



# Caravan Panel

USER MANUAL

V1.3

## Caravan Panel

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# 1. Introduction

Congratulations on your purchase of the Simarine Caravan control panel.

Simarine Caravan control panel is a device used to control appliances and monitor DC power sources such as batteries, inclinometers, tanks, and solar panels of your caravan.

The information is displayed on a large 3,5" high resolution IPS display with Gorilla® Glass and anti-reflective coating to ensure superior visibility. It comes with 8 control buttons prepared for the convenience of the user.

Caravan Panel is capable of monitoring up to 6 batteries, 14 tanks, 14 temperatures, and 20 independent current sensors (shunts) as well as controlling 2 relay switches. It is equipped with a Wi-Fi module to communicate with the application available for Android™ and iPhone® smartphones. The app allows accessing live data, analyzing saved data, configuring the panel, and performing a firmware upgrade of the system.

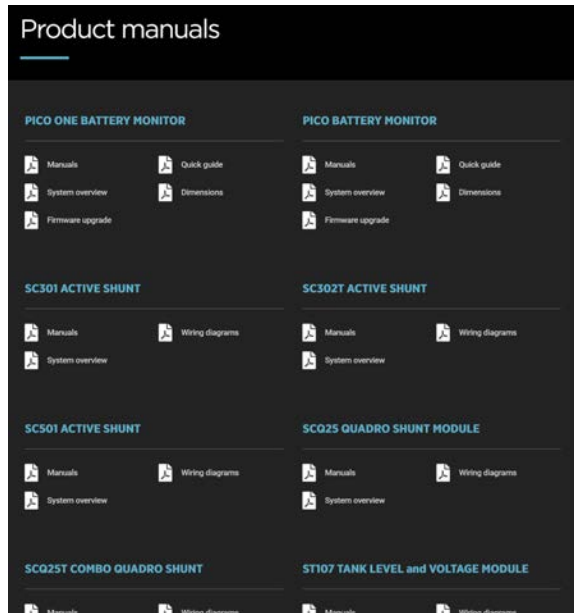
## 1.1 About

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In this manual we will show you how to install the Caravan Control Panel and configure the settings. For information on how to setup the **SPDU-52**, please check the **SPDU-52** manual.

You can find more information on other shunts, modules installations, and devices on the website:  
<https://simarine.net/manuals>



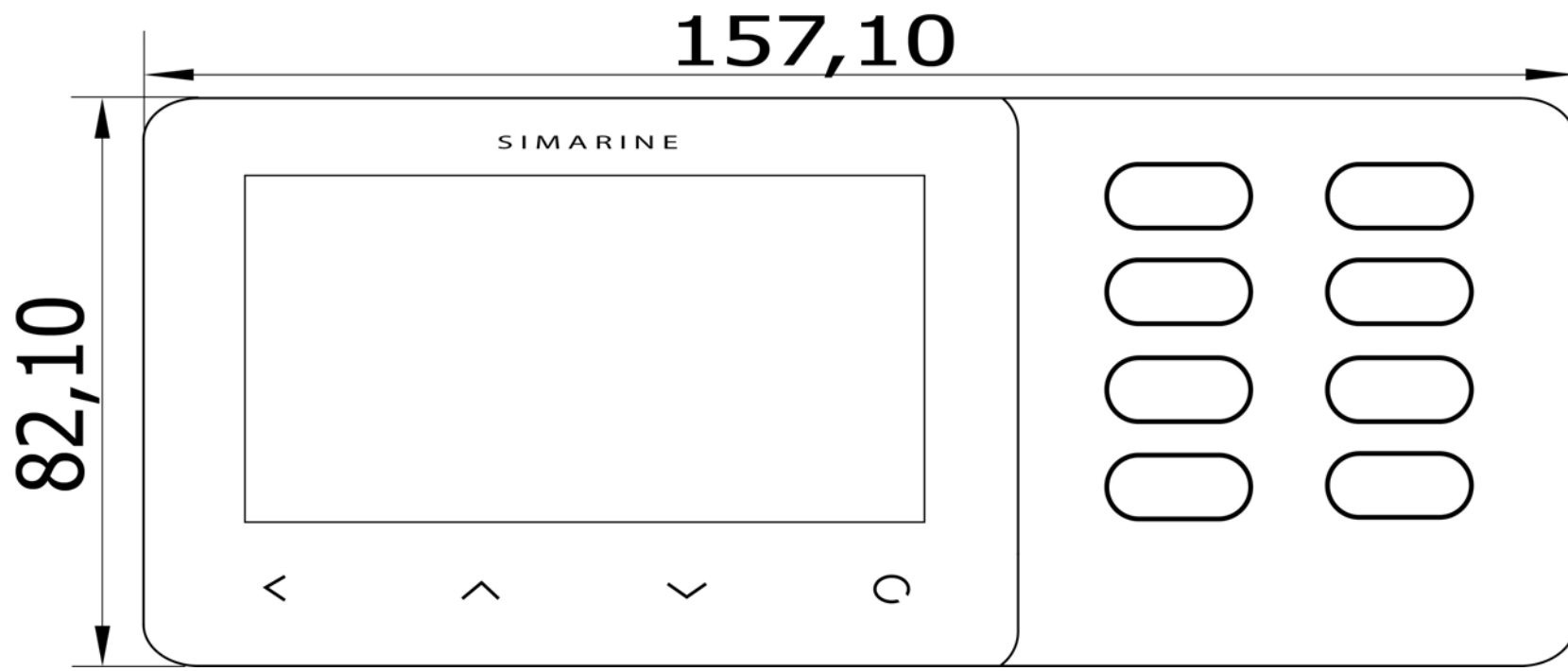


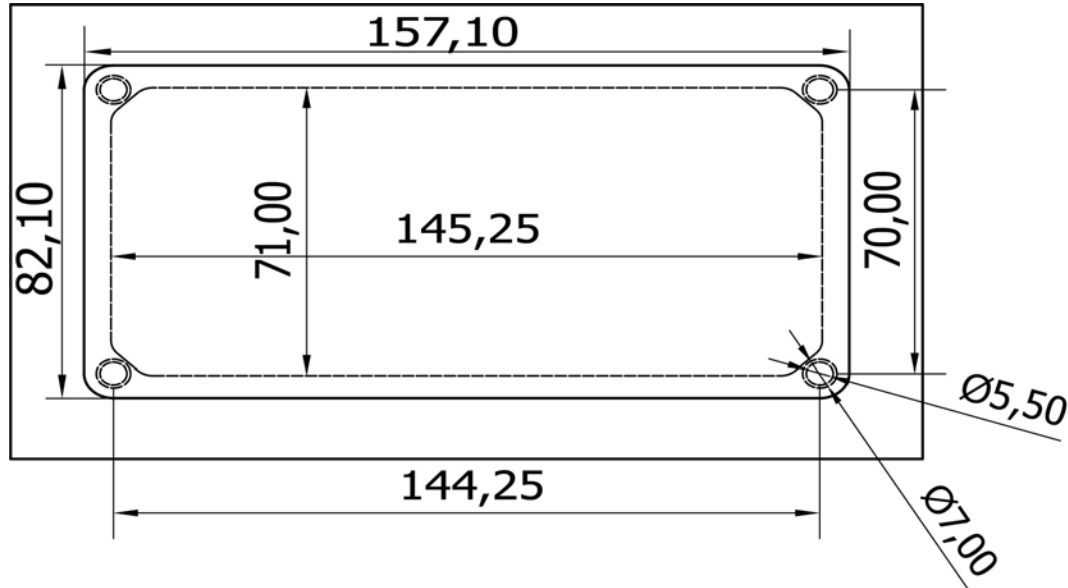
## 1.2 Schematics

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All measurements are in millimeters (mm).

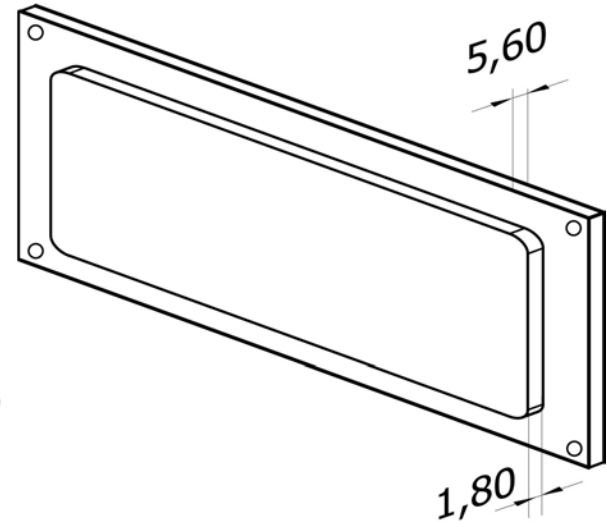
Required mounting space is at least 30 mm behind the casing.





Unit: mm

SIMARINE  
CARAVAN PANEL









## 2. Accessories

SIMARINE Caravan Panel is compatible with the following SIMARINE modules:

- **SC303** Digital Shunt - Simarine high-precision 300A shunt for systems up to 75V.
- **SC503** Digital Shunt - Simarine high-precision 500A shunt for systems up to 75V.
- **SDI01** Inclinometer - Simarine high-resolution digital inclinometer for pitch and roll with manual calibration.
- **SC302T** Digital Shunt - Simarine high-precision 300A shunt with 2 resistance inputs for tank level measurement and 2 voltage inputs for measuring voltages of two batteries.
- **SCQ25** Quadro Digital Shunt Module - Simarine high-precision 4x25A shunt, for 12V and 24V systems.
- **SCQ50** Quadro Digital Shunt Module - Simarine high-precision 4x50A shunt, for 12V and 24V systems.
- **SCQ25T** Quadro Digital Shunt and Tank Module - Simarine high-precision 4x25A shunt and tank interface module with 4 resistance and 3 voltage inputs.
- **ST107** Digital tank interface module with 4 resistance and 3 voltage Inputs.





### 3. Safety

Only qualified electricians with proper safety equipment should make installation of Simarine electronics. When working with batteries, you should wear protective clothing and eye protection.

**CAUTION:** Batteries contain acid, a corrosive, colorless liquid that can burn your eyes, skin, and clothing. Should the acid come in contact with eyes, skin, or clothing, wash it immediately with soap under fresh water for at least 15 minutes and seek medical support immediately.

**CAUTION:** Do NOT connect anything to a damaged battery. It could heat up, catch fire, or explode.

**CAUTION:** Lead-acid batteries can generate explosive gases during operation. Never smoke, allow flames, or sparks near the battery. Make sure to keep sufficient ventilation around the battery.

**CAUTION:** When working with a battery, remove all personal metal items like watches, rings, necklaces, and bracelets. Metal items in contact with the battery terminals might cause a short circuit with a very high electric current, which may heat up and melt nearby objects and cause severe burns.





## 4. Declaration of conformity



**MANUFACTURER:** SIMARINE d.o.o.  
**ADDRESS:** Ulica škofa Maksimilijana Držecnika 6,  
SI-2000 Maribor, Slovenia, EU

Declares that the following product:

**PRODUCT TYPE:** CARAVAN CONTROL PANEL

Conforms to the requirements of the following Directives of the European Union:

EMC Directive 2014/30EU, RoHS Directive 2002/95/EC

The above product conforms with the following harmonized standards:

EN61000-6-3: 2001 EMC - Generic Emissions Standard,

EN61000-6-2: 2005 EMC - Generic Immunity Standard








## 5. Installation

### 5.1 Caravan Panel mounting

---

Simarine Caravan Panel should be installed in a visible place to provide good readability. The mounting process and installation cutouts depend on the model, as described in the following sections.

Mounting steps:

1.  Before drilling, check if there is enough space to mount the panel.
2.  Mark mounting holes using the supplied installation template.
3.  *Drill all holes.*
4.  *Connect the connector on the back of the Caravan Panel to the splitter cable (be sure to align the pins correctly) and fasten it by turning the safety ring clockwise.*
5.  Finish mounting the Caravan Panel on the back side with the supplied threaded rods and nuts. Screws, rods, and nuts **MUST** be fastened by hand. Excessive force may damage the threads on the Caravan Panel.



## 5.2 Mounting

---


Caravan Panel Mounting:








## 6. Basic Setup

Controlling the menus of the Caravan Panel is intuitive and easy to use. All adjustments can be performed by using the four touch buttons below the screen. Menu and settings in the picture below can differ from the menu and settings on your device since future firmware upgrades might cause some minor changes of the menu and settings. Long press the  button to enter the settings menu.

Buttons on the right are used to open and navigate through different optional screens faster and easier. Long press the  button to turn on the device.



## 6.1 Caravan Panel



Default settings of the following buttons:

A - **Fridge button**, enables the fridge.

B - **Water pump button**, enables the water pump.

C - **Heating button**, enables the heating.

D - **Lighting button**, enables the lights.

E - **AC button**, enables the air conditioning.

F - **Inclinometer button**, opens the "Inclinometer screen" on the Caravan Panel. (If you have an inclinometer configured to the SPDU/Caravan Panel.)

G - **AUX button**, enables auxiliary inputs/devices. (If configured to the SPDU-52.)

H - **Power button**, long hold to power ON or OFF the Caravan Panel.

**NOTE:** If the button is highlighted (glowing) it means it is activated.

## 6.2 Settings Screen



A - Indicates the current position in the menu.

B - Currently selected item.

C - Arrow indicates there is at least one more menu item in this direction.

D - Arrow indicates there is a submenu.

E - Arrow indicates there is at least one more menu item in that direction.

F - **BACK BUTTON** is used to navigate one level back or exit the settings menu.

G - **UP BUTTON** is used to navigate up in the menu, to change the value, or to switch screens in live view.

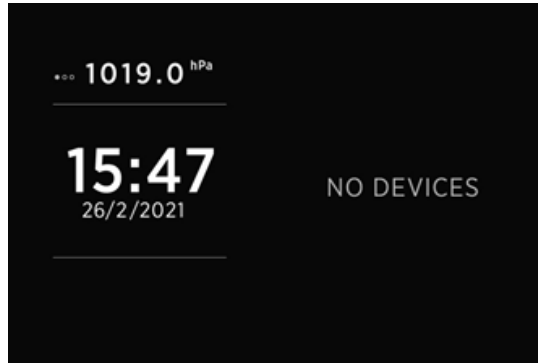
H - **DOWN BUTTON** is used to navigate down in the menu, to change the value, or to switch screens in live view.

I - **ENTER BUTTON**: long press activates the settings, short press commits changes or enters the selected submenu.

## 6.3 Start screen after first connection

---

After the installation and first connection, you should see a screen similar to the one shown below.



After the first power-on, there are no batteries and tanks displayed. Long press the  button to enter the settings menu.

## 6.4 Language settings

---

You can change the device language by navigating to **GENERAL SETTINGS > LANGUAGE**. You can select between English, German, and French. More languages will be added with future firmware upgrades.

## 6.5 Units

---

You can change units by navigating to **GENERAL SETTINGS > UNITS**. There, you can select your preferred units for temperature, tank volume, and water measurement.

## 6.6 Battery configuration

---

The Caravan Panel shows all correctly configured batteries. Each correctly configured battery will automatically appear on the Caravan Panel. You can find the description for setting up a battery on the Caravan Panel in the following section.

### 6.6.1 Add new battery

The following steps are valid for digital shunts **SC303**, **SC302T** and **SC503**.

In the settings menu, navigate to **DEVICES > BATTERIES**.


Select “Add new” and fill in the required data.

- Name the battery/battery bank accordingly (STARTER, SERVICE, MAIN, etc.)
- Select the battery type (Wet low maintenance, Wet maintenance free, AGM, Deep cycle, Gel, LiFePO4).
- Fill in the battery capacity for the next C ratings: C/20, C/10, and C/5. If you don't know all the ratings, fill in just the ratings that you know. It is highly recommended to fill at least two C ratings (one is not enough for precise calculations). A C rating is simply a battery's capacity (or Ah/amp hour rating) when discharged over a specific period. Usually, the C rating is specified on the battery label. For correct operation, set unknown ratings as “Not set”!
- Select a voltmeter connected to the battery. You can only see voltmeters that are not already used by other battery configurations.

**SETTINGS**

**< VOLTMETERS**

PICO INTERNAL	11.851 <sup>v</sup>
SC500 [0216735249]	12.428 <sup>v</sup>
ST107 [0167137256] U1	0.000 <sup>v</sup>
ST107 [0167137256] U2	0.000 <sup>v</sup>
ST107 [0167137256] U3	0.000 <sup>v</sup>

- Select the current sensor connected to the battery. You can only select current sensors that are not already used by an existing battery configuration. For a battery configuration without a shunt, leave the current sensor empty.
- Select a temperature sensor if you have one installed.
- Confirm and save the battery configuration with the  button. After you exit the settings menu, the new battery should be visible on one of the Caravan's screens.



## 6.7 Tank configuration

The Caravan panel shows all properly configured tanks. Each configured tank will automatically show up on the screen of the Caravan Panel.

You can find the description for setting up a tank on the Caravan Panel in the following section.

### 6.7.1 Add new Tank

The following steps are valid for modules **SCQ25T**, **SC302T** and **ST107**. The selected module needs to be installed properly. Find the installation described in the corresponding module manual. After successfully installing the module, you can configure the tank by following these steps:

In the settings menu, navigate to **DEVICES > TANKS**.

Select “Add new” and fill in the required data.


- NAME - name the tank accordingly (FRESH WATER, WASTEWATER, FUEL 1, etc.).
- TYPE - select the tank type (WATER, FUEL, WASTEWATER), which defines the color of the tank on Caravan’s screen.
- SENSOR TYPE - select the used sensor type (RESISTANCE or VOLTAGE).
- SENSOR - select the used sensor from the list.

**SETTINGS**

**< OHMMETERS**

SC500 [0216835249]	10060
ST107 [0167137256] R1	65535
ST107 [0167137256] R2	65535
ST107 [0167137256] R3	65535
ST107 [0167137256] R4	404

- CAPACITY - enter the full tank capacity.

- CALIBRATION POINTS – add calibration points for different tank levels. At least two calibration points are required for a correct configuration. More calibration points will enable the Caravan Panel to show **tank levels more accurately**. Up to 11 calibration points can be added. Set the tank fill volume (liters or gallons) and a corresponding sensor value (resistance or voltage) for each calibration point.
- Confirm and save the tank configuration with the  button.

After you exit the settings menu, the new tank should be visible on one of the Caravan's screens (visible on the main menu screen).

## 6.8 Caravan Panel buttons

---


You can enable different devices connected to the SPDU-52 by pressing the button with the corresponding symbol on the Caravan Panel (e.g. pressing the lights button will turn on the lights). You can also switch between different screens by pressing the arrow buttons on the touch screen.

There will be a separate screen for each battery with at least one connected current sensor (shunt). Multiple batteries without a current sensor (measuring voltage only) may be combined on a single screen.

Up to four tanks and four thermometers will be combined on a single screen. If there are more, they are divided into two or more screens.

### 6.8.1 Fridge button


---

The Fridge button  is configured on the SPDU-52 as the first button by default (K1 on the cover scheme). Pressing the button enables the fridge

Note: If the button is enabled, it will glow.

### 6.8.2 Heating button

---

The heating button  is configured on the SPDU-52 as the second button by default (K2 on the cover scheme). Pressing the button enables the heating.

Note: If the button is enabled, it will glow.


Up to four temperature sensors can be shown on a single screen. If there are more, they are divided into two or more screens.

For each sensor, you can find its name, graphical representation of the current temperature, and the numerical value of the current temperature in the chosen unit (°C or °F).

Thermometer order, names, min. and max. ranges, and temperature units can be changed in the settings menu.

### 6.8.3 AC button


---

The AC button  is configured on the SPDU-52 as the third button by default (K3 on the cover scheme). Pressing the button enables the AC (air conditioning).

Note: If the button is enabled, it will glow.

### 6.8.4 Aux button


---

The AUX button  is configured on the SPDU-52 as the fourth button by default (K4 on the cover scheme). By pressing the button, you enable the output of an external device (e.g. speakers).

Note: If the button is enabled, it will glow.

### 6.8.5 Water pump button


---

The water pump button  is configured on the SPDU-52 as the fifth button by default (K5 on the cover scheme). Pressing the button enables the the water pump.

Note: If the button is enabled, it will glow.

### 6.8.6 Lights button

---

The lights button  is configured on the SPDU-52 as the sixth button by default (K6 on the cover scheme). Pressing the button enables the lights.

Note: If the button is enabled, it will glow.

### 6.8.7 Inclinometer button

---

If you have an inclinometer installed, pitch and roll data is displayed on the screen if you press the inclinometer button .

**Pitch** is shown on the left side of the screen. The left side of the line represents the front of the vehicle, while the right side of the line represents the back of the vehicle. The pitch angle in degrees is shown below the line (positive value meaning front facing up and vice versa).

**Roll** is shown on the right side of the screen. The left side of the line represents the left-hand side of the vehicle. The roll angle in degrees is shown below the line (positive value meaning left-hand side up and vice versa).


### 6.8.8 Power button

---

If you long hold the power button , the device turns ON or OFF. You can also turn the device ON or OFF by holding the  button.

## 6.9 Device configuration

---

You can enter the settings menu by long pressing the  button. To navigate through the list, use up and down arrow buttons. To select an item, press the **enter button**. To navigate one level back, use **the back button**.

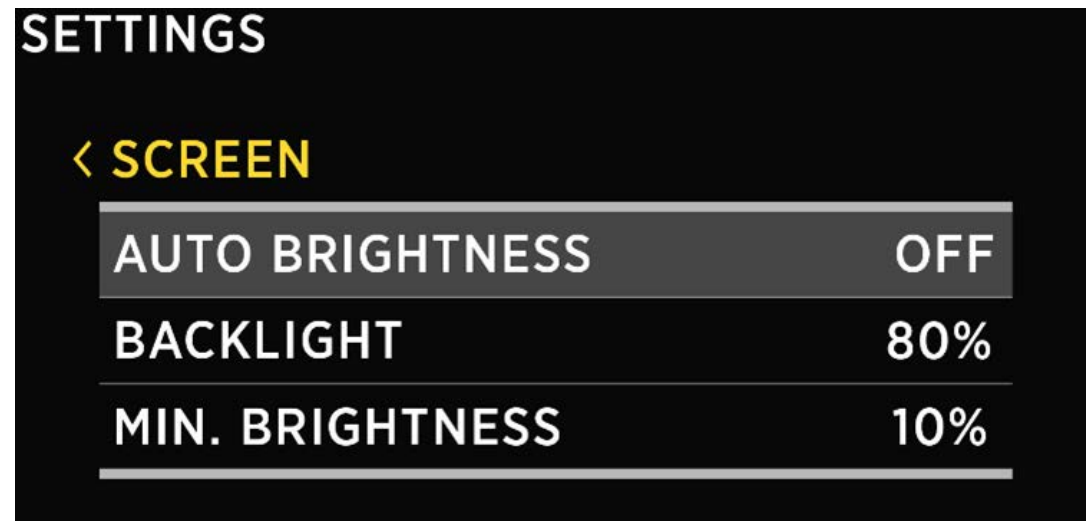
### 6.9.1 General settings

---

This menu offers screen, language, units, and sleep settings.

#### 6.9.1.1 Screen

---



### 6.9.1.1.1 Auto brightness

---

If auto-brightness is enabled, the internal light sensors of the Caravan Panel automatically adjust the screen brightness to match the ambient lighting conditions.

### 6.9.1.1.2 Brightness

---

The brightness level used during normal operation. When AUTO BRIGHTNESS is enabled, this is the maximum brightness level.

### 6.9.1.1.3 Min. brightness

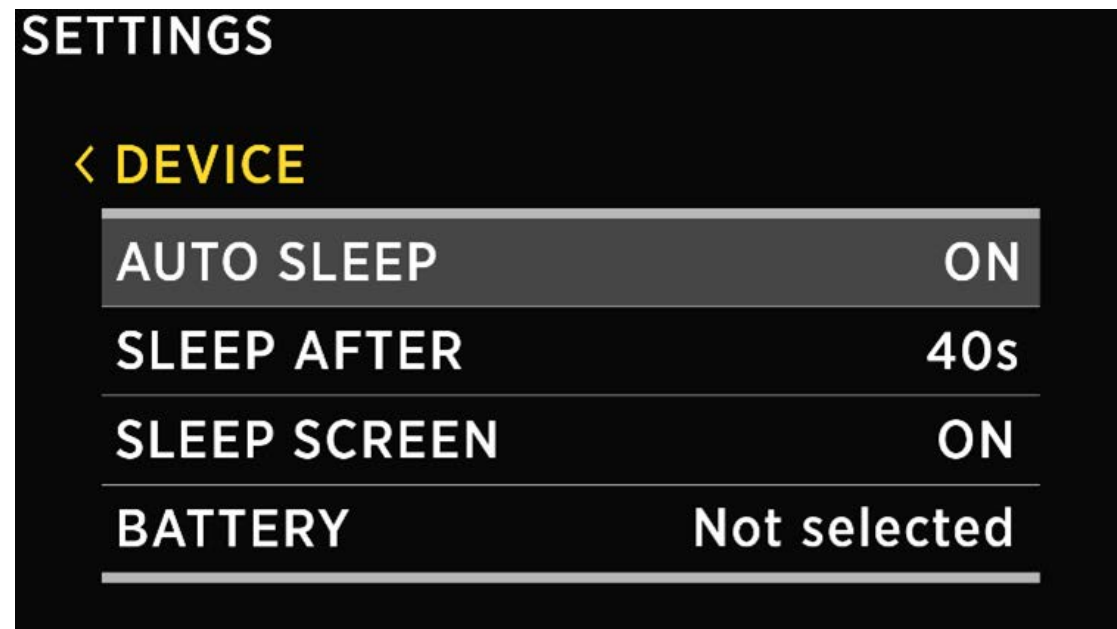
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Min. brightness has two functions.

1. When the Caravan Panel is in sleep mode, the illumination is set to min. brightness level.
2. When AUTO BRIGHTNESS is enabled, it defines the minimum illumination.

### 6.9.1.2 Device

---



#### 6.9.1.2.1 Auto sleep

---

If enabled, the Caravan Panel goes into sleep mode after SLEEP AFTER time.

#### 6.9.1.2.2 Sleep after

---

Time after which the Caravan Panel goes into sleep mode if the AUTO SLEEP setting is enabled.

#### 6.9.1.2.3 Sleep screen

---

If SLEEP SCREEN is enabled, Caravan Panel will show sleep screen if it is in sleep mode.

#### 6.9.1.2.4 Battery

---

Here you can select between available batteries.

#### 6.9.1.2.5 Left button

---

Here you can configure the left button of the Caravan Panel. You can configure the left button to have the function SLEEP or POWER OFF. By holding the left button, the function will execute.

#### 6.9.1.2.6 Power management

---

Here, you can enable and set the time of the automatic power off of the Caravan Panel.

#### 6.9.1.3 Language

---

You can select between English, German, and French. More languages will be added with future firmware upgrades.

#### 6.9.1.4 Units

---

You can choose different international units for pressure, **temperature**, **volume**, **altitude**, and **speed**.

#### 6.9.2 Data management

---

This menu enables you to set up alarms for specific measurements. Here you can choose the quantity, the device, low and high values for alarm, and you can turn the high/low-value alarms on and off.

- **ALARM LOW:** Low-value alarm activates when the measured value is lower than the set **alarm value**.
- **ALARM HIGH:** High-value alarm activates when the measured value is higher than the set **alarm value**.

After you select ALARM LOW or ALARM HIGH, the following alarm settings will appear:

- **ALARM STATE** is used to enable or disable the alarm.
- **ALARM VALUE** is a limit value which activates the alarm.
- **SILENT**, if enabled, there will be no audible signal when the alarm activates. The alarm warning will only appear on the screen of the Caravan Panel.
- **ALARM DELAY** is the time delay of the alarm activation. The alarm activates when the measured value is below (for alarm low) or above (for alarm high) the alarm value during the delay period.
- **ALARM DURATION** is the selected duration of the alarm. It is set to 5 minutes by default.
- **OUTPUT** is the digital output that is turned on during an active alarm.

#### 6.9.2.1 Alarm screen

---

When an alarm is triggered, it is shown on the Caravan Panel (see image below). There you can change the alarm state:

- **Hide** hides the alarm from the display, but it is still active in the background. The output is active (if it is set up).
- **Snooze** for 5 or 30 minutes, which means it is hidden for 5 or 30 minutes and then displayed again if still active. The output is active (if it is set up).
- **Dismiss** turns the alarm and output (if it is set up) off for 24h.

If multiple alarms are active at the same time, they are displayed alternately.



If at least one alarm is active, the alarm entry is displayed in top of the menu settings. There you can view all currently active alarms.

### **6.9.3 Devices**

---

Here you can manage all the devices connected to your Caravan Panel. When you connect a new module to your Caravan Panel system (e.g. a new shunt), some new devices will automatically appear on the device list (e.g. current sensors, voltmeters, ohmmeters, etc.). These devices automatically appear because they are integrated into the modules. But “secondary” devices - those that are connected to the modules (BATTERIES, TANKS, THERMOMETERS, and analog INCLINOMETERS) - will not be added automatically. If you connect a new battery, tank, or thermometer, you have to add and configure the new device manually in the DEVICES menu. Devices are classified into device types.

To view, manage, add, or delete a specific device, please select the corresponding device type from the list (e.g. BATTERIES, TANKS, etc.).





### 6.9.3.1 Batteries

List of batteries that you have added to your Caravan Panel. By selecting a specific battery, you can view or change its settings or delete the battery if necessary. By selecting “**Add new**”, you can add a new battery.



If the battery connects only to a voltage sensor (without a current sensor), the battery name, approximate state-of-charge (SOC), and current-voltage are displayed. The calculation of SOC takes some time, so it may not be shown immediately after power-on.

Up to three batteries without a current sensor can be shown on a single screen. If there are more, they are divided into two or more screens.

If the battery is connected to a voltage sensor and a single current sensor (shunt), some additional data is displayed: time to charge, time to discharge, and electrical current (amps). SOC can be calculated more accurately if a current sensor is connected. Time to discharge is calculated by using an average consumption during a specific period.

If there are more than one current sensor (shunt) connected to the battery (e.g. for monitoring different consumers or generators connected to the battery), their data (amps) is also shown on the battery page.

! Caravan's algorithm for calculating state-of-charge (SOC) is not a simple Ah-counter.  
It is constantly monitoring battery current, voltage, and temperature. This data is compared to the internal battery model and its parameters are constantly being adjusted so that the model fits the actual data.  
The algorithm needs some time to adjust the parameters (learning phase) and it will improve accuracy during the first few cycles.

! After adding a new battery or changing settings of an existing battery, the algorithm for calculating state-of-charge (SOC) needs some time to adjust the parameters of its battery model (learning phase).  
It will improve accuracy during the first few cycles.

#### 6.9.3.1.1 Name

---

Here, you can view or edit the battery name.

#### 6.9.3.1.2 Type

---

Here, you can view or change the battery type. Supported types are:

- WET LOW MAINTENANCE
- WET MAINTENANCE FREE
- AGM
- DEEP CYCLE
- GEL
- LiFePO4

#### 6.9.3.1.3 Capacity

---

The nominal battery capacity for the next C ratings: C/20, C/10, and C/5. If you don't know all the ratings, fill in just the ratings that you know. It is highly recommended to fill at least two C ratings (one is not enough for precise calculations). A C rating is simply a battery's capacity (or Ah/amp hour rating) when discharged over a specific period. The C rating is usually specified on the battery label or the battery datasheet.

! For correct operation, set unknown ratings as **NOT SET!**



#### 6.9.3.1.4 Voltmeter

---

List of all voltmeters connected to a battery. You can only see voltmeters that are not already used by other battery configurations.

**SETTINGS**

**< VOLTMETERS**

PICO INTERNAL	11.851 <sup>v</sup>
SC500 [0216735249]	12.428 <sup>v</sup>
ST107 [0167137256] U1	0.000 <sup>v</sup>
ST107 [0167137256] U2	0.000 <sup>v</sup>
ST107 [0167137256] U3	0.000 <sup>v</sup>

#### 6.9.3.1.5 Ammeters

---

A current sensor (shunt) which connects to the battery. You can only select current sensors that are not already used in a configuration of another device.

**!** For a battery configuration without a shunt, leave the current sensor empty.

#### 6.9.3.1.6 Temperature sensors

---

List of all temperature sensors in SiCOM network. You can only select sensors that are not already used by other device's configuration.

### 6.9.3.1.7 Range

---

Here, you can view or edit the battery range.

### 6.9.3.1.8 Advanced settings

---

Advanced users may adjust some additional battery settings to customize the battery data display. It is not mandatory to change these settings – the default values should be suitable for most users.

- **TTG AVG** – averaging interval for calculating TTG (time-to-go). “Short” means that TTG will respond more quickly to the change of the current time, and “Very long” means that TTG will respond more slowly to the change of the current time.
- **TTG SOC MIN** – target state-of-charge (%) for the time-to-go calculation during battery discharge. TTG shows the time when the battery will reach the preset TTG SOC value.
- **CEF** – charging efficiency (%).
- **DISPLAY TYPE** – “Detailed” display type also shows the amp-hour counter on the Batteries screen.

### 6.9.3.1.9 Instance

---

Here, you can view or edit the instance of the battery.

### 6.9.3.1.10 Delete

---

With this option, you can delete the selected battery

## 6.9.3.2 Tanks

---

List of tanks you have added to your Caravan Panel. By selecting a specific tank, you can view or change its settings or delete it if necessary.

By selecting “Add new”, you can add a new tank.



#### 6.9.3.2.1 Name

---

Here, you can view or edit the tank name.

#### 6.9.3.2.2 Type

---

Here, you can view or change the tank type. You can choose between **WATER**, **FUEL**, and **WASTEWATER**. Tank type is used solely for the color that will represent the tank on Caravan Panel's screen. Each type has a different color.

#### 6.9.3.2.3 Sensor type

---

You can select or change the sensor type that is used to measure the tank level. You can choose between **RESISTANCE** and **VOLTAGE** sensor types.

#### 6.9.3.2.4 Sensor

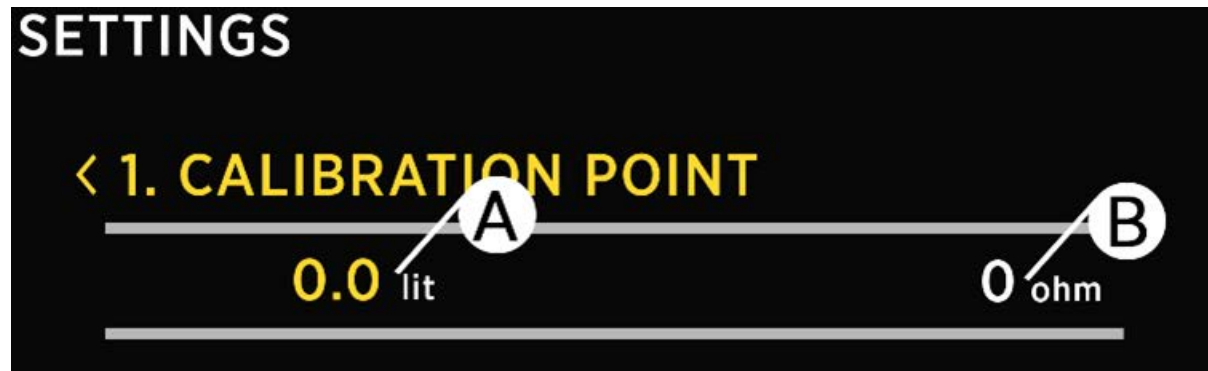
Voltage or resistance sensor used to **measure the tank level**. Here, you can view or select the corresponding sensor. You can only select sensors that are not already used in a configuration of another device.

#### 6.9.3.2.5 Capacity

Used to set up the full tank capacity.

#### 6.9.3.2.6 Calibration points

Here you can view the list of calibration points for the tank. You can also add new calibration points or remove existing ones. If you are adding a new tank, at least two calibration points have to be added for a correct configuration. More calibration points will enable the Caravan Panel to show the tank level more accurately. Up to 11 calibration points can be added. For each calibration point, the tank fill volume and a corresponding sensor value (resistance or voltage) must be set.



A - **fill volume** of a tank [liters/gallons]

B - **sensor value**, resistance [ohms] or voltage [volts]

To add a new calibration point:

- Select CALIBRATION POINTS > Add New.
- Two values will appear on the screen. The value on the left shows the tank fill volume and the value on the right shows the corresponding sensor value (resistance in ohms or voltage). Press **OK** to set the tank level. The left value turns yellow.
- Use arrow buttons to enter the desired tank level in liters or gallons. Press **OK** to confirm the value.
- Now the right value (resistance or voltage) turns yellow. A menu pops up, which allows you to select:

**MEASURED VALUE:** Use the current measured value of the selected sensor (resistance or voltage).

**INPUT VALUE:** By selecting this item, you can manually enter the desired value (resistance or voltage).

**DELETE:** By selecting this item, the calibration point is deleted.

### 6.9.3.2.7 Display priority

---

This setting enables you to choose between the following display priorities: **HIGH, MEDIUM, LOW** and **HIDE**.

The SPDU-52 Tank has a 25%, 50%, 75% and 100% indicators.

Use display priority for ordering the tanks on Caravan Panel's screen. When tanks are shown on the screen, those with HIGH display priority are shown first (leftmost), followed by tanks with MEDIUM display priority. Tanks with LOW display priority are shown last. If you select HIDE, this tank's level will not be shown on the Tanks screen (it will be hidden).

### 6.9.3.2.8 Delete

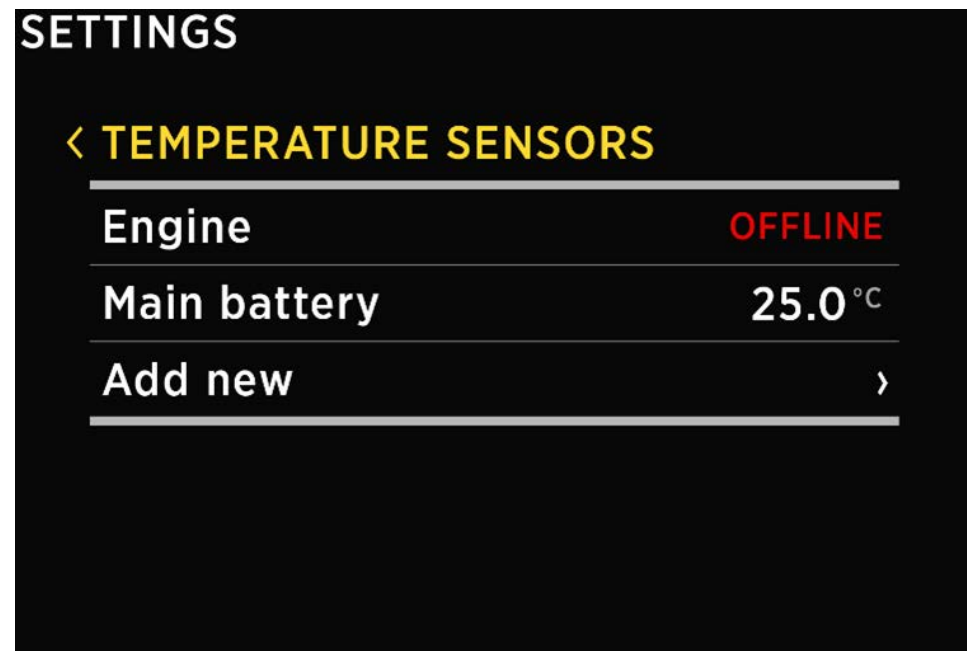
---

With this option, you can delete the selected tank.

### 6.9.3.3 Temperature sensors

---

List of temperature sensors that you have added to your Caravan Panel. By selecting a specific sensor, you can view or change its settings or delete it if necessary. By selecting "Add new", you can add a new temperature sensor.



#### 6.9.3.3.1 Name

---

Here, you can view or edit the temperature sensor name.

#### 6.9.3.3.2 Type

---

Here, you can view or change the temperature sensor type. Supported models: NTC 10K and NTC 5. These are 10kOhm and 5kOhm thermistors with a negative temperature coefficient.

#### 6.9.3.3.3 Device

---

The device and input to which the sensor is connected. For example: if the sensor is connected to the ST107 module and its input R1, select the option **ST107 [serial number] R1**.

#### 6.9.3.3.4 Display priority

---

This setting enables you to select one of the following display priorities: **HIGH**, **MEDIUM**, **LOW**, and **HIDE**. Use the display priority for ordering the thermometers on the screen of the Caravan Panel. When thermometers are shown on the screen, those with **HIGH** display priority are shown first (leftmost), followed by thermometers with **MEDIUM** display priority. Thermometers with **LOW** display priority are shown last. If you select **HIDE**, the level of this thermometer will not appear on the Temperatures screen (it will be hidden).

#### 6.9.3.3.5 Range MIN

---

The Caravan Panel shows the thermometer with a graphical representation (vertical bar), together with the current numerical value. This option defines minimum value (temperature) of the thermometer bar.

#### 6.9.3.3.6 Range MAX

---

The Caravan Panel shows the thermometer with a graphical representation (vertical bar), together with the current numerical value. This option defines maximum value (temperature) of the thermometer bar.

#### 6.9.3.3.7 Calibration

---

This setting enables you to calibrate the sensor value. If the displayed value is too high, you can use a negative calibration value (offset). If the displayed value is too low, you can use a positive calibration value (offset).

#### 6.9.3.3.8 Delete

---

With this option, you can delete the selected temperature sensor.



### 6.9.3.4 Current sensors

List of all current sensors (shunts). Connected current sensors are added to the list automatically. You cannot manually add a new current sensor. On this list, you can view current readings (amperes) for all connected current sensors. By selecting a specific sensor, you can **view** or **change** its settings.

**SETTINGS**

**< CURRENT SENSORS**

SC500[0216835249]	-1.01 <sup>A</sup>
SCQ25[04377773054] 1	1.04 <sup>A</sup>
SCQ25[04377773054] 2	0.00 <sup>A</sup>
SCQ25[04377773054] 3	0.00 <sup>A</sup>
SCQ25[04377773054] 4	0.00 <sup>A</sup>

#### 6.9.3.4.1 Name

Here, you can view or edit the current sensor name.

#### 6.9.3.4.2 Range

Caravan panel shows the current sensor with a graphical representation (horizontal bar), together with the current numerical value. This value defines the maximum value (amps) for the horizontal bar.

#### 6.9.3.4.3 Reverse current

If you swap the wires on the shunts terminals, the Caravan Panel will show the opposite value of the current. For example, when discharging, Caravan Panel will show the charge current and vice-versa. In this case, you can use this setting to reverse the current value. If you set this value to **ON**, the Caravan Panel will reverse the measured value.

#### 6.9.3.4.4 Add current

---

There can be multiple current sensors (shunts) connected to a single battery. With this setting, you can define which currents must be added together to get the total current on a certain battery. Set this value to ON for all the shunts which should be added together to calculate the total current on the battery. Set this value to OFF for all the other shunts.

**Example 1:** One sensor may monitor the total current on the battery and the other sensors may be used to monitor certain consumers or generators. Set this value to ON for the sensor which monitors the total current on the battery. Set this value to OFF for all the other sensors.

**Example 2:** Three shunts may be connected to the battery in parallel to monitor the consumption in three different branches. To summarize the total current on the battery, the currents of all three shunts must be added together. In this case, set the value to ON for all three shunts.

#### 6.9.3.4.5 Battery

---

Used to select the battery to which the sensor is connected.

#### 6.9.3.4.6 Display separately

---

By default, this option is deactivated. If the option is activated, the current value is displayed on a separate screen dedicated to current values. Up to 12 current values can be displayed on one screen simultaneously.

#### 6.9.3.4.7 Display priority

---

This setting enables you to select one of the following display priorities: **HIGH, MEDIUM, LOW, and HIDE**.

Use the display priority for ordering current sensors on the screen of the Caravan Panel. When current sensors are shown on the screen, those with **HIGH** display priority are shown first (at the top), followed by sensors with **MEDIUM** display priority. Sensors with **LOW** display priority are shown last (at the bottom). If you select **HIDE**, this sensor will not appear on the Batteries screen (it will be hidden).

#### 6.9.3.4.8 Device

---

Displays device name, serial number, and port. **Device name [serial number] port**. Example: SC501[12345678]

#### 6.9.3.4.9 Merge with

---

The function allows you to combine two or more current sensors and add up currents together. Simply select from the list to which current sensor you want to connect the sensor.

Example: when using an SCQ25 module you can merge 2, 3, or all 4 shunts and consequently we have a 100A (4x25A) shunt. It is possible to merge current sensors that are not on the same device.

### 6.9.3.5 Voltmeters

List of all voltmeter sensors connected to your Caravan Panel. Connected voltmeters are added to the list automatically. You cannot manually add a new voltmeter. In this list, you can view current readings (voltages) for all connected voltmeters.

**SETTINGS**

**< VOLTMETERS**

PICO INTERNAL	11.851 <sup>V</sup>
SC500 [0216735249]	12.428 <sup>V</sup>
ST107 [0167137256] U1	0.000 <sup>V</sup>
ST107 [0167137256] U2	0.000 <sup>V</sup>
ST107 [0167137256] U3	0.000 <sup>V</sup>

### 6.9.3.6 Inclinometer

List of inclinometer sensors that you have added to your Caravan Panel. By selecting a specific sensor, you can view or change its settings or delete it if necessary. By selecting “Add new”, you can add a new analog sensor with voltage output.



#### 6.9.3.6.1 Name

Here, you can set the inclinometer sensor name to “Pitch” or “Roll”.

#### 6.9.3.6.2 Style

You can select between different graphical representations of the inclinometer on the mobile app: line, caravan, or camper. Note that this setting is only available in the mobile app.

#### 6.9.3.6.3 Sensor

The analog (voltage) input to which the analog sensor is connected.

#### 6.9.3.6.4 Nonlinear

---

You can enable or disable a nonlinear display of the angle. If the nonlinear setting is disabled, the line on the screen is plotted exactly at the (true) pitch or roll angle. Since it might be difficult to distinguish small angles, you can enable the nonlinear display of the angle. In this mode, the line is plotted at a greater angle if the true pitch or roll angle is small. While it is much easier to observe small angles and small changes in this mode, the angle of the line does not represent the true angle (it is exaggerated).

#### 6.9.3.6.5 Calibration

---

Used to calibrate the analog sensor. You can set voltage for zero point (angle 0°) and steps (millivolts per degree).

#### 6.9.3.6.6 Display

---

With this setting, you can show or hide the inclinometer on Caravan Panel's screen.

#### 6.9.3.6.7 Reverse

---

If the inclinometer shows the inverse value for pitch or roll angle (e.g., left instead of right), you can enable this option to reverse the display.

#### 6.9.3.6.8 Delete

---

With this option, you can delete the selected inclinometer sensor.

#### 6.9.3.7 User Sensors

---

List of custom sensor that you have added to your Caravan Panel. By selecting a specific sensor, you can view or change its settings or delete it if necessary. By selecting “**Add new**”, you can add a custom user sensor.

#### 6.9.3.7.1 Name

---

Here, you can view or edit the the user sensor name.

#### 6.9.3.7.2 Voltmeter

---

Here, you can view and select a connected device, to which you have wired your custom device to. The custom device you want to select must be wired to a SC device with a voltage output (U1 or U2 ...).

#### 6.9.3.7.3 Range MIN

---

This option defines the minimum value of the sensor. Presented with a graphical representation (vertical bar), together with the current numerical value. This option defines the minimum value of the custom user sensor.

#### **6.9.3.7.4 Range MAX**

---

This option defines the maximum value of the sensor. Presented with a graphical representation (vertical bar), together with the current numerical value. This option defines the maximum value of the custom user sensor.

#### **6.9.3.7.5 Decimals**

---

Used to set the number of decimal points. The option '0' is the default value for integers (numbers with no decimal values).

#### **6.9.3.7.6 Measurement unit**

---

Used to set the custom measurement unit.

#### **6.9.3.7.7 Low voltage point**

---

It is used to change the value of the **LOW** voltage point in volts. The lowest number you select will correspond with the minimum range.

You can set the voltage for any number of points. The number you select, will be defined as the minimum point of the user device.

#### **6.9.3.7.8 High voltage point**

---

It is used to change the value of the HIGH voltage point in volts. The highest number you select will correspond with the maximum range.

You can set the voltage for any number of points. The number you select, will be defined as the maximum point of the user device.

#### **6.9.3.7.9 Delete**

---

With this option, you can delete the selected user sensor.

### **6.9.4 WI-FI**

---

This menu includes all the Wi-Fi settings for your Caravan Panel.

#### **6.9.4.1 Operation**

---

When set to ON, the Wi-Fi module is enabled. Otherwise it is disabled and no configuration data is displayed.

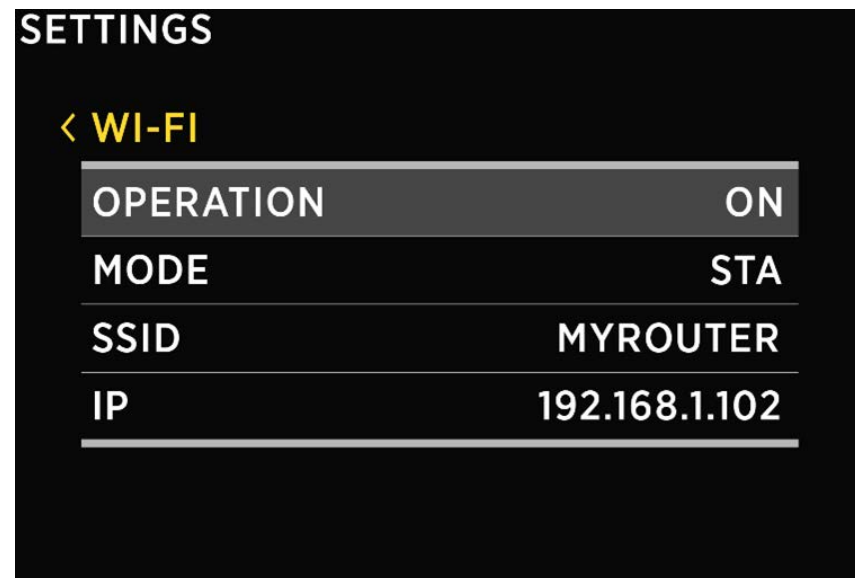
## 6.9.4.2 Mode

The Caravan Panel supports **AP** mode which stands for the **access point** and **STA** mode for **station mode**.

### 6.9.4.2.1 STA MODE

When in STA mode, you can connect the Caravan Panel to your local router and connect with your smartphone via a router. This mode enables multiple mobile apps to connect to the Caravan Panel simultaneously. To set the STA mode, follow these steps:

- Under MODE select STA mode.
- Under SSID find and select your router.
- The Caravan Panel detects the security type, select password, and enter the WIFI password.
- After this select connect and wait for the Caravan Panel to connect.



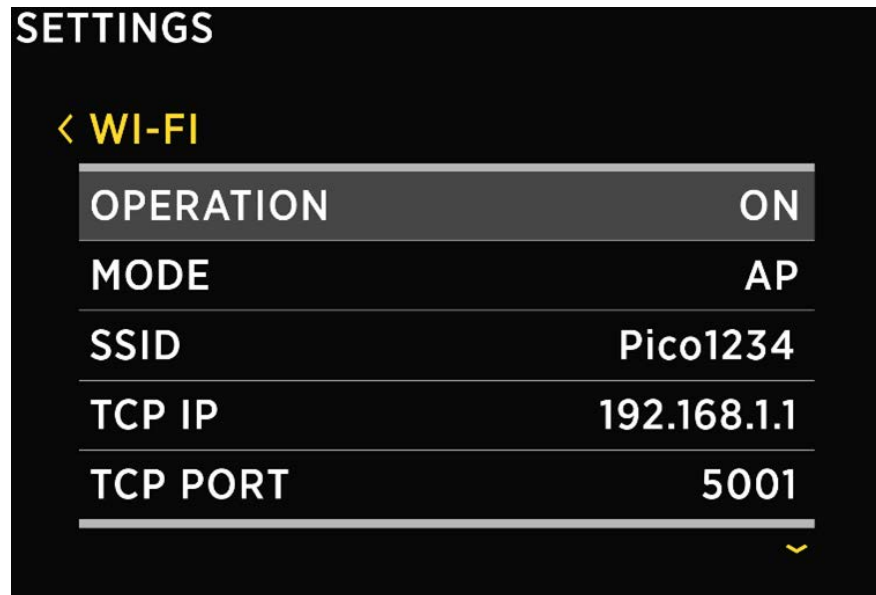
! If the Caravan Panel can't find your router SSID, check if SSID broadcasting is enabled on your router.

! The Dynamic Host Configuration Protocol (DHCP) should be enabled on the router to assign an IP address dynamically.

### 6.9.4.2 AP Mode

---

In the AP mode, the Caravan Panel creates its wireless network. If you want to connect to the Caravan Panel with your smartphone, please connect to the network with the corresponding SSID setting value. Wireless network password can be changed with PASSWORD setting. The default password is **Caravan Panel<first four digits of the serial number>**. Example: if the serial number of your Caravan Panel is 12345678, the default Wi-Fi password is Caravan Panel1234 or caravan1234.



### 6.9.4.3 SSID

---

SSID stands for Service Set Identifier.

In AP Mode, it is the Wi-Fi network name created by the Caravan Panel. Default SSID is **Caravan Panel<last four digits of the serial number>**.

Example: if the serial number of your Caravan Panel is 12345678, the default Wi-Fi SSID is Caravan Panel5678 or panel5678. You can change the SSID.

You can find the serial number on the sticker on the back of the Caravan Panel or in the menu under SYSTEM > SYSTEM INFO.



#### 6.9.4.4 TCP IP

---

Shows the default IP of your Caravan Panel.

#### 6.9.4.5 TCP PORT

---

Shows the default TCP port for communicating with the Caravan Panel.

#### 6.9.4.6 UDP IP

---

Shows the default IP to which UDP live data packets are sent.

#### 6.9.4.7 UDP PORT

---

Shows the default UDP port for communicating with your Caravan Panel.

#### 6.9.4.8 Password

---

Default password: Caravan Panel<first four digits of the serial number>

Example: if your Caravan Panel's serial number is 12345678, the default Wi-Fi password is **Caravan Panel1234** or **caravan1234**.

You can find the serial number on the sticker on the back of the Caravan Panel or in the menu under SYSTEM > SYSTEM INFO.

This is the default password and you can change it.

You cannot see the current password on the menu, but you can change it by selecting the PASSWORD setting. Minimum password length is 8 characters.

#### 6.9.4.9 WIFI reset

---

This option restarts the WIFI settings for your Caravan Panel.

#### 6.9.5 Date & Time

---

In this menu, you can set the time, date, and time zone manually, but we do not recommend this, because these values will be overridden by your smartphone settings each time you connect the phone to your Caravan Panel and start the **Caravan Panel application**. The exact time is important for the proper functioning of the device, so it is synchronized with your phone every time it is connected.

However, the time and the date format settings can be changed at will, because your phone settings will not override them.

### 6.9.5.1 Time

---

Set the current time. The value is overridden each time you connect the phone to your Caravan Panel and start the Caravan Panel application.

### 6.9.5.2 Date

---

Set the current date. The value is overridden each time you connect the phone to your Caravan Panel and start Caravan Panel application.

### 6.9.5.3 Time zone

---

Set the current time-zone. This value is overridden each time you connect the phone to your Caravan Panel and start Caravan Panel application.

### 6.9.5.4 Time format

---

You can choose your desired time format from the list.

### 6.9.5.5 Date format

---

You can select the desired date format from the list.

## 6.9.6 Service

---

### 6.9.6.1 Settings locked

---

Here, you can lock the settings of the Caravan Panel. A PIN will be required to unlock the settings in the future. To lock the settings of the Caravan Panel, select **ON**, to keep the settings unlocked, select **OFF**.

### 6.9.6.2 Main screen

---

Change what will be displayed on the main screen.

### 6.9.6.3 Debug screen

---

Opens the debug menu, listing all the services and displaying whether the service is running (1) or not (0).

## 6.9.7 System

---

### 6.9.7.1 Communication devices

---

List of all the devices (modules) that are connected to the Caravan Panel, together with the bus communication quality (%).

### 6.9.7.2 System info

---

Displays Caravan Panel's serial number, currently installed **firmware version** and **free memory**.

### 6.9.7.3 System reset

---

Deletes all the devices from the Caravan Panel.





## 7. Mobile App

Your smartphone can remotely control Caravan Panel via a Wi-Fi connection. Using the app, you can monitor current (live) data for the batteries, tanks, thermometers, and barograph. You can also change the Caravan Panel settings on your smartphone, and easily upgrade **Simarine firmware** to a new version when it is available.

Find your **Simarine - application** in your mobile store by scanning the QR code below or visiting the link below for your app store.



<https://play.google.com/store/apps/details?id=net.simarine>



<https://itunes.apple.com/us/app/Caravan-Panel-battery-monitor/id1217159039>



The **Android** app also includes a widget which displays basic battery, tank, and thermometer data. If you want to use the widget, you can add it to your home screen. To add the widget, find a blank space on your home screen, then touch it and hold until the option “Widgets” appears on the screen. Touch the “Widgets” option and then select the Simarine Caravan Panel widget from the list. Please note that the widget only updates the data every few minutes to save your phone battery.







## 8. Save and restore settings

Using your mobile app, you can save your current Caravan Panel settings to your phone and restore them from your phone to your Caravan Panel.

**Save settings.** To save settings, open your Caravan Panel mobile app and connect to your Caravan Panel. In the SETTINGS menu, select **SAVE / RESTORE SETTINGS > SAVE CURRENT SETTINGS**. Name your settings and tap **OK**. Your settings are then saved.

**Restore settings.** If you want to restore your Caravan Panel settings, open your Caravan Panel mobile app and connect to your Caravan Panel via Wi-Fi. In the SETTINGS menu, select **SAVE / RESTORE SETTINGS > RESTORE SETTINGS**. A list of saved settings will appear with a date and time when these settings were saved. Select a desired record from the list and tap **RESTORE**. You will be asked to confirm your action. After pressing **RESTORE** again, wait a few seconds for your settings to restore.

**!** You can restore to your previously saved settings if the physical configuration of your Caravan Panel has not been changed (no shunts or modules have been added or removed). If the physical configuration of your Caravan Panel was changed, you will not be able to restore to the settings that had been saved before the configuration has changed.

If you use the same Caravan Panel physical configuration (the same number of modules and shunts) on multiple caravans, it is also possible to transfer the settings from one caravan to another by using the same procedure.

When modifying your settings, the application also creates **automatic backup** of your previous settings. These backups will also be shown on the **list of available saved settings** when you choose to restore settings.



## 9. Firmware upgrade

To ensure the best Caravan Panel experience, we recommend upgrading Caravan Panel firmware to the latest version. You can do this via **Simarine application**, available on your smartphone application market as described in chapter 7 – Mobile App.

**!** It is important to install the latest Simarine Application (or to update your installed application to the latest version) before proceeding with the firmware upgrade.

The upgrade process requires the following steps:

1. **Install or update** the Simarine application – **Simarine application** on your smartphone.
2. Turn on the **Wi-Fi** on your Caravan Panel.
3. Connect your smartphone to the Caravan Panel via Wi-Fi.
4. Launch the **Caravan Panel** application on your smartphone and click **LIVE VIEW**.
5. Go to the settings menu and tap > **DEVICE SETTINGS > FIRMWARE UPGRADE**. Confirm the upgrade in the app. The upgrade process will put your Caravan Panel device in the **upgrade mode**.
6. Long press the **⏻** button on your Caravan Panel to confirm the firmware upgrade on your Caravan Panel. The upgrade process can take a few minutes.
7. After the upgrade, the Caravan Panel reboots and is ready to use.

If there is no FIRMWARE UPGRADE option in the application menu (step 5), please make sure that you have **updated** the app to the **latest version**.



## 10. Technical specifications

<b>Operating</b>	
Voltage range	6-35V
Temperature range	From -10 to +70°C (from +10 to +160°F)
<b>Power consumption at 12V</b>	
Operating, Wi-Fi on, 100% illumination	90mA
Operating, Wi-Fi off, 70% illumination	35mA
Stand by, Wi-Fi off, 0% illumination	18mA
Power off, Logger still active	5mA
<b>Resolution</b>	
Current	±0.01A
Voltage	±0.01V
Amp hours	±0.1Ah
State of charge (0-100%)	±0.1%
Temperature	±0.1°C/°F
<b>WiFi</b>	
Radio frequency bands	2.4GHz
<b>Dimensions (without connector)</b>	
Caravan panel	157.10 x 82.10 x 5.60mm 6.18 x 3.23 x 0.22in
<b>Connectivity</b>	
Batteries	6
Shunts	24
Temperature sensors	10
Tank level sensors	14
Inclinometer sensors	2
Smartphone application	1
Logger capacity	up to 3 months



S I M A R I N E

Safe Voyage.