



**SERV-0046**

## **Installation Guide**

### **CANBus Bridge**

**Compatible with Pylontech US2000, US3000 & US5000  
batteries**

**Version 2 – 27/11/2025**



## 1. Legal Notice & Warranty Disclaimer

### Disclaimer

The BMS CAN-Bus Bridge is designed as an evaluation tool to assess the effects of adjusting the CVL (Charge Voltage Limit) published by a master battery to a CAN-bus–connected inverter. It has not undergone CE/UKCA/EMC or enclosure compliance testing and is not intended for permanent installation, field deployment, or use in any critical system. It is for professional laboratory use only.

Operate the device in a ventilated, dry environment and follow all safety and connection guidance in this manual. Do not permanently install this device within the confines of the inverter.

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Please do not copy, modify, or redistribute any information or images from this publication.

This device is designed to operate only with **well-functioning 15-series LiFePO<sub>4</sub> batteries**, it must not be used with batteries that are known, suspected, or observed to be faulty, damaged, or unstable, as this may lead to the battery or charger becoming unsafe or inoperative.

SERVTEC does not accept responsibility for any damage, injury, or loss resulting from the use of this product with defective, ageing, or improperly maintained batteries.

SERVTEC also accepts no responsibility for improper use of the product, or for any unintended use of the associated software or firmware.

Any property rendered unusable as a result of using this product is **not covered by any warranty**, expressed or implied.

SERVTEC shall not be liable to the purchaser or any third party for any financial loss, business interruption, loss of productivity, loss of life, personal injury, or consequential damages arising from the use or misuse of this product.

If you do not accept the terms of this disclaimer, you must not use this product and should contact ServTec UK for clarification or return before operation.

**Please note:** some distributors or battery manufacturers may decline warranty claims if batteries have been tampered with, modified, or adjusted without prior approval. You should verify the warranty position with your battery manufacturer before using this tool.

## 2. Introduction

This guide explains how to install the BMS CAN-Bus bridge between your master battery and the inverter. The guide also covers connecting to the web page to set the published charge voltage and view live data.

### 2.1. What does it do?

The bridge allows you to adjust the charge-voltage limit that the battery sends to the inverter. Pylontech US-Series batteries always report a fixed charge voltage of 53.2 V, and normally this cannot be changed. When the battery is new, this voltage is fine and gives a full 100% charge, but as batteries age, repeatedly charging to this high level can add extra stress and shorten their life.

The bridge gives you a simple way to lower this charge-voltage limit, helping reduce wear on older batteries. It does this without interfering with any other communication between the battery and the inverter. All normal messages—such as limits, status information and alarms—continue to pass through unchanged, so the system operates exactly as it should.

### 2.2. What's in the Box

Your **BMS CAN-Bus bridge** includes the following:

- 1.5m CAN-Bus battery cable
- 1.5m CAN-Bus inverter cable
- 0.5m USB-C Power cable

Before proceeding, please ensure all items are present and undamaged. If anything is missing, contact our support team at [support@servtec.co.uk](mailto:support@servtec.co.uk) for assistance.

### 2.3. Pre-Use Inspection and Safety Checks

Before operating this device, carefully inspect the battery, inverter, cabling and surrounding area:

- **Check for swelling, deformation, or physical damage** to any battery cell or enclosure. Do **not** use this device if the battery shows any signs of bloating, leakage, or casing distortion.
- Do **not** attempt to charge a battery that is **known or suspected to be out of excess balance**, as this may cause certain cells to overcharge and swell. First re-balance the cells before proceeding.
- Operate the device only in a **well-ventilated environment**. Ensure there is a **fresh air supply** nearby when using the device in enclosed or semi-enclosed spaces.
- Do **not** charge a battery if one or more cells have **discharged below 2.5 V**. Such cells may develop internal shorts and release gas when recharged, posing a risk of damage or failure.

## 2.4. Battery Compatibility

This adapter is designed and has been tested to work with the following **Pylontech battery models**:

- **US2000 Plus / B**
- **US3000 Plus / B**
- **US2000C**
- **US3000C**
- **US5000**
- **US5000B**

The following batteries are supported but have not undergone testing:

- Force-L1 / Force-L2 (low-voltage versions)

It may also work with other battery models that use the “2016 PYLON low-voltage CAN Bus protocol.” For example, JK BMS based batteries emulate the Pylontech protocol, and the bridge can be used to monitor alarms and adjust the published maximum charge voltage.

For questions about compatibility with additional models or adapter cables, please contact:

✉ **support@servtec.co.uk**

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### 3. Installation Process:

The CAN-Bus Bridge is installed between the master battery and the inverter. It connects to the A/CAN port on the master battery and the BMS CANBus port on the inverter.

The bridge includes two labelled cables: Inverter and Battery.

#### 3.1. Inverter Cable

The inverter cable uses an 8-pin RJ45 plug wired as follows:

- Pin 4 – CAN-H
- Pin 5 – CAN-L

The cable colour coding is:

- CAN-H – Orange
- CAN-L – Orange/White

This typically connects directly to the BMS or CANBus port on the inverter,

If your inverter BMS port uses the same pinout (CAN-H on pin 4, CAN-L on pin 5), you can plug the RJ45 connector straight in, for example most Sun Synk 3-8K models use this pinout.

If your inverter uses a different pinout, connect the supplied RJ45 coupler to the inverter cable, then plug in the original BMS cable that would normally run from the master battery A/CAN port to the inverter's BMS port.

#### 3.2. Battery Cable

The battery cable also uses an 8-pin RJ45 plug, wired as:

- Pin 4 – CAN-H
- Pin 5 – CAN-L

This matches the CANBus pinout used on all Pylontech US-series batteries and hence can be plugged directly into the A/CAN port without any modifications or re-wiring.

If you are using the bridge with a non-Pylontech BMS that still supports the Pylontech protocol, the RJ45 plug wiring may need to be adjusted.

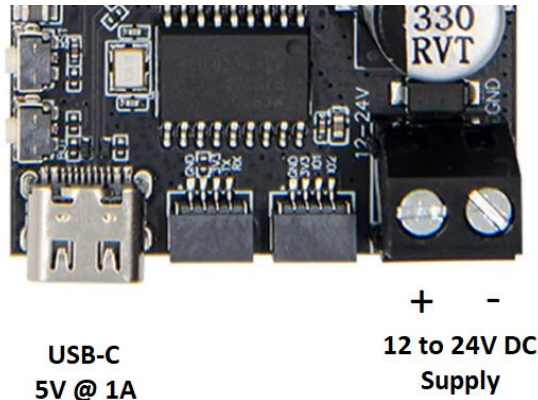
The cable colour coding is:

- CAN-H – Orange
- CAN-L – Orange/White

If you need assistance with wiring for your specific battery or BMS, please contact our support team at [support@servtec.co.uk](mailto:support@servtec.co.uk).

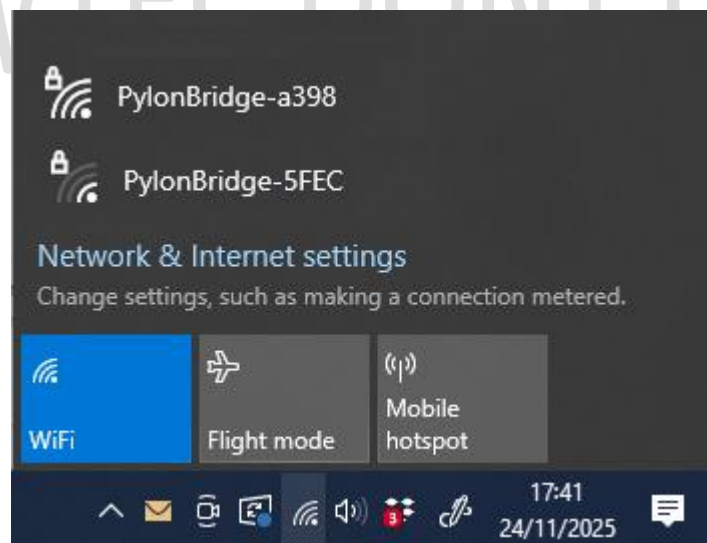
### 3.3. Power

The bridge can be powered using the supplied USB-C cable connected to any standard USB charger capable of providing at least 1A. Alternatively, it can be powered from a 12–24V DC supply wired directly to the board, as shown in the image below. To access the terminal screws, remove the two screws securing the lid and slide the lid off.



### 3.4. Setup & Configuration

Once the bridge is connected to the battery and inverter, use a computer or smartphone to connect to the Wi-Fi Access Point (AP) broadcasted by the bridge. The WiFi Access Point name will appear as Pylon-AXXX, where XXX is a unique identifier.



Enter the password: **servtec1234** when prompted

Once connected to the WiFi your bridge should automatically open the configuration webpage, if it doesn't automatically open, then manually enter the address:

<http://192.168.4.1> into a web browser. You will then see the interface shown in the screenshot below.

SERVTEC CAN-Bus Bridge — Dashboard

CANA → CANB @ 500 kbps

Mode: ONLY\_IF\_53.2 — Target CVL: 52.2 V

License: OK

ROM: ID:\*\*\*\*-\*\*\*\*-\*\*\*\*-0060

SSID: PylonBridge-5FEC

AP MAC: 9A:A3:16:ED:4A:98

Live Data From Battery

Operation Limit	
Charge V limit	53.2 V
Charge I limit	25.0 A
Discharge I limit	25.0 A
Discharge V limit	45.0 V

SOC/SOH	
SOC	92 %
SOH	98 %

Protect/Alarm	
Protect0/1	0xFF 0xFF
Alarm0/1	0xFF 0xFF
Total modules	1

BMS Request	
Raw	0x00

Brand	

Settings

Target CVL (V) Sent to Inverter

52.2

Mode

Only if 53.2 V

Save

Quick: /set?cvl=51.8&mode=force

Wi-Fi Tools

Reboot

Factory Reset

## 3.5. Live Data

### 3.5.1.From Battery

This section displays data received from the master battery:

- **Charge Voltage Limit (CVL):** normally 53.2V.
- **Charge Current Limit:** based on **25A per US2000C module**. For example, an 8-battery system will report 200A.

*A future firmware update will allow this value to be reduced as a user-defined maximum charge current for the inverter.*

**Discharge Current Limit:** also **25A per module**, scaling with the number of batteries in the stack.

**Discharge Voltage Limit:** typically **45.0V**, although most inverters will stop discharging before this point.

### 3.5.2. SOC / SOH

This section displays the system's State of Charge (SOC) and State of Health (SOH), providing an overview of current battery capacity and overall module condition.

- SOC (State of Charge): reported directly from the master battery and as a calculated average of all the online batteries
- SOH (State of Health): calculated as the average SOH of all modules, including offline slave modules.

### 3.5.3. Protect / Alarms

This section displays the alarms and BMS current protection events sent by the master battery, it gives an indication of any alarms that are present, these are summarised in annex A at the end of the manual. The "Total Modules" value represents the number of batteries detected by the master unit. For example, one master plus all connected slave modules equals the total number of modules currently online.

## 3.6. Settings

The **Settings** menu allows you to configure how the bridge manages charge-voltage behaviour. All settings are stored in **non-volatile flash memory**, meaning they are retained even when the bridge is powered off and automatically restored when power is reapplied.

### 3.6.1. Target CVL (V) – Charge Voltage Limit

This is the charge-voltage limit, in volts, that the bridge sends to the inverter. When enabled, it overrides the default **53.2V** value received from the master battery.

### 3.6.2. Mode

This drop-down menu determines **when** the Target CVL value is applied. The options are:

- **Only if 53.2V** – The bridge sends the adjusted CVL only when it receives **53.2V** from the master battery.
- **Always send CVL** – The adjusted CVL is sent at all times, regardless of what the master battery sends.
- **Disabled** – The bridge forwards the CVL from the master battery without modification



#### 4. Additional Support

If you require assistance, please email **support@servtec.co.uk**.

For the quickest response, include a few **clear photos of your setup**, photos of your inverter settings screen, and screenshots from the webpage.

This helps our support team provide accurate and efficient guidance.

#### 5. Further Reading

1. **Victron & Pylontech UP2500, US2000, US3000, US2000C, US3000C, US5000, US5000B, UF5000, Pelio-L, UP5000, Phantom-S, Force-L1 & L2 Settings**

Read here [https://www.victronenergy.com/live/battery\\_compatibility:pylontech\\_phantom](https://www.victronenergy.com/live/battery_compatibility:pylontech_phantom)

*(If the link is not clickable in your PDF, copy and paste this URL into your browser.)*

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## 1. Annex – Protection and Alarm Overview

### 0x359 Protection & Alarm Summary

#### General Behaviour

- **0x00 0x00 = No protection**
- **0x00 0x00 = No alarm**

Unless otherwise stated:

- **A protection or alarm flag means at least one battery module has triggered it.**
- Modules automatically clear the condition once normal.
- **When any flag is active, the inverter should follow the BMS-recommended current limit.**

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#### Protection Flags (Byte 0 & Byte 1)

Byte.Bit	Name	Description	Action
0.0	Over Voltage	Cell/module over-voltage	Stop charging; follow “force charge enable” to avoid retriggering
0.1	Under Voltage	Cell/module under-voltage	Needs charging; follow “force charge” to avoid retriggering
0.2	Over Temperature	Cell/module high temperature	Stop charge/discharge until recovered
0.3	Under Temperature	Cell/module low temperature	Stop charge/discharge until recovered
0.5–6	Reserved	—	—
0.7	Discharge Over-Current	Excess discharge current	Stop discharging; follow recommended current

Byte.Bit	Name	Description	Action
1.0	Charge Over-Current	Excess charging current	Stop charging; follow recommended current
1.3	System Fault	Critical system error	Requires restart or troubleshooting; stops charge/discharge
1.4	External Comms Timeout	CAN/communication timeout	Resend 0x305 to clear; stops charge/discharge

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#### Alarm Flags (Byte 2 & Byte 3)

Byte.Bit	Name	Description	Action
2.1	High Voltage Alarm	Cell/module high voltage	Follow recommended charge current
2.2	Low Voltage Alarm	Cell/module low voltage	Follow recommended discharge current
2.3	High Temperature Alarm	Module temperature high	Follow BMS current limit
2.4	Low Temperature Alarm	Module temperature low	Follow BMS current limit
2.7	Discharge High Current	High discharge current	Follow BMS current limit
2.0 / 2.5–2.6	Reserved	—	—

Byte.Bit	Name	Description	Action
3.0	Charge High Current	High charge current alarm	Follow recommended current
3.3	Slave Offline	Module or cabinet offline due to low capacity or fault	Charge system or restart; investigate comms
3.1–3.2 / 3.4–3.7	Reserved	—	—

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