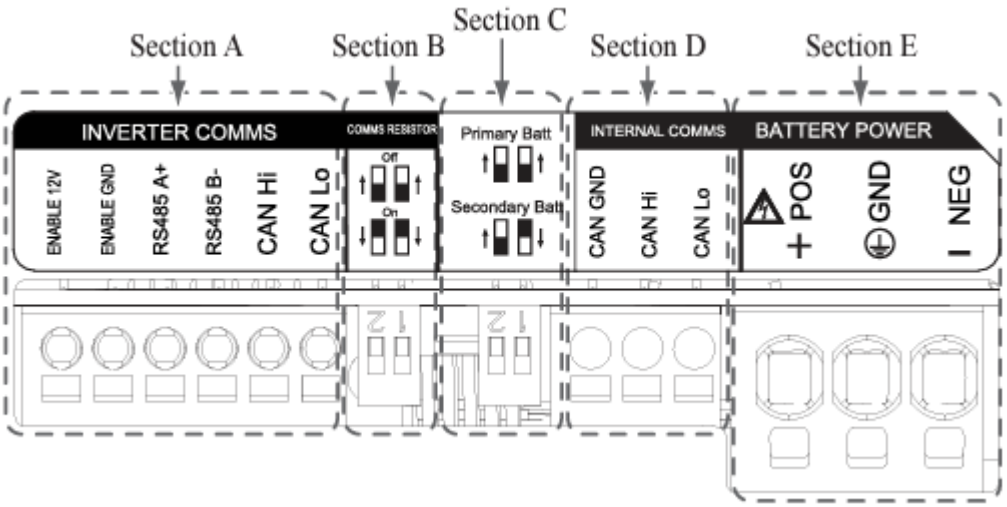
PIN	Color	Definition
PIN1	Orange/White	Reserved
PIN2	Orange	XGND
PIN3	Green/White	Reserved
PIN4	Blue	CANH
PIN5	Blue/White	CANL
PIN6	Green	NC
PIN7	Brown/White	Reserved
PIN8	Brown	NC

LG Energy Solutions:
Resu 10H Prime

Cable connections:



Cable configuration:



1. *Section A:*
   Inverter communication ports including CAN/RS485 and enable lines.

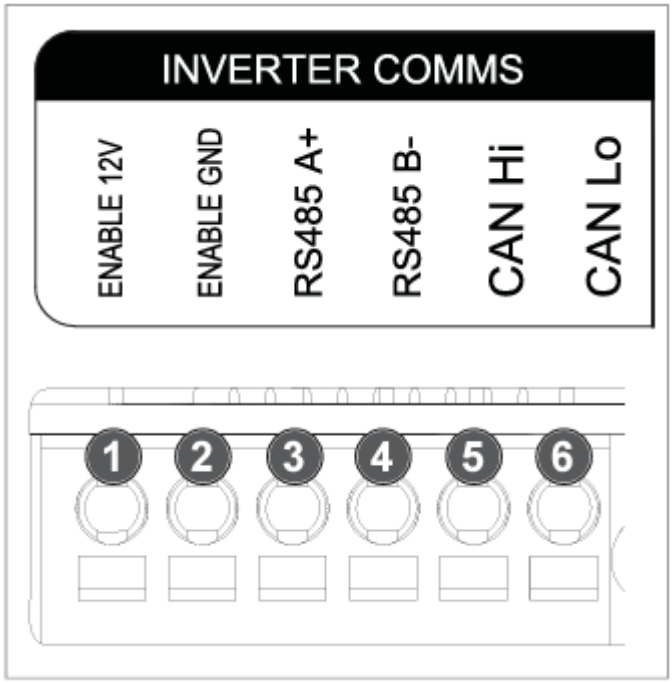
2. *Section B:*
   DIP switch for setting communication termination resistor.

3. *Section C:*
   DIP switch for setting primary/secondary packs.

4. *Section D:*
   Do not connect the internal communication ports

5. *Section E:*
   Battery power ports including positive/negative pole and ground (POS: power terminal plus, NEG: power terminal minus, GND: ground)

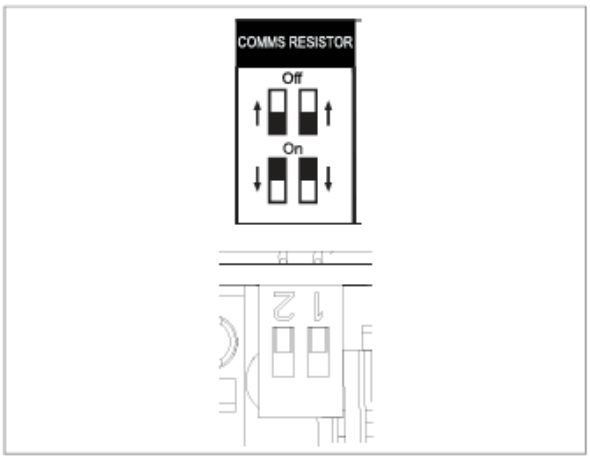
Guide for cable connection:



Communication ports:

- First, connect the enable ground wire to Terminal 2.
- Connect the enable 12V positive line to Terminal 1.
- Select the method that matches the inverter communication method in the part marked.
- If the inverter uses RS485, connect the RS485 (A+, B-) lines to Terminals 3 and 4. If inverter uses the CAN method, connect the CAN (high, low) lines to Terminals 5 and 6.

DIP switch for setting communication termination resistor of primary/secondary packs

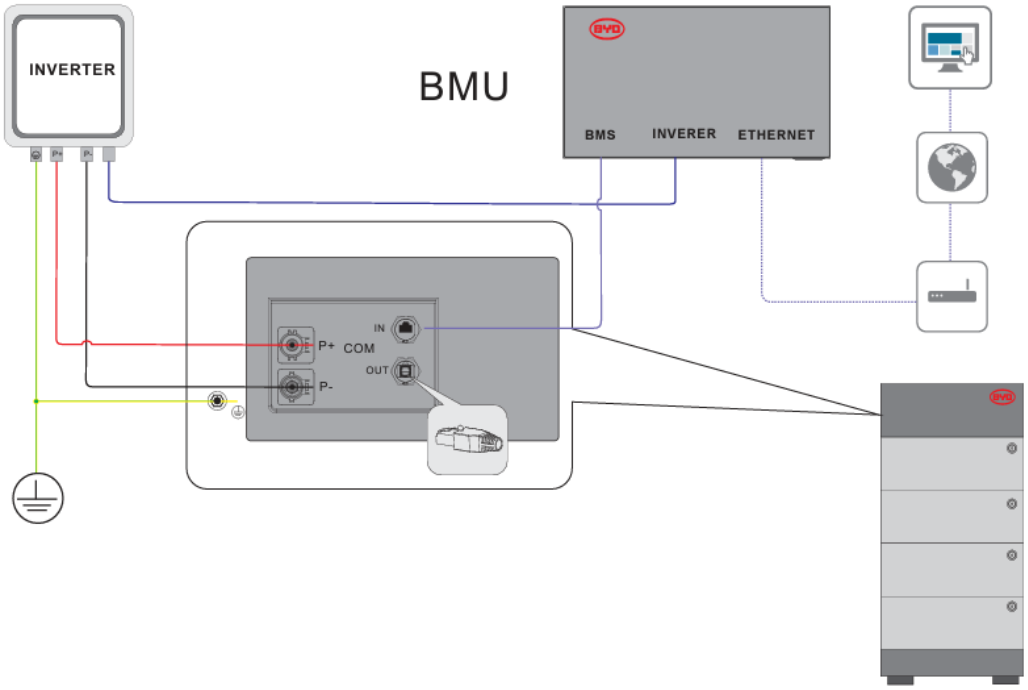


Lower the DIP switch (Communication Termination resistor) all downwards for single pack.

LOW VOLTAGE BATTERIES:

BYD:
Battery-Box-Premium
LVS 5.1, 8.0, 12.0, 16.0, 20.0, 24.0

Connection diagram:



Pin assignment for BYD batteries:

No.	Assignment
1	485-A
2	485-B
3	Unused
4	CAN H
5	CAN L
6	Unused
7	Unused
8	Unused

PylonTech:
Force-L1

For those aiming to establish a connection between a Pylon Force L1 battery and Solis inverters, here are the communication port details on the BMS side:

Contol Module:

RS485 Communication Terminal: (RJ45 port) follow RS485 protocol, for communication between battery system and inverter.

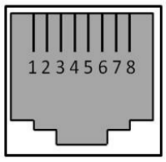
CAN Communication Terminal: (RJ45 port) follow CAN protocol, for communication between battery system and inverter.

Link port0/1 for communication between battery piles.

RS232 Communication Terminal: (RJ45 port) for manufacturer or professional engineer to debug or service.

Definition of RJ45 Port Pin

	CAN	RS485	RS232
1	---	---	---
2	---	---	---
3	---	---	TX
4	CANH	---	---
5	CANL	---	---
6	GND		RX
7	---	RS485A	---
8	---	RS485B	---



RJ45 Port

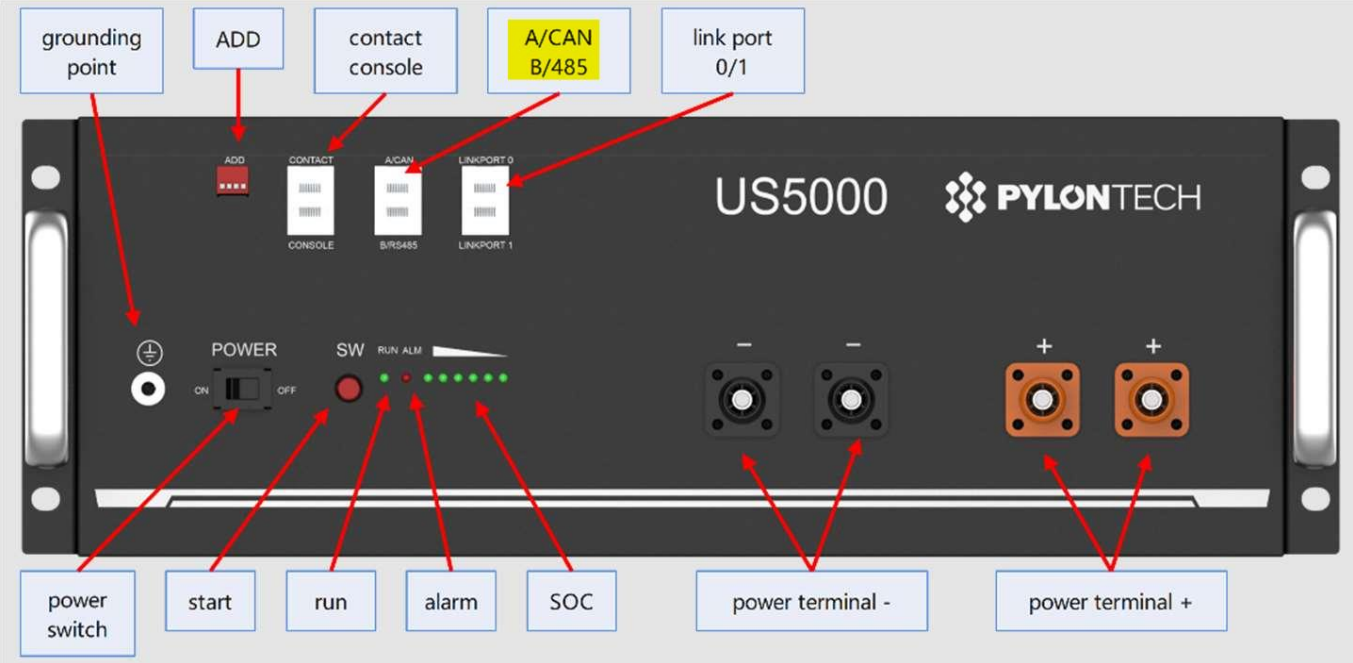
RJ45 Plug

Note: Other Pin must be NULL, if not it may influence the communication of the system.

PylonTech:
US5000

If you need to connect a Pylon US5000 battery and Solis inverters:
NOTE: PLEASE USE THE CAN CABLE PROVIDED BY PYLON

US5000 Front panel:



CAN

500 Kbps. Recommended 120Ω. To inverter or upper battery.

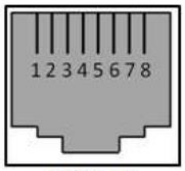
RS485

9600 or 115200 bps. Recommended 120Ω. To inverter or slave battery.

Link Port 0, 1

Definition of RJ45 Port Pin

	A/CAN	B/RS485
Pin1	These pins shall be NULL.	
Pin2	If not, may influence communication	
Pin3	between BMS and inverter.	
Pin4	CAN-H	CAN-H
Pin5	CAH-L	CAN-L
Pin6	CAN-GND	CAN-GND
Pin7	485A	485A
Pin8	485B	485B

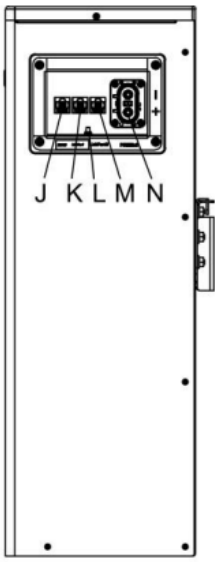


RJ45 Port

RJ45 Plug

Fox:
LV5200

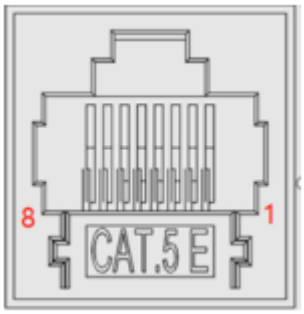
BMS Interface:



RIGHT VIEW

J	CAN
K	RS485
L	Ground screw
M	LinkPort0
N	POWER-2

CAN / RS485 is the communication interface to the inverter. The interface is defined as follows:



- **RS485**

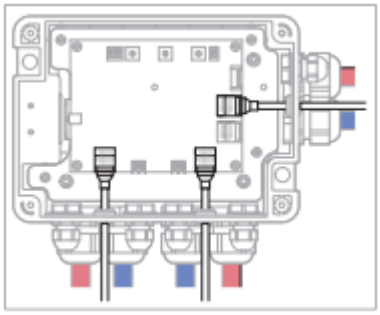
Pin	Function definitions	Function declaration
1	B	RS485-B
2	A	RS485-A
3	GND	GND
4	NC	NC
5	NC	NC
6	GND	GND
7	A	RS485-A
8	B	RS485-B

- **CAN**

Pin	Function definitions	Function declaration
1	NC	NC
2	GND	GND
3	NC	NC
4	CANH	CANH
5	CANL	CANL
6	NC	NC
7	NC	NC
8	NC	NC

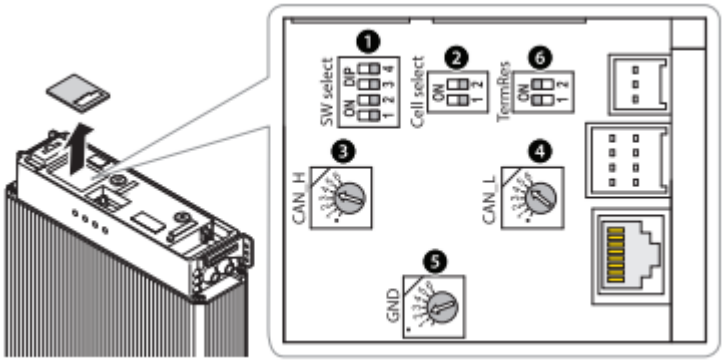
LG Energy Solutions:
Resu3.3, Resu 6.5, Resu10

Connecting network cables:



Connect each network cable to its corresponding network port. Use the port at the lower left for the first battery pack, the one at the lower right for the second battery pack, and the one at the upper for the inverter.

Configuring the battery pack:



Remove the switch cover by pulling it up to expose the circuit board.

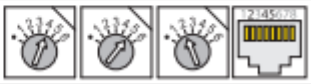
Settings for CAN bus pin:

Make sure that the **CAN_H** rotary switch is set to 4. This switch indicates which pin is used for CAN high signal by the inverter.

Make sure that the **CAN_L** rotary switch is set to 5. This switch indicates which pin is used for CAN low signal by the inverter.

Make sure that the **GND** rotary switch is set to 2. This switch indicates which pin is used for ground by the inverter.

Only 1st to 5th pins can be used.

CAN_H	CAN_L	GND	Setting
4	5	2	

Puredrive:
PureStorage II Hybrid 5kWh Battery

Connection Interface:

1. Battery<-->Inverter Power Cables(+)
2. Battery<-->Inverter Power Cables(-)
3. Communication cables(up)
4. Communication cables(down)
5. Battery reset button
6. DC Isolator
7. Grounding Point

Please use the provided communication cable.

Connect communication cables as shown below. Plug in the COM resistor to the last communication interface, which is open.
Please note that even with a single battery installation or multi battery installation, COM resistor is required to strength the CAN Bus signal.

8. Communication cable
9. COM resistor

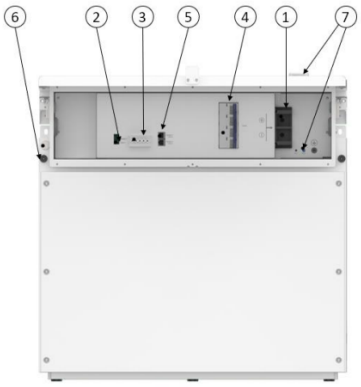
Plug in COM Resistor

Put on protective cap

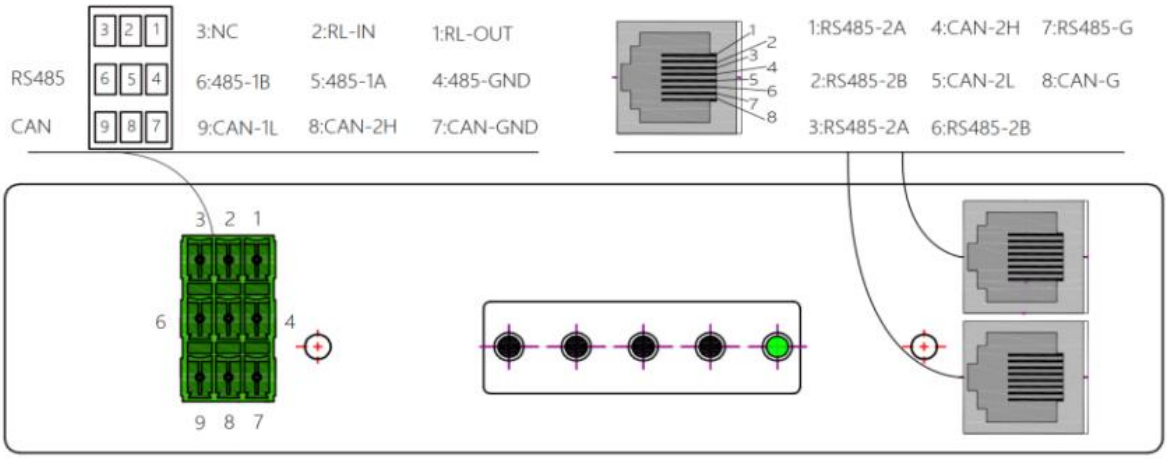
Green Solutions Inc.:
Home E10

To interconnect your Green solutions battery with Solis inverters, please note the following communication port settings on the BMS side:

No	Items	Connector Type	Remark
①	Power terminal block	T3014-2P-CL0S3	
②	BMS communication terminal	KF2EDGKNH-3.81*3P*3	
③	Status LED	N/A	Capacity and status indication
④	Power output breaker	B1E4P125	
⑤	RJ45 communication terminal	RJ45	BMS-PC communication or BMS-BMS communication
⑥	BMS On/Off button	LB19B	
⑦	WiFi power button & antenna	WBR1-IPEX	

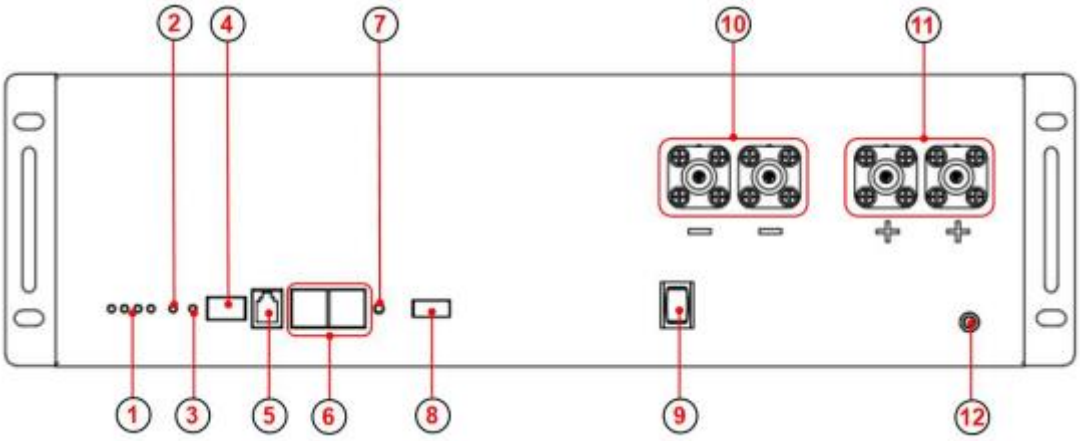


Communication Terminals:



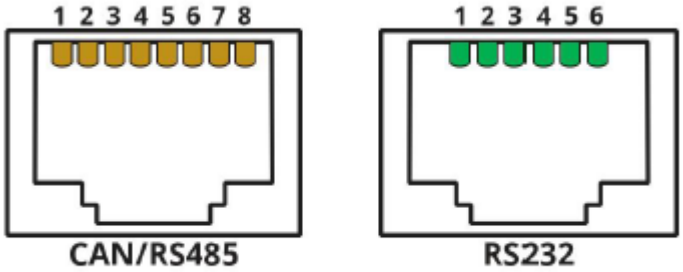
UZ Energy:
Power Lite

Battery Interface:



1. SOC LED x4
2. Alarm LED
3. RUN LED
4. Dialer
5. Communication port RJ11 RS232 To upper machine
6. Communication port *2 RJ45 CAN To PCS RS485 Internal Connection
7. Reset Waken system from malfunction status
8. Dry Contact
9. Power On/Off Switch
10. Port Negative x2 PSR6XAB Black 5.7, 25 mm2
11. Port Positive x2 PSR6XBB Orange 5.7, 25mm2
12. GND M6 Yellow-Green, 10 AWG

RJ45 Port definition:



CAN:

- Pin 1: CAN-H
- Pin 5: CAN-L
- Pin 2, 3, 4, 6, 7: NC
- Pin 8: GND

RS485:

- Pin 1, 4, 5: NC
- Pin 2, 7: RS485-A
- Pin 3, 6: RS485-B
- Pin 8: GND

RS232:

- Pin 1, 2, 6: NC
- Pin 3: BMS transmit; Computer receiver
- Pin 4: BMS receiver; Computer transmit
- Pin 5: GND

WeCo:
5K3 XP / 4K4 LT

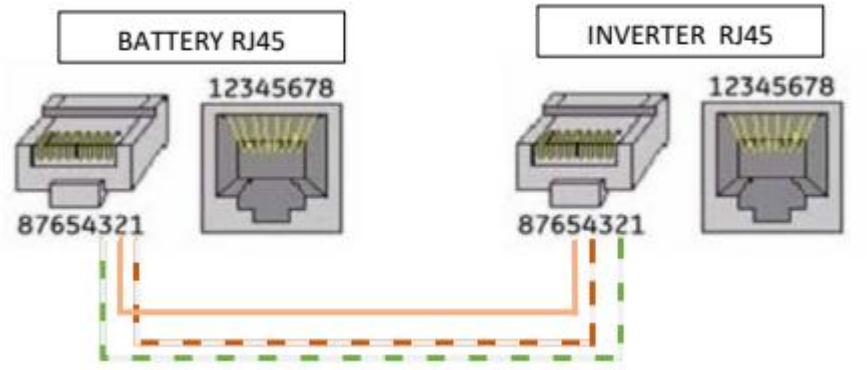
Battery Interface:

5K3 XP EXAMPLE
DIP switched are set all OFF (00000000). Only DIP of last slave must be set differently (00000100).

4K4 LT EXAMPLE
DIP switched are set all OFF (00000000). Only DIP of last slave must be set differently (00000100).

BMS CAN PIN OUT at battery side is the same for any WeCo battery.
The RJ45 Terminal on the inverter side needs to be crimped to match inverter PIN OUT

Terminal	Battery Side RJ45	SOLIS Side RJ45
GND	PIN 3	PIN 2
CAN -L-	PIN 2	PIN 5
CAN -H-	PIN 1	PIN 4



We hope that this information on connecting batteries to inverters proves helpful. If you have any further questions or specific battery requirements, please don't hesitate to reach out to us. We're here to assist you in any way we can.