SIMARINE®



PICO Lite

USER MANUAL

V1.2

EN

USER MANUAL

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PICO Lite

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1

Introduction

1. Introduction

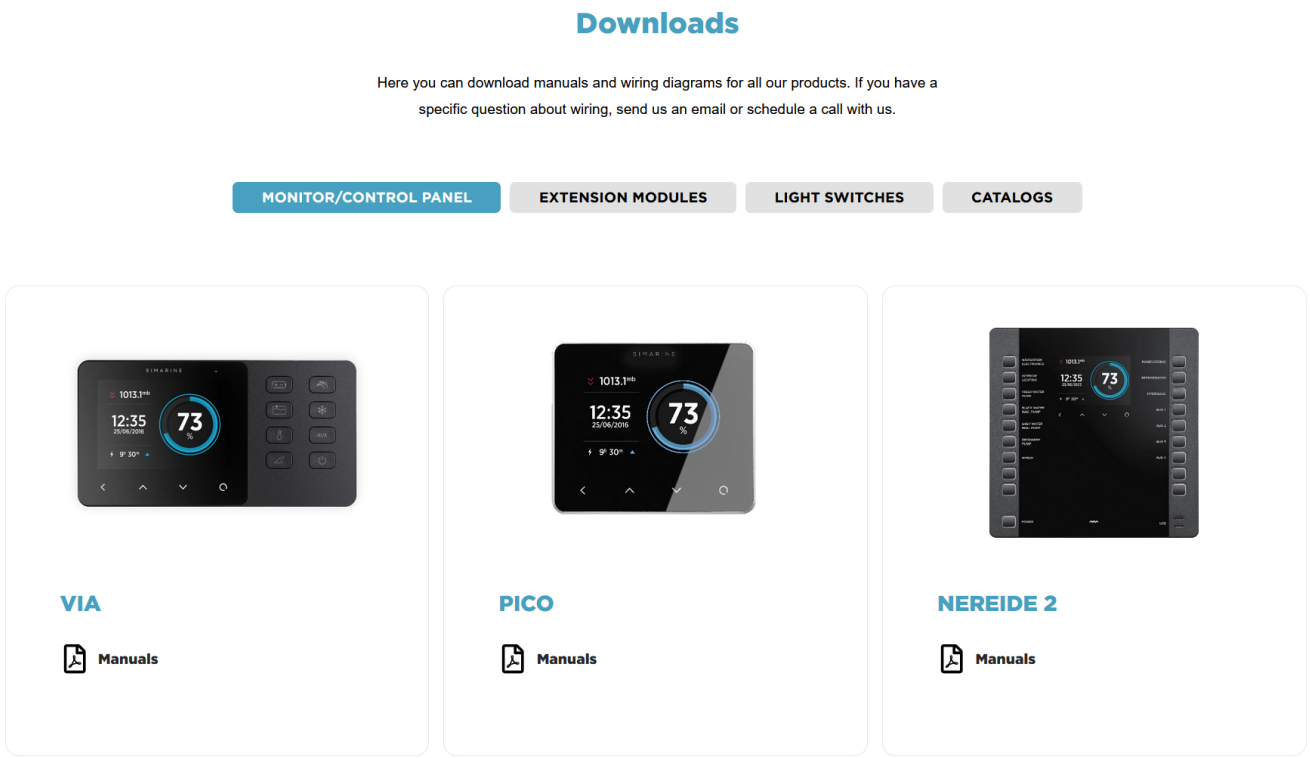
PICO Lite is a water and dust resistant device used to monitor DC power sources as batteries and solar panels. The information is displayed on a large 3,5” high resolution IPS display with Gorilla® Glass and anti-reflective coating to ensure superior visibility.

It is capable of monitoring up to 2 batteries (battery banks), 1 tank, 1 temperature sensor and 1 shunt.

PICO Lite is equipped with a Bluetooth module to communicate with the Simarine application available for Android™ and iPhone® smartphones. The app allows accessing live data, analyzing historical data, configuration and performing a firmware upgrade.

1.1 About

In this manual we will show you how to install the PICO Lite and configure the settings.
You will find more information on other shunts, modules installations, devices, on the website: https://simarine.net/support/



2

Safety

2. Safety

Electrical specialists 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 will 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.

3

Mounting

3. Mounting

PICO Lite should be installed in a visible place to provide good readability. Please note that ONLY the PICO Lite display unit is water and dust resistant! Any other modules should not be exposed to high humidity or liquids in any case.

The mounting process and installation cutouts depend on the model, as described in following sections.

3.1 PICO Standalone

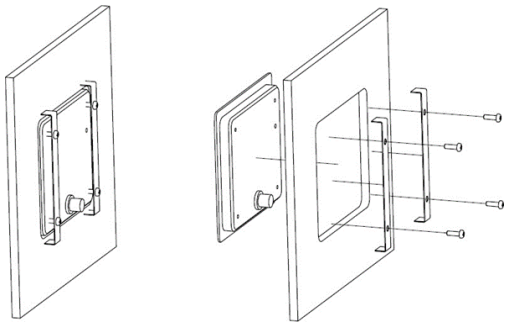
The Standalone version has dimensions of 96 x 82 x 11 mm (3.78 x 3.23 x 0.43 in) and needs NO installation cutout.
The mounting process is the following:

1.  Before drilling, check if there is enough space to mount your PICO Lite.
2.  Mark mounting holes using the supplied installation template.
3.  Drill all holes.
4.  Connect the cable on the back side of PICO Lite to the SL301 SiCOM cable.
5.  Finish mounting the PICO Lite from the back side with the supplied threaded rod and nuts or double sided tape. Screws, rods and nuts MUST be fastened by hand. Excessive force may damage the threads on PICO Lite.

3.2 PICO Panel-mount

The Panel-Mount version has dimensions of 110,5 x 96 x 13.5 mm (4.35 x 3.78 x 0.53 in) and requires an installation cutout of 100 x 85,5 mm (3.94 x 3.37 in)
The mounting process is the following:

1. Before drilling, check if there is enough space to mount your PICO Lite.
2. Mark mounting holes using the supplied installation template.
3. Using a saw, carefully cut out the marked area.
4. Connect the cable on the back side of PICO Lite to the SL301 SiCOM cable.
5. Finish mounting the PICO Lite from the back side with the supplied threaded rod, nuts and brackets. Screws, rods and nuts MUST be fastened by hand. Excessive force may damage the threads on PICO Lite.

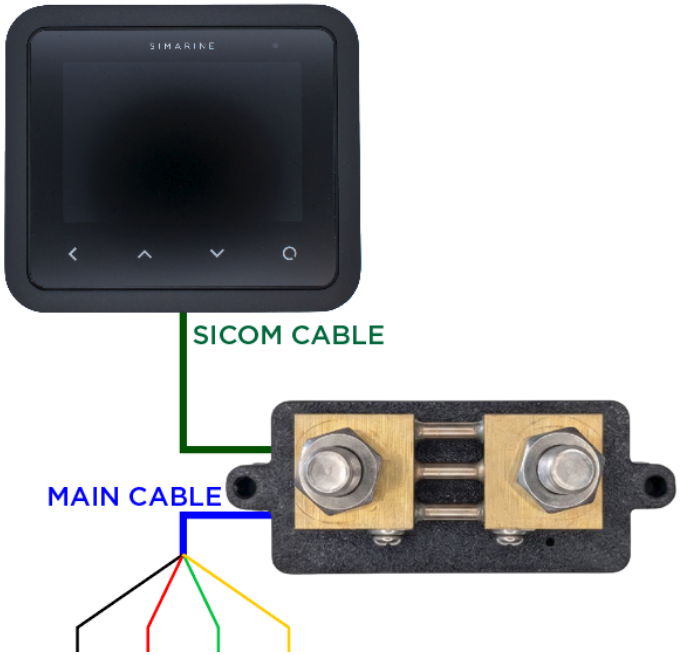


4

Connecting

4. Connecting

PICO Lite connects to the SL301 (Shunt Lite) via the integrated SiCOM cable of both devices.



5

Basic Setup

5. Basic Setup

All changes to the PICO lite can be done using the four touch buttons below the screen. Menus and settings can differ from your device since future firmware upgrades might cause some minor changes in the menus and settings.

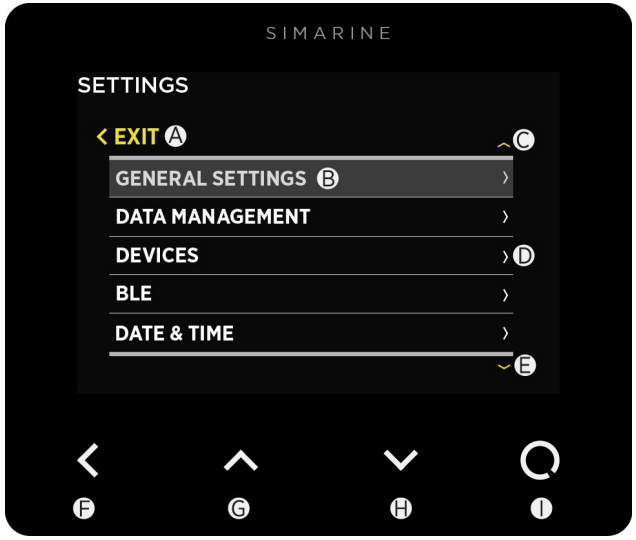
5.1 Start screen after first connection

After installation and first connection, the screen will be similar to the one shown below.



Long press ◘ button to enter the settings menu.

5.2 Settings Screen



A – Label indicates current position in the menu.

B – Currently selected item.

C – Arrow indicates there is at least one more menu item in the arrow direction.

D – Arrow indicates there is a submenu.

E – Arrow indicates there is at least one more menu item in the arrow direction.

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

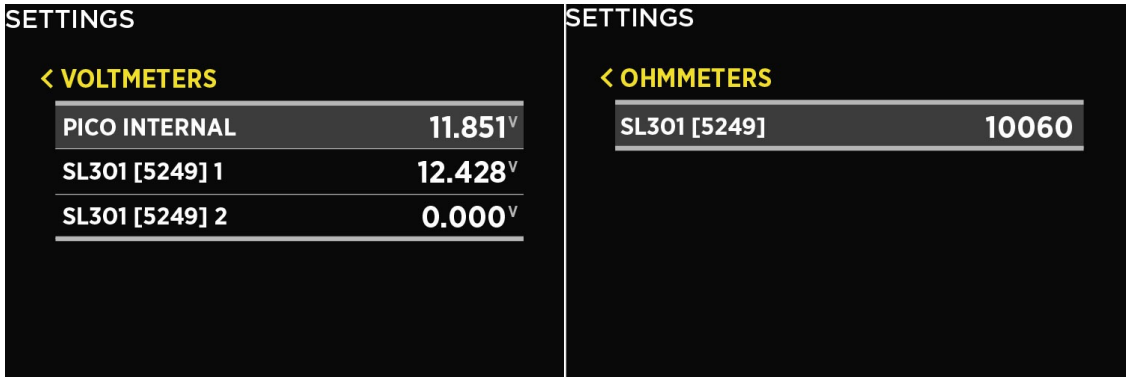
G – **UP BUTTON** is used to navigate up in the menu or changing value or switching screens in live view.

H – **DOWN BUTTON** is used to navigate down in the menu or changing value or switching screens in live view.

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

5.3 Sensor Auto-Detection

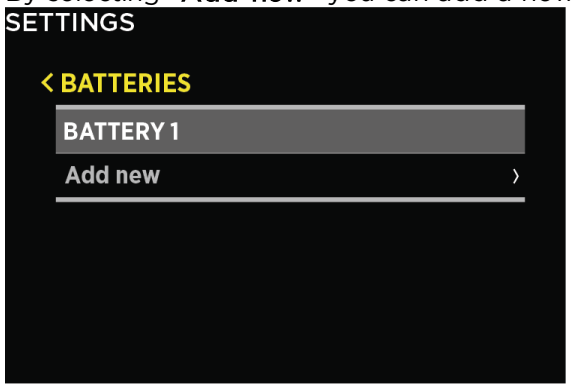
Voltmeters and Ohmmeters connected to the system are automatically detected and populated in the device list. Manual addition is not required for these sensors.



5.4 Battery

List of batteries which you have added to your PICO Lite. By selecting a certain battery, you can view or change its settings and delete it.

By selecting "**Add new**" you can add a new battery.



5.4.1 Configuring a new battery

- **NAME -** Name the battery/battery bank
- **TYPE -** Select the battery type (Wet low maintenance, Wet maintenance free, AGM, Deep cycle, Gel, LiFePO4)
  - **C/20** - The declared capacity of your battery.
  - **C/10** - Input only if the rating is explicitly provided by the manufacturer of your battery, otherwise leave it as "Not Set".
  - **C/5** – Input only if the rating is explicitly provided by the manufacturer of your battery, otherwise leave it as "Not Set".

  When configuring a battery bank, input the ratings of the battery bank as a whole.

  Example: if you have 3x 100Ah batteries connected in parallel, C20 = 3x 100Ah = 300Ah. The same rule applies for C10 and C5 ratings.

  For lithium batteries, only C20 input is required.
- **VOLTMETER -** Select a voltmeter connected to the battery. Only voltmeters that are not already used elsewhere in the configuration are displayed on the screen.

  Note: Do not select PICO Internal - as this is not a calibrated voltage reading.

- **AMMETERS -** Select the current sensor connected to the battery. You can select only current sensors that are not already used by another battery configuration. For a voltage-only battery configuration, leave ammeters empty.
- **TEMPERATURE SENSOR-** Select a temperature sensor if one is installed and configured.
- **RANGE -** Adjust the presentation of the current reading for the battery. By default the value is set 100A and it means, that the bar used for visually representing the measured current will be displayed as full at 100A (0A - bar empty and 100A - bar full).
- **INSTANCE -** An identifier for NMEA2000 network. Each battery/battery bank needs a unique instance.
- **DELETE -** Delete the selected battery

5.4.2 Advanced settings

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

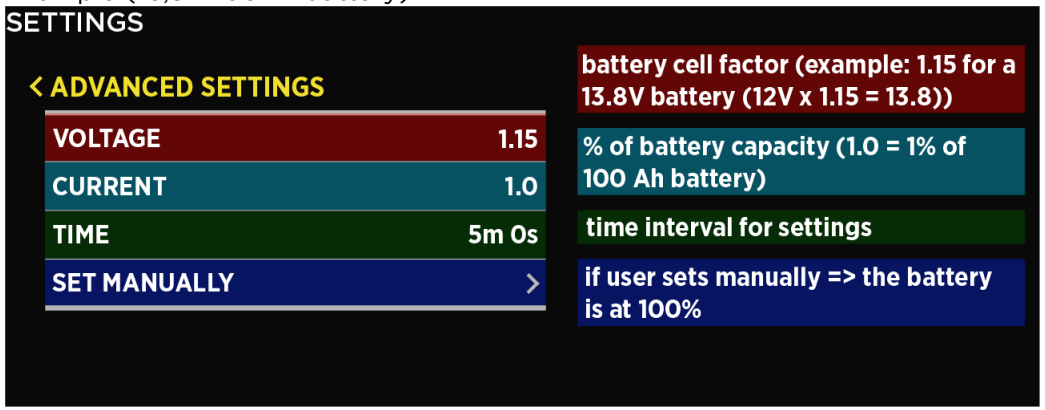
- **TTG AVG** – averaging interval for calculating TTG (time-to-go). “Short” means that TTG will respond to the change in current more quickly, and “Very long” means that TTG will respond to the change in current more slowly.
- **TTG SOC MIN** – Represents a declared offset from the actual battery state. Set by default to 20% means that when PICO Lite will display the remaining state of battery to be 0%, the actual state of the battery will be 20%. In case you want to compare PICO Lite readings to the internal battery monitoring system provided by the battery manufacturer, it is important to set this parameter to 0%, which will give you the absolute state of the battery.
- **CEF** – charging efficiency (%).
- **DISPLAY TYPE** – “Detailed” display type also shows the amp-hour counter on the batteries screen.
- **BATTERY FULL SETTINGS -** Advanced users

Any changes under these settings may cause huge offsets in precision of monitoring your battery. These settings should only be altered in extreme cases, such as if your battery is old and can no longer hold the same amount of charge that is declared by the battery manufacturer. In that case, you can alter these settings, so that PICO Lite can correctly determine when the charge in the battery reaches its full capacity.

BATTERY FULL SETTINGS are only relevant when the battery is monitored using a shunt (current + voltage).

Users may set additional battery full parameters, which will be used by PICO Lite to help determine when the battery is full.

Example (13,8V 100Ah battery):



- System voltage (12V) x factor (1.15) = 13,8V -> Battery full voltage.
- Battery capacity (100Ah) 1.0 is a % factor of the battery capacity (1.0 = 1Ah = 1%).
- Time -> This setting is a determined time interval for how long both conditions (voltage, current) need to take place for the battery to be determined as full (100%).
- Set manually -> This calibrates the batteries state of charge to 100%. Use this functionality only when the battery is actually full. Once this option is selected, the PICO Lite will note the battery as full and will rely on the calculations based on the input/output current readings.

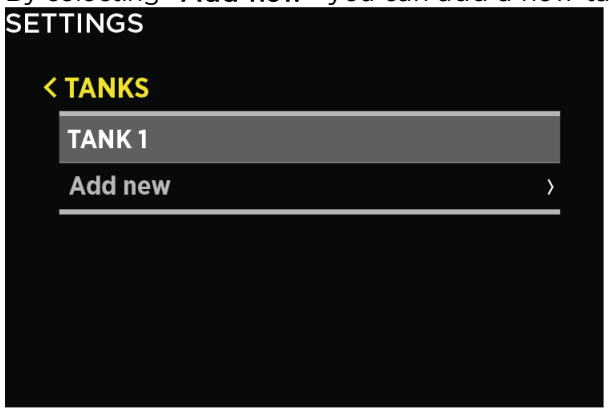
Execute the calibration when you are sure that the battery fullness is at 100%.

PICO Lite uses an algorithm which tries to find the starting state of charge of the battery after the configuration. For lithium batteries it is highly recommended, that you calibrate the battery manually after you configure it.

5.5 Tank

List of tanks which you have added to your PICO Lite. By selecting a certain tank, you can view or change its settings and delete it.

By selecting "**Add new**" you can add a new tank.



5.5.1 Configuring a new tank

- **NAME** - Name the tank
- **TYPE** - Select the tank type (WATER, FUEL, WASTEWATER), this defines the color of the tank on PICO Lite's screen.
- **SENSOR TYPE** - Select the used sensor's type (RESISTANCE or VOLTAGE)
- **SENSOR** - Select the used sensor input from resistance/voltage. Inputs that are not already used elsewhere in the configurations will be displayed on the screen.
- **CAPACITY** – Input the full tank capacity.
- **CALIBRATION POINTS** – Add calibration points for different tank levels. For a proper configuration at least two calibration points are required.

  For square shaped tanks, two calibration points are suggested (full and empty).

  For irregular shaped tanks, input a third (middle) point. The rest will be calculated by PICO Lite.
- **DISPLAY PRIORITY** – Set the display priority of the tank (if multiple tanks are configured)
- **DISPLAY MODE**

- **Standard** – displays tank content in measuring unit and percentage.
- **Fewer data** - display tank content only in percentage

- **INSTANCE** – An identifier for NMEA2000 network. Each tank needs a unique instance.
- **DELETE -** Delete selected tank.

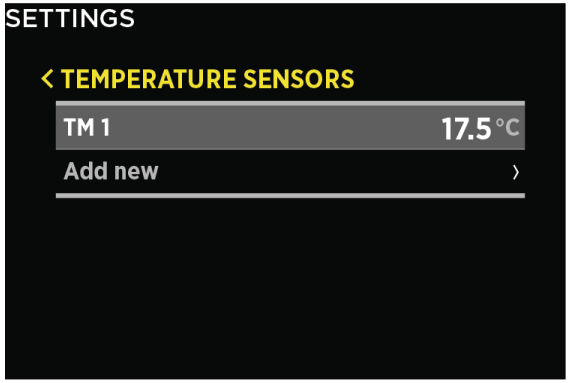
COMPATIBLE TANK SENSORS:
Any analog voltage/resistance type tank sensor, that is made for general use and not locked to a specific tank level monitor, will work with the SIMARINE system.

The compatible ranges are:
Resistance: 0 Ohm - 65000 Ohm (65kOhm).
Voltage: 0.0V - 70.0V.

5.6 Temperature sensor

List of temperature sensors which you have added to your PICO Lite. By selecting a certain sensor, you can view or change its settings and delete it.

By selecting "**Add new**" you can add a new temperature sensor.

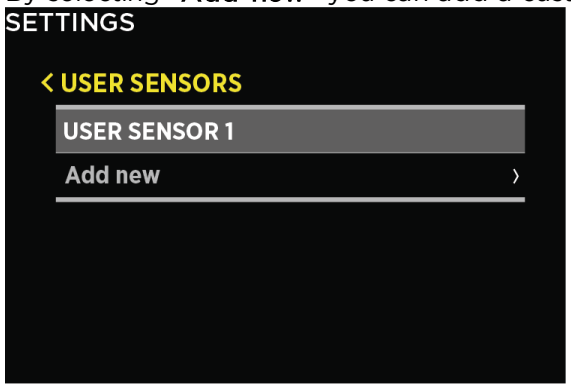


5.6.1 Configuring a new temperature sensor

- **NAME** – Name the temperature sensor
- **TYPE** – Select the type of the sensor:
  - NTC 10k (down to -13°C / 8.6°F)
  - NTC 5k (down to -20°C / -4°F)
  - NTC 1k (down to -40°C / -40°F)
- **DEVICE** – Select the resistance input to which your temperature sensor is connected to.
- **DISPLAY PRIORITY** – Set the display priority of the temperature sensor (If multiple temperature sensors are configured)
- **RANGE (MIN / MAX)** – Select the minimum and maximum temperature point displayed on the temperature graph.
- **CALIBRATION** – Set the temperature offset if necessary.
- **SOURCE** – Define the source of the temperature reading for use with NMEA2000 network.
- **INSTANCE** – An identifier for NMEA2000 network. Each sensor needs a unique instance.
- **DELETE -** Delete selected sensor.

5.7 User sensor

List of custom sensors which you have added to your PICO Lite. By selecting a certain sensor, you can view or change its settings, and delete it.
By selecting "**Add new**" you can add a custom user sensor.

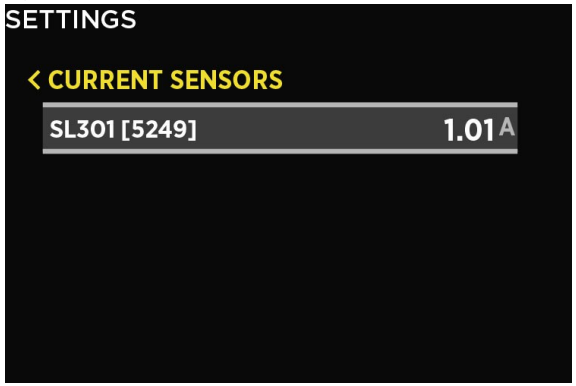


5.7.1 Configuring a new user sensor

- **NAME** – Name the user sensor.
- **VOLTMETER** – Select the voltage input used to measure the analog output of your voltage type user sensor.
- **LOW VALUE POINT** – What value is presented by the LOW VOLTAGE POINT (see below).
- **HIGH VALUE POINT** – What value is presented by the HIGH VOLTAGE POINT (see below).
- **RANGE (MIN/MAX)** – Select the minimum and maximum point displayed on the graph of the user sensor.
- **DECIMALS** – Set an offset of the decimal point.
- **MEASUREMENT UNIT** – Input the measurement unit that will be presented on the display graph.
- **LOW VOLTAGE POINT** – Expected voltage when the sensor measures its lowest value.
- **HIGH VOLTAGE POINT** – Expected voltage when the sensor measures its highest value.
- **DELETE -** Delete the selected sensor.

5.8 Current sensor

Connected shunt modules are added to the list automatically. In this list, you can view real time readings (amperes) for all connected current sensors.
By selecting a certain sensor with the ⚫ button, you can **view** or **change** its settings.



5.8.1 Configuring current sensors

- **NAME** - Name of the current sensor.
- **RANGE** - Adjust the presentation of the current reading for the current sensor. By default the value is set 100A and it means, that the bar used for visually representing the measured current will be displayed as full at 100A (0A - bar empty and 100A - bar full).
- **REVERSE CURRENT** - For consumers the current reading should be a negative number measured and for generators it should be a positive number measured and displayed on the CURRENT SENSORS screen. This should be used in case of reversed wiring.
- **ADD CURRENT** - Determines if the measured current should be used in the calculation of the state of charge for the battery to which this shunt is assigned to.

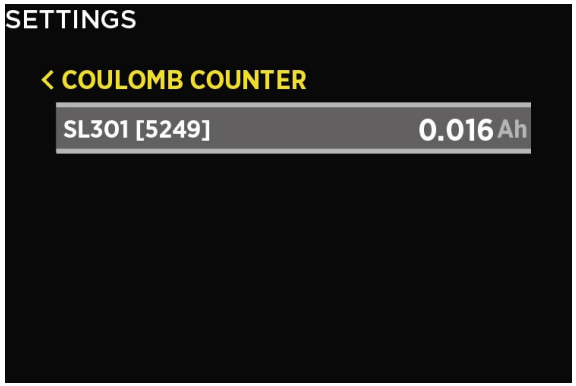
  In case there a multiple shunts in the system it is important to watch out for a possible "double current" problem (the same current is calculated twice). This happens if the same current passes through multiple shunts.

Example: a fridge is monitored individually with a dedicated current sensors, but the same current passes also through the main battery shunt. In such case, the monitor should be configured so that it will calculate only the current of one of the sensors, while the purpose of the other sensor is purely the convenience of the user to see the device's consumption (individual device monitoring).

- **BATTERY** - Here you can assign your shunt to a battery. More common way is to assign shunts to a battery through the battery configuration screen.
- **DISPLAY SEPARATELY** - If enabled, the sensor will be displayed in separate screen, even if the sensor is assigned to a battery.
- **DISPLAY PRIORITY** - Set the display priority of the current sensor. It can also be hidden.
- **DEVICE** - Displays a full ID of the current sensor. This is read only and it will not change even if you rename the sensor.
- **MERGE WITH** - Gives you an option to merge the sensor with another sensor. That way you tell PICO Lite to consider the readings of two current sensors as a reading of a single device.

5.8.2 Coulomb counter

For each connected current sensor, a corresponding Coulomb counter will also appear on the devices list. Each Coulomb counter shows a total electric charge (in Ah, amp hours) that has transferred through this sensor until now. By selecting a certain Coulomb counter, you can manually reset the counter to zero.



6

Device screens

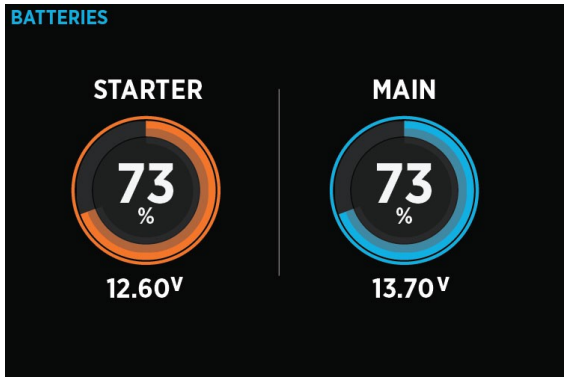
6. Device screens

6.1 Battery screen

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 divide into two or more screens.

If the battery is connected to a voltage sensor and a current sensor (shunt), additional data is displayed such as: time to charge/time to discharge, current (amps) and voltage.
Monitoring a battery with a shunt, gives you the highest possible precision. For lithium batteries using a shunt is mandatory.
Time to discharge is calculated by using an average consumption during a period of time. If there is 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.

! PICO Lite's algorithm for calculating state-of-charge (SOC) is not a simple Ah-counter. It is constantly monitoring battery current, voltage, and temperature. The 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, and it will improve accuracy during the first few cycles.

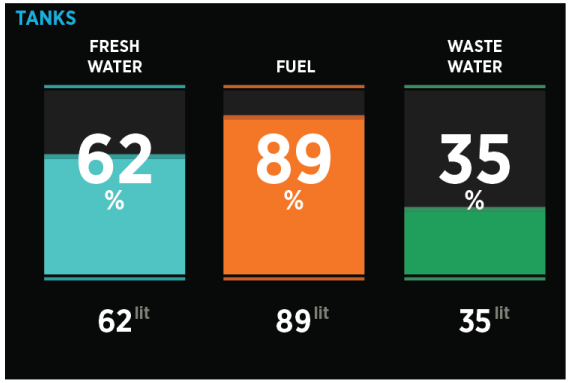


Troubleshooting: If the sensor isn't selected in the battery settings or the sensor got disconnected from the PICO Lite system, the "OFFLINE" symbol will appear on the screen. If this situation occurs, check the sensor setting of the battery. If the sensor is selected, check if all the cables are properly connected.

6.2 Tanks screen

Up to four tanks can be displayed on a single screen. If there are more, they divide into two or more screens. For each tank, you can find its name, graphical representation of the current level, and numerical values of the current level as a percentage and as the volume unit (liters, gallons).

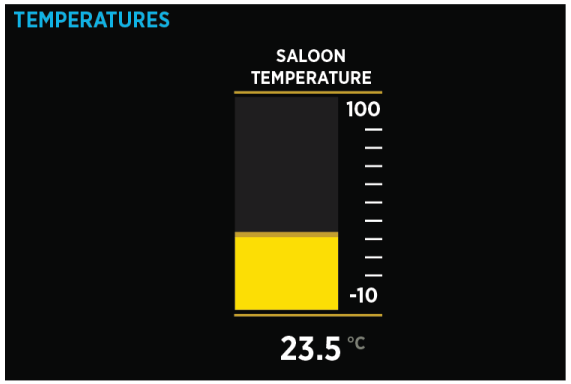
Depending on the selected tank types, they are represented with different colors.



Troubleshooting: If the tank sensor isn't selected in the tank settings or the sensor got disconnected from the PICO Lite system, the "OFFLINE" symbol will appear on the screen. If this situation occurs, check the sensor setting of the tank. If the sensor is selected, check if all the cables are properly connected.

6.3 Temperature sensors screen

Up to four temperature sensors can be shown on a single screen. If there are more, they divide 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).



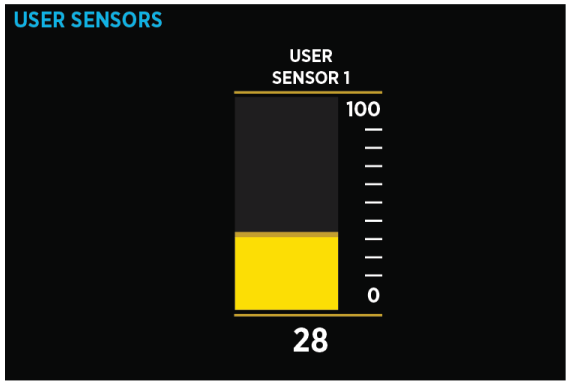
Troubleshooting:

If the temperature sensor is not selected in the temperature sensor settings or the sensor is disconnected from the PICO Lite system, the "OFFLINE" symbol will appear. If this situation occurs, please check the temperature sensor setting. If a device is selected, please check if all the cables are properly connected.

In case your temperature is displayed as a constant -13°C (8.2°F) or some other high or low value, then the most likely problem is that you do not have a correct sensor input selected. Selecting any sensor input to which no temperature sensor is connected to, will result in such readings.

6.4 User sensor screen

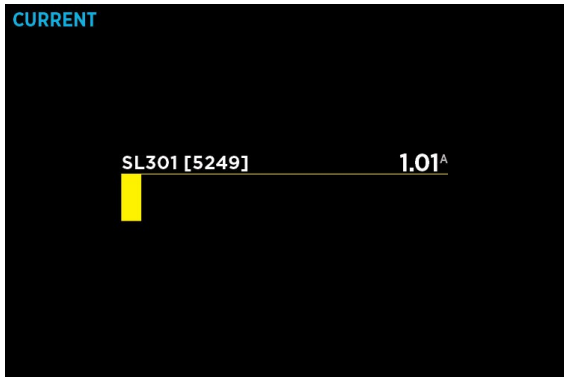
Up to four user sensors can be shown on a single screen. If there are more, they divide into two or more screens.
For each sensor, you can find its name and graphical representation of the numerical value of the configured sensor.



Troubleshooting:
If the user sensor is not selected in the user sensor settings or the sensor is disconnected from the PICO Lite system, the "OFFLINE" symbol will appear. If this situation occurs, please check the user sensor setting. If a device is selected, please check if all the cables are properly covnnected.

6.5 Current sensor screen

Up to 12 current sensors can be shown on a single screen. If there are more, they divide into two or more screens.
For each sensor, you can find its name and graphical representation of the current.



Troubleshooting:
If the current sensor is not selected in the current sensor settings or the sensor is disconnected from the PICO Lite system, the “OFFLINE” symbol will appear. If this situation occurs, please check the current sensor setting. If a device is selected, please check if all the cables are properly covnnected.

7

Device configuration

7. Device configuration

7.1 General settings

7.1.1 Screen

AUTO BRIGHTNESS - When auto-brightness is enabled, PICO Lite's internal light sensors automatically adjust the screen brightness to match the ambient lighting conditions.

BRIGHTNESS - The brightness level used during normal operation.

MIN. BRIGHTNESS - Minimum brightness, it has two functions:

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

ACTUAL BRIGHTNESS - Current brightness level

7.1.2 Device

AUTO SLEEP - Enable/Disable auto sleep function.

SLEEP AFTER - Time after which PICO Lite goes into sleep mode if the AUTO SLEEP setting is enabled.

SLEEP SCREEN - If SLEEP SCREEN is enabled PICO Lite will display home screen when in SLEEP MODE.

LEFT BUTTON - This determines what happens after holding down the ◀ button.

BATTERY - This determines which battery will be displayed on the home screen.

POWER MANAGEMENT --> AUTO POWER OFF - Automatically powers off the PICO Lite, if this is **ON.**

POWER MANAGEMENT --> AUTO POWER OFF DELAY - Automatically powers off the PICO Lite after selected time.

7.1.3 Language

You can choose between **English**, **German**, **French**, **Spanish** and **Polish** languages. More languages will be added with future firmware upgrades.

7.1.4 Units

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

7.2 Data (Alarm) settings

In the settings menu, navigate to **DEVICES > DATA SETTINGS**

This menu enables you to set up alarms for certain 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 when the measured value is lower than the setup **alarm value**.

ALARM HIGH: High-value alarm when the measured value is higher than the setup **alarm value**.

After selecting ALARM LOW or ALARM HIGH, the following settings will appear:

- **ALARM STATE** - Enable and disable alarm.
- **ALARM VALUE** - A limit value which triggers the alarm.
- **SILENT -** If enabled, there will be no audible signal when the alarm triggers. The alarm warning will only appear on PICO Lite's screen.
- **ALARM DELAY -** The time delay with which the alarm is triggered. The alarm triggers when only the measured value is below (for alarm low) or above (for alarm high) the "alarm value" during the delay period.
- **ALARM DURATION -** The selected alarm duration. Default alarm duration is set to 5 minutes. Setting the duration to 0 seconds will keep the alarm active until it is manually dismissed.
- **OUTPUT** - The digital output that is turned on during an active alarm.
- **OUTPUT MODE** - ON / OFF - It will toggle the output ON/OFF depending on the alarm value. ON - It will toggle the output to ON when the alarm value is reached. It will not turn OFF when the conditions are no longer met. OFF - It will toggle the output to OFF when the alarm value is reached. It will not turn ON when the conditions are no longer met.
- **OUTPUT DELAY** - Time delay of triggering the alarm output after the alarm conditions are met.

7.2.1 Alarms screen

When an alarm is triggered it is shown on PICO Lite (see image below). From there you can control the alarm state.

Hide - Hide the alarm from the display.

Snooze - 5 or 30 minutes. After selected snooze the alarm will show up again if still active. The output will be active (if configured).

Dismiss - Turns the alarm and output (if configured) off.

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



If at least one alarm is active, then an alarm entry on top in the menu settings is displayed. All currently active alarms can be seen from there.

7.3 BLE

In this menu, you can scan, add and view Bluetooth devices.

OPERATION ON / OFF - Turns on or off the Bluetooth connectivity.

Scan devices - Scan for nearby Bluetooth devices.

ADDED DEVICE - List of added Bluetooth devices.

7.4 Date and time

In this menu, you can set the time, date, and time zone manually, but it is not recommended, as these values will be overridden by your smart phone settings each time the phone is connected to the PICO Lite and the Simarine application is started*.

The exact time is important for the proper functioning of the device, and hence it is synchronized with your phone on each connection.
However, time format and date format settings can be changed freely as your phone settings will not override these.

TIME - Set the current time*.

DATE - Set the current date*.

TIME ZONE - Set the current time zone*.

TIME FORMAT - You can choose your desired time format from the list.

DATE FORMAT - You can choose your desired date format from the list.

7.5 System

Under the SYSTEM section you can find the following information:

COMMUNICATION DEVICES - List of all the devices (modules) that are connected to the PICO Lite, together with the bus communication quality (%).

SYSTEM INFO - Displays PICO Lite's serial number, currently installed **firmware version** and **free memory.**

7.6 Service

Under this section you can find information about the following:

SETTINGS LOCKED - Locks the PICO Lite settings. A PIN will be required to unlock the settings in the future. To lock the settings of the PICO Lite, select **ON**, to keep the settings unlocked, select **OFF.**

MAIN SCREEN - Change what will be displayed on the main screen.

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

SYSTEM RESET - Deletes all the devices from the PICO Lite. When clicked on, it will demand a PIN code, the code is 1 2 3 4 1 2, the PICO Lite will factory reset after long pressing the  button.

8

Mobile application

8. Mobile application

Your smartphone can remotely control PICO Lite via Bluetooth connection. Using the app, you can monitor current (live) data for batteries, tanks and thermometers. You can also change the PICO Lite settings on your smartphone, and upgrade **Simarine firmware** to the latest version.

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



Simarine App on Google Play



Simarine App on the App Store

9

Save and restore settings

9. Save and restore settings

Using the mobile app, you can save your current PICO Lite settings to your phone, and you can restore your saved settings from your phone to your PICO Lite.

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

Restore settings - To restore your PICO Lite settings, open your PICO Lite mobile app and connect to it via Bluetooth. In the SETTINGS menu, choose **SAVE / RESTORE SETTINGS** > **RESTORE SETTINGS**. A list of saved settings will appear, together with a date and time when these settings saved. Select a desired record from the list and tap **RESTORE**. You will be asked to confirm your action. After pressing **RESTORE** once again, after a few seconds the settings will be restored

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

Before executing SYSTEM RESTORE make sure you do a SYSTEM RESET - which will erase any existing configurations.

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

10

Firmware upgrade

10. Firmware upgrade

To ensure the best PICO Lite experience, we recommend upgrading the firmware to the latest version. You can do this via **Simarine application,** available on your smartphone application market as described in chapter Mobile application 48.

! 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 on your smartphone.
2. Turn on Bluetooth on your PICO Lite.
3. Connect your smartphone to PICO Lite via Bluetooth.
4. Launch the phone application.
5. Go to the settings menu and tap > **DEVICE SETTINGS** > **FIRMWARE UPGRADE** and confirm the upgrade.
6. The upgrade process will put your PICO Lite device in the **upgrade mode**.
7. Long press the ◯ button on your PICO Lite to confirm the firmware upgrade. The upgrade process can take a few minutes to complete.
8. After the upgrade, PICO Lite 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** your App to the **latest version**.

Emergency mode firmware upgrade procedure:

1. Turn PICO Lite OFF and back ON again (may require toggling power to the PICO Lite, see note bellow)*.
2. As soon as the start-up logo appears press and hold the ‹ button until PICO Lite enters in text-only mode.
3. Connect your smartphone to PICO Lite via Bluetooth. A blue line of text will appear on PICO Lite as soon as the connection is established.
4. Launch the phone application.
5. Wait for a red button labeled "FIRMWARE UPGRADE" to appear and press it.
6. Confirm the upgrade if prompted by the application.
7. After the upgrade, PICO Lite reboots and is ready to use.

11

Technical specifications

11. Technical specifications

PICO Lite BATTERY MONITOR	
Operating	
Power source voltage range	6 - 35 V
Temperature range	-20°C to +70°C (-4°F TO +158°F)
Power consumption at 12 V	
Operating, WiFi On, 100% illumination	90 mA
Operating, WiFi Off, 70% illumination	35 mA
Operating, WiFi Off, 0% illumination	18 mA
Power Off, logger still active	5 mA
Display capabilities	
Current	
Range	-999.99 to +999.99A
Resolution	0,01 A
Voltage	
Range	0 - 75 V DC
Resolution	0,001 V
Amp hours (Ah)	±0,1 Ah
Temperature	
Range	-40°C to + 150°C
Resolution	0,1 °C / °F
SOC - State of Charge	0 - 100%
WIFI	
Radio Frequency Band	2,4 GHz
Monitoring capabilities	Up to

Batteries	2
Shunts	1
Temperature sensors	1
Tank level sensors	1
Dimensions	
PICO Lite	Standalone 96 x 82 x 11 mm (3.78 x 3.23 x 0.43 in)
	Panel Mount 110,5 x 96 x 13.5 mm (4.35 x 3.78 x 0.53 in)

Safe Voyage.

SIMARINE

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