



CAN-PCU5000

Information Guide

MAN0039.10



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1. Safety Precautions

WARNING

- ❑ Avoid mechanical shock.
- ❑ Avoid direct sunlight exposure.
- ❑ Do not disassemble.
- ❑ Do not drill into the module enclosure.
- ❑ Do not short module connections.
- ❑ Do not connect multiple modules in a series configuration.
- ❑ Do not store below -20°C or above 60°C .
- ❑ Risk of burns if misused.
- ❑ Always follow safe working practices.
- ❑ Installation of this device must only be carried out by appropriately qualified competent person(s).
- ❑ All minimum cable gauges and maximum lengths must be followed.

2. Specifications

CANGOEE PCU5000	Power Control Unit
<i>Power In</i>	12V DC
<i>Connections</i>	1 x 3-Way Molex Mini Fit Sr. (PWR/GND) 1 x 16-Way Molex Mini Fit HCS (Output) 1 x 6-Way Molex Micro Fit (Input) 1 x USB B Port 2 x RJ45 Data Port 2 x 2-Way Molex Sabre (Output)
<i>User Input/Output</i>	8 x 5A Fused Output 3 x 10A Fused Output 2 x 15A Fused Output 3x Input (2 Inputs + 1 IGN. Sense)
<i>Dimensions (LxWxD)</i>	115.1mm x 115.7mm x 27.9mm

Table 1 CAN-PCU5000 Power Control Unit Specifications

3. CAN-PCU5000 Overview

3.1 Introduction

The CAN-PCU5000 (Power Control Unit) operates as an intelligent fuse box supplying power to equipment fitted while offering 5, 10 or 15 Amp fusing protection. It is capable of digital monitoring the outputs with built-in overload and short-circuit protection.

Suitable for both caravan and vehicle installations, the CAN-PCU5000 can monitor the battery state and provide data about the battery's state of charge (SoC). The CAN-PCU5000 also offers the ability to control and monitor the current draw of connected output channels. This feature allows the user to shut down non-essential channels to conserve or extend battery life based on the state of charge (SOC) of the battery.

All channels of the CAN-PCU5000 are capable of the following settings:

- ☐ Always On
- ☐ Turn off when a particular SoC is reached.
- ☐ Turn off at a particular SoC with a user-set delay.
- ☐ Turn on and off depending on the wired input state.
- ☐ Turn on and off depending on the wired input state with user-set delay.

The CAN-PCU5000 offers the following programmable output channels:

- ☐ 8 x flexible 5 Amp @ 12 volts (1, 2, 3 and 5 Amp adjustable)
- ☐ 4 x 10 Amp @ 12 Volts
- ☐ 2 x 15 Amp @ 12 Volts
- ☐ 2 Digital Active low outputs to drive Timer LED and SOC LED

3.2 Resetting CAN-PCU5000 Digital Fuse

Through the intelligent fusing system within the CAN-PCU5000, each channel is continuously monitored and should a channel fault occur, the CAN-PCU5000 open-circuits the channel in fault.

The intelligent fusing system mixes the integrated protection features of the channel High-Side drivers with smart embedded software-controlled in the CAN-PCU5000 system. The intelligent fusing system offers protection from different fault and load conditions such as:

- ☐ Short circuit
- ☐ Overload
- ☐ High inrush, typically experienced with switching higher wattage halogen bulbs

Once a channel has been fused, there is no need to open the PCU or strip the vehicle down to find the fuse box. By simply cycling the system's ignition, the PCU will attempt to reconnect any channel that has been fused.

Naturally, if the original fault has not been resolved, the PCU will once more trip the channel.

Note: The installation needs to have an ignition sense signal connected for this to work properly. This signal could be connected directly to the PCU via the input connector or via Naibus CAN.

4. Quick Start Guide – CAN-PCU5000

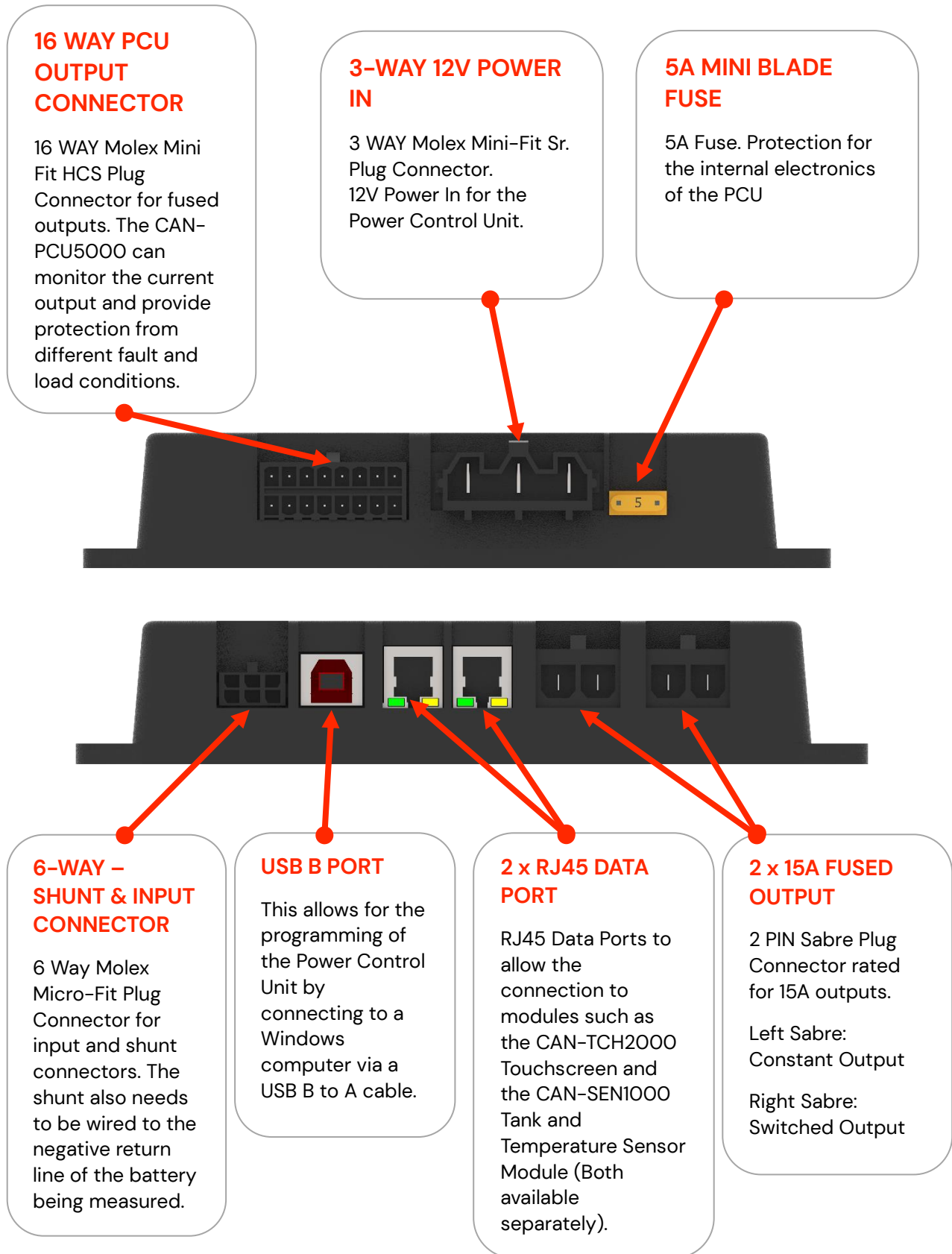


Figure 1 CAN-PCU5000 Connection Description

5. CAN-PCU5000 Connection Pinout

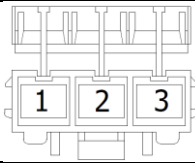
CAN-PCU5000 Power Input – 3 Way Molex Mini-Fit Sr.		
		
3 Way Molex Mini-Fit Sr. Receptacle Housing – Molex Part Number: 42816 0312 (Wire Entry Side)		
PIN #	Fuse Rating (A)	Description
1	50 A	Power In (12 V)
2		Ground
3	50A	Power In (12 V)
Please Note: PIN 1 and PIN 3 are both power lines that are electrically connected inside the CAN-PCU5000. Parallel these wire connections externally and connect to an 80A Fuse.		

Table 2 CAN-PCU5000 3 Way Power Input Connector

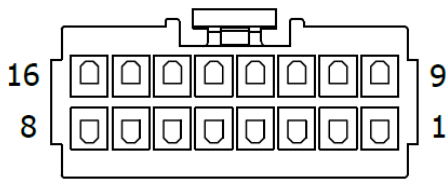
CAN-PCU5000 Output – 16 WAY Molex Mini-Fit TPA																							
			<table><tr><td>AUX 5</td><td>AUX 1</td><td></td><td>12V DC OUT</td><td>12V DC OUT</td><td>12V DC OUT</td><td>AUX 10</td><td></td></tr><tr><td>AUX 3</td><td>AUX 2</td><td>AUX 1</td><td>AUX 9</td><td>AUX 8</td><td>AUX 7</td><td>AUX 6</td><td></td></tr></table>					AUX 5	AUX 1		12V DC OUT	12V DC OUT	12V DC OUT	AUX 10		AUX 3	AUX 2	AUX 1	AUX 9	AUX 8	AUX 7	AUX 6	
AUX 5	AUX 1		12V DC OUT	12V DC OUT	12V DC OUT	AUX 10																	
AUX 3	AUX 2	AUX 1	AUX 9	AUX 8	AUX 7	AUX 6																	
16 Way Molex Mini-Fit TPA Receptacle Housing – Molex Part Number: 1597 5161 (Wire Entry Side)																							
PIN #	Fuse Rating (A)	Description																					
1		Unused – Do not connect																					
2	5	AUX 6																					
3	5	AUX 7																					
4	5	AUX 8																					
5	5	AUX 9																					
6	10	AUX 1 (electrically connected to PIN 15)																					
7	10	AUX 2																					
8	10	AUX 3																					
9		Unused – Do not connect																					
10	5	AUX 10																					
11	5	12V DC Output																					
12	5	12V DC Output																					
13	5	12V DC Output																					
14		Unused – Do not connect																					
15		AUX 1 (electrically connected to PIN 6)																					
16	10	AUX 5																					
Please Note: PIN 11, PIN 12, and PIN 13 are outputs that are not directly controlled via external battery accessories such as the CAN-TCH2000 Touchscreen Module. These outputs can be externally controlled via inputs into PIN 4 or PIN 5 of the 6-Way Molex Micro-Fit connector on the CAN-PCU5000. These settings can be configured according to client requirements. Please also remember to route ground connections for all connected outputs ideally to the System side of Shunt.																							

Table 3 CAN-PCU5000 16 Way Output Connector

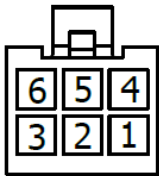
CAN-PCU5000 Shunt and Input – 6-WAY Molex Micro-Fit		
		
6 Way Molex Micro-Fit Receptacle Housing – Molex Part Number: 43025 0600 (Wire Entry Side)		
PIN #	Fuse Rating (A)	Description
1		N/A
2		Ignition Sense
3		Shunt – High
4		IN_O2
5		IN_O3
6		Shunt – Low
Please Note: Inputs into PIN 4 and PIN 5 can be used to control outputs from the 16 Way Molex Mini-Fit Connector. These settings can be configured according to client requirements.		

Table 4 CAN-PCU5000 6 Way Input Connector

CAN-PCU5000 15A Fused Output – 2 x 2 Way Molex Sabre		
Left		Right
		
Always On		Switched – AUX 4
2 Way Molex Sabre Receptacle Housing – Molex Part Number: 44441 2002 (Wire Entry Side)		
PIN #	Fuse Rating (A)	Description
1	15 A	Power
2		Ground

Table 5 CAN-PCU5000 2 Way Sabre Outputs

6. CAN-PCU5000 Dimensions

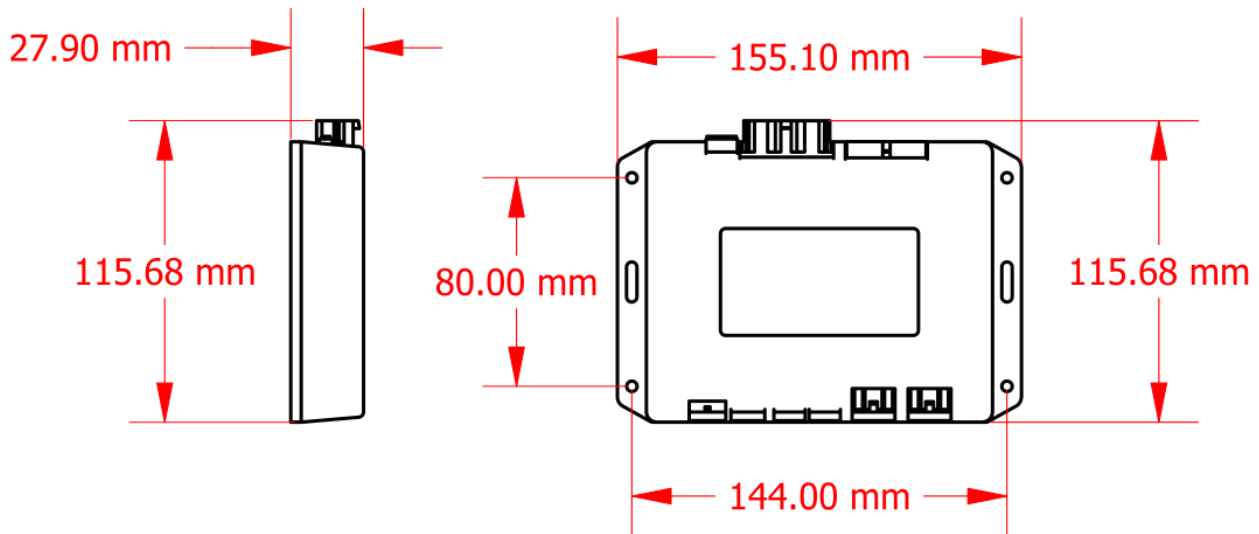


Figure 2 CAN-PCU5000 Power Control Unit Dimensions

7. Recommended Wire Sizes and Gauges Chart

The below table represents the recommended wire sizes/ gauges, for battery installation into vehicles.

DCDC Capacity / Cable	Recommended Wire Size/ Gauge Figure 8 Cable	Recommended Wire Length
Output Cable (from 16 Way Molex Mini Fit)	3mm Auto/ 16 B&S/AWG (CSA 1.13mm ²)	As necessary
Output Cable (from 2 Way Molex Sabre)	14 B&S/AWG (CSA 2.08mm ²) to 3mm Auto/16 B&S/AWG (CSA 1.13mm ²)	As necessary
Ignition Sense Cable	20 B&S/AWG (CSA 0.52mm ²) to 24 B&S/AWG (CSA 0.21mm ²)	1m – Up to/ Maximum 6m
CAN PCU5000 Positive and GND	8 B&S/ AWG (CSA 7.71mm ²)	1m – Up to/ Maximum 4m
Battery Main Positive + and GND -	6 B&S/ AWG (CSA 13.5mm ²) to 1 B&S/ AWG (CSA 42.4mm ²) 80A – 120A current carrying capacity	1m – Up to/ Maximum 4m

Table 6 Recommended Wire Sizes and Gauges

Please Note: These wire gauges are suggested to mitigate the voltage drop along the cable.

8. Connector Terminal Crimp Information

8.1 Crimp Terminals

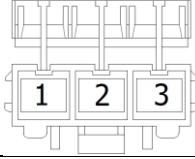
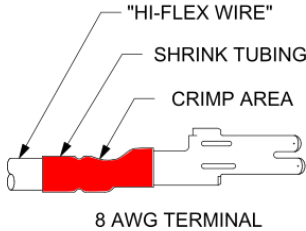
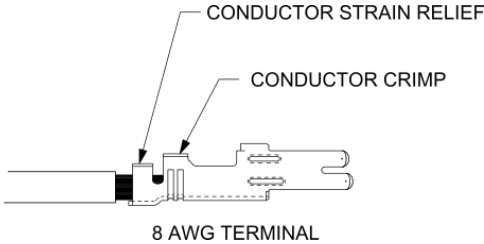
CAN-PCU5000 Power Input – 3 Way Molex Mini-Fit Sr.	
	
3 Way Molex Mini-Fit Sr. Receptacle Housing – Molex Part Number: 42816 0312 (Wire Entry Side)	
3 Way Molex Mini-Fit Sr. Receptacle Housing Terminal Crimp	
	
	
Molex Mini-Ft Sr. Crimp Terminal, – Molex Part Number: 42815 0032	

Table 7 CAN-PCU5000 3 Way Power Input Crimp Information

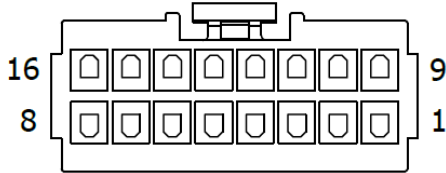
CAN-PCU5000 Output – 16 WAY Molex Mini Fit TPA	
	
16 Way Molex Mini-Fit TPA Receptacle Housing – Molex Part Number: 1597 5161 (Wire Entry Side)	
16 Way Molex Mini-Fit TPA Receptacle Housing Terminal Crimp	
	
Molex Mini-Fit HCS Crimp Terminal – Molex Part Number: 44476 3111	

Table 8 CAN-PCU5000 16 Way Output Crimp Information

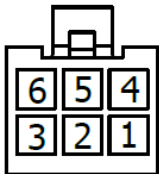
CAN-PCU5000 Shunt and Input – 6 WAY Molex Micro-Fit	
	
6 Way Molex Micro-Fit Receptacle Housing – Molex Part Number: 43025 0600 (Wire Entry Side)	
6 Way Molex Micro-Fit TPA Receptacle Housing Terminal Crimp	
	
Molex Micro-Fit 3.0 Crimp Terminal. Molex Part Number: 43030 0008	

Table 9 CAN-PCU5000 6 Way Input Crimp Information

CAN-PCU5000 15A Fused Output – 2 x 2 Way Molex Sabre	
Left	Right
	
Always On	Switched – AUX 4
2 Way Molex Sabre Receptacle Housing – Molex Part Number: 44441 2002 (Wire Entry Side)	
2 Way Molex Sabre Receptacle Housing Terminal Crimp	
	
Molex Sabre Single Receptacle Crimp Terminal – Molex Part Number: 43375 0001	

Table 10 CAN-PCU5000 2 Way Sabre Crimp Information

8.2 Optimal Terminal Crimping Standards

To ensure that connections work as intended, it is also important to ensure that wires to connector housing are properly crimped.

The below diagrams show the different parts of a crimp terminal.

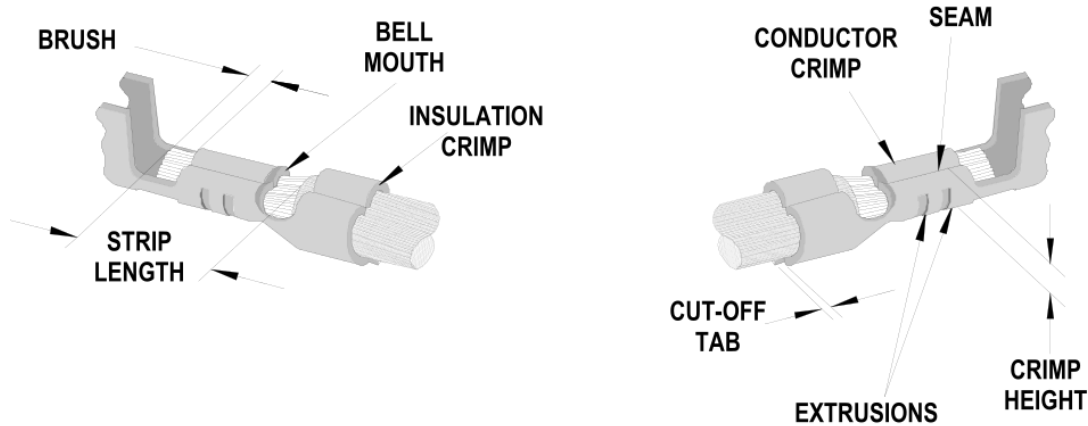


Figure 3 Molex Crimp Terminal Diagram

The optimal crimp should have the following characteristics:

- ❑ Good bell mouth
- ❑ Cable insulation is under the insulation crimp with some excess but not extended to the conductor crimp.
- ❑ Conductor brush under conductor crimp and not too long.

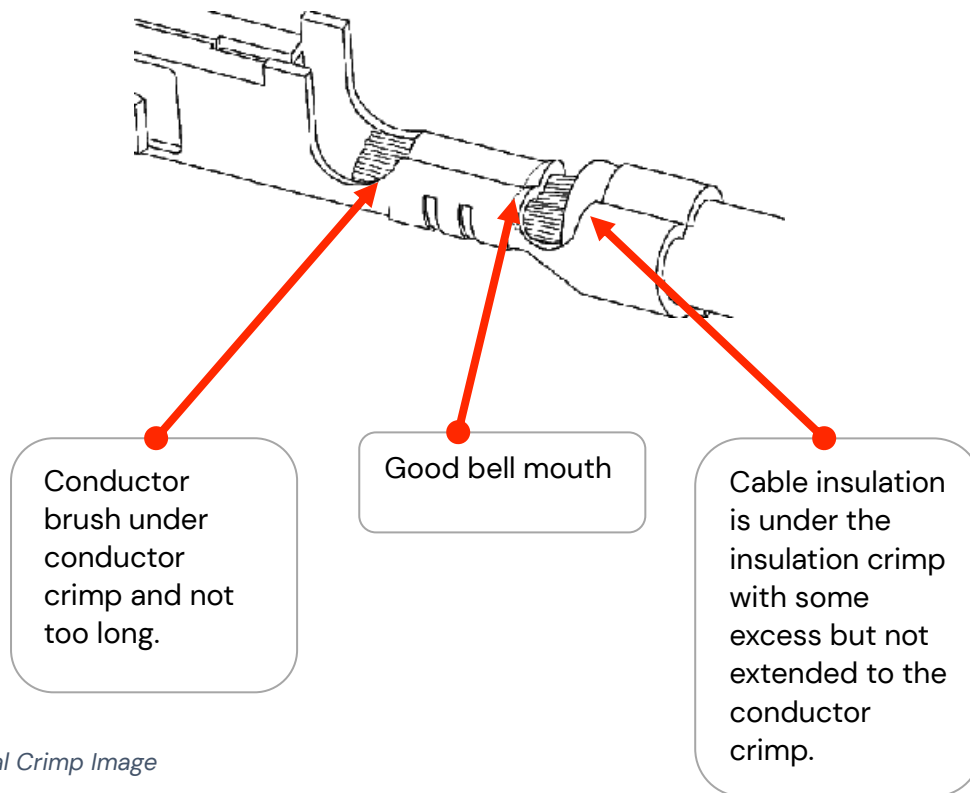


Figure 4 Optimal Crimp Image

9. CAN-PCU5000 Example Wiring Diagram

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

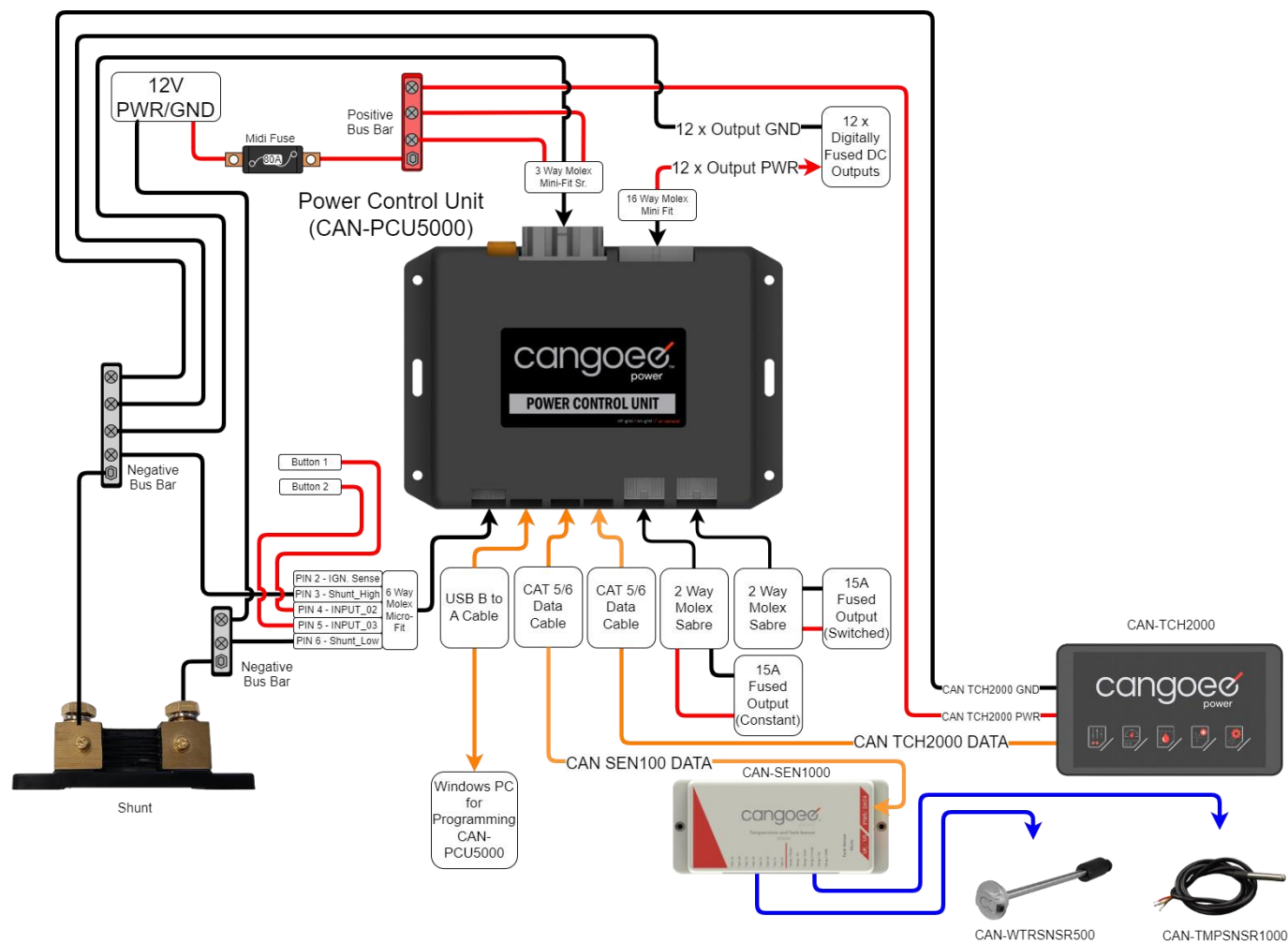


Figure 5 CAN-PCU5000 Example Wiring Diagram

Product Number	Version	Version Date
CAN-PCU5000	R1	14 – JUNE – 2024

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10. CAN-PCU5000 Example Use Case Schematics

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

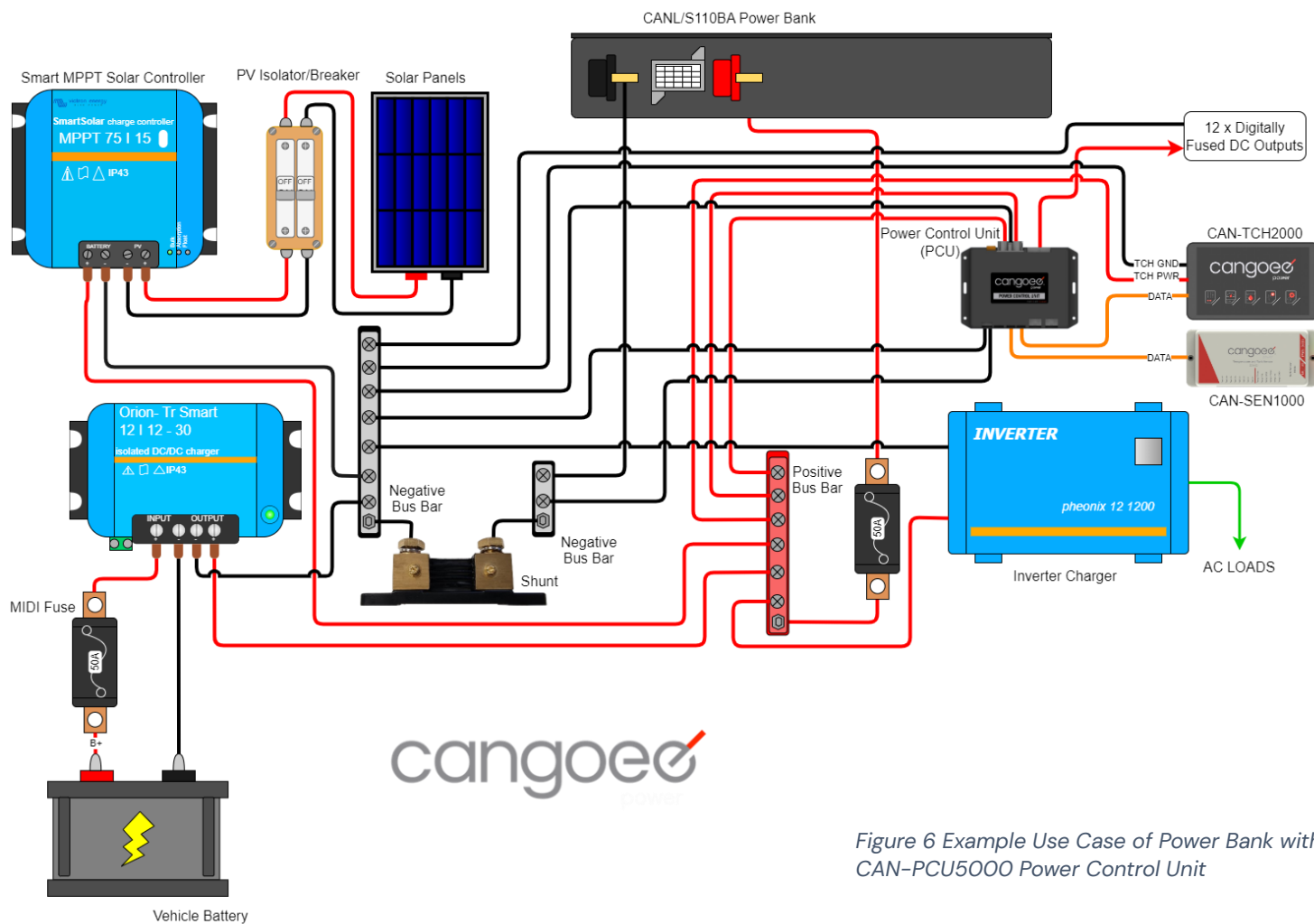


Figure 6 Example Use Case of Power Bank with CAN-PCU5000 Power Control Unit

11. Compatible Cangoee Battery Accessories (Sold Separately)

Cangoee offers the CAN-TCH2000 Touchscreen Module and the CAN-SEN1000 Tank and Temperature Sensor Module as compatible accessories to the CAN-PCU5000.

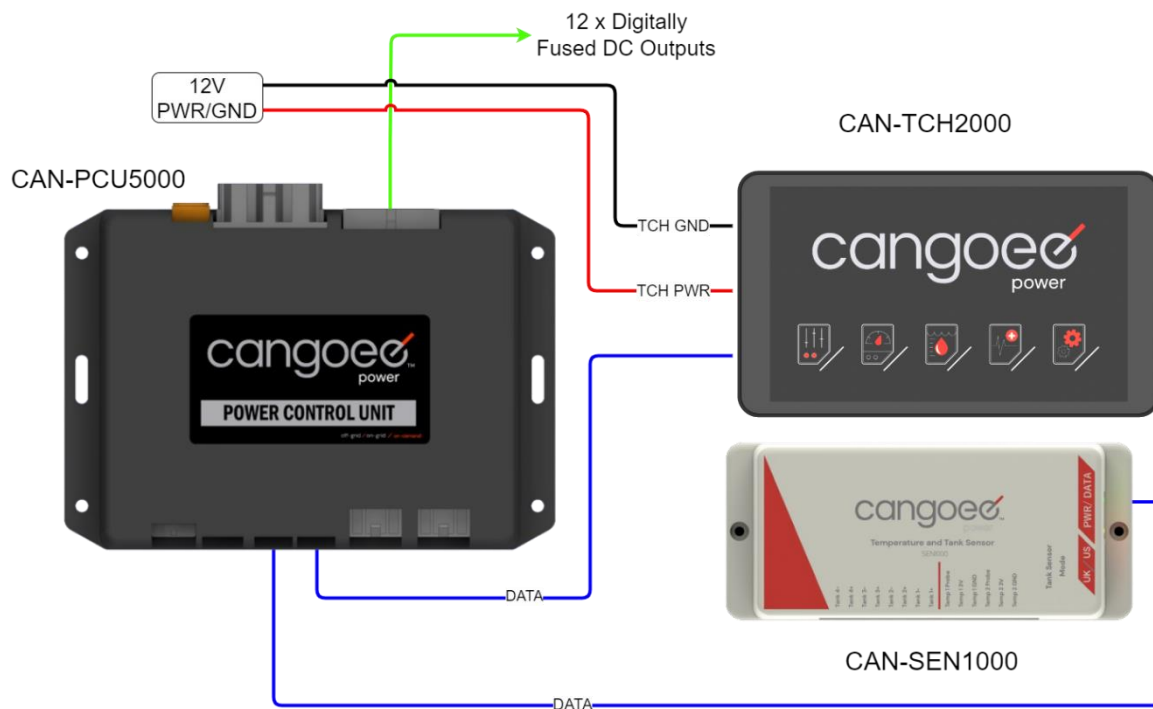


Figure 7 CAN-PCU5000 with Cangoee Battery Accessories

11.1 CAN-TCH2000 Touchscreen Module

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 the 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.



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	200mA @ 5V
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 11 CAN-TCH2000 Touchscreen Module Specification

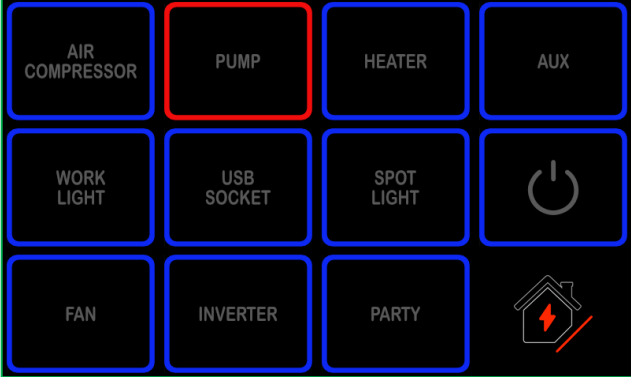
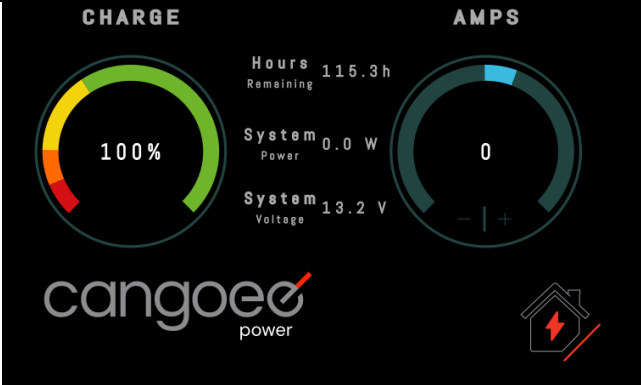
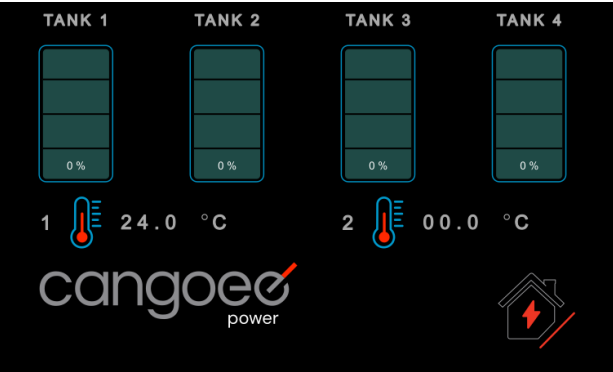
		
Home Screen	Outputs	Battery Information
		
Temperature/ Tank Sensor	Output Diagnostic	Settings

Table 12 CAN-TCH2000 Touchscreen Module Screenshot Preview

11.2 CAN-SEN1000 Tank and Temperature Sensor Module

The CAN-SEN1000 Tank and Temperature Sensor Module is a specially designed comprehensive monitoring solution for off-grid adventures. With the capability to support up to four tank sensors and two temperature sensors simultaneously, the module offers great versatility and flexibility for installation into vehicles and caravans. With connections to the CAN-PCU5000 Power Control Unit and the CAN-TCH2000 Touchscreen Module, the CAN-SEN1000 allows monitoring of tank levels and temperature in real time on a visual interface with precision and reliability.



Maximum Tank Sensors	4
Maximum Temperature Sensors	2
Connections	1 x RJ45 Data Port 1 x Green 5.08mm Pitch 8 Way Pluggable Terminal Block 1 x Green 5.08mm Pitch 6 Way Pluggable Terminal Block
Switch	1 x 1 Way SPST DIP Switch
Dimensions (L x W x H)	150 mm x 65.50 mm x 49.80 mm

Table 13 CAN-SEN1000 Specifications

Cangoee Tank and Temperature Sensor (Sold Separately)

CAN-WTRSNSR500 Tank Sensor	CAN-TMPSNSR1000 Temperature Sensor
	

Table 14 CAN-WTRSNSR500 and CAN-TMPSNSR1000 Sensors.