

GET READY
WITH



VANPI

ENG

CAMPER CONTROL

**MAN
UAL**

BY D-KWAV

Welcome

to the PeKaWay Community

Yoo-hoo it's time!

You finally hold your PeKaWay product in your hand and now you are a big step closer to your mobile **SmartHome**. It makes no difference whether you are travelling by land or water - PeKaWay will reliably accompany you on all your journeys and adventures from now on..

Some of you may have noticed - we have put a lot of heart and soul into these products over the last few years. We are also very grateful for the great community that has been formed in the process!

If you're not on social media, why not check out our website at
<https://pekaway.de>. There you will find a newsletter where you can get all the latest news.

For those who are active on social media, tag us in your posts or stories. (our hashtags are e.g. **#pekaway #vanpi #smartontour #vanpidabei**).

We can't wait to see how you integrate our products and what journeys you go on together!

If you have any questions or are unclear about anything, you can take a look at the FAQ:

<https://pekaway.de/faq-s>

Furthermore, we run a forum where, in addition to our team, many other helpful people from the community are active who usually have a couple of tips in store!

<https://forum.pekaway.de>

For any further questions or larger projects, please feel free to contact us directly by email:

briefkasten@pekaway.de

We are looking forward to your feedback, whether in pictures or text!

Have fun with VAN PI

Your PeKaWay Team

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1. Philosophy

We spend a lot of time on the question of the extent to which it is sensible and healthy to be dependent on large companies and powerful corporations. Again and again it is noticeable that due to some monopolies it is difficult or even impossible for customers to work on products and equipment themselves or to carry out repairs. Think, for example, of the operating systems for smartphones, where there is almost no alternative but to choose between two providers, or how one is tied to the contract workshops of large automobile companies.

This problem is one of the main reasons why we decided to start an open source project.

This means that the software can be easily modified and adapted to one's own needs and is available free of charge. A high degree of transparency is achieved through this openness of source.

At the same time, we also like the community idea behind open source projects and the associated exchange of expertise.

Another advantage of our modular system - besides individuality - is **sustainability**.

The circuit boards and the computers are merely plugged and screwed together - so it is possible to replace the parts at any time instead of simply throwing the whole unit away. If, for example, it turns out in a few years that the van has to be abolished, the equipment can be put to a different use.

In our opinion, it is not helpful to shift all the responsibility onto the customers, but rather to pay more attention to things like sustainability, accessibility and independence already during the development of new products.

2. Safety & Labelling

Attention:

Electronic work must be carried out by qualified personnel or accompanied by qualified personnel. Additional equipment must be compatible with the basic unit. Failure to comply with individual sections of the operating instructions may result in personal

injury and/or damage to property.
In addition to the operating instructions, the Quickstart Guide is also freely available in the download area on our website.

(<https://pekaway.de/downloads>).

In the instructions we use the following symbols:



Attention!

Pay particular attention here and follow the instructions exactly.



Stay Clean

Please recycle your waste, hand in the batteries at the designated collection points and do not dispose of them in the household waste!



Hint

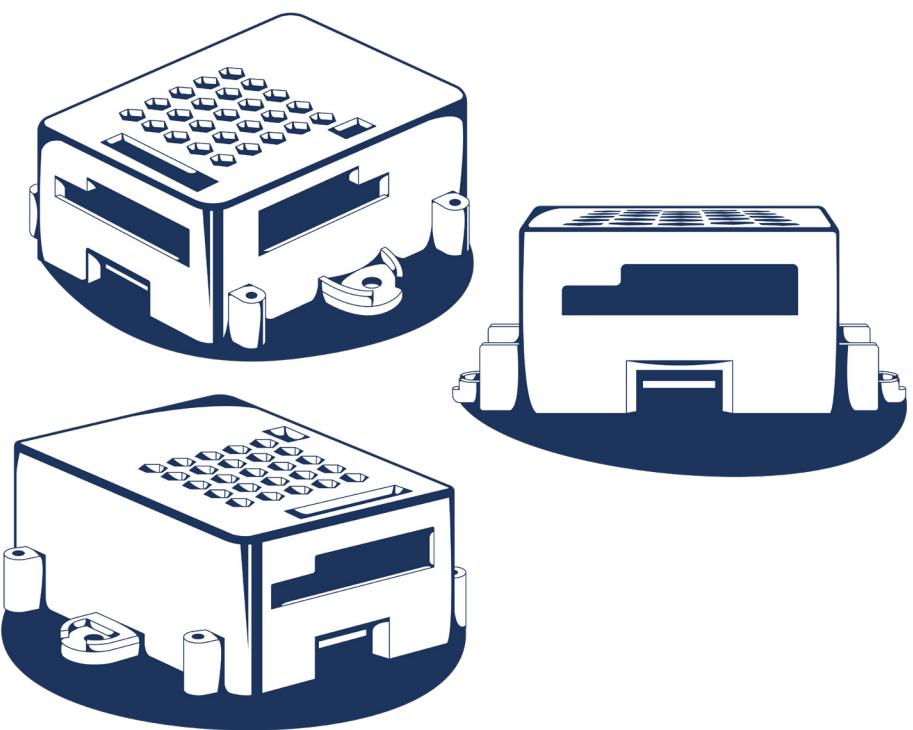
This symbol stands for small hints and tips that can help you in the use of the device.

If you have any questions or technical problems, please post them in the forum or contact us by email.

Forum: <https://forum.pekaway.de/>

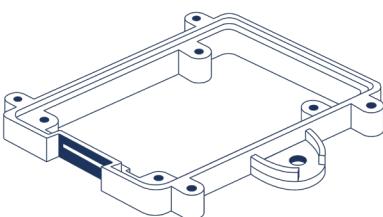
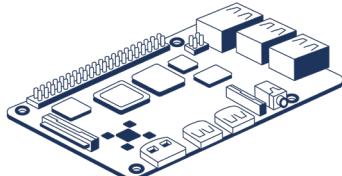
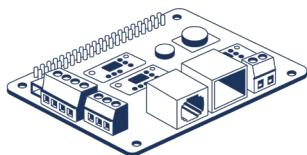
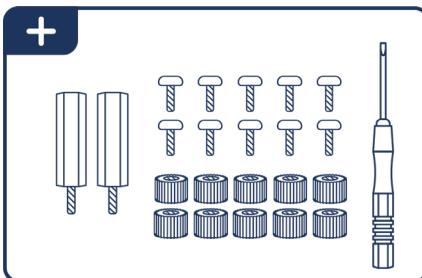
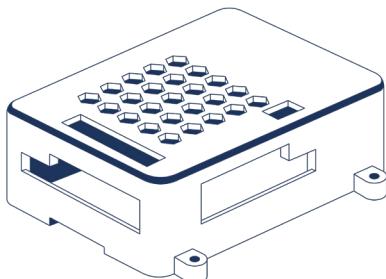
E-Mail: briefkasten@pekaway.de

3. VAN PI HAT



VAN PI HAT

3.1. Parts & Scope of Delivery



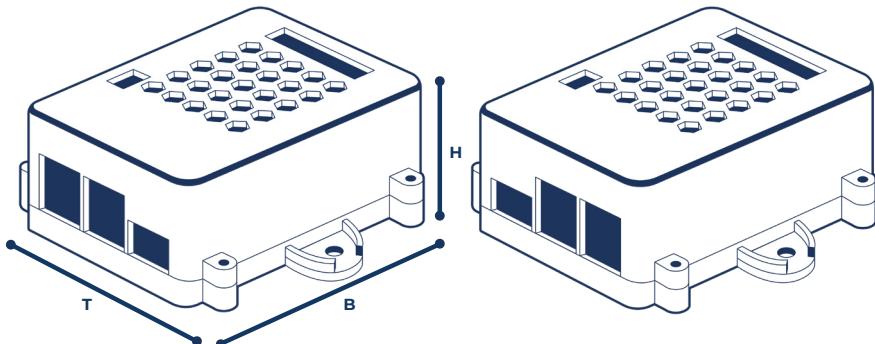
Scope of Delivery / Accessories:

(always included)

- 4 x Knurled Nuts M3x5
- 6 x Knurled Nuts M2x4
- 2 x Spacer M2x11
- 4 x Screws M3x8
- 6 x Screws M2x4
- 1 x Temperature Sensor
- 1 x Screwdriver
- 1 x Stickers for the Case

The complete package consists of the case (top & bottom), the board, optionally a Raspberry Pi and the accessories.

3.2. Variants

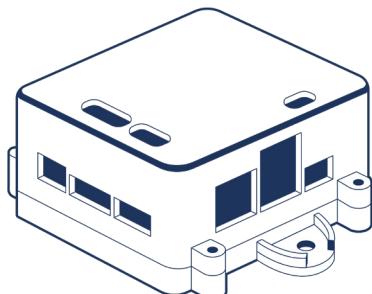


Raspberry Pi 3 Case

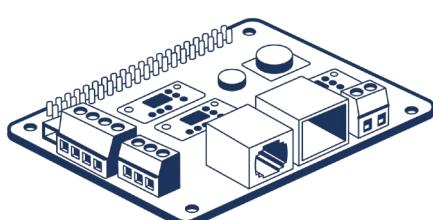
H = 38.00 mm W = 92.20 mm D = 93.00 mm

Raspberry Pi 4 Case

H = 38.00 mm W = 92.20 mm D = 93.00 mm



Raspberry Pi Zero 2



Without Case

H = 23.89 mm W = 65.00 mm D = 56.50 mm

The product is offered in four different versions. If you want to print your own enclosure, you can find the download links on page 86.

3.3. Ports

These are your available options :

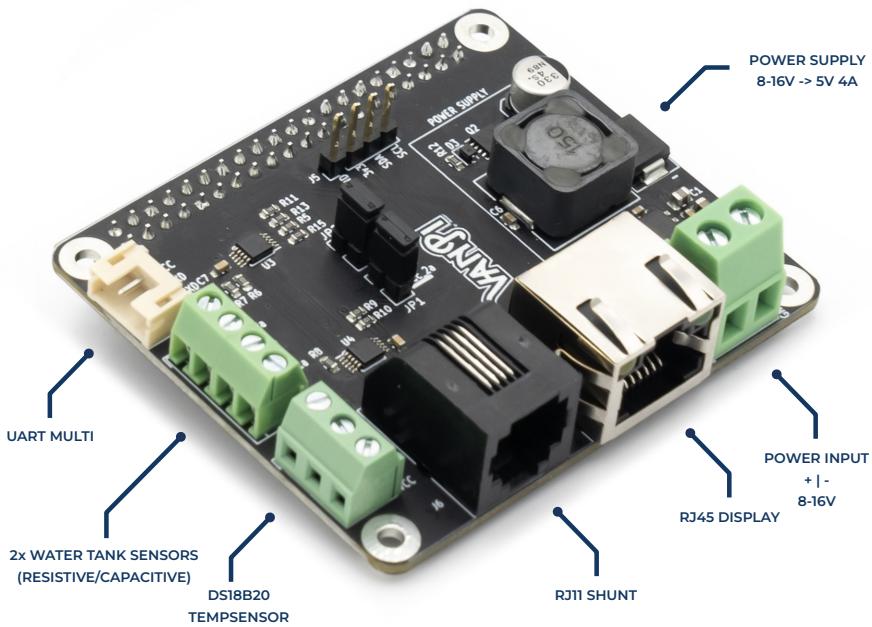
- | | |
|------------------------------|---------------------------------|
| - Multi UART | (e.g. Victron, Daly BMS, etc.) |
| - Water Tank Sensors | (see from p.32) |
| - Temperature Sensors | (see from p.42) |
| - RJ11: | Measuring shunt (see from p.48) |
| - RJ45-UART: | Display (see from p.56) |
| - Power Input: | 8-16V |

Additionally via USB connection of the RPI:

e.g. China Diesel Heater, Webasto Heater, Victron, Eactive
(conditionally possible with RPI Zero2).



Attention: The RJ45 UART may only be used with our components!
(no network, because 12V!)



3.4. Start



All other software settings apply from the Relayboard (p.26).

1. Create Image

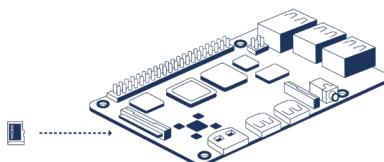
To do this, load the image onto your PC via <https://downloads.pekaway.de>.

Then you have to flash the image onto a micro SD card. There are several ways to do this: we have had good experiences with the imager programmes „**balenaEtcher**“ or „**Win32 Disk**“



2. Insert SD card

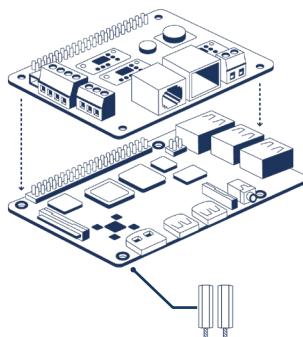
Insert the prepared micro SD card into the card slot of your Raspberry Pi.

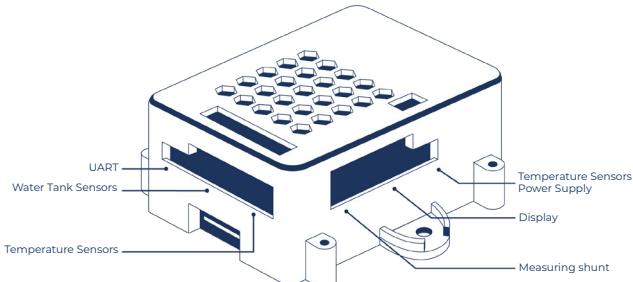


3. Put the HAT on the RPI

For this step, the Raspberry Pi must already be screwed to the case. Simply screw the M2x4 screws into the holes provided.

Then screw the spacers into the holes on the opposite side of the plug-in block. Now you can put the HAT on the block and fix it with M2x4 screws through the holes above the spacer.





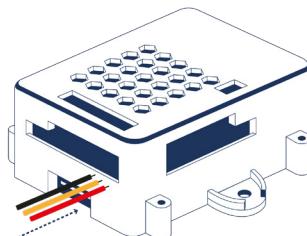
4. Into the Case

To close the case securely you have to put on the lid and screw it tight with four screws.

5. Add Periphery

Now the display, tank sensor, measuring shunt, water tank and temperature sensors can be connected.

(This is also possible at a later date)

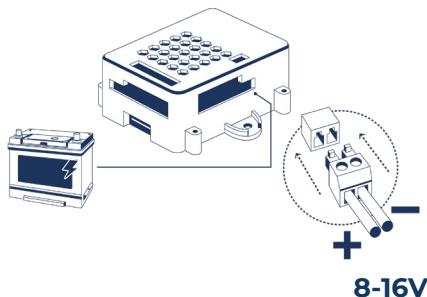


6. Power connection

Connect the Camper Control System to your power source with a cable.



Attention: Do not forget the
5a fuse!



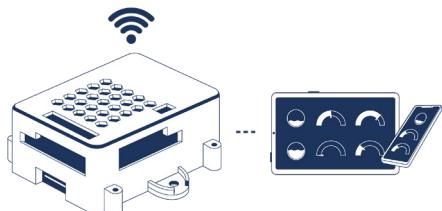
7. Web Interface

To be able to configure your VAN PI Hat, it first has to be connected to your smartphone or tablet via WLAN. To do this, search for your VAN PI in the Wi-Fi menu and connect.

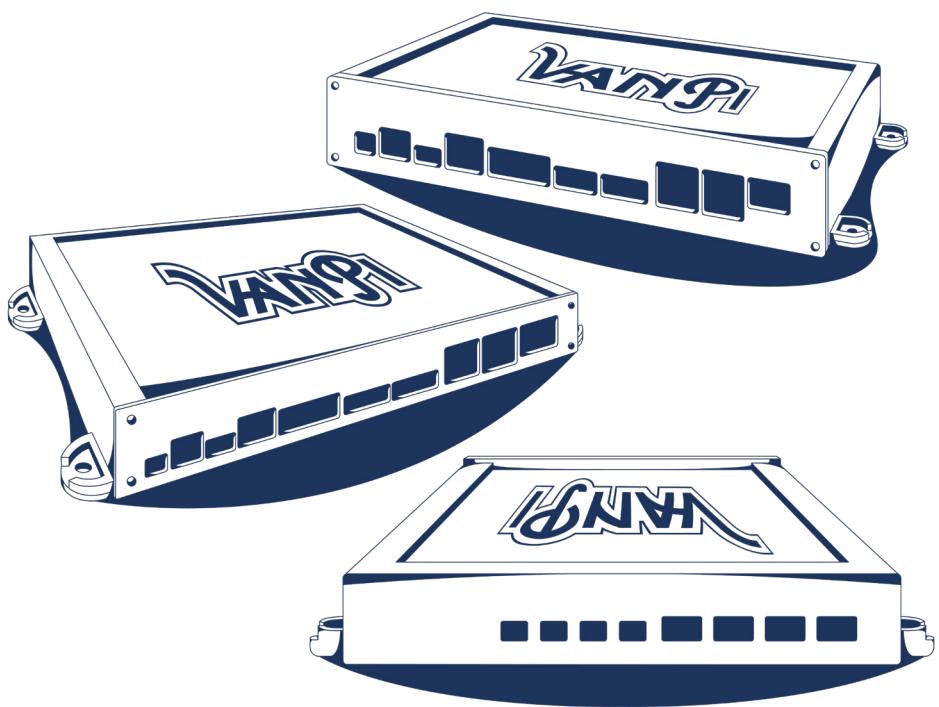
(Select the option that maintains the connection even without the Internet).

Now enter the address: <http://van.pi> into your browser. If this does not work, try the IP address: **192.168.4.1:1880/ui**

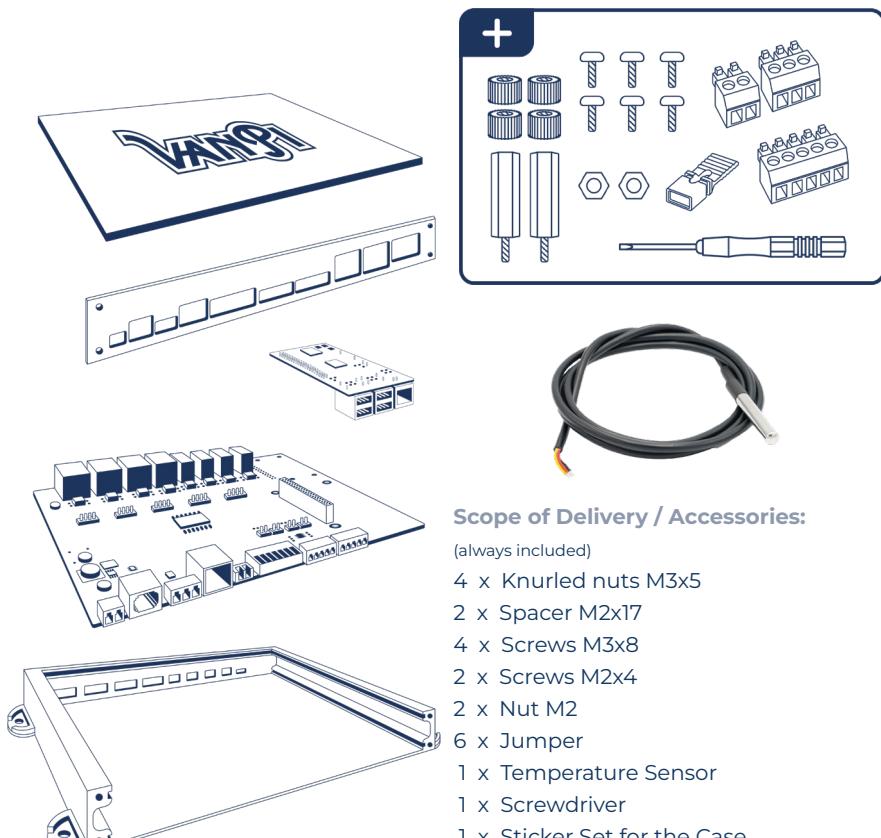
WLAN: VanPiControl_XX
Password: „pekawayfetzt“



4. VAN PI Relayboard



4.1. Parts & Scope of Delivery



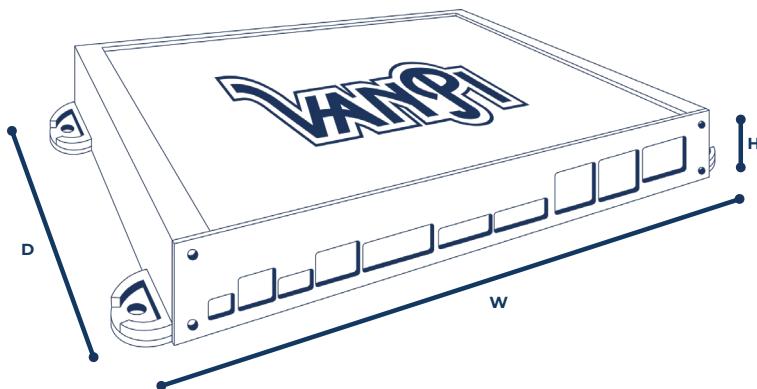
Scope of Delivery / Accessories:

(always included)

- 4 x Knurled nuts M3x5
- 2 x Spacer M2x17
- 4 x Screws M3x8
- 2 x Screws M2x4
- 2 x Nut M2
- 6 x Jumper
- 1 x Temperature Sensor
- 1 x Screwdriver
- 1 x Sticker Set for the Case
- 6 x Plug-in block (two-port connector)
- 6 x Plug-in block (three-port connector)
- 2 x Plug-in block (five-port connector)

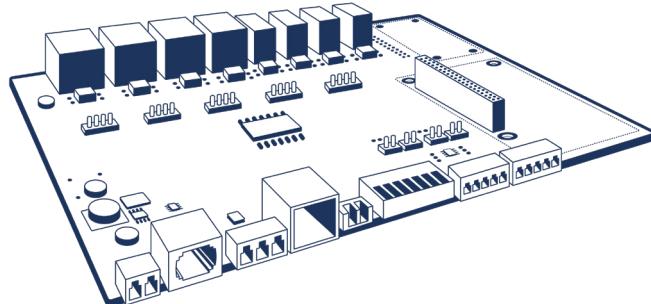
VAN PI Relayboard

4.2. Dimensions



Raspberry PI 4 Case

H = 38.88 mm W = 259.30 mm D = 161.60 mm



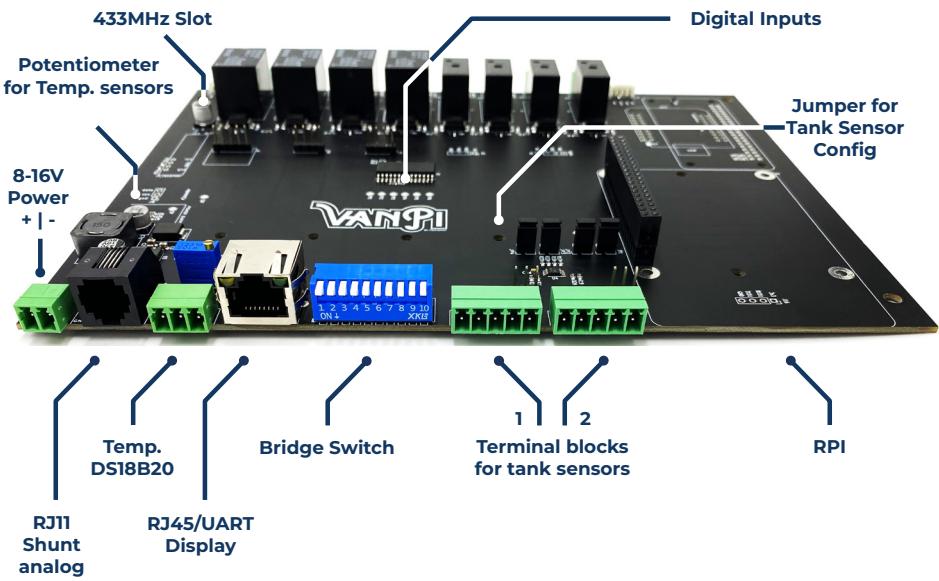
Without Case

H = 23.29 mm W = 209.50 mm D = 155.00 mm

4.3. Ports (Front)

These are your options:

- **Water Tank Sensors** (see from p.32)
- **Temperature Sensoren** (see from p.42)
- **RJ11:** Measurement Shunt (see from p.48)
- **RJ45-UART:** Display (see from p.56)
- **Power Input:** 8-16V
- **Bridge Switch:** Switching relays



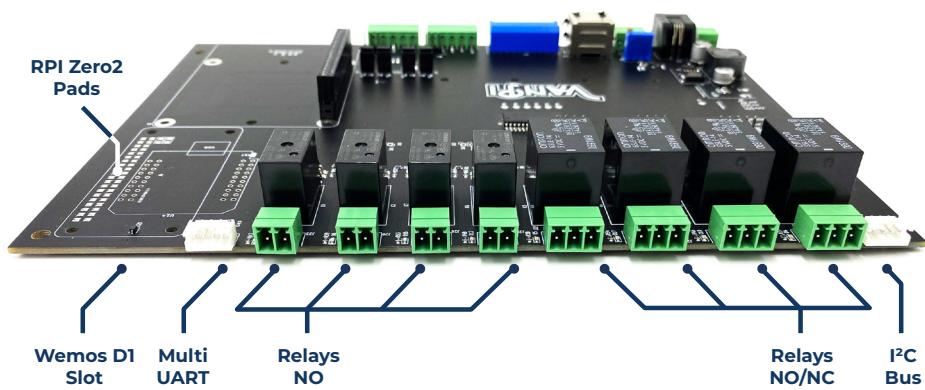
4.3. Ports (Back)

These are your options:

- **Multi UART** (e.g. Victron, Daly BMS, etc.)
- **Relays NO** (see from p.26)
- **Relays NO/NC** (see from p.26)
- **Wemos D1 Slot** (see tutorial)
- **I²C-Bus**

Additionally via USB port of the **RPI**:

e.g. China Diesel Heater, Webasto Heater, Victron, Eactive
(only conditionally possible with RPI Zero 2)



VAN PI Relayboard

4.4. Start



VanPi Ready from step 5

(If you purchased the VAN PI Ready, the previous steps are not required).

1. Create Image

To do this, download the image to your PC via <https://downloads.pekaway.de>.

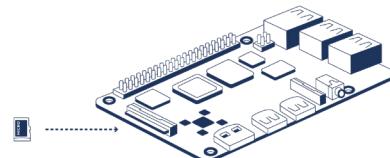
Then flash the image onto a micro SD card.

There are several ways to do this - we have had good experiences with the imager programmes „**balenaEtcher**“ or „**Win32 Disk**“.



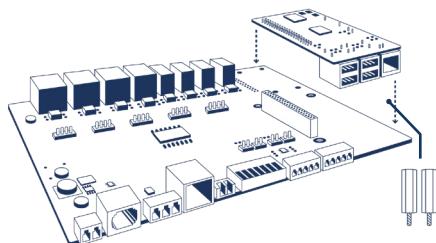
2. Insert SD Card

Insert the pre-recorded micro SD card into the card slot of your Raspberry Pi. If you bought the VAN PI Relayboard as a complete package, steps 3 and 4 are not necessary!



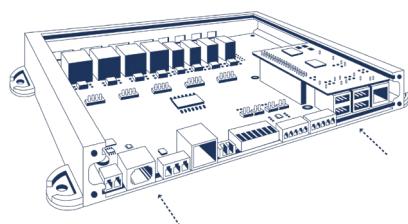
3. Put the RPI on the relayboard

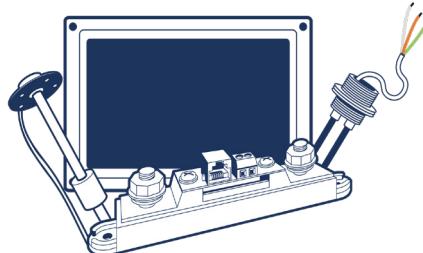
Depending on the model of your Raspberry Pi, we have provided different slots. Use the spacers for a secure fixation.



4. Into the Case

There are two rails in the case - the lower one is for the relayboard and the upper one for the lid. Both simply have to be pushed in one after the other. Then put the cover on the front and tighten it with the screws.





5. Add Periphery

(This is also possible at a later stage).

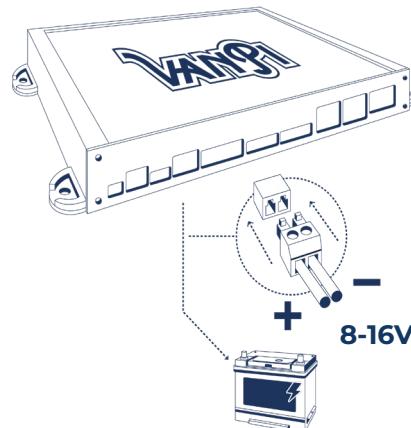
Now you can connect the display, measuring shunt, water tank and temperature sensors.

It is important not to exceed 10A per relay!

6. Power Connection

Connect the Camper Control System to your power source with a cable.

ATTENTION: Fuse with 5A!



7. Web Interface

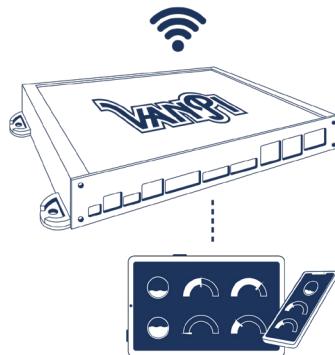
To be able to configure your VAN PI Board, it must first be connected to your smartphone or tablet via Wi-Fi. Das Gerät startet automatisch den WLAN-Hotspot „**VanPiControl_XX**“. Alternatively, you can also search for and connect to your VAN PI in the WLAN menu.

Now enter the address **http://van.pi** into your browser. If this does not work, try using the IP address: **192.168.4.1:1880/ui**



Attention: Select the option that allows the connection to be maintained even without the Internet.

Password: „pekawayfetz“



4.5. WIFI- Settings

- Standard-SSID: „VanPiControl_XX“
- Password: „pekawayfetzt“

1. Config Section

Under the tab „Wifi“ the SSID and the password for the access point can be adjusted:



To prevent unauthorised access, we recommend changing the WIFI name!

To do this, enter the new data in the fields and press „**Update WIFI**“.

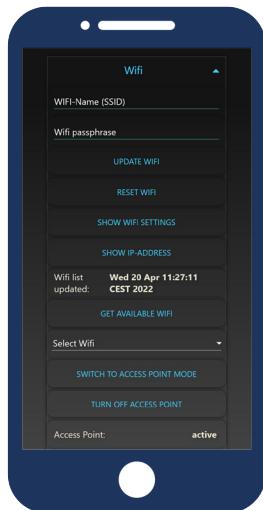
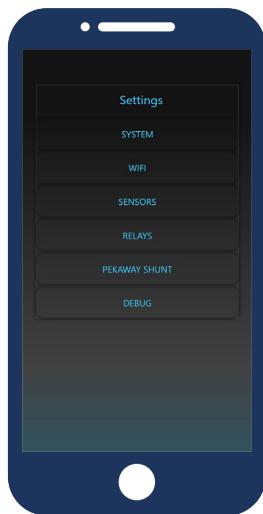
Attention: The connection to the end device is there by disconnected and it must be connected to the new network!

2. RESET WIFI

Resets the WLAN to the default settings.

3. SHOW WIFI SETTINGS

Displays the current data (SSID and password) in plain text.

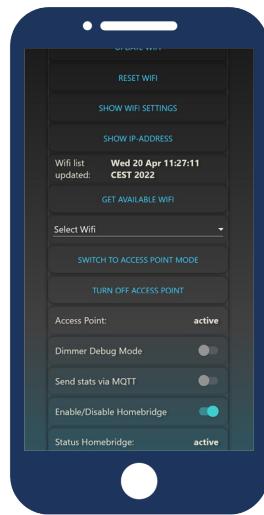


4. GET AVAILABLE WIFI

The system searches for accessible WIFI networks. To do this, the access point is closed, the networks are scanned and the system opens the access point again so that the found networks can be viewed and selected.



Attention: It is not possible to maintain an access point and be connected to another WLAN at the same time!

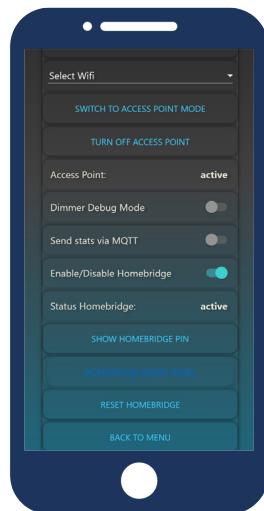


5. TURN OFF ACCESS POINT

Switches off the access point and connects to an existing WIFI. The IP must be provided to the device via a DHCP server (Fritzbox, etc.).

(The device then can be found there or via a network search) (IP scanner).

The web interface can be viewed at
<http://IP:1880/ui..>



6. SWITCH TO ACCESS POINT MODE

Exits the WIFI client mode and opens the access point again.

4.6. Relays



Attention: Each relay is designed for a maximum current of 10A. Do not exceed this current.

The VAN PI Relayboard offers you the possibility of integrating all loads into your system that do not consume more than 10A. It is important to ensure that the relays are properly fused.



In chapter 12 (from p.88) you will find a few example circuits for your relays.

A distinction is made between:

NO (normally open) and NC (normally closed):

NO: These connections are always switched off in the „non-activated state“.

NC: These connections are always switched on in the „non-activated state“.



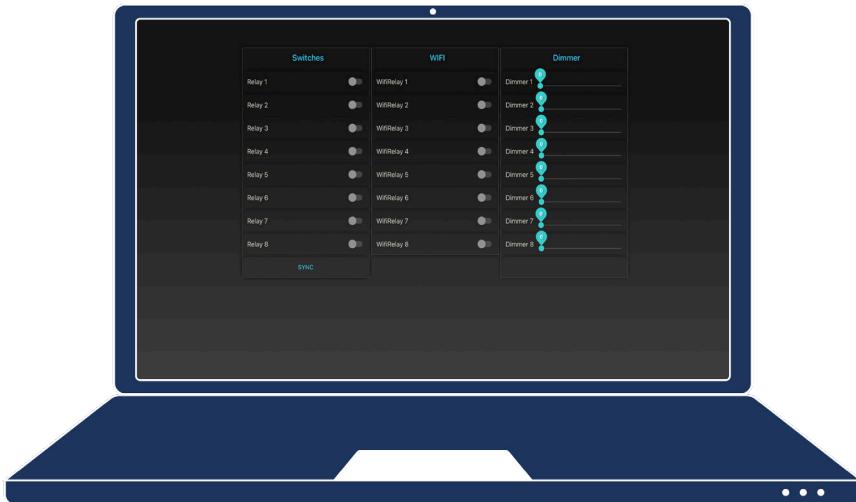
We use **4x NC/NO** and **4x NO** relays on the relayboard. But why two different ones? As the name suggests, „**normally open**“ relays are open in a de-energised state. So we have to apply power to switch them. In most cases, this is perfectly sufficient for switching lamps, pumps, etc. But then what can we do with „**normally open**“ and „**normally closed**“ relays? We have 3 contacts there. The middle one is our „**COM**“ port and always has contact to exactly one of the other pins. Once to the „**normally closed**“ contact in the de-energised state and to the „**normally open**“ contact in the switched state.

What can you use this for?

For example, this can be used to switch valves in two directions. The control line is connected to the „**COM**“ port and the other two contacts are used for the open and close commands. Or you could build a kind of emergency light. Because we know that in a de-energised state we have a connection via the „**normally closed**“ contact. If the main battery fails and with it the VAN PI, one could then activate a small emergency light via the starter battery using this contact.

(In the VAN PI system, the relay must be permanently activated, otherwise the lamp goes on).

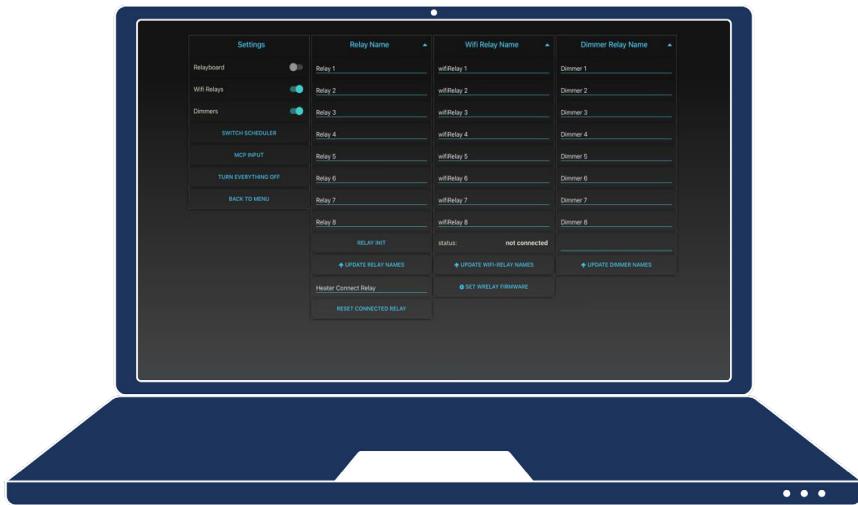
With these **NC/NO relays**, one is therefore somewhat more flexible in terms of possibilities.



In the web interface you will find the section „**Switches**“ in the main menu - if you select this, you will land on this interface. The 1st column is for your switches, the 2nd column for the WIFI relays and in the 3rd column you will find the controls for the **VAN PI DIMMY**.



How the whole thing is displayed and controlled on the touchdisplay is explained in chapter 8.3 (from p.58).

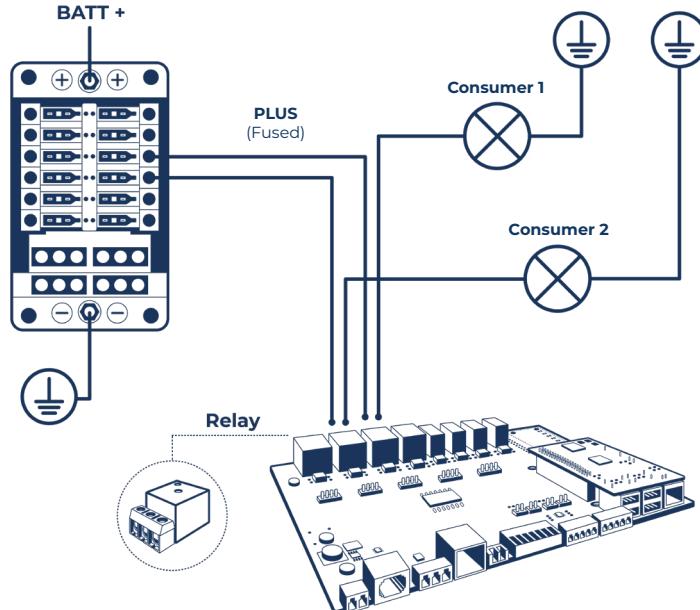


If you select the section „**Config**“ in the main menu and then „**Relays**“, you will enter this interface. Here you can assign various names to your switches. In the first column „**Settings**“ you can also select which relays are to be displayed.

4.7. Relay Circuit (with Fuse block)



Attention: Commissioning must be expressly carried out by qualified personnel or specialists!



The relays are not a fuse and are to be regarded as pure switches. You must therefore protect your circuit with the correct fuse. This can be done with a fuse block or a cable fuse.

5. Water Tank Sensors



Water Tank Sensors

5.1. Connect



VAN PI Relayboard



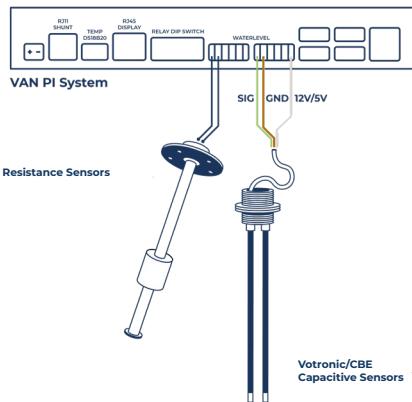
VAN PI HAT

1. Connecting the Water Tank Sensors

On the board you will find two five-pin connectors for adding the level sensors. You can use either resistance or capacitive sensors. The system is preset to resistance sensors.

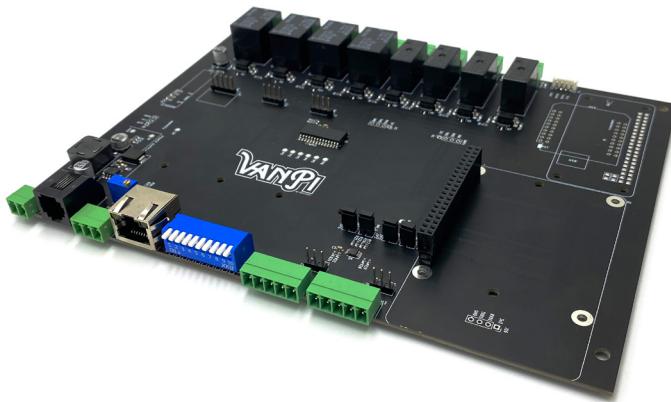
The VAN PI HAT does not have the 5th pin. The voltage must be added separately.

In the next section we will explain how you can change this setting.



2. Changing the Tank Configuration

First you have to remove the motherboard from the housing. Behind the water tank connections you will find the jumper plugs as you may know them from PC mainboards. The configuration settings can be changed via these jumpers.

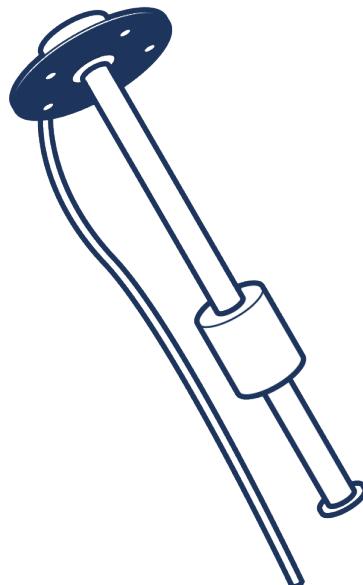


2. 1. Jumper Position - back Row

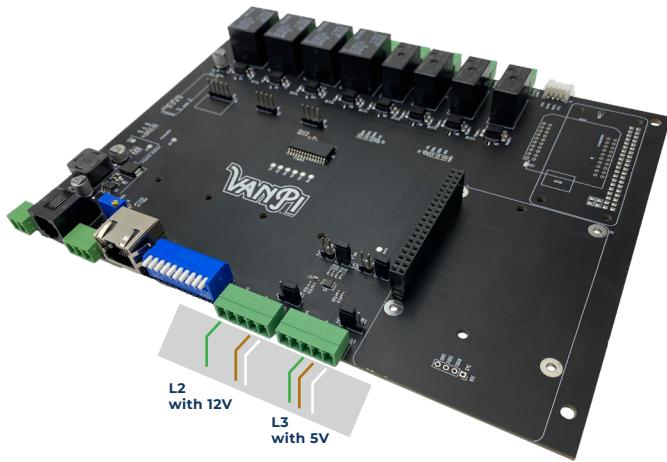
The back row is for sensor type selection. The relayboard comes with the jumper positions set (as shown in the picture), so the board is set for four resistance sensors.

This means:

If all jumpers are attached in the rear row as shown in the picture, you can use your resistance sensors and connect them as described in section 1. When using capacitive sensors such as Votronic or CBE, the jumpers must be removed.



Channel - jumper set = resistance sensors
Channel - jumper removed = capacitive sensors
This also applies to the two jumpers on the VAN PI HAT

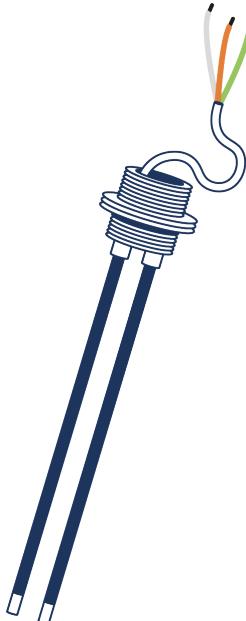


2.2. Jumper Position - front row

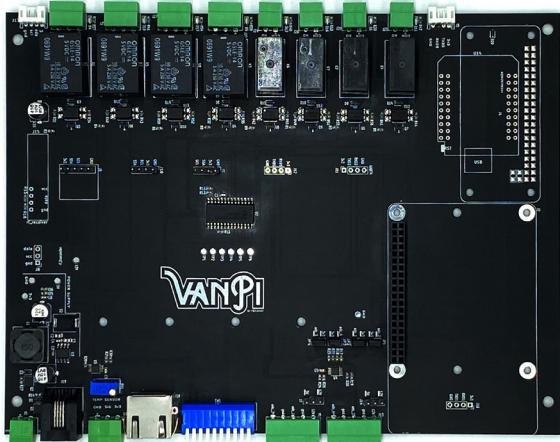
Capacitive sensors also need a voltage supply. By setting the jumper, you can apply 5V or 12V to the pin as required. In the picture above you can see two of 3 variations:

L2 for a capacitive sensor with voltage - here: **12V**.

L3 for a CBE - sensor with voltage - here: **5V**.



If no pins are set on the front row, there is no voltage on the right sockets of the terminal blocks.

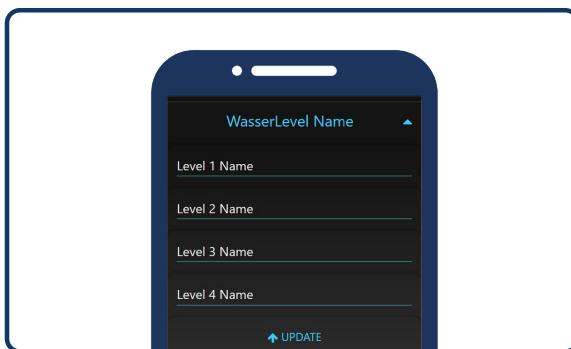


3. Choose Names

Names can be assigned for all 4 (VAN PI HAT: 2) water tank sensors, which are displayed in the info screen and on the touch display.



To update the names on the touch display, it must be switched on during the update and the tank level information page must be active.



Water Tank Sensors

5.2. Configuration in the web interface

You can achieve the goal of individual calibration in three ways, which are named Method 1, Method 2 and Method 3 in the web interface:

Method 1 - Full / Empty - Method

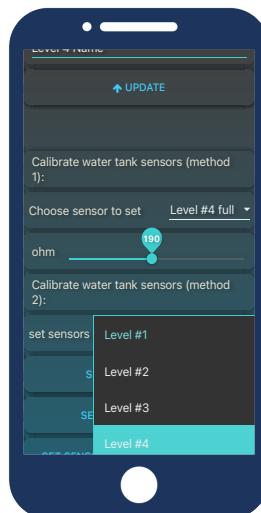
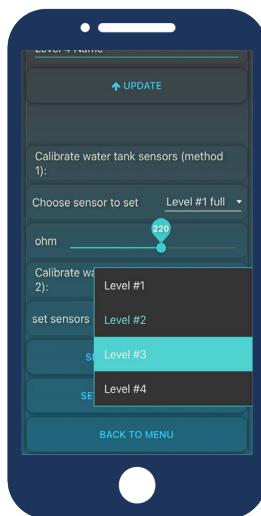
To carry out the calibration, the correct sensor must be selected. Now set the values for the water level „full“ and „empty“ via the buttons „SET FULL“ and „SET EMPTY“. Repeat this until all values are entered - it doesn't matter if you start with „empty“ or „full“. It is important that the tanks or the floats of the sensors also have this level or position during actuation.

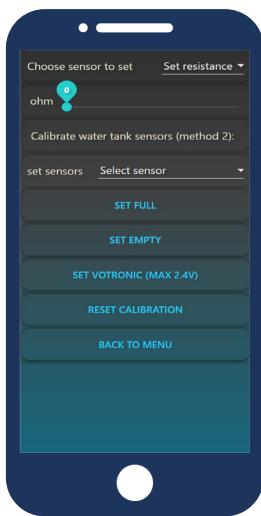
(e.g. Votronic)

Method 2 - Capacitive sensors

Here you can directly set the Votronic sensors. To do this, select the correct channel and press „SET Votronic“.

Please note that you have to set the maximum voltage of 2.4V in full condition via the calibration screw on the sensor.



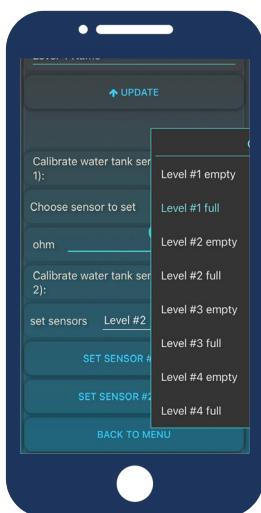


Method 3 - Resistance Sensors

To carry out the calibration, the correct sensor must be selected via „**Choose sensor to set**“. For each sensor there is a „**full**“ and an „**empty**“ value (**full / empty**).

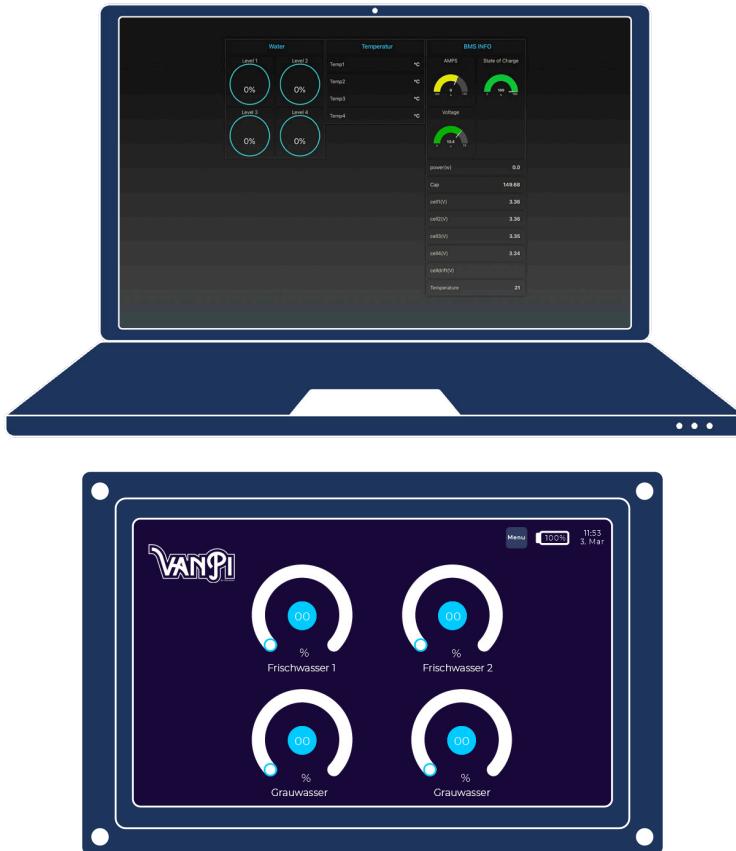
Then the respective Ohm value is set via the slider.

Repeat this until all values have been entered.



Water Tank Sensors

5.3. Interface

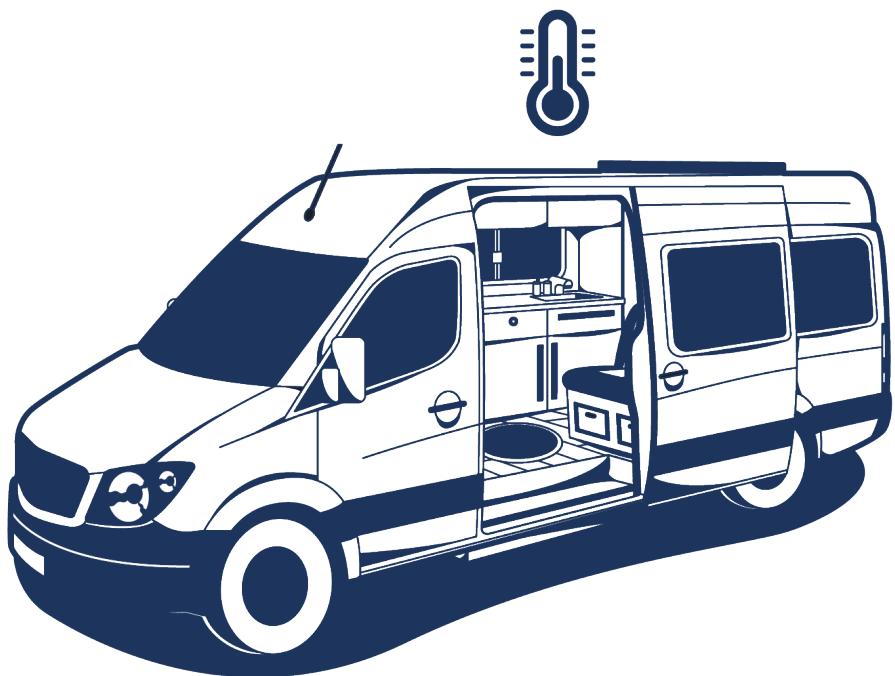


After you have successfully connected and calibrated your sensors, you can view your current data at any time in the web interface under the section „**Info**“.



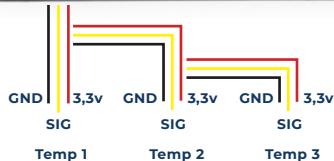
For the tinkerers and hobbyists among you, we have also integrated an API with which you can easily get the water levels out of the system again. (HTTP & MQTT). You can find more information at pekaway.de/docs.

6. Temperatur Sensors



Temperature Sensors

6.1. Connect



(Parallel connection of several temperature sensors)

VAN PI Relayboard



VAN PI HAT

Screw the sensor cables into the terminal block as shown in the pictures above. Regardless of whether you connect one or four, they must all be connected to the same slot - pay attention to the colour sequence.

The allocation and differentiation then takes place in the web interface.



Attention: Digital temperature sensors DS18B20 are required for this!

Temperature Sensors

6.2. Configuration in the Web Interface



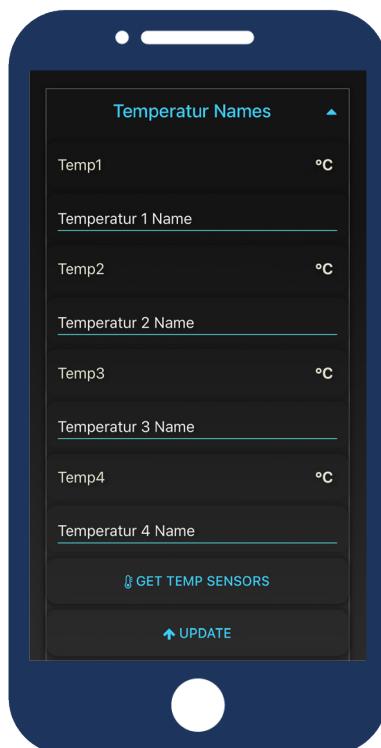
Achtung: Don't forget to click on the update button to apply the name change.

1. The „**GET TEMP SENSORS**“ switch is used to query the temperature sensors more quickly for a period of one minute. This enables a better assignment of the sensors. You can assign the sensors by assigning the current temperatures.

When using many sensors or long cable runs, it can happen that the sensors are not recognised.

For fine adjustment, there is a potentiometer behind the plug-in block. With this you can change the signal resistance until your temperature sensors are displayed.

2. At the section „**Inside**“ you specify which sensor is responsible for the interior temperature so that the software can control the parking heater accordingly and the interior temperature is displayed on the touchscreen.



Temperature Sensors

6.3. Interface



After you have successfully connected and calibrated your sensors, you can view your current data at any time in the web interface under the section „Info“.



For the tinkerers and hobbyists among you, we have also integrated an API with which you can easily get the temperature values out of the system again. (HTTP & MQTT)
You can find more information at pekaway.de/docs.

7. VAN PI

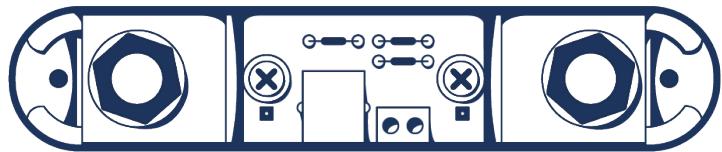
Measurement

Shunt



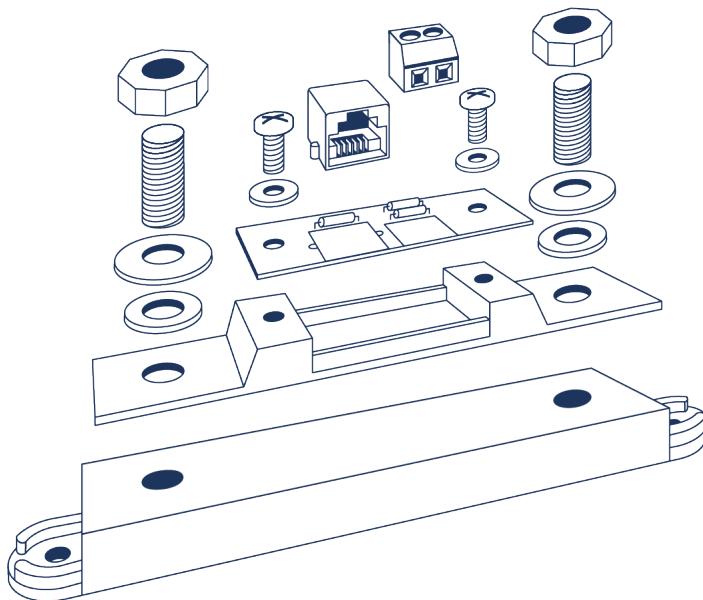
ATTENTION
This applies to all consumers and end users!

Incorrect use can cause damage to your system!
Installation must be carried out by or under the supervision of
qualified personnel.



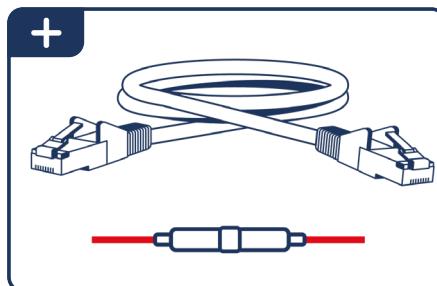
VAN PI Measurement Shunt

7.1. Components & Scope of Delivery



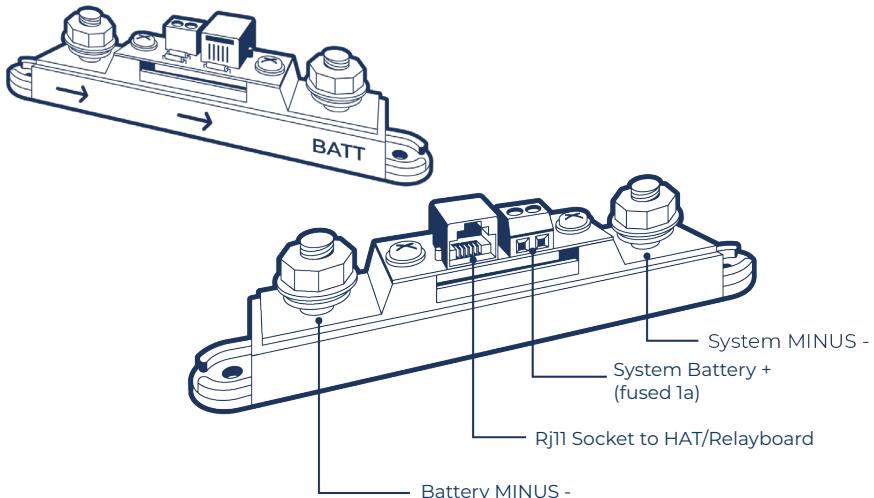
Scope of Delivery:

- 1 x RJ11 Cable (1m)
- 1 x Cable Fuse (1A)
- 1 x Shunt



VAN PI Measurement Shunt

7.2. Variants & Ports



The measuring shunt is available in 3 variants:

100A H = 36.00 mm W = 151.00 mm D = 28.00 mm

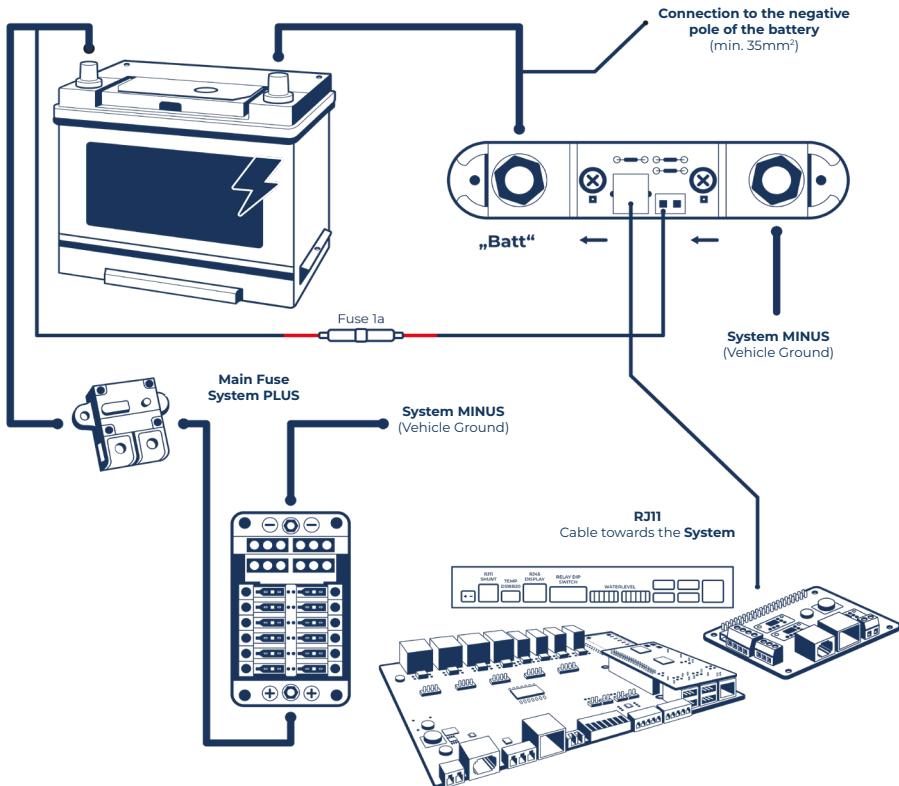
200A H = 42.00 mm W = 165.00 mm D = 26.00 mm

300A H = 41.00 mm W = 172.00 mm D = 30.50 mm



VAN PI Measurement Shunt

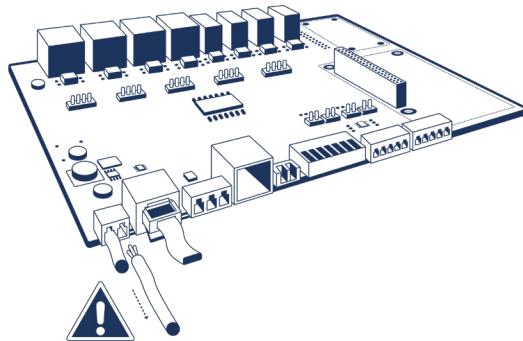
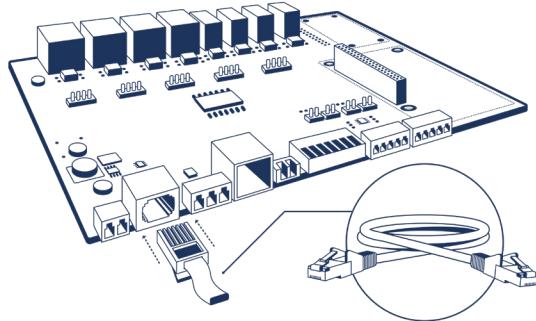
7.3. Installation Diagram



Attention: The shunt **ALWAYS** has to be placed in the last position before the battery negative. There is **NO OTHER CONSUMER** allowed between the shunt and the battery!

VAN PI Measurement Shunt

Note



Power Supply through Cable

Attention: Always disconnect the shunt first. NEVER disconnect the ground cable from the HAT/ relayboard when the shunt is connected! This can cause damage to the analogue-to-digital converter.

VAN PI Measurement Shunt

7.4. Activate Shunt

To activate the shunt, connect to the device and open the web interface via <http://van.pi>. Then go to the last tab with the gearwheel „Config“ and select the menu item „VAN PI Shunt“.

1. Activate the switch „VAN PI Shunt“.

2. Select Variant

Select your variant under Shunt „Config“ between 100A/200A/300A.

3. Capacity

Under the section „Battery Capacity“ you set the capacity of the installed battery. This will open a drop-down menu with a selection of typical sizes (at 12V).

4. Capacity in Wh

You can enter your individual capacities in the „Capacity (wh)“ field. This is done by specifying in watt hours, i.e.:

Nominal voltage (V)

x

Ampere hours (Ah)

5. Stage of Charge

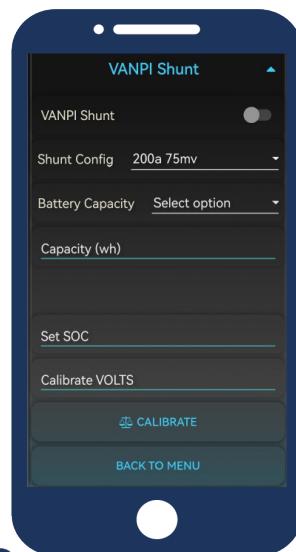
The current state of charge can be entered via the „Set SOC“ field.

6. Adjust Voltage

The voltage can be adjusted via the „Calibrate VOLTS“ field. Enter the currently measured system voltage.

7. Main BattData

To get the data displayed on the touch display, you have to set „Main BattData“ to VAN PI Shunt in the system settings.



Attention: The system saves the value (every 5 min) with the writing of the watt hours - i.e. values are saved after this time at the latest.

VAN PI Measurement Shunt

7.5. Interface



After you have successfully connected and calibrated your shunt, you can view your current data at any time in the web interface under the section „**Info**“.



For the tinkerers and hobbyists among you, we have also integrated an API with which you can easily get the temperature values out of the system again. (HTTP & MQTT)
You can find more information at pekaway.de/docs.

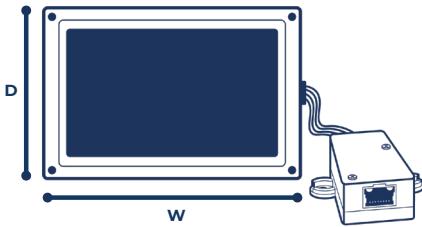
8. Touch Display



Touch Display

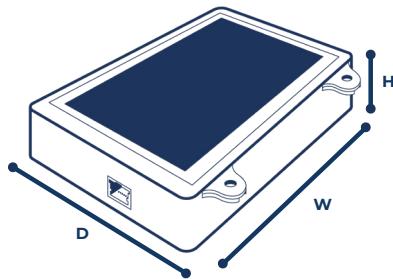
8.1. Übersicht

Here you get an overview of the various components and connections of your display:



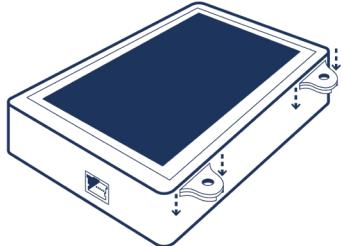
VAN PI Touch without Case

H = 17.70 mm W = 213.00 mm D = 138.00 mm



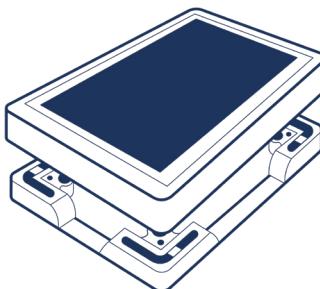
VAN PI Touch in the Case (evenly)

H = 38.30 mm W = 195.00 mm D = 144.00 mm



VAN PI Touch in the Case (6-15mm)

H = 38.30 mm W = 195.00 mm D = 144.00 mm



VAN PI Touch Surface-Mounted Variant

H = 38.30 mm W = 195.00 mm D = 144.00 mm

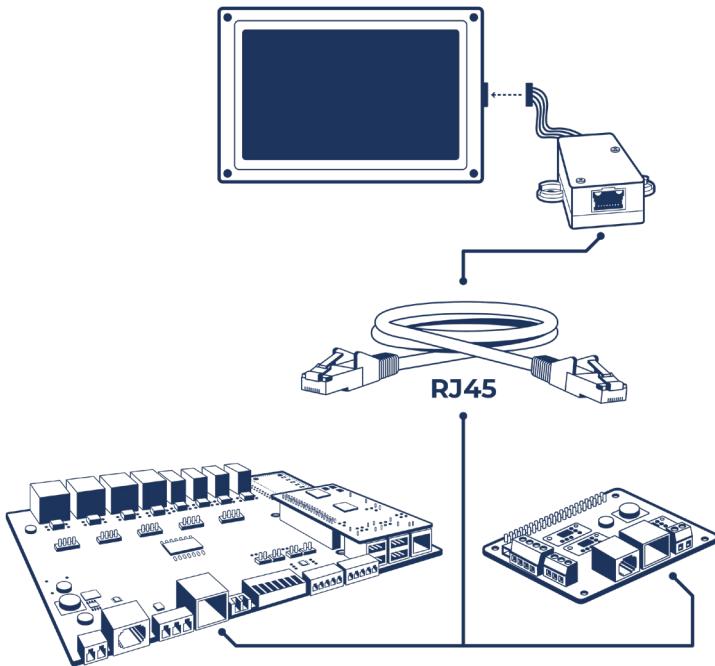
Scope of Delivery: (always included)

- 1 x Touch Display
- 1 x RJ45 Cabel (3m)



Touch Display

8.2. Start



1. Mount Display

Depending on the variant, the display is screwed to your selected surface and can be installed in several ways. If you decide to print it yourself, you will find the download links on page 86.

2. Plug and Play

The display is ready to go and only needs to be connected to the boards.

The display is supplied with power and communication paths via an RJ45 patch cable.

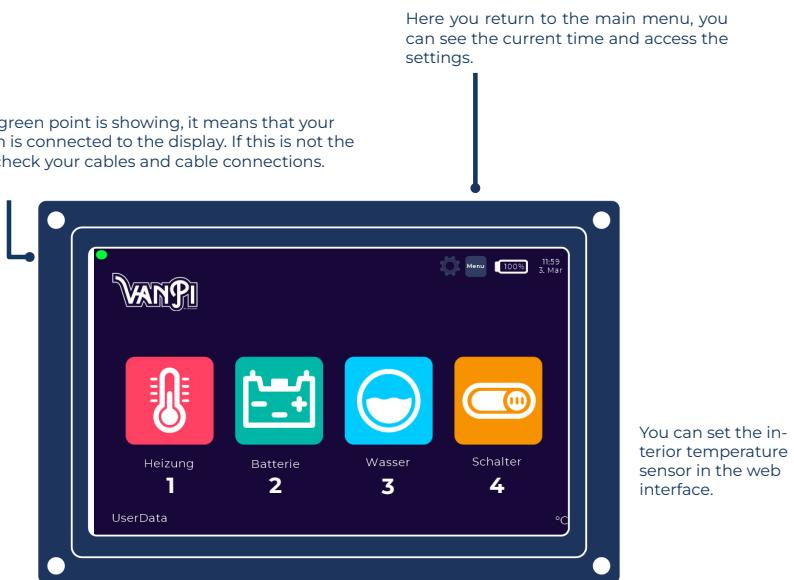


Attention: This is not a normal network connection. Do not connect it to network devices such as switches or routers. It is exclusively a connection for our devices.

Touch Display

8.3. User Interface

To make sure that you can find all the information you need on your display, we have compiled an overview of all the user interface pages with a brief description of the buttons and options.



On the network page you will always find your IP address to access the web interface.
(<http://IP:1880/ui>)



Forgot your WLAN PASSWORD from the access point? It is shown on the network page in the touch display.

By clicking on the VAN PI logo, you will always get directly to the start page.

With the „back“ button you can go back one layer.



You are in the heating menu. Select your heater and a specific interface opens to continue. (The default setting is Autoterm)



When you have selected the Autoterm heater, you will be taken to this page. More detailed information can be found in section 9 - Parking heaters from page 68 onwards.



You are in the battery menu. This view is used to monitor your battery. The Victron and BMS icons can be used to call up additional information if these devices are connected.



You are in the water management menu. This display gives you a status overview of your water tanks and their fill level.



On this display you can see your devices connected to the PeKaWay Dimmy. These can be dimmed here.



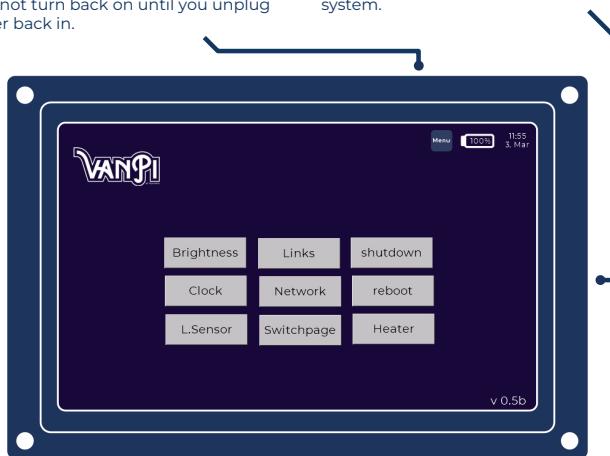
After clicking on the WIFI symbol, you will reach the WIFI relay menu. Here you can switch your WIFI relays. To make it easier for you to assign your switches, we recommend that you give them names in the web interface.



Here you can see all your relays and switch them. You assign the names in the web interface in the „**Relays**“ tab (see p. 26).

The „**shutdown**“ button allows you to shut down your RPI - it will not turn back on until you unplug & plug the power back in.

By clicking on „**reboot**“, you can restart the entire system.

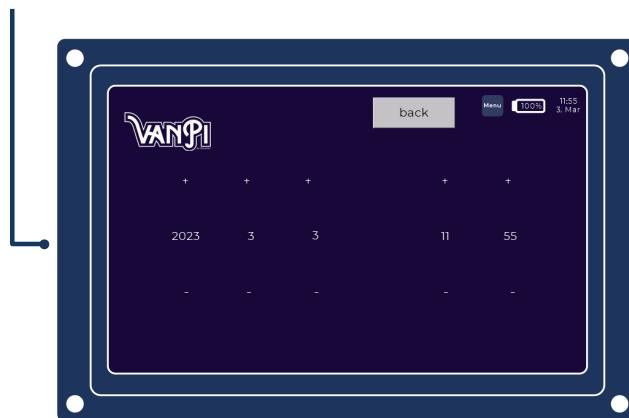


You can access the settings menu by clicking on the small gear wheel (in the upper right corner of the home screen). From here, you can access various areas where you can optimize your display to your needs. For all other more detailed settings, go to the web interface.



You are in the „Brightness“ settings area and can use the slider to set your preferred screen brightness.

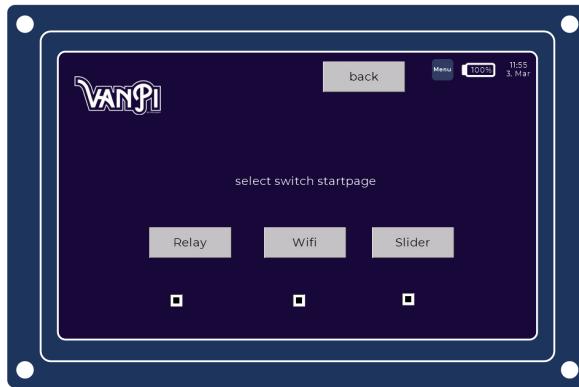
You are in the „Clock“ settings area. Here you can set the current date and time.



After you have clicked on „L.Sensor“ in the settings, this interface opens. Here you can select how many water tank sensors are connected or should be displayed.



It is important that you start at #1 if there are less than 4 sensors, because the program always starts counting at #1. This means that if you have only 2 sensors and e.g. the 1st sensor on #2 and the 2nd sensor on #4 - but you only want to see 2 sensors - you will only see sensor number 2.



Behind the menu item „**Switchpage**“ you can adjust your user interface to your needs. Select which buttons you want to have displayed by clicking on the boxes below. With a click on the button you determine which buttons will be displayed first.



You are behind the menu item „**Links**“. Here you will find QR codes that will take you directly to the user manual or to the page with the images and other files that we provide for download.

CHANGE NAMES



To change the names of the relays on the relayboard, the WIFI relays, water tanks or dimmable switches, first go to the web interface and then to „**Config**“. Under the section „**Switches**“ you can see all available switches. Then you go via the connected display to the respective page for the relays. For example, if you want to change the names for the WIFI relays, you have to be on the WIFI relays page on the touch display and so on. Now enter the new name and press (in our example) „Update Wifi-Relays Names“. The name change will take effect immediately.



Important

When pressing the „**Update**“ button, the correct page on the display must be active in order to transfer the names.

Touch Display

8.4. Update

At <https://downloads.pekaway.de> you will always find the latest version in the Display folder. Download it and copy it to a micro SD card (fat32).

1. Dismount Display

Dismount the display to access the SD card slot.

2. Insert prepared SD card

Now insert the SD card with the *.tft file into the display.

3. Connect & launch Display

Restarting the display will start the update.

(Disconnect and reconnect power to restart the device)

4. Wait for Update

5. Disconnect Power

Disconnect the power again after the update.

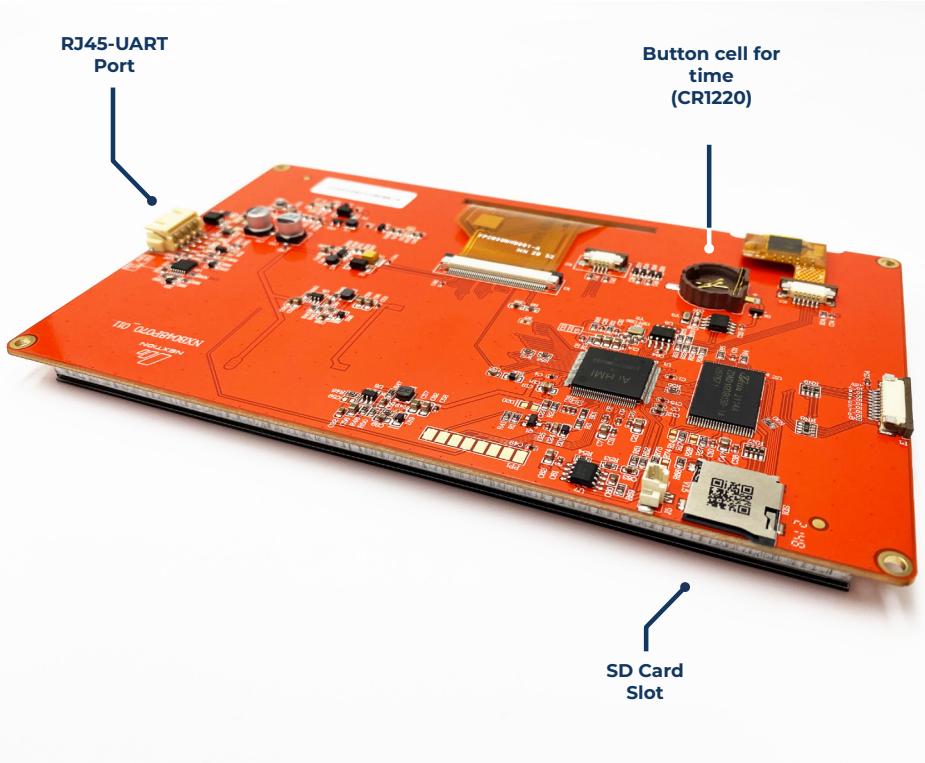
6. Remove SD card

7. Start - Done!

Apply power to the display again.



Attention: Apple puts a „shadow“ file for the Finder with and therefore sometimes leads to problems with the update. (We recommend Linux or Windows.)

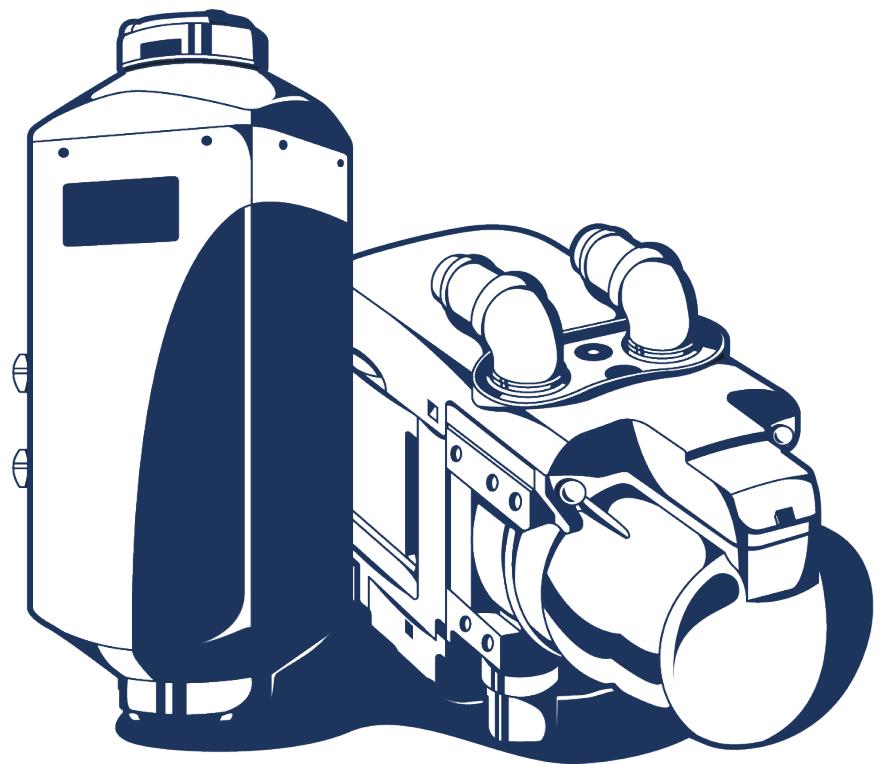


9. Parking Heater

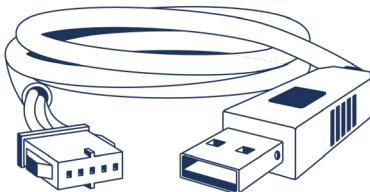


Attention

For now, only Autoterm heaters are supported via Plug & Play.
For other types of heaters check our website or Youtube channel for tutorials.



9.1. Ports

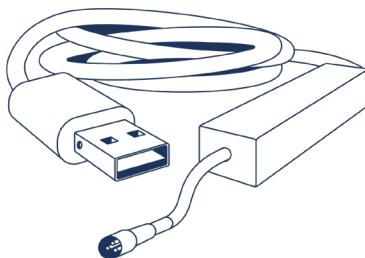


USB Adapter Autoterm

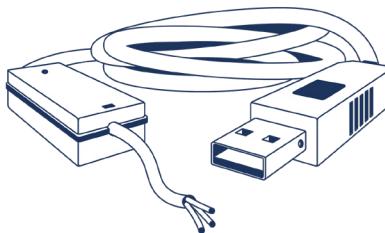
USB to 5-PIN Autoterm plug

Length: approx. 1m

The Autoterm heater is connected to the system via USB. The connection is made instead of the original control panel.



Adapters for other heaters
can be found in our store at
<https://pekaway.de>



Parking Heater

9.2. Start

1. Autoterm

The parking heater from Autoterm works plug & play:

Connect the USB adapter to the system and the heater. The system will automatically load the information and it will be shown in the web interface or on the display as shown in the picture. There are two modes for adjusting the parking heater - „**Power mode**“ and „**Temperature mode**“. Both can be set with the controller as desired and started with the „**Start**“ button.



Makes both modes stop.

Displays the status of the heating.



Tempmode

The heater tries to maintain a certain temperature. However, if the smallest level still leads to further heating, the heater does not turn off.



Powermode

Mode in which the heating is kept at a certain level all the time.

Parking Heater

9.3. Interface

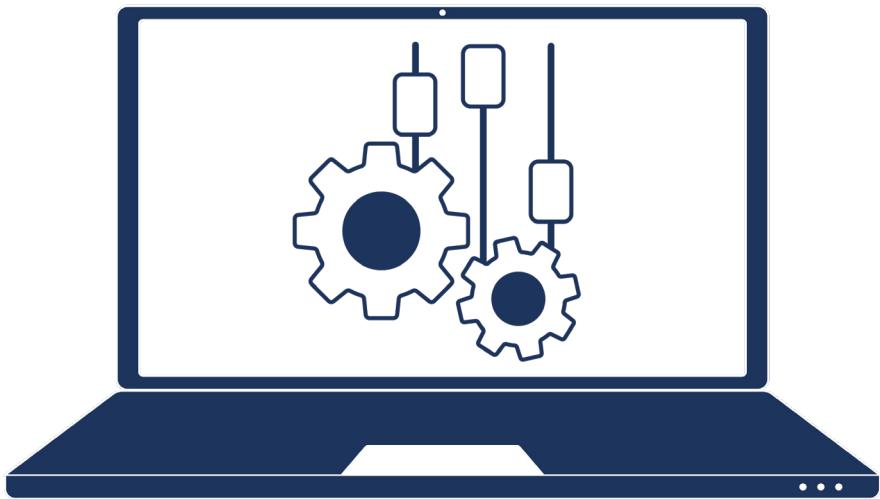


After you have successfully connected and calibrated your parking heater, you can view and control your current data at any time in the web interface under the section „Heater“. In addition, you will find the timer function with which you can plan and set your heating periods.



For the tinkerers and hobbyists among you, we have also integrated an API with which you can easily get the temperature values out of the system again. (HTTP & MQTT)
You can find more information at pekaway.de/docs.

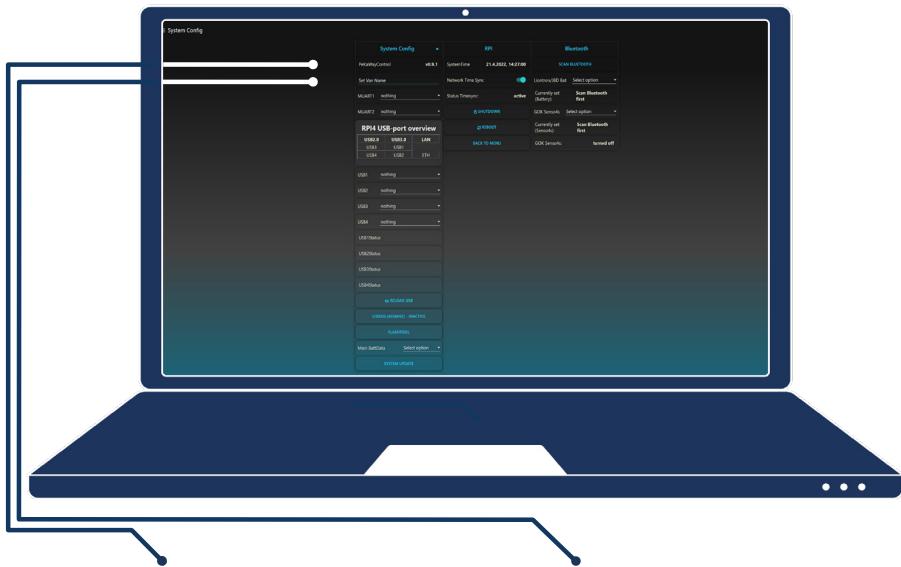
10. Configuration



Configuration

10.1. System Configuration

Many of the configuration steps have already been explained in the individual chapters. Here you will find an overview of the remaining sections and possibilities. To do this, open the „**Config**“ tab in the main menu of the web interface and go to „**SYSTEM**“.



1. PeKaWay Control

Under this section you can find your current software version.

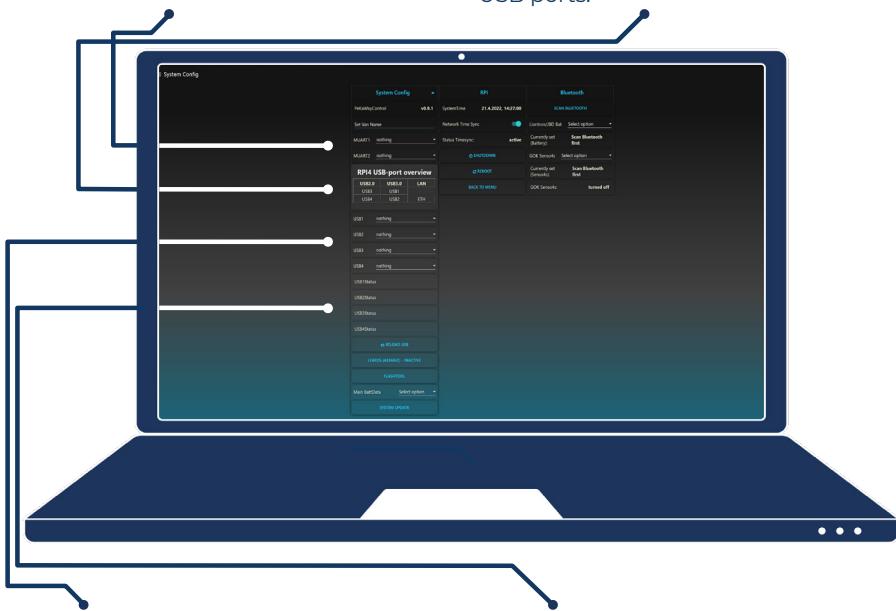
2. Set Van Name

Here you can enter your van name, which will be shown on the touch display.

(This requires the display to be active during the input).

3. MUART

Selection of devices on the port.



5. USB 1-4

Here you can select your device from a drop-down menu.

4. USB Port Overview

Overview of the numbering of the USB ports.

6. USB Status

Shows you the status of your USB devices (connected or disconnected).

7. Reload USB

Press here to restart the USB ports if there are connection problems.

8. LFBros

Only needed if you want to use and adjust this heater. See the tutorial on our website.



9. Flashtool

You need the tool for flashing (ESP8266/32) - a more detailed explanation can be found on our website.
(e.g. for the dimmy)

10. Main Batt Data

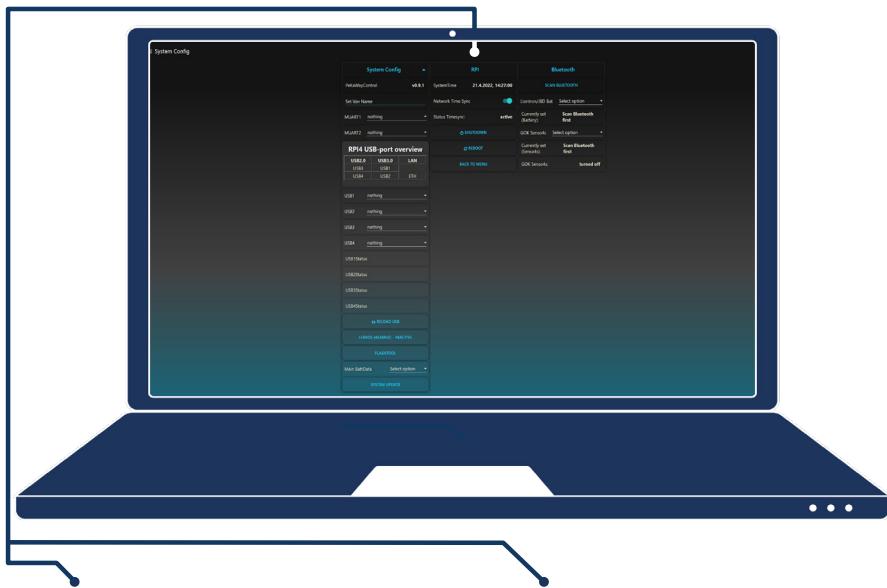
Choose which battery monitoring system you favor.

11. System Update

You can find out more about this in the Updates & Downloads chapter on page 84.

Configuration

10.2. System Configuration



1. System Time

Under this section you can see the current date and time.

2. Time sync

Select which time you want to take over: from the display or Internet.
(only possible with active internet connection)

Configuration

10.3. Bluetooth Configuration

1. Scan Bluetooth

Starts a Bluetooth scan to search for devices in the surrounding area.

2. Bluetooth Battery

You can add Bluetooth devices in this tab.*



3. GOK Senso4s

Here you can add a GOK Senso4s gas scale.



*You can find a list of the current compatible devices on our website
<https://pekaway.de>.

11. Updates & Downloads



11.1. Updates

Our update pattern is structured as follows:

Version 1.0.4

First number = New hardware available

Second number = New software features

Third number = Error correction

You can either apply updates by flashing a new image or download the update directly to the system via the internet.

1. Update via Internet

If your system has an active connection to the Internet, you can check for an update in the „**Internet**“ tab. When the update is installed, all new necessary packages/ modules will be downloaded and installed automatically.

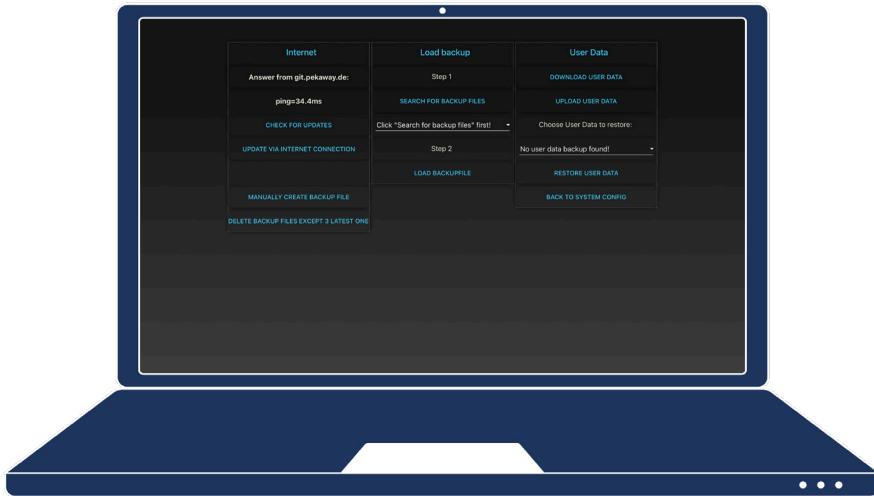
2. Reflash Image

Besides the possibility of an automated update, there is also the option to flash a completely new and clean image.

You can find the necessary files at **downloads.pekaway.de**. If you decide to create a new image, remember to **backup** your user data first.



Attention: A data connection is used. So remember that your bandwidth can handle the down loads (especially if a mobile connection is used).



3. User Data

Your „**User Data**“ is all the data you have defined in the configuration of the system, e.g. which heater you are using or the names you have given to your relays.

When you flash a new image, you should download your user data first and upload it again afterwards. By doing so, your settings will be restored and you won't have to configure everything from scratch.

4. Backups

It is possible to create backup files manually, which means that the current node red flows are copied and stored in **~/pekaway/nrbackups**. You can restore them by using the **„LOAD BACKUPFILE“** function.

All backup files found in this particular folder will be displayed in the corresponding dropdown menu for selection.

11.2. Downloads

1. 3D Printing Files

<https://3d.pekaway.de>

2. Instruction and Quickstarts

<https://pekaway.de/anleitungen>

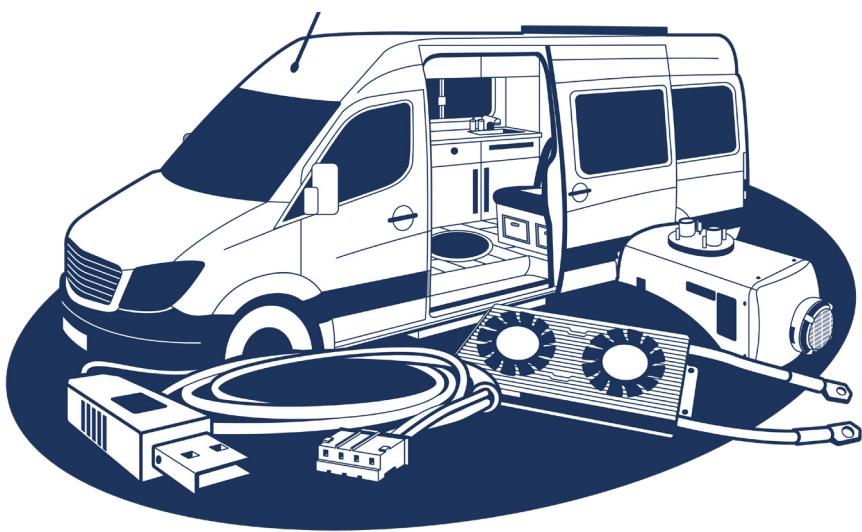
3. Images and Firmware

<https://pekaway.de/downloads>

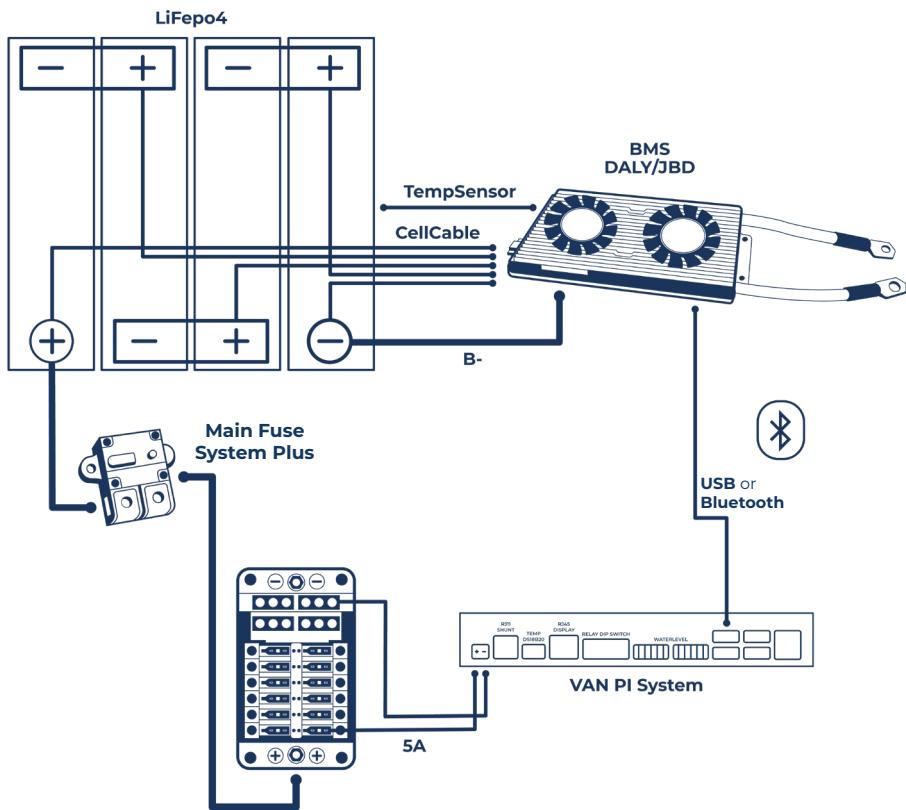
4. More Downloads

<https://downloads.pekaway.de>

12. Example Circuits



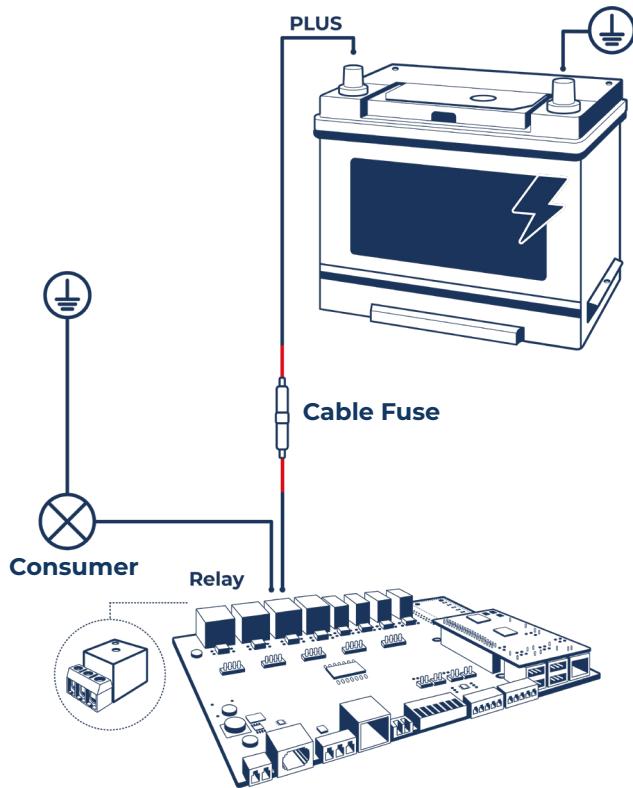
12.1. LiFePO₄ with BMS



Example Circuit:

DIY LifePo4 connected to Daly BMS via USB.

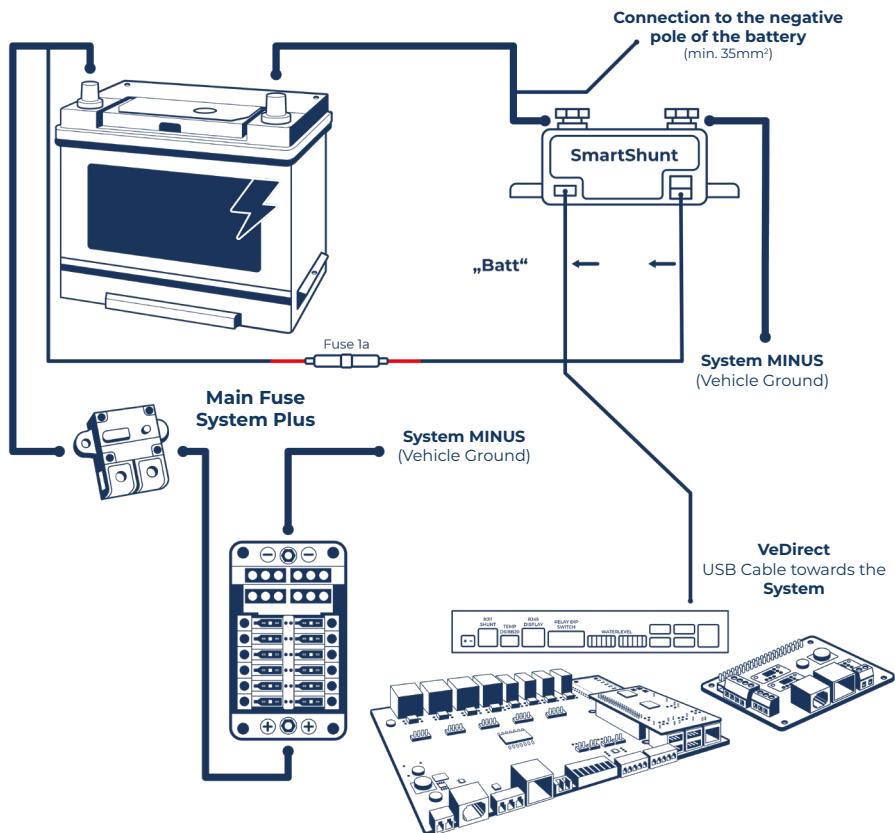
12.2. Relay Protection



Example Circuit:

Consumer protected from relay with cable fuse.

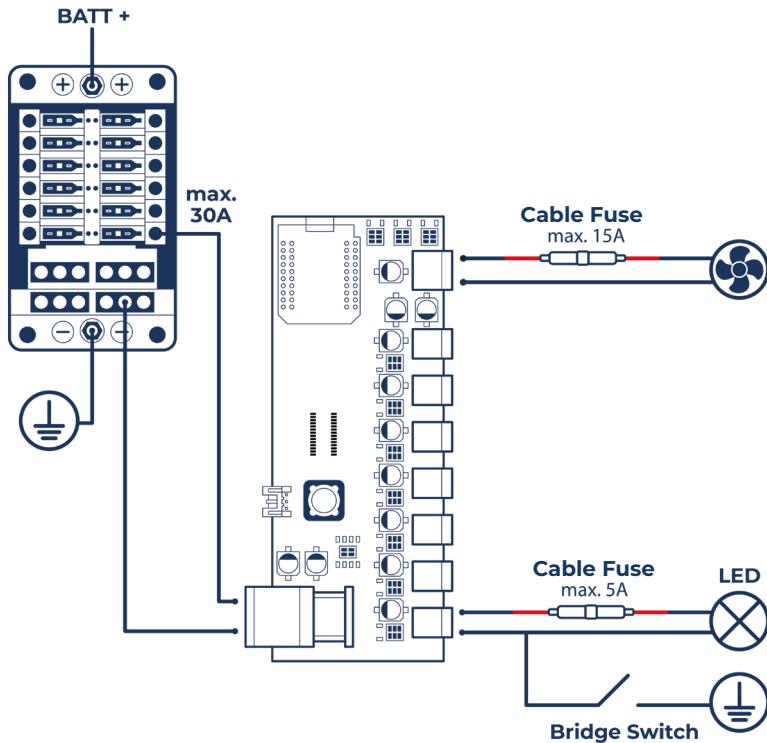
12.3. Victron Smart Shunt



Example Circuit:

Victron Smart Shunt connected via USB.

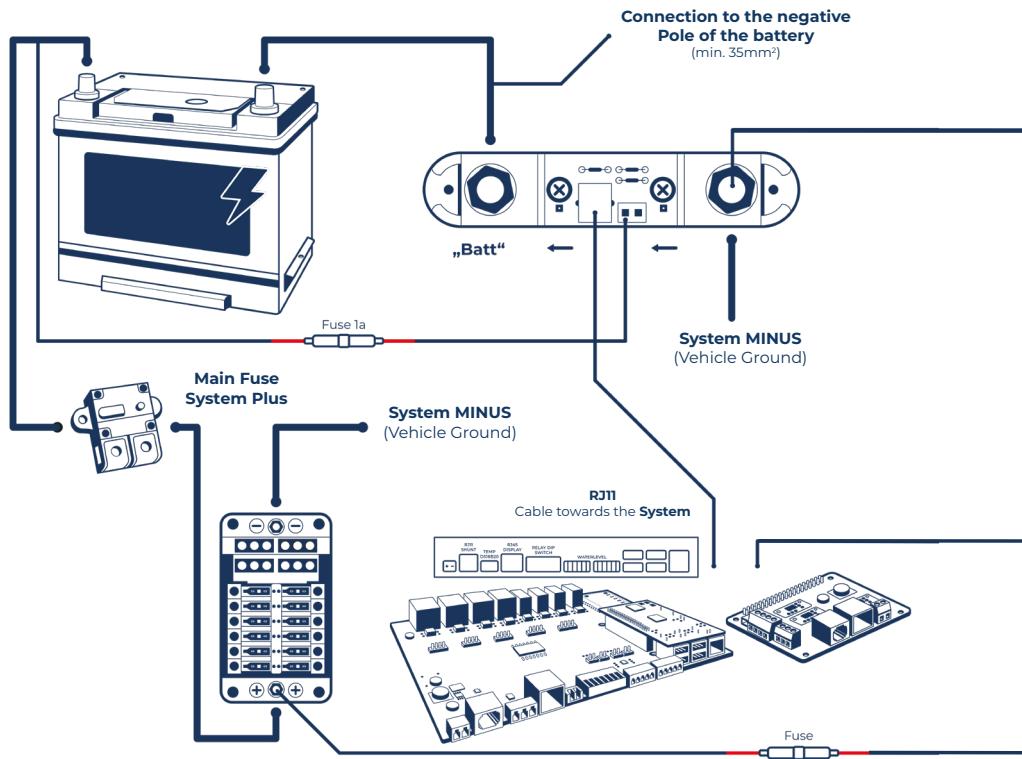
12.4. Dimmy Circuit



Example Circuit:

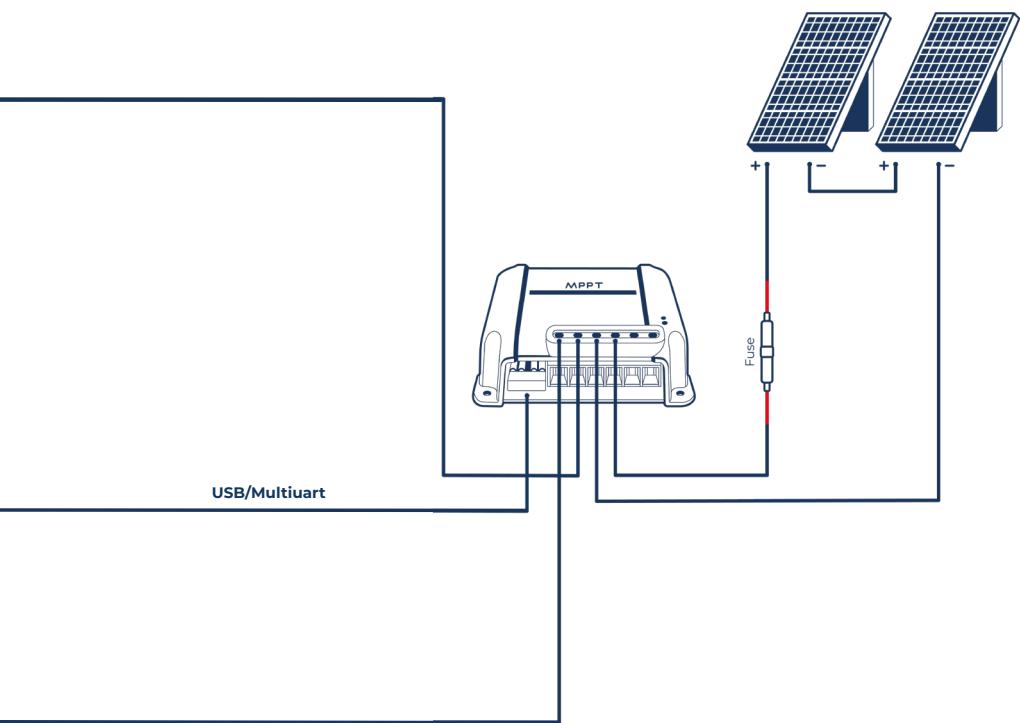
Dimmy on a fuse block with LED and fan with additional ground switch.

12.5. Victron Solar Controller



Example Circuit:

Victron Solar controller to MultiUart connection.



This version of the manual is the current state for the VAN PI Camper Control System **v1.2* in work**.

1. Edition

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