cangoee™ power

CAN-TCH2000 Information Guide

MAN0039.8

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Table of Contents

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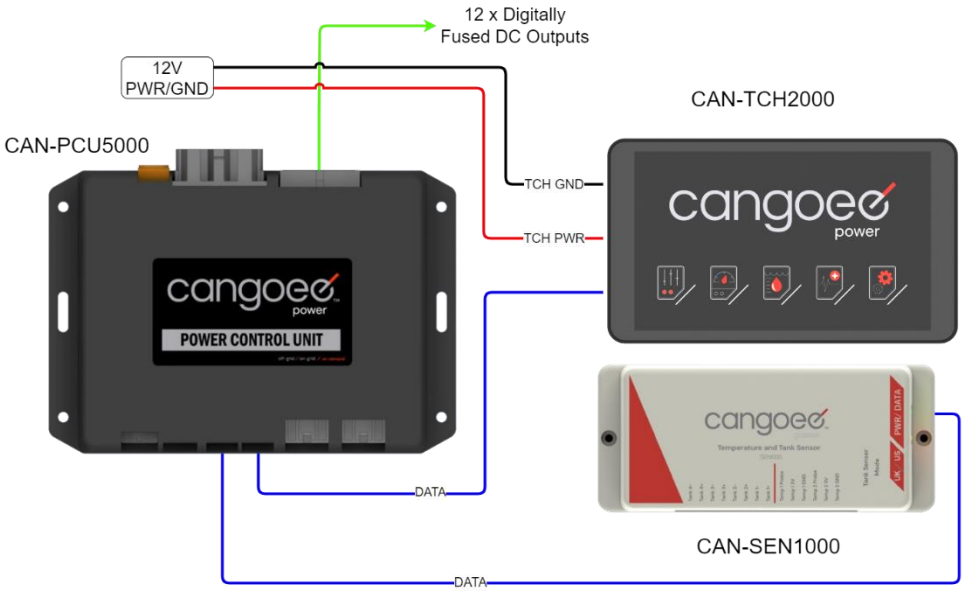
1. Safety Precautions

WARNING

- Do not use equipment outside of operating temperature range.
- Avoid mounting touch screen display near or in areas with high moisture or chemical exposure.
- Do not expose equipment to water.
- Do not expose equipment to fire.
- Do not disassemble.
- Do not drill into equipment enclosure.
- Do not over tighten on equipment mounting points.
- Do not use equipment outside the range of -20˚C ~ 70˚C.
- Do not store equipment outside the range of -30˚C ~ 80˚C.
- Secure touch screen module securely to prevent excessive mechanical shock.
- Handle display with care.

2. Key Components for Product Operation

The CAN-TCH2000 Touchscreen Module operates in conjunction with the CAN-PCU5000 Power Control Unit. Optionally, a CAN-SEN1000 Tank and Temperature Sensor Module (available separately) can be connected for Tank and Temperature information to be displayed on the touchscreen.



3. Specifications

Display Type	LCD Capacitive Touchscreen
Display Resolution	800 x 480 pixels RGB
Display Size	7 Inches
Display Active Area	154.08mm x 85.92 mm
Colour Depth	24-bit
Contrast Ratio	500:1
Viewing Angle	140˚ Horizontal, 120˚ Vertical
Average Brightness	250 cd/m^2
Backlight Type	LED – 20,000 hrs lifetime
Touch Panel	10 Point Multi touch touchscreen
Operating Temperature	-20˚C ~ 70˚C
Storage Temperature	-30˚C ~ 80˚C
Power draw	<100mA @ 12V
Connection	1 x RJ45 Data Port 1 x 2 Way Molex Mini-Fit Jr. Power Input
Dimensions (LxWxD)	196.6mm x 114.60 mm x 57.5mm

Table 1 CAN-TCH2000 Touchscreen Module Specifications

4. Quick Start Guide – CAN-TCH2000

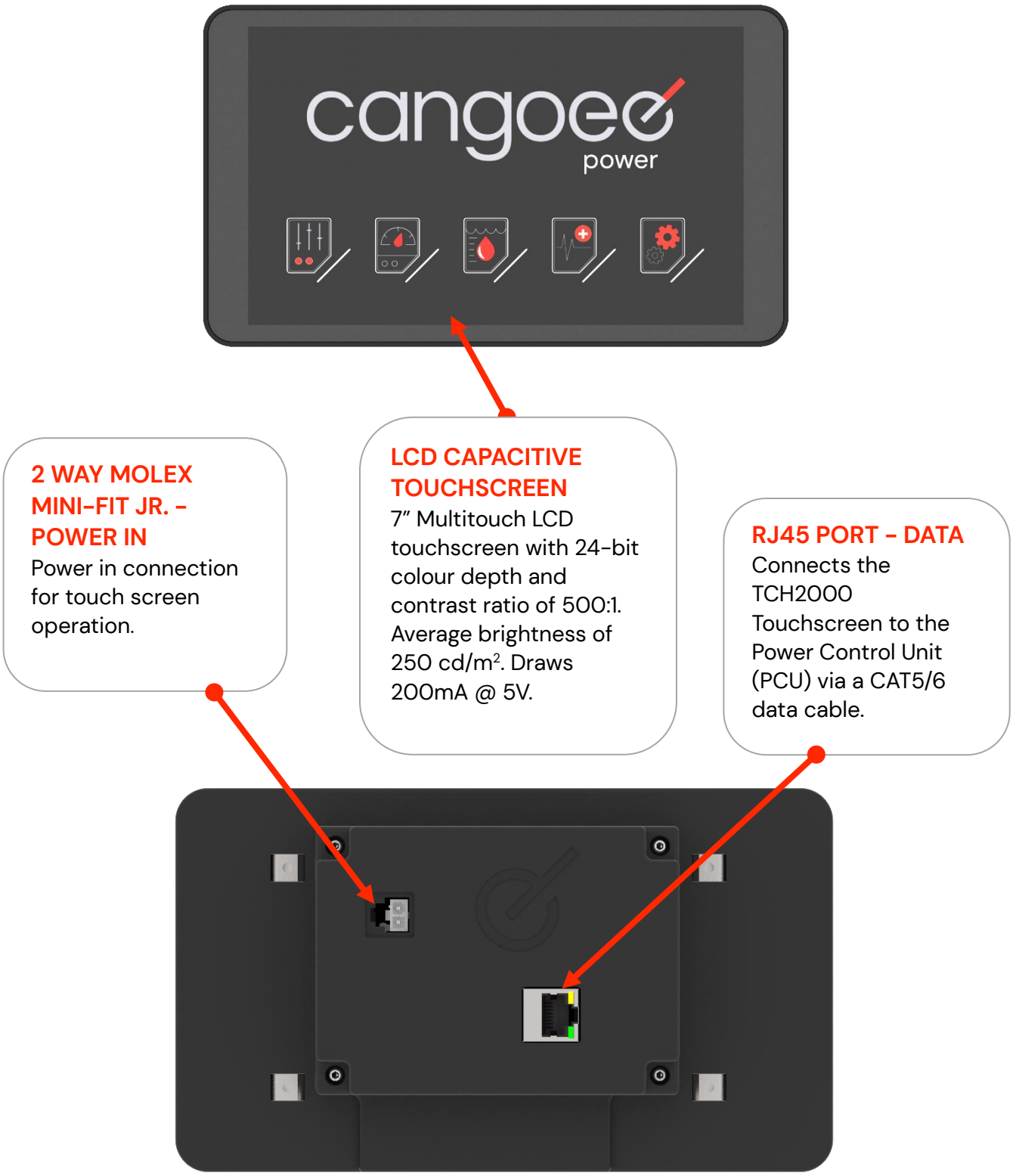


Figure 1 CAN-TCH2000 Connection Description

5. CAN-TCH2000 Dimensions and Mounting.

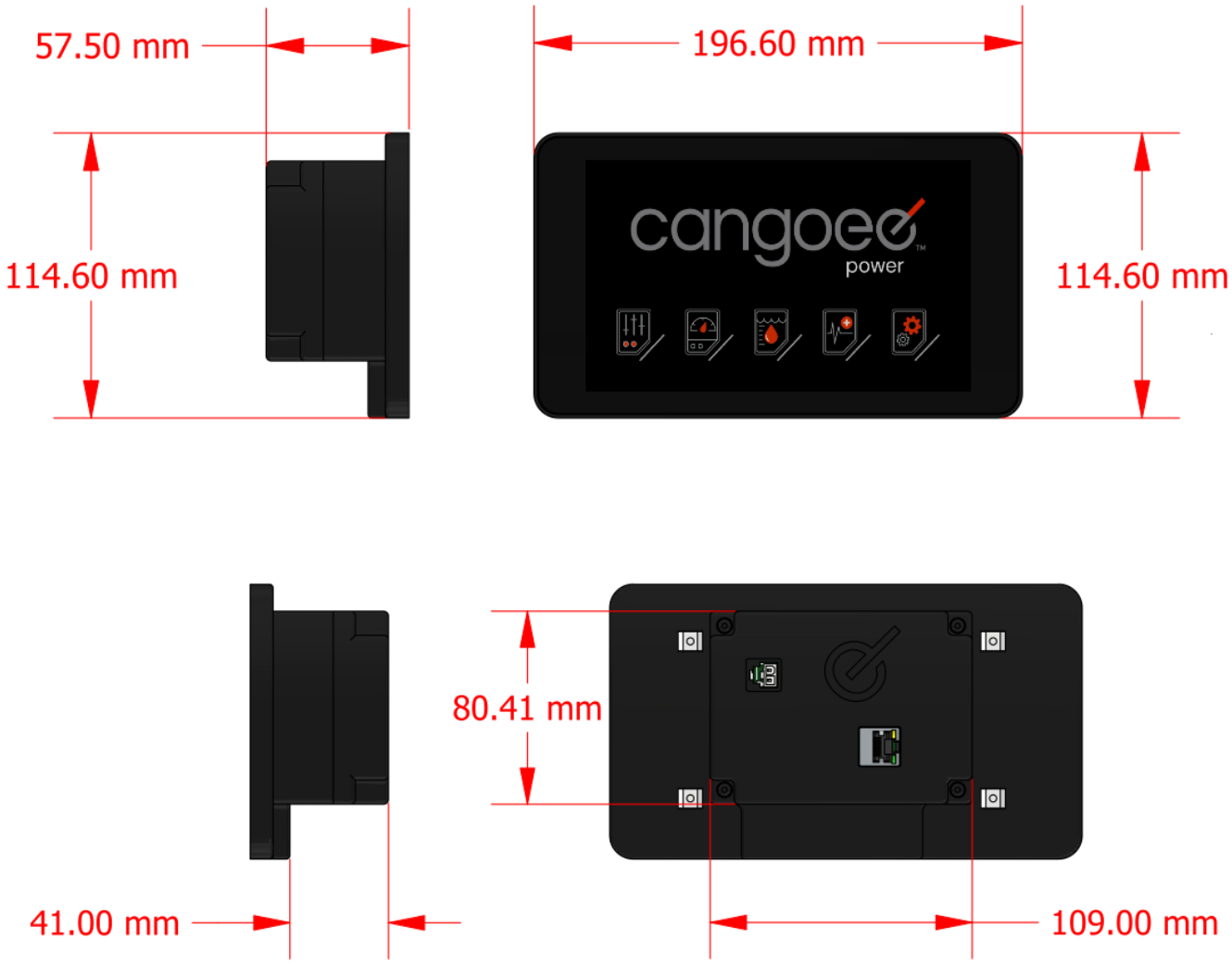


Figure 2 CAN-TCH2000 Dimensions

The CAN-TCH2000 can be mounted using four M3 screws. Please choose an appropriate length of screw for the material that the CAN-TCH2000 is being mounted on. If mounting with screws is not an option, using 3M Dual Lock fasteners is an alternative option.

Table 2 Example Mounting Bracket Placement

CAN-TCH 2000 MOUNTING ORIENTATIONS	
Horizontal Mounting	Vertical Mounting
	

Table 3 CAN-TCH2000 Mounting Orientation

6. Preview of Screens

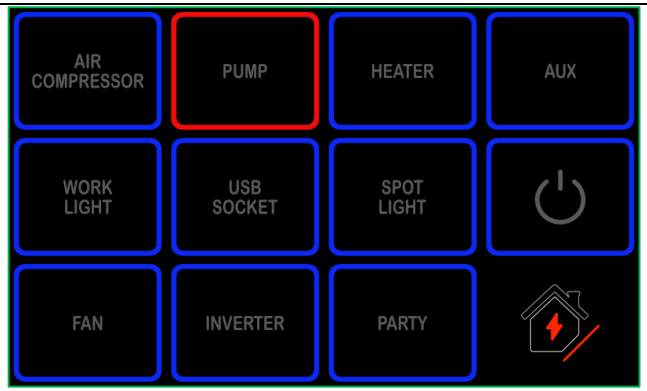
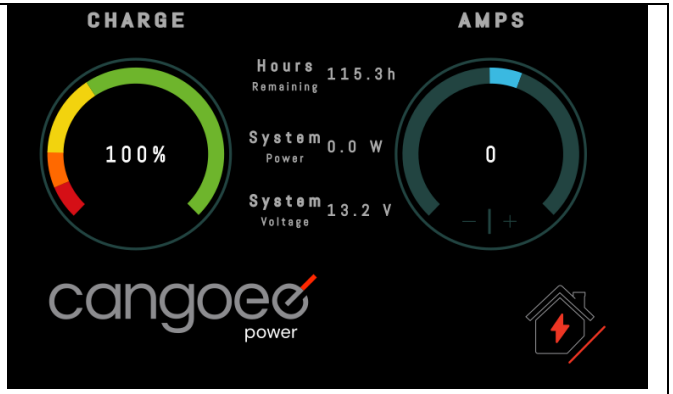
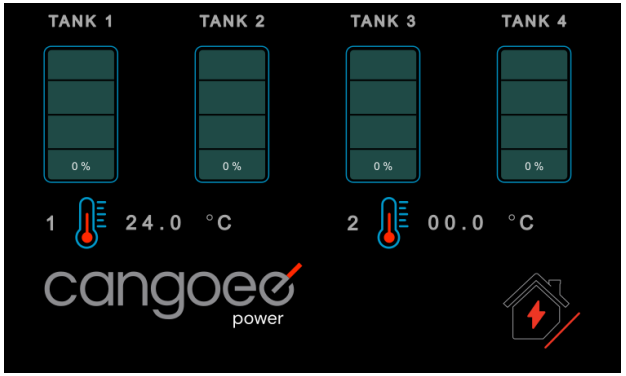
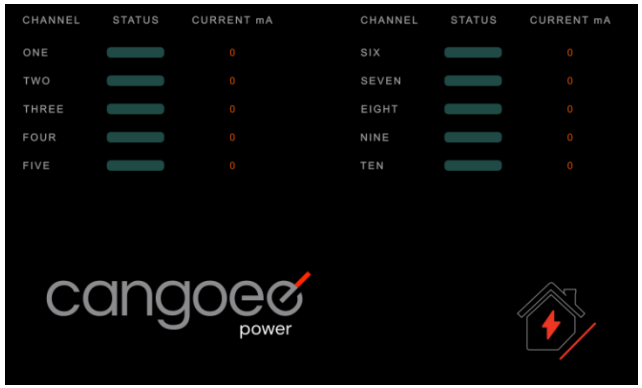
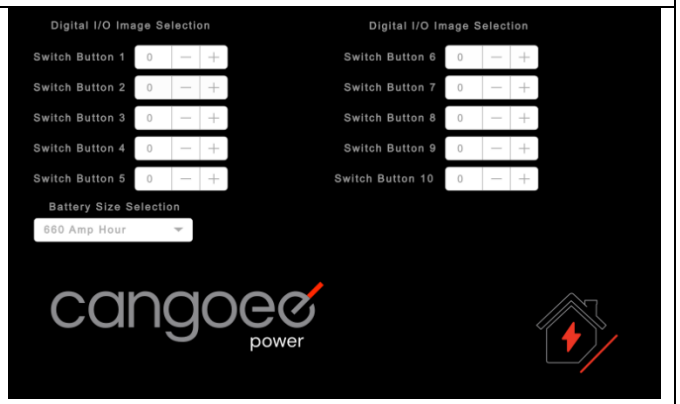
		
Home Screen	Outputs	Battery Information
		
Temperature/ Tank Sensor	Output Diagnostic	Settings

Table 4 Screenshot Preview of CAN-TCH2000

7. CAN-TCH2000 Example Use Case Schematics

Please Note: This is for illustration purposes only and is **NOT** intended to be used as a guide for installation.

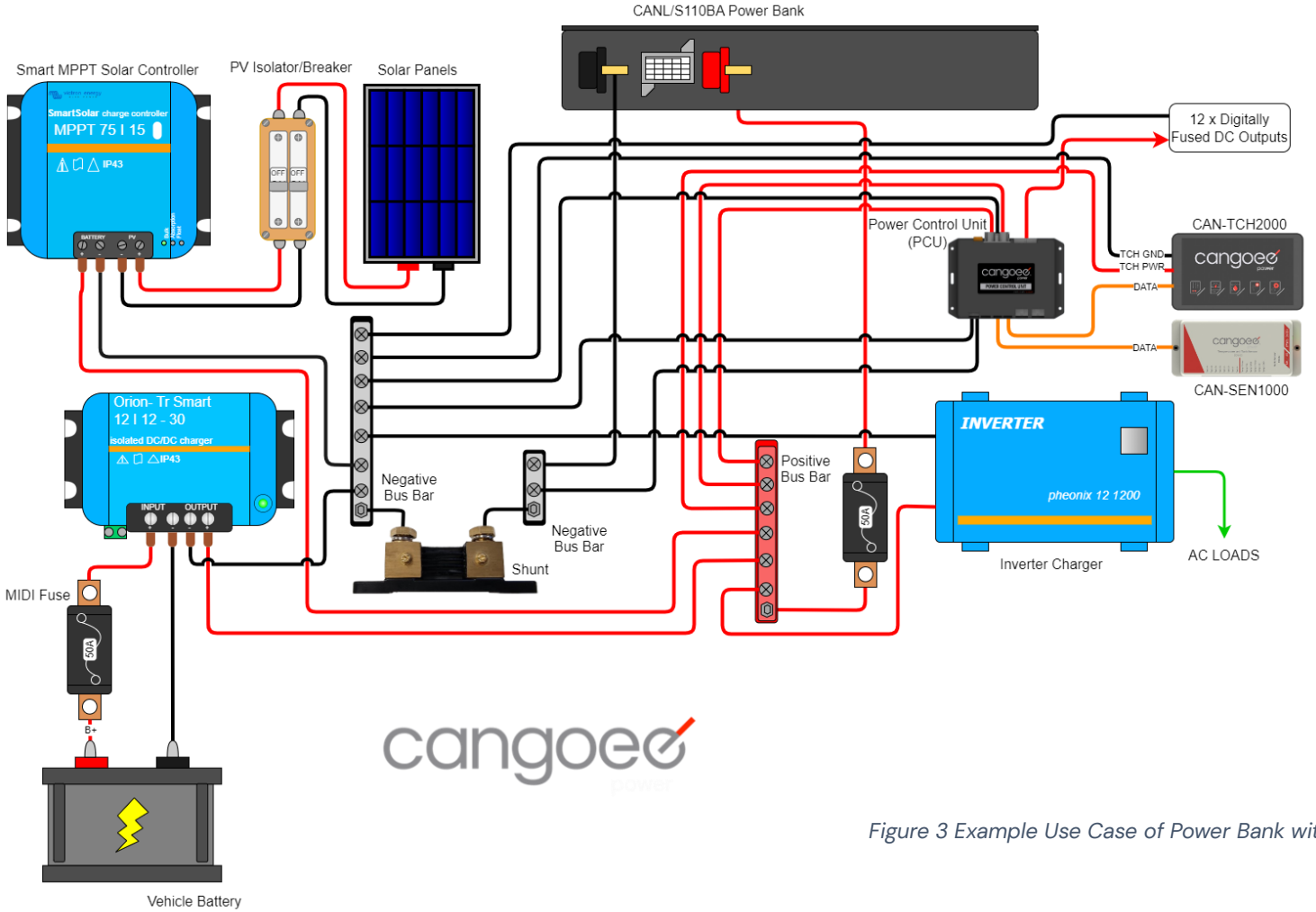


Figure 3 Example Use Case of Power Bank with CAN-TCH2000

8. Cangoee Touchscreen TCH 2000

The CAN-TCH2000 touchscreen module is specially designed to work in conjunction with the CAN-PCU5000 Power Control Unit to provide a seamless integration and control access to various user installed devices.

Notable features of the CAN-TCH2000 include:

- The ability to control (ON/OFF) the outputs that are connected to the CAN-PCU5000.
- Output diagnostics to monitor status of CAN-PCU5000 digital fusing.
- Battery State of Charge (SoC) and usage monitoring.
- Tank and Temperature Sensor (if installed) data feedback monitoring.

The CAN-TCH2000 allows for a seamless integration into various applications from vehicle installations to caravan installations to cater to all outdoor adventures.

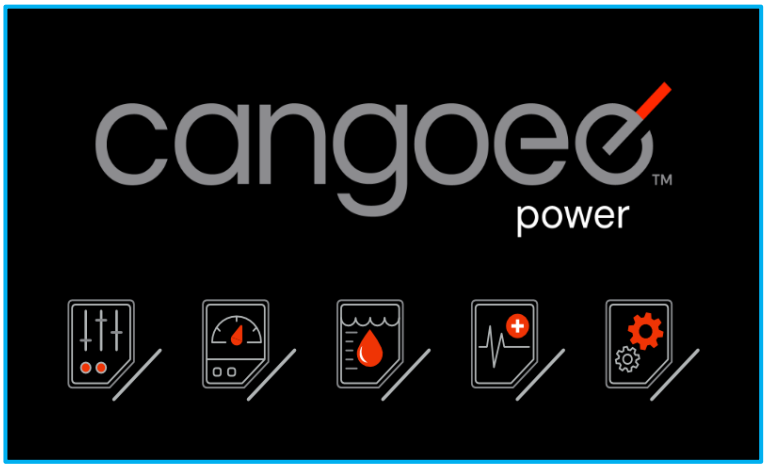
8.1 Cangoee TCH2000 First Use Setup/ Restart Procedure

When the touch screen is powered on for the first time, the battery must be charged to 100% for one cycle before State of Charge (SOC) of the battery will be tracked. The SOC will continue to display 100% during this initialisation. This can be achieved by navigating to the monitoring screen and viewing the 'SYS.VOLTS'. The cycle is deemed as complete when the voltage is at its highest, which is approximately 14.1V.

This initialisation is required to allow the system to calculate and calibrate the SOC.

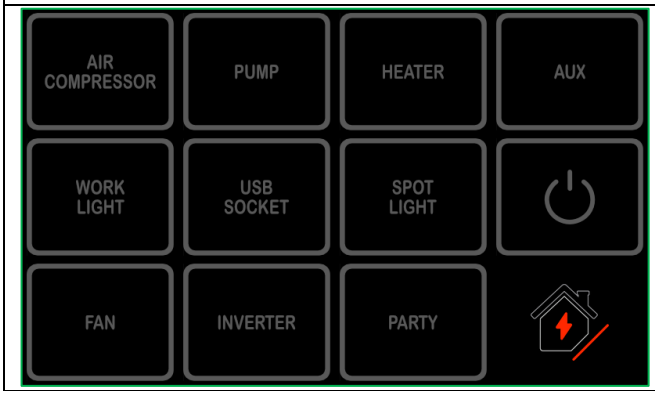
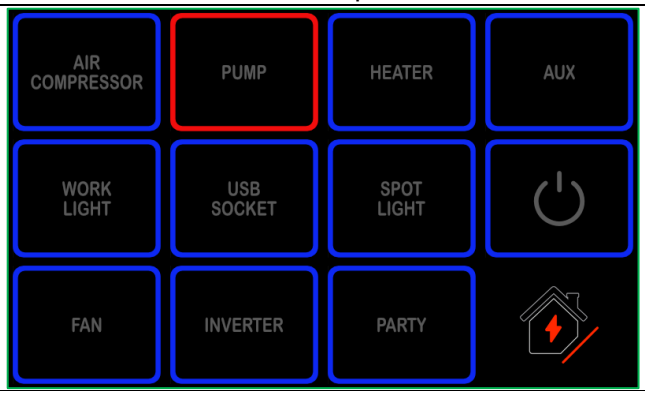
This procedure also applies when the battery has been restarted which is required in the case of when the Battery Management System (BMS) has been cut off. Failure to complete this charging initialisation will result in the touchscreen incorrectly displaying the battery SOC.

8.2 Cangoee TCH 2000 Home Screen

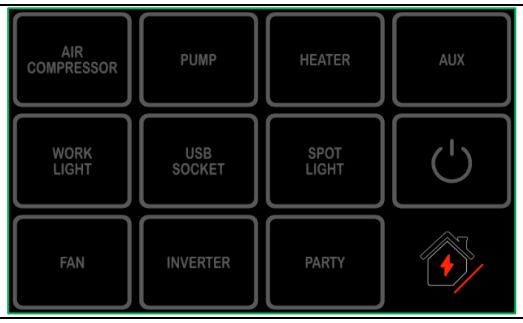


				
Outputs	Battery Information	Temperature/ Tank Sensor	Output Diagnostics	Settings

8.3 Cangoee TCH 2000 Output Screen

Buttons OFF or STANDBY	Buttons ON and fused. • Red outline → Digitally fused. • Blue outline → Output is active and in use.
	

While on this screen, the user will be able to control connected devices to the Power Control Unit. To utilise the screen, the power button be turned on first.
Activation of output is indicated by the blue outline around the output. It is important to ensure that the current drawn from devices connected is less than the fuse ratings outline in the table below.



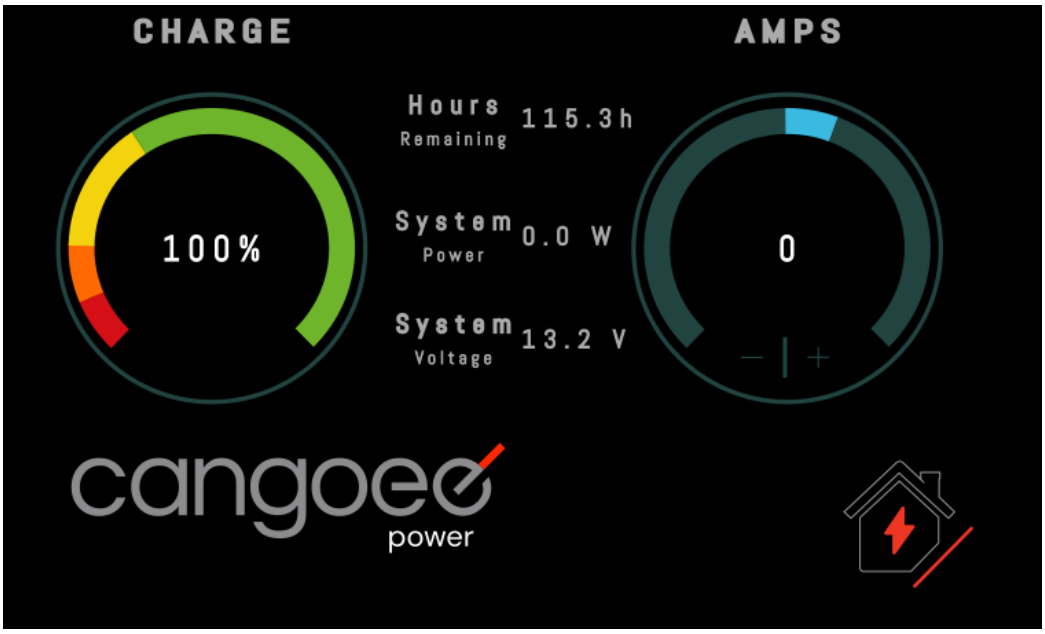
AUX 1	AUX 2	AUX 3	AUX 4
AUX 5	AUX 6	AUX 7	POWER
AUX 8	AUX 9	AUX 10	HOME

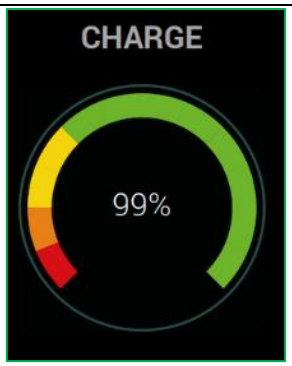
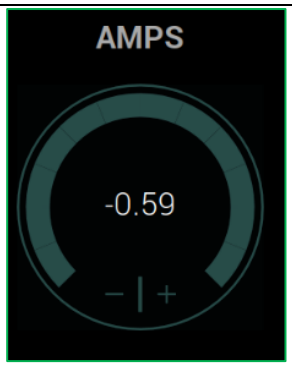
In the CAN-TCH2000 Output Switch Interface, the individual buttons correspond to the table on the right. Each button will correspond to a pinout connection on the CAN-PCU5000 as well as the switched SABRE socket which are shown in the table below.

TCH SWITCH	PCU PIN (16 PIN)	FUSE RATING FOR RCH SWITCH (A)	DESCRIPTION
AUX 3	PIN 8	10	Output 1
AUX 5	PIN 16	10	Output 2
AUX 2	PIN 7	10	Output 3
AUX 1	PIN 6	10	Output 4
	PIN 12	5	Output 5
	PIN 11	5	Output 6
AUX 8	PIN 4	5	Output 7
AUX 9	PIN 5	5	Output 8
	PIN 13	5	Output 9
AUX 10	PIN 10	5	Output 10
AUX 6	PIN 2	5	Output 11
AUX 7	PIN 3	5	Output 12
			PCU Negative – to connect to external Neg/ Shunt
			IGNITION SENSE
AUX 4		15	SABRE Socket – Switched
		15	SABRE Socket – Constant ON

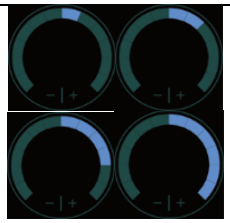
8.4 Cangoee TCH 2000 Battery Information Screen

This screen shows the battery's Charge Level, Amps, and remaining hours of the battery until depletion. System voltage and power. **Please note**: The remaining hours is automatically calculated based on the battery capacity that is set in the Settings screen (please see Section 8.7 for these settings).



	
Charge Gauge	Ampere Gauge
This gauge shows the state of charge (SOC) which indicates the current level of charge in the battery and its available capacity.	The ampere gauge indicates the current that is flowing in or out of the battery in real time. Please note that the current that is displayed is the total battery current i.e. Current In – Current out.

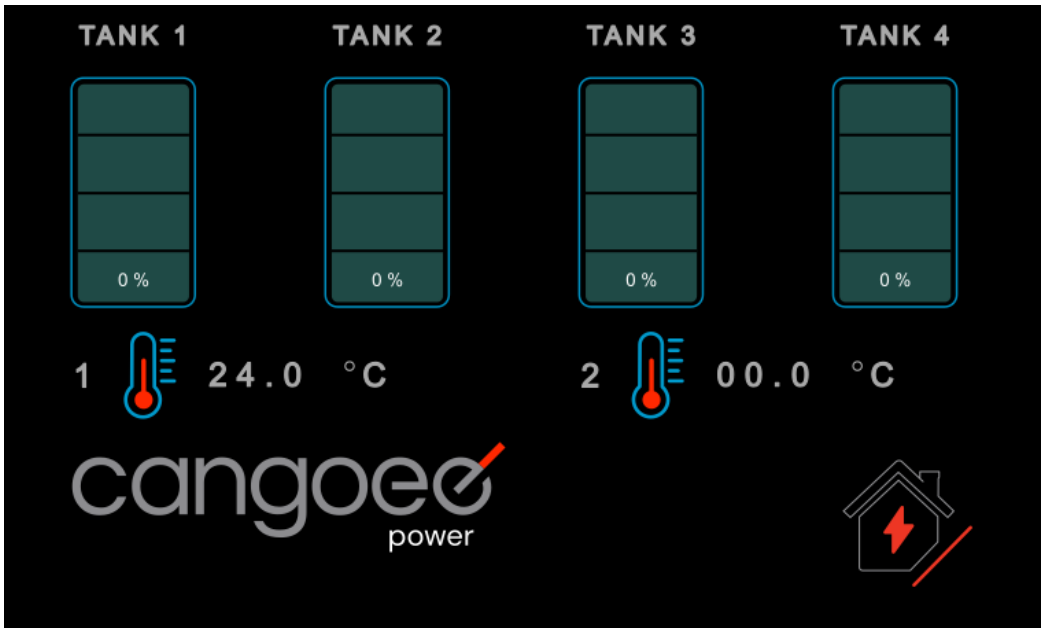
CHARGE GAUGE	
Known as the state of charge. This represents the current level of charge within the battery, or the capacity available. The state of charge is determined by the chemical properties of the lithium battery, and the conditions that the battery is currently under. The state of charge is vital as this directly correlates to the battery's performance, and prevents any possible overcharging, and overvoltage of the battery.	
	State of charge is at 0%. Or that the BMS has been cut-off due to the system voltage. The battery is now being restarted. It is important to follow the instructions outlined in Section 8.1 Cangoee TCH2000 First Time Setup/Restart Procedure, which will allow the battery to charge one full cycle before use. This minimises any incorrect data regarding the battery being displayed.
	If the gauge is only displaying Red, it means that the battery's state of charge is at critical levels, it is important to charge the battery, and to disconnect any loads.
	If the highest level on the gauge displays an Orange colour, it indicates that the battery's state of charge is at warning levels and needs charging. Please disconnect any loads connected to the battery while charging for maximum charging efficiency.
	If the highest level on the gauge displays a Yellow colour, it indicates that the state of charge of the battery is at caution levels and has been significantly depleted. Recharging the battery is recommended but not urgent and loads can be continued to be in use.
	If the highest level on the gauge displays Green, it means that the state of charge of the battery is at a healthy level and does not need to be immediately recharged.

AMPERE GAUGE	
The ampere gauge indicates the current flowing in or out of the battery at any instant of time. Please note: the current that is being displayed is the total battery current (*Current in minus Current out*) The key indicator of this function is shown below:	
	Red indicates negative amps are being consumed by the external loads. This shows the amount of power being consumed
	Blue indicates positive amps which represent the amount of current heading towards the battery. This is often displayed when charging the battery.

Battery Charge Analytics	
Hours remaining	This approximate value indicates the number of hours left till the battery's safety threshold, based on the current loads. The calculation for hours remaining is calculated by: $$Time\ remaining\ (Hrs) = \frac{Battery\ Capacity\ (Ah)}{Current\ Drawn\ by\ Loads\ (A)}$$ Please note: the time remaining that is calculated should serve as a guideline only and is not a perfect representation of battery life as it can be affected by various external factors.
System Power	Represents the total power that is being consumed or supplied via the battery. The calculation is shown below: $$Power\ = Voltage\ \times Current$$ If the power indicated is a negative value, that indicates the amount of power that is being drawn by an electrical load. If the power indicated is a positive value, that indicates the amount of power charging into the battery.
System Voltage	The system voltage is the current terminal voltage of the battery which is measured at the battery terminals.

8.5 Cangoee TCH 2000 Temperature/ Tank Sensor Screen

This screen shows information from the temperature/ tank sensor to display information such as water levels in the water tank and water temperature. This will require the Cangoee SEN 1000 Tank and Temperature Sensor Module (sold separately).

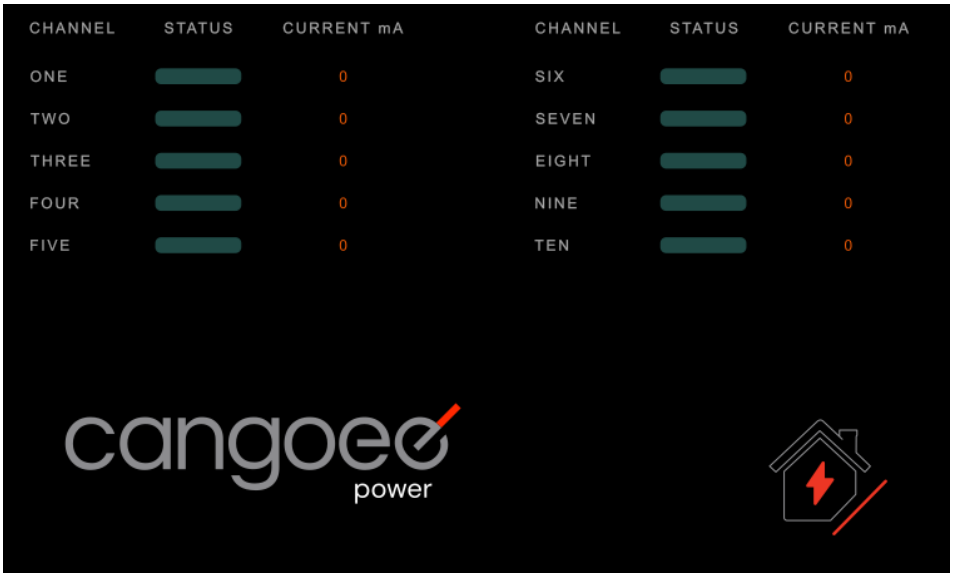


Cangoee Tank and Temperature Sensor Accessories (Sold Separately)

CAN-SEN1000 Tank and Temperature Sensor Module	CAN-WTRSNSR500 Tank Sensor	CAN-TMPSNSR1000 Temperature Sensor
		

8.6 Cangoee TCH 2000 Output Diagnostic Screen

This screen shows information for each output channel. This will show the output's status and current draw. This screen also provides users with control over power management for all loads.



	Status ON:
	Status FUSE BLOWN:
	Status OFF:

8.7 Cangoee TCH 2000 Settings Screen

This screen allows the modification of button names, button layout and set battery sizes.