Bank, Node & Master Information Guide

MAN0037.0

BANK	NODE	MASTER
CANONE110BA	CANONE110NO20	
CANS110BA	CANS110NO20	
CANL110BA	CANL110NO40	CANL110MA40
CANR110BA	CANL110NO40-HP	
CANR110BA2	CANR110NO20	

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1. Safety Precautions

WARNING

- Avoid mechanical shock.
- Avoid direct sunlight exposure.
- Do not store or mount batteries in incorrect orientations.
- Do not transport the battery unsecured.
- Do not expose the battery to water.
- Do not expose the battery to fire.
- Do not pierce the battery.
- Do not disassemble.
- Do not drill into the battery enclosure.
- Do not short battery terminals.
- Do not connect multiple batteries in a series configuration.
- Do not charge the battery outside the range of 0˚C - 45˚C.
- 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 connections must be fused at recommended fuse ratings to avoid damage to components.
- All minimum cable gauges and maximum lengths must be followed.
- Only use Lithium Battery Chargers to recharge batteries.

2. Dimensions

2.1 CANONE Series

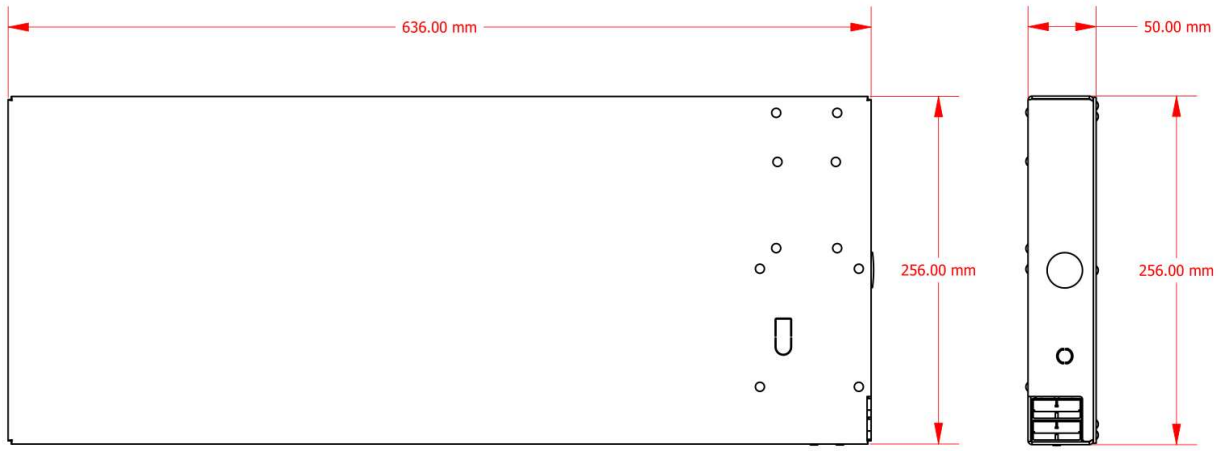


Figure 1 CANONE Series Dimensions

2.2 CANS Series

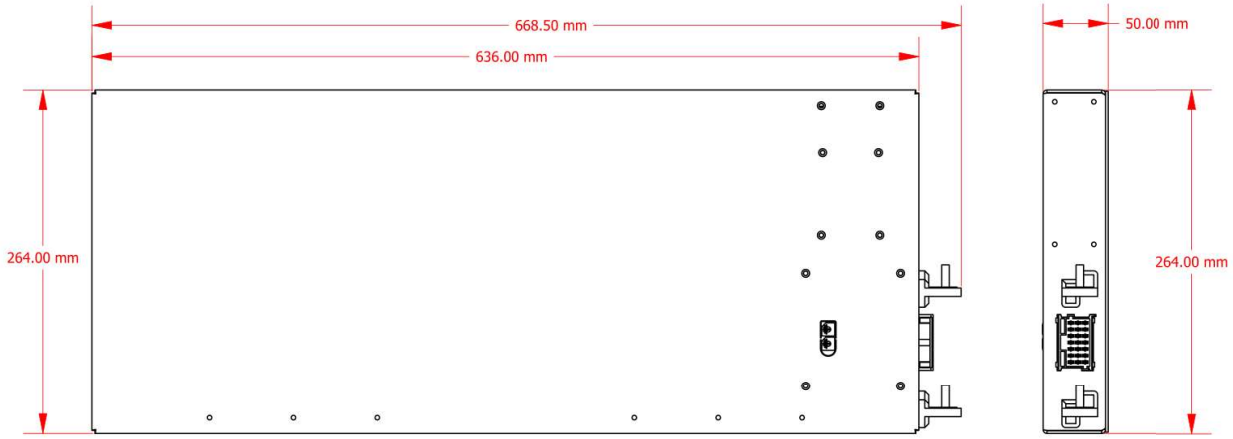


Figure 2 CANS Series Dimensions

2.3 CANL Series

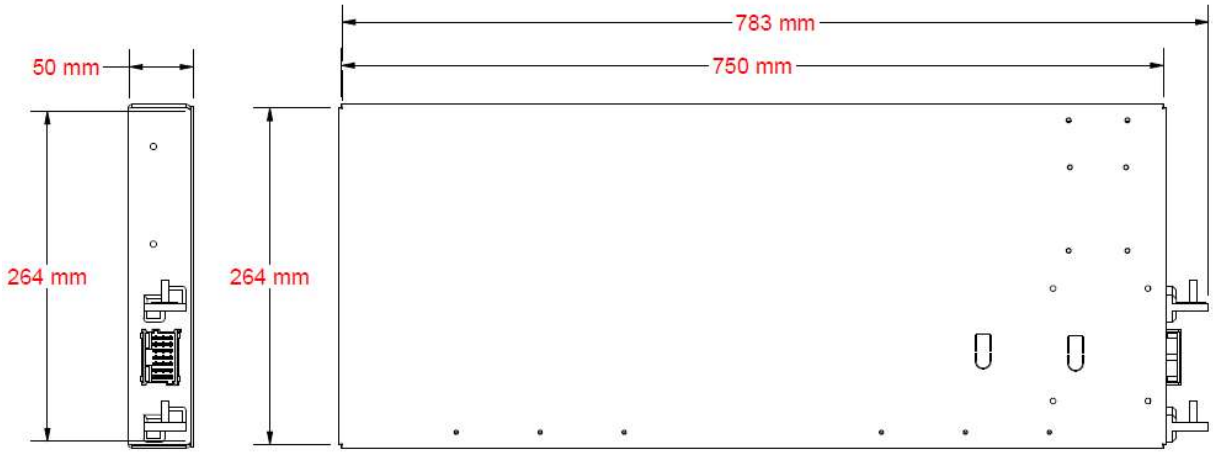


Figure 3 CANL Series Dimensions

2.4 CANR Series

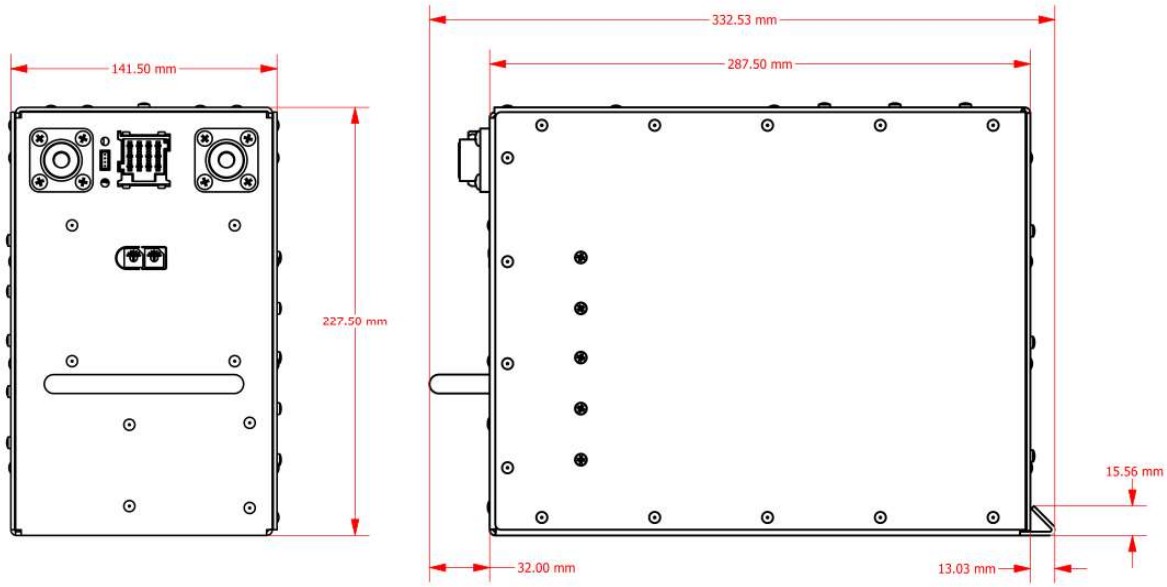


Figure 4 CANR Series Dimensions

3. Cangoee CANONE Series – Quick Start Guide

	
CANONE110BA	CANONE110NO20

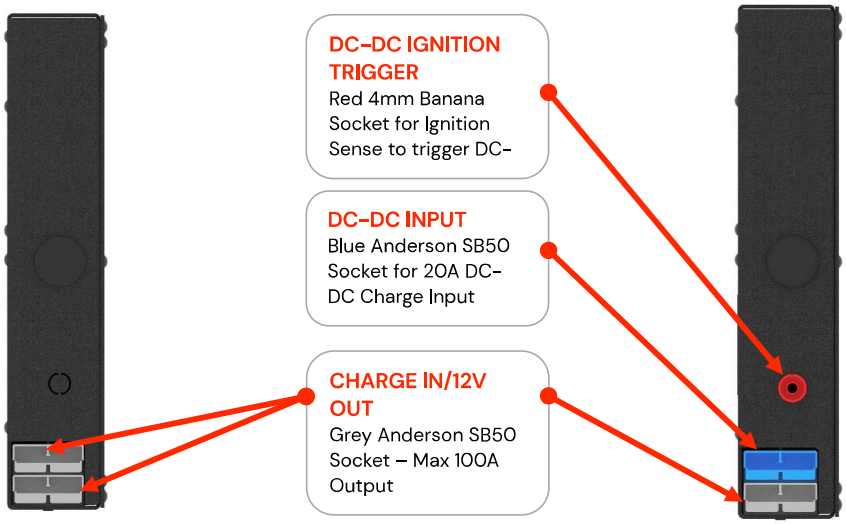


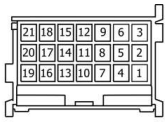
Figure 5 CANONE Series Connection Description

4. Cangoee Slimline and Rectangular Power Bank Series – Quick Start Guide

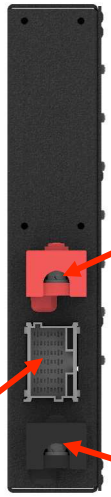
		
CANS11OBA	CANL11OBA	CANR11OBA/BA2

21 WAY MULTI-CONTACT POINT (MCP) CONNECTOR

The MCP Connector is your access point to the internal features of the battery. Connection to the individual Lithium Cell voltage readings can be used for servicing the battery and fault finding - these are Pins 14 to 17 – **DO NOT TOUCH THESE PINS**. No other pin is active and cannot be used.



Receptacle Connector Pin Layout (External Side)



12V POSITIVE OUT (Threaded Connection)

M6 thread (M8 on Rectangular Series) intended for 6mm lugs for load outputs and input channel to charge the battery using a lithium-compatible battery charger.

Charge Current:
100A Maximum
Discharge Current:
100A continuous
200A surge (1 secs @ 25°C

12V NEGATIVE OUT (Threaded Connection)

M6 threads intended for 6mm lugs for load and input negatives.

12 WAY MULTI-CONTACT POINT (MCP) CONNECTOR

The MCP Connector serves as the access point to the internal features of the battery. The individual Lithium Cell voltage readings can be used for servicing the battery and fault finding – these correspond to PIN 1 through to PIN 5 – **DO NOT TOUCH THESE PINS**. Other active MCP Pins are detailed in the table below.

ACTIVE MCP PINOUT:

Receptable Housing Pin Layout (External Side)

PIN 12:	BMS OFF

Figure 6 CAN Slimline & Rectangular Power Bank Series Connection Description

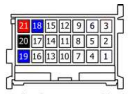
5. Cangoee Slimline and Rectangular Power Node Series – Quick Start Guide

			
CANS110NO20	CANL110NO40	CANL110NO40-HP	CANR110NO20

21 WAY MULTI-CONTACT POINT (MCP) CONNECTOR

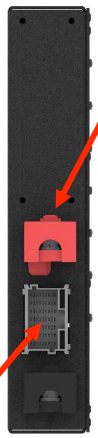
The MCP Connector provides access to the battery's internal features. Individual Lithium Cell voltage readings from PIN 14 to PIN 17 are used for battery servicing and fault finding – **DO NOT TOUCH THESE PINS**. Active MCP Pins are below.

ACTIVE MCP PINOUT:



Receptacle Connector Pin Layout (External Side)

PIN 18:	DCDC 1 +VE
PIN 19:	DCDC 2 +VE (NO40)
PIN 20:	DCDC -VE
PIN 21:	IGNITION SENSE



12V NEGATIVE OUT (Threaded Connection)

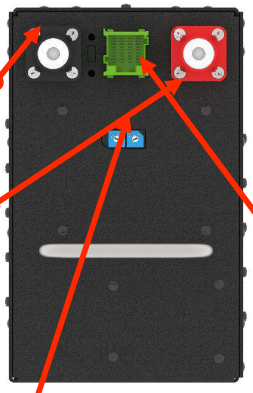
M6 threads (M8 thread on Rectangular Series) intended for 6mm lugs for load and input negatives.

12V POSITIVE OUT (Threaded Connection)

Charge Current:
100A Max.
200A Max (CANL110NO40-HP)
Discharge Current:
100A cont.
200A cont. (CANL110NO40-HP)
200A surge (1 sec @ 25°C Ambient)
400A surge (1 sec @ 25°C Ambient – CANL110NO40-HP)

DC-DC Charger Setting Rotary Switch

Users can configure Measured Voltage levels and Delay timings using two 7-Position (0-6) rotary switches. For details, refer to pages 25 and 26.



12 WAY MULTI-CONTACT POINT (MCP) CONNECTOR

The MCP Connector serves as the access point to the internal features of the battery. Individual Lithium Cell voltage readings from PIN 1 to PIN 5 are used for battery servicing and fault finding – **DO NOT TOUCH THESE PINS**. Other active MCP Pins are detailed in the table below.

ACTIVE MCP PINOUT:

Receptable Housing Pin Layout (External Side)

PIN 06:	DCDC +VE
PIN 07:	DCDC -VE
PIN 08:	IGNITION SENSE
PIN 12:	BMS OFF

Figure 7 CAN Slimline & Rectangular Power Node Series Connection Description

6. Cangoee CANL110MA40 Power Master – Quick Start Guide

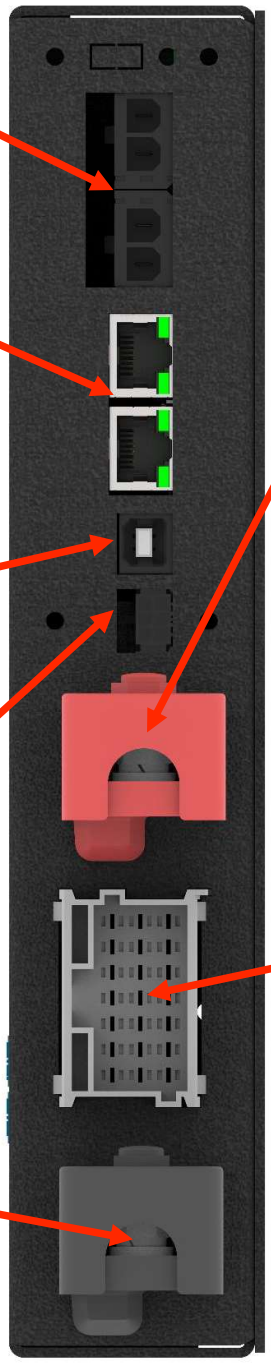
2 x 2 WAY SABRE CONNECTOR
2 x 15A Output (Top Sabre – Constant ON. Bottom – Switched)

2 x RJ45 CONNECTOR
Connection to CANGOEE CANBus devices such as Remote (RCH) or Touchscreen (TCH)

USB TYPE B FEMALE
PCU Configuration Port

PCU CONNECTOR PIN
PCU Inputs & external Shunt connection

12V NEGATIVE OUT (Threaded Connection)
M6 threads intended for 6mm lugs for load and input negatives. If there is no external Shunt in the system, connect the DCDC Negative pin from PIN 20 directly to this stud. If there is an external Shunt in the system, connect PIN 20 to the "System" side of the Shunt.

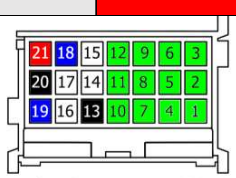


12V POSITIVE OUT (Threaded Connection)
M6 thread intended for 6mm lugs for load outputs and input channel to charge the battery using a lithium-compatible battery charger.
Charge Current:
100A Maximum
Discharge Current:
100A continuous
200A surge (1 secs @ 25°C Ambient)

21 WAY MULTI-CONTACT POINT (MCP) CONNECTOR
The MCP Connector is your access point to the internal features of the battery. Connection to the individual Lithium Cell voltage readings can be used for servicing the battery and fault finding - these are Pins 14 to 17 – **DO NOT TOUCH THESE PINS.** Other active MCP Pins are outlined in the table below.

ACTIVE MCP PINOUT

PIN 1 ~ 12	OUTPUT 1 ~ 12
PIN 18	DCDC 1 +VE
PIN 19	DCDC 2 +VE
PIN 20	DCDC -VE
PIN 21	IGN. SENSE



Receptacle Connector Pin Layout (External Side)

Figure 8 CANL110MA40 Power Master Connection Description

7. Mounting Bracket Placement, and Orientation

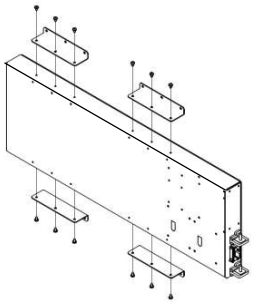
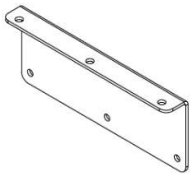
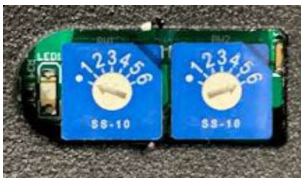
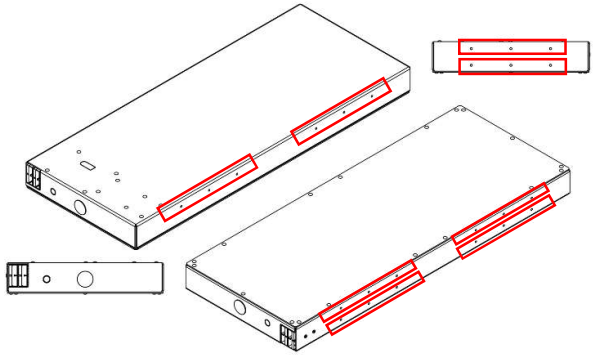
CANONE SERIES CORRECT MOUNTING BRACKET CONFIGURATION	
Using Kit 10018 (Optional)	
WALL/FLOOR MOUNT 	
BRACKET MOUNTING OPTIONS  	SELECTOR SWITCH  See pages 25 and 26 for more details
Mounting Schematic	
	
MOUNTING HOLES THAT ARE SAFE TO MOUNT ARE OUTLINED ABOVE IN RED.	
MOUNTING BRACKETS MUST NOT BE MOUNTED WITH SELECTOR SWITCHES FACING DOWN.	

Table 1 CANONE Series Example Mounting Bracket Placement

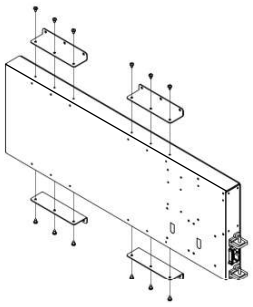
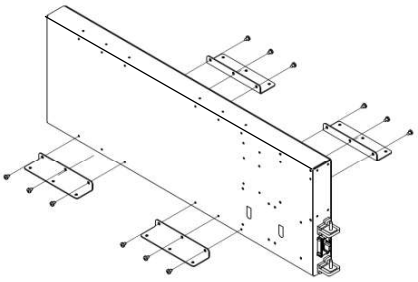
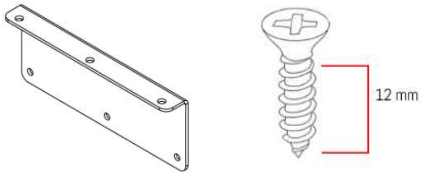
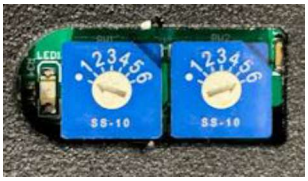
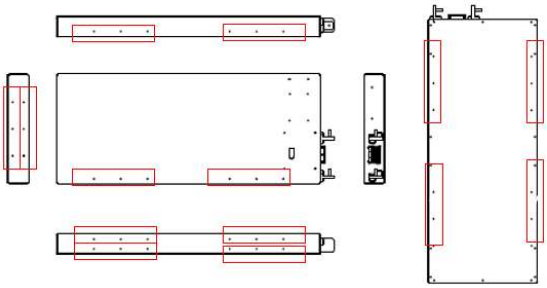
CANS/L SERIES CORRECT MOUNTING BRACKET CONFIGURATION	
Using Kit 10018 (Optional)	
WALL MOUNT 	FLOOR MOUNT 
BRACKET MOUNTING OPTIONS 	SELECTOR SWITCH  See pages 25 and 26 for more details
Mounting Schematic	
	
MOUNTING HOLES THAT ARE SAFE TO MOUNT ARE OUTLINED ABOVE IN RED.	
MOUNTING BRACKETS MUST NOT BE MOUNTED WITH SELECTOR SWITCHES FACING DOWN.	

Table 2 CANS/L Series Example Mounting Bracket Placement

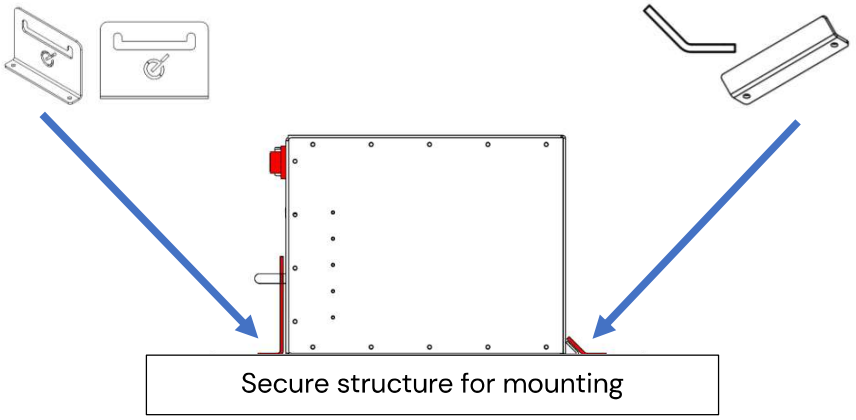
SINGULAR CANR110 SERIES UNIT MOUNTING BRACKET OPTIONS	
CANR110 Series Lift Handle Bracket	CANR110 Series Singular Angle Bracket (Double option also available)
	

Table 3 Singular CANR110 Series Unit Mounting Bracket Placement

7.1 CANGOEE CANR110 Mounting Rack System (Optional)

The CANGOEE CANR110 Mounting Rack System allows for multiple units of the CANR110BA and CANR110BA2 Power Banks and CANR110 series Power Nodes or Power Hubs to be placed into the same rack bay for easy modularity of the overall power system.

By utilising a configuration consisting of multiple units of the CANR110 series Power Banks, Power Nodes, or Power Hubs, a separate bus bar system is employed for both the negative and positive terminals. This simplifies the connection to the power system, requiring only a single positive and a single negative connection – for recommended wire sizes and gauges for connections, please see the table on page 24.

CANGOEE CANR110 SERIESMOUNTING RACK SYSTEM OPTIONS	
	**2 Bay Mounting Rack System** Example System – 1 x CANR110NO20 Power Node + 1 x CANR110BA2 Power Bank = 220Ah System
	**3 Bay Mounting Rack System** Example System – 1 x CANR110NO20 Power Node + 2 x CANR110BA2 Power Banks= 330Ah System
	**6 Bay Mounting Rack System** Example System – 1 x CANR110NO20S15 Power Hub + 3 x CANR110BA Power Banks + 2 x CANR110BA2 Power Banks = 660Ah System

Table 4 CANGOEE CANR110 Mounting Rack System Options

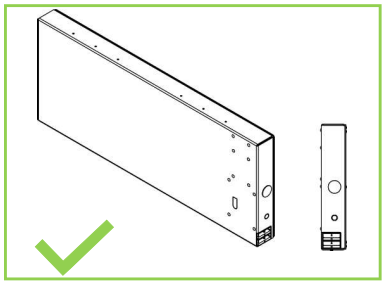
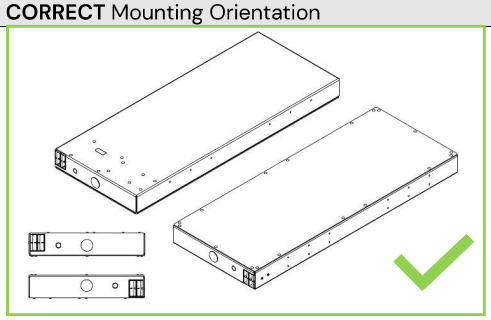
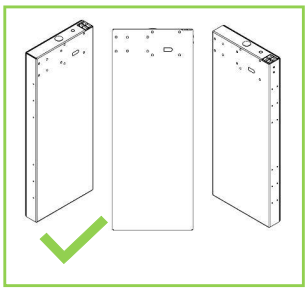
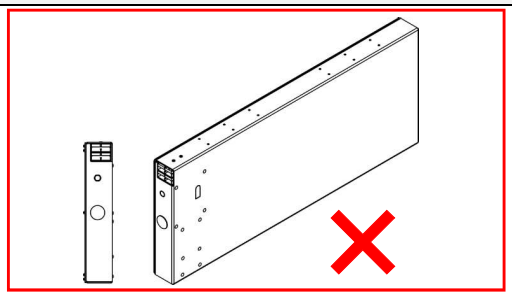
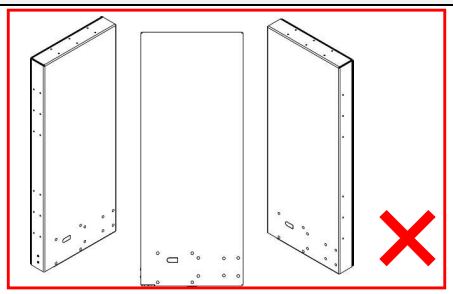
CANONE SERIES EXAMPLE MOUNTING ORIENTATIONS		
CORRECT Mounting Orientation		
		
Vertical on long edge with terminals closest to the ground	Flat mounting orientation.	Vertical on short edge with terminals pointing towards the sky.
INCORRECT Mounting Orientation		
		
Vertical on long edge with terminals furthest from the ground.	Vertical on short edge with terminals pointing towards the ground.	
Please Note: Rotary selector switches should ideally be set before installation of the Power Node as access may be difficult after installation. Please see pages 25 and 26 for details on the rotary selector switch position settings.		

Table 5 CANONE Series Example Mounting Orientation

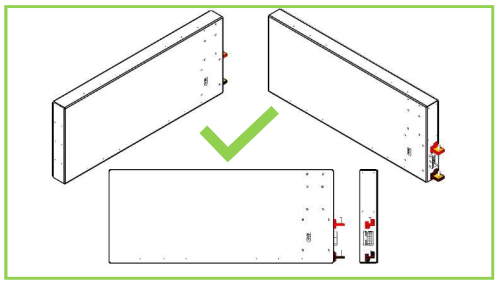
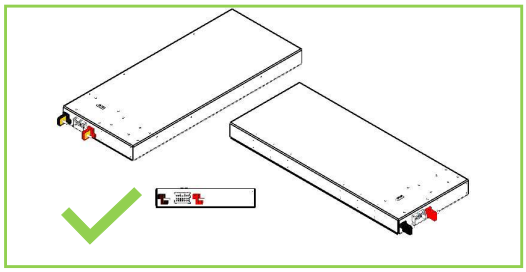
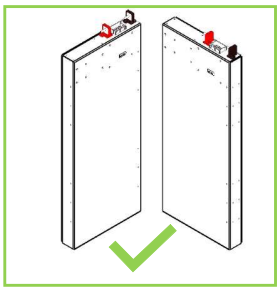
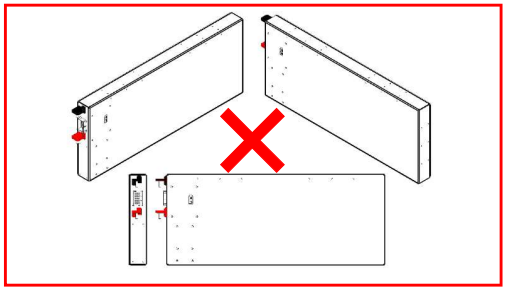
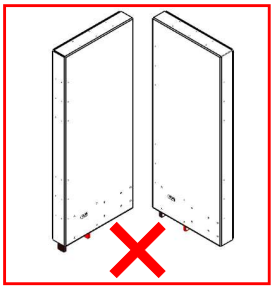
CANS/L SERIES EXAMPLE MOUNTING ORIENTATIONS		
CORRECT Mounting Orientation		
		
Vertical on long edge with terminals pointing towards the sky.	Flat mounting orientation.	Vertical on short edge with terminals pointing towards the sky.
INCORRECT Mounting Orientation		
		
Vertical on long edge with terminals pointing towards the ground.	Vertical on short edge with terminals pointing towards the ground.	
Please Note: Rotary selector switches should ideally be set before installation of the Power Node as access may be difficult after installation. Please see pages 25 and 26 for details on the rotary selector switch position settings.		

Table 6 CANS/L Series Example Mounting Orientation

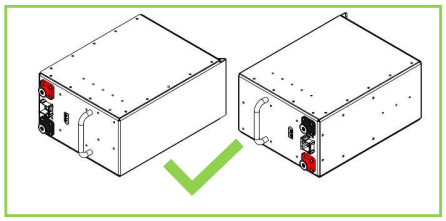
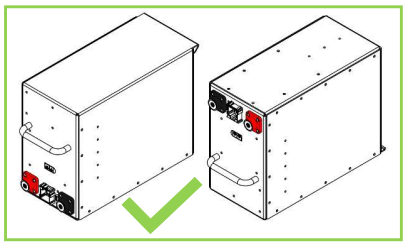
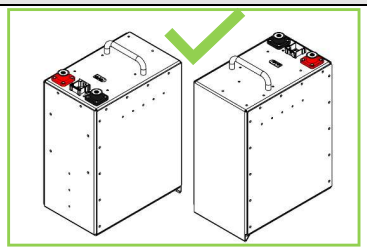
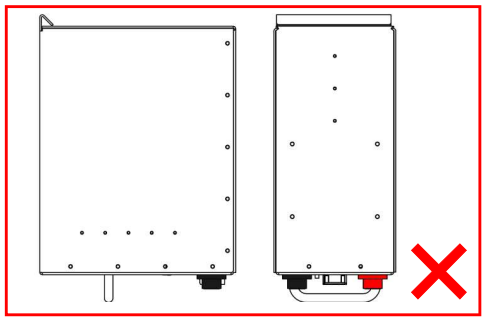
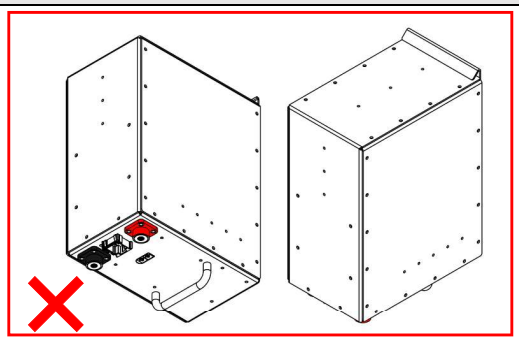
CANR SERIES EXAMPLE MOUNTING ORIENTATIONS		
CORRECT Mounting Orientations		
		
Horizontally on either of its sides.	In upright orientation or upside down.	With the lift handle pointing towards the sky.
INCORRECT Mounting Orientations		
		
Any orientation with the lift handle pointing towards the ground is **INCORRECT**.		
Please Note: Rotary selector switches should ideally be set before installation of the Power Node as access may be difficult after installation. Please see pages 25 and 26 for details on the rotary selector switch position settings.		

Table 7 CANR Series Example Mounting Orientation

8. Example Use Case Schematics – CANS/L110BA

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

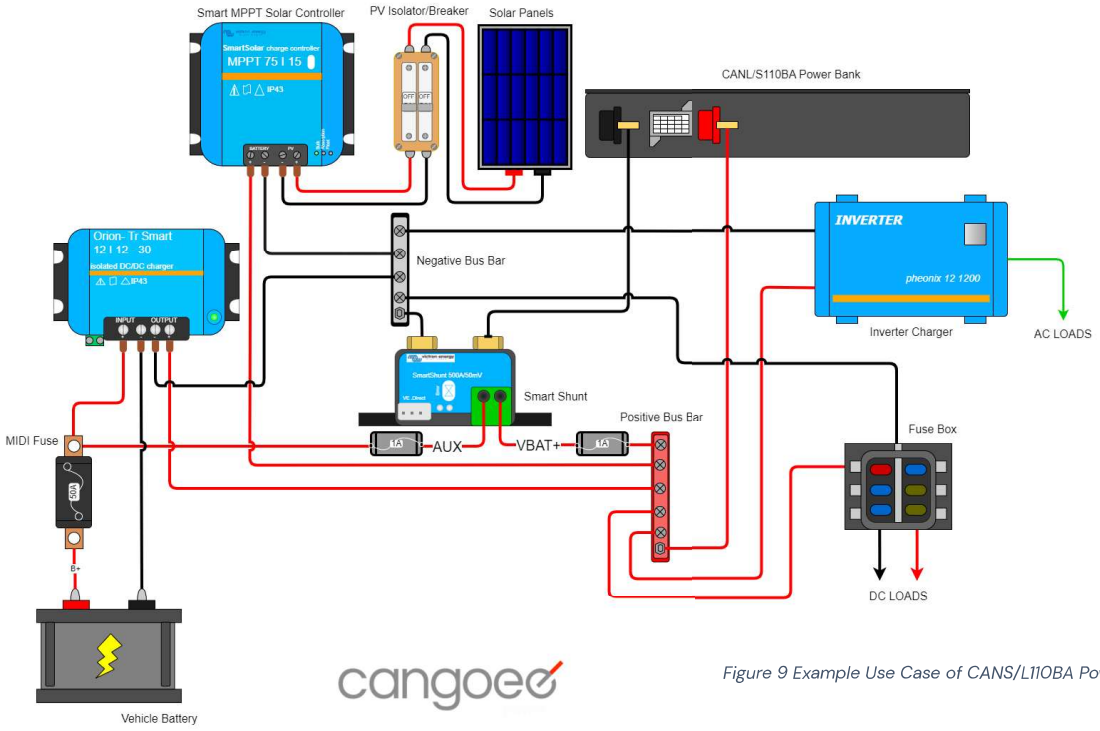


Figure 9 Example Use Case of CANS/L110BA Power Banks

9. Example Use Case Schematics – CANR110BA

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

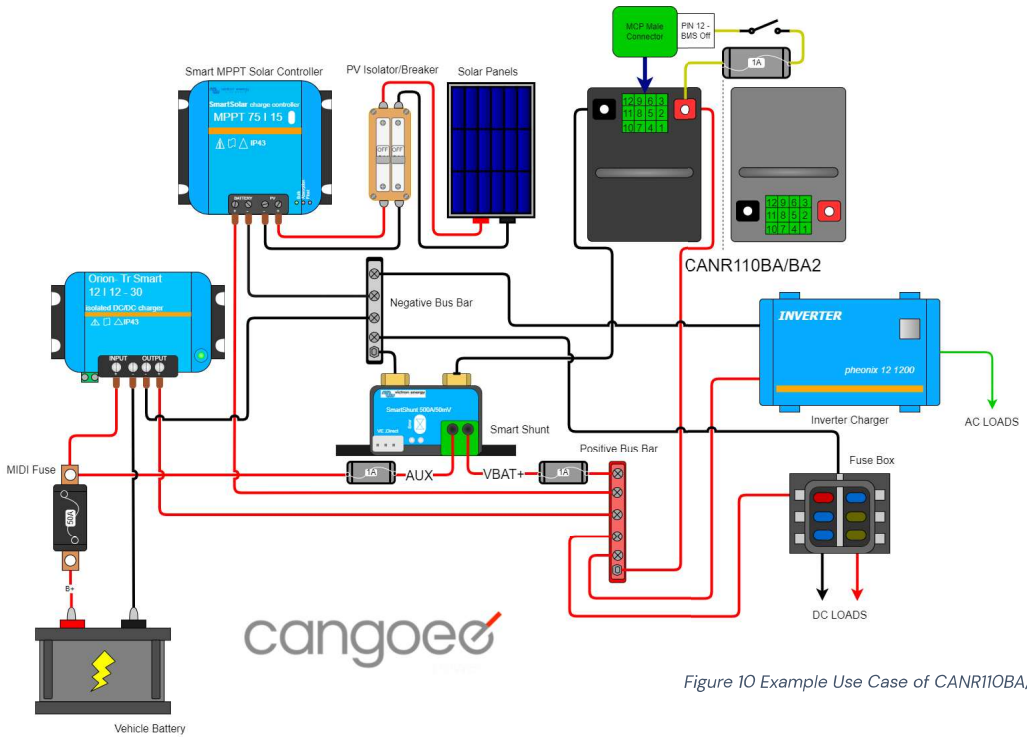


Figure 10 Example Use Case of CANR110BA/BA2 Power Bank

10. Example Use Case Schematics – CANS110NO20

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

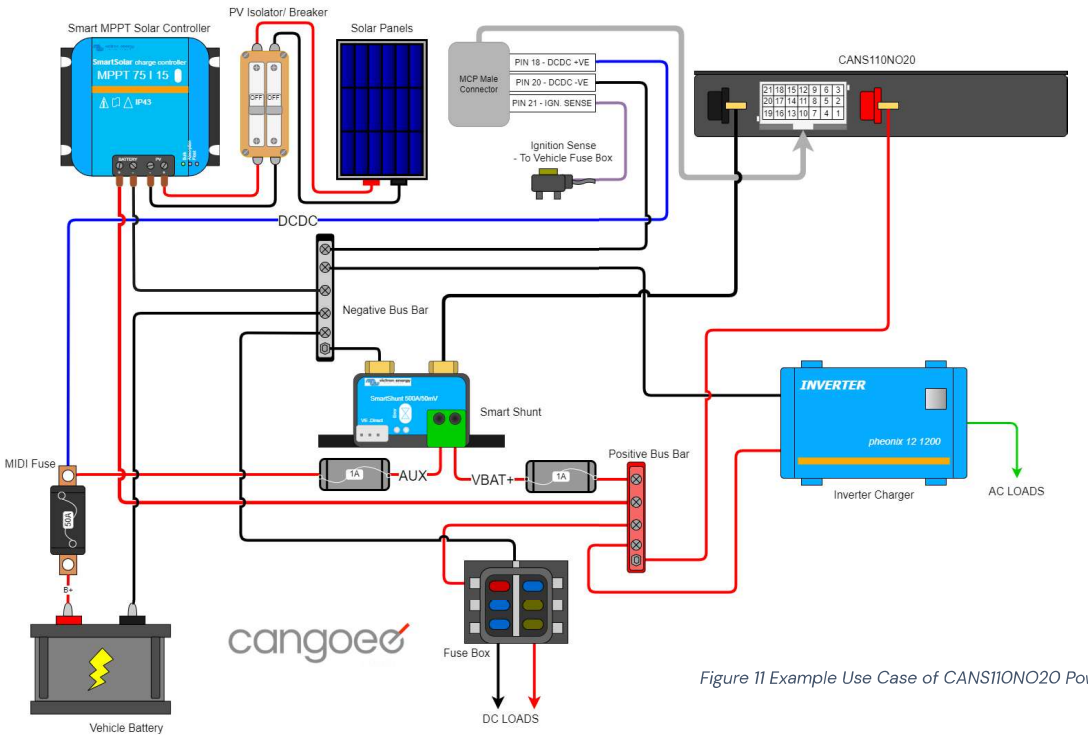


Figure 11 Example Use Case of CANS110NO20 Power Node

11. Example Use Case Schematics – CANL110NO40

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

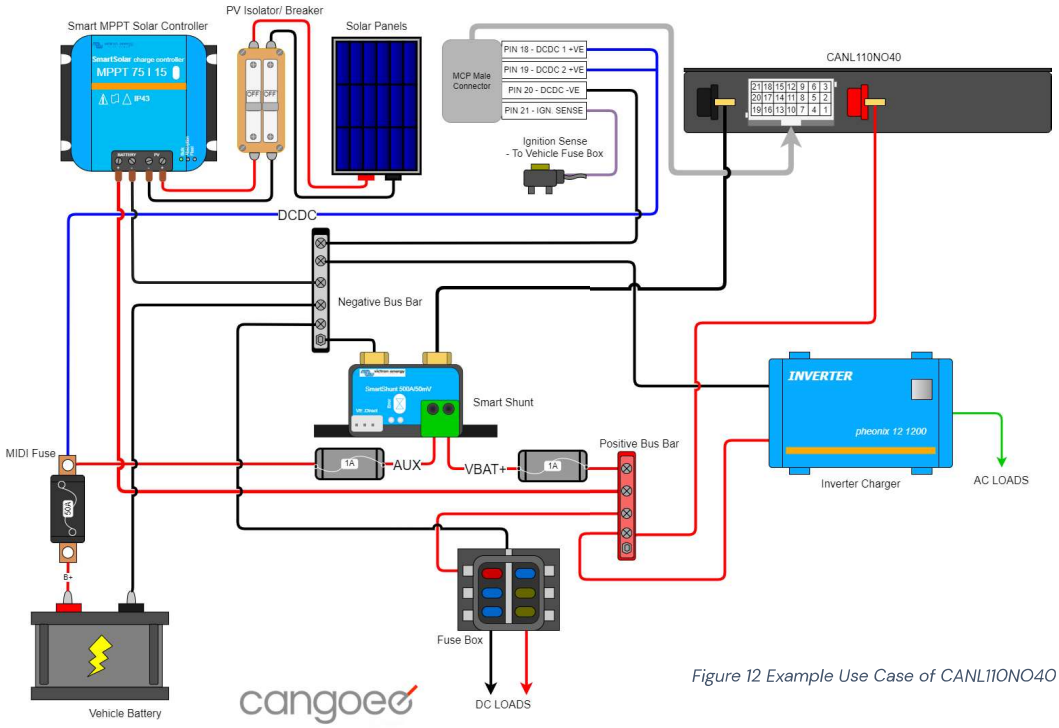


Figure 12 Example Use Case of CANL110NO40 Power Node

12. Example Use Case Schematics – CANL110MA40

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

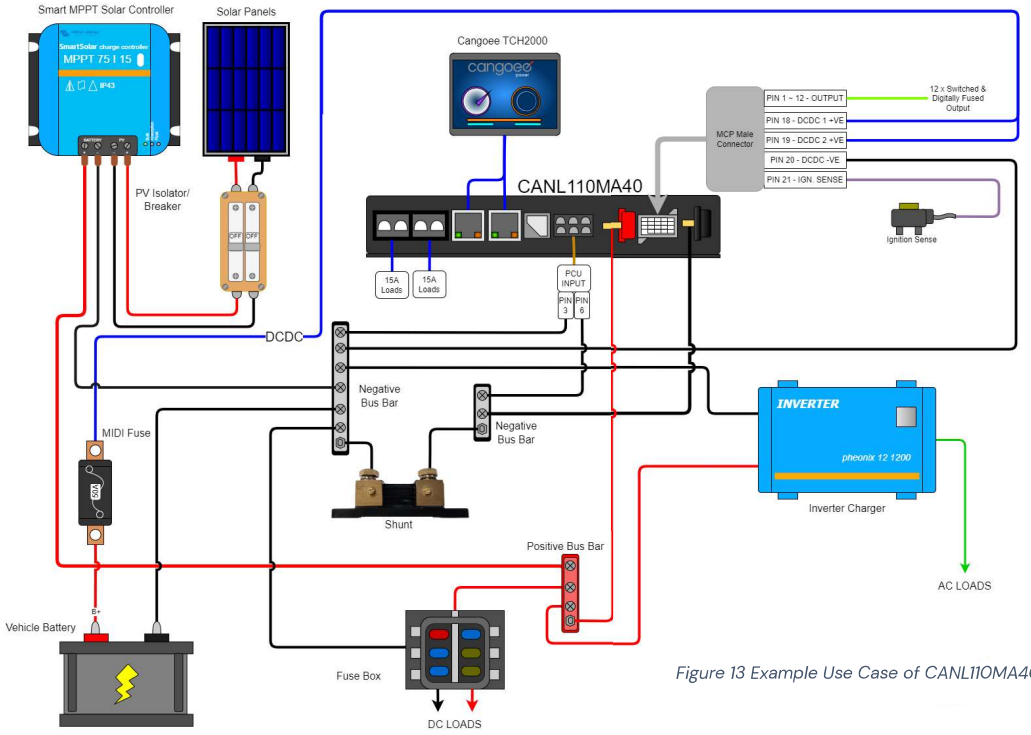
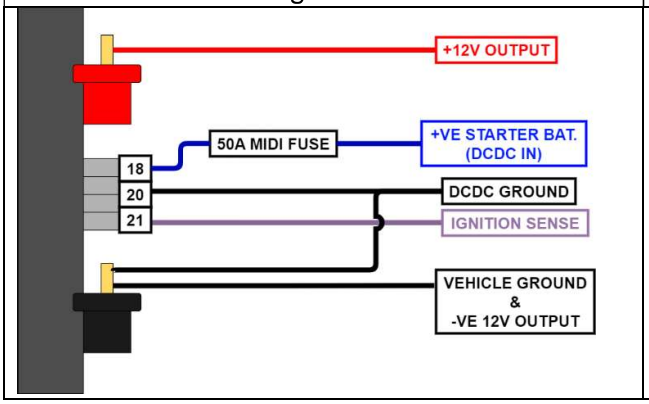
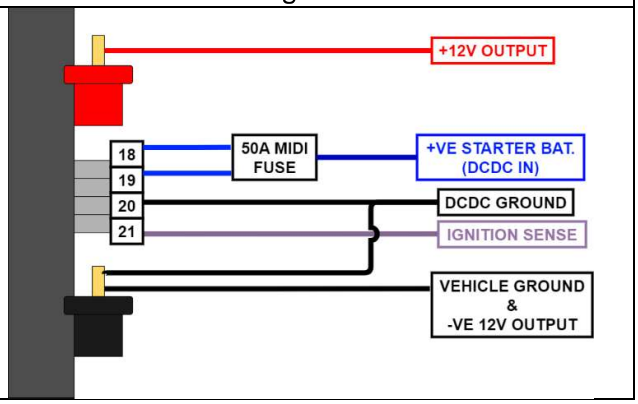


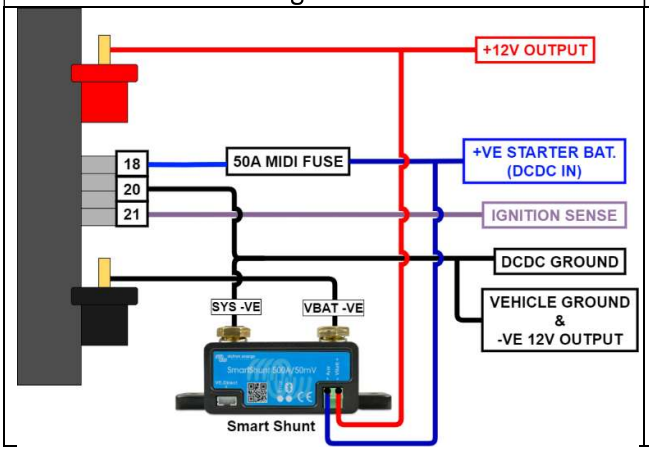
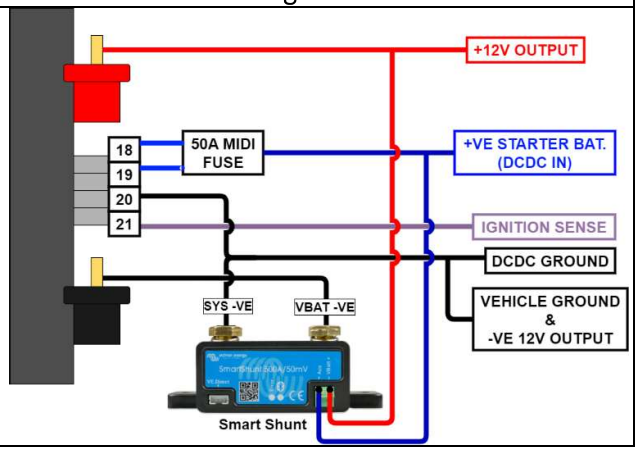
Figure 13 Example Use Case of CANL110MA40 Power Master

13. CAN Series Example Wiring Schematic Overview

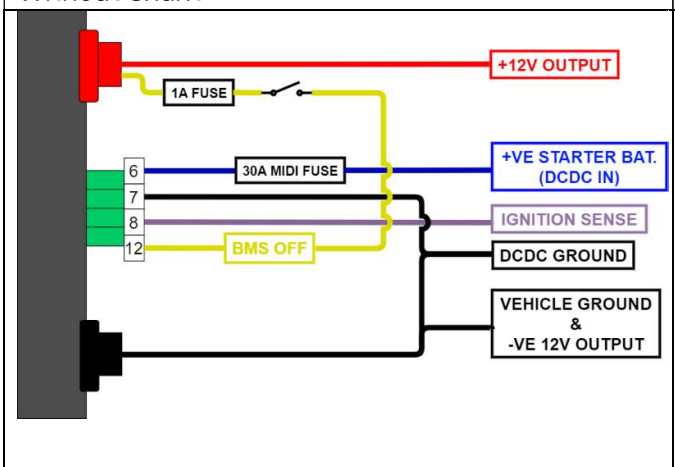
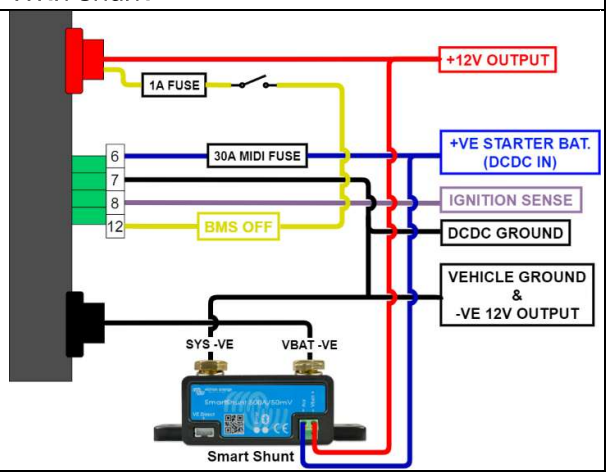
CANS/L Series WITHOUT Shunt

With 20A DCDC Charger	With 40A DCDC Charger
	

CANS/L Series WITH Shunt

With 20A DCDC Charger	With 40A DCDC Charger
	

CANR Series

Without Shunt	With Shunt
	

14. 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
DC-DC 20A	8 B&S/ AWG (CSA 7.71mm^2)	1m- Up to/ Maximum 5m
DC-DC 40A	6 B&S/ AWG (CSA 13.5mm^2)	1m – Up to/ Maximum 5m
Ignition Sense Cable	18-14 B&S/ AWG (CSA 0.64mm^2 – 1.84mm^2) (Running a max of 1-2 Amps)	1m – Up to/ Maximum 6m
Main Positive +	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
Main 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 8 Recommended Wire Sizes and Gauges

Please Note: These wire gauges are suggested to mitigate the voltage drop along the cable. It is recommended that you check the voltage at the battery's DC-DC input and alter charger selector switches accordingly.

15. DC-DC Charger

The DC-DC charger in the CAN Series product line allows the battery to charge from a vehicle engine/alternator/start battery. However, to prevent the depletion of the start battery, it is essential to limit charging to when the engine is actively running.

In some scenarios, determining when the engine is actively operating can be challenging. As a solution, the DC-DC charger uses a combination of inputs to decide when to initiate charging (turn ON) and when to cease charging (turn OFF). The primary goals of the charger are:

- Ensuring that charging occurs only when the engine is actively running, to maximise charging of the CAN Series product line.
- Preventing charging when the engine is not running to avoid discharging the vehicle's start/cranking battery.

The logic for controlling when to activate or deactivate the DC-DC charger is executed through specialised software running on a microcontroller. This software allows for advanced control by considering several inputs including:

- Start battery voltage.
- Ignition signal voltage.
- Timing delays.
- Positions of 2 x 7-position (0-6) rotary switches: user-accessible from outside the battery.

15.1 Measured Voltage

The vehicle's start battery/alternator voltage will be measured with high precision, accurate to ±0.1V or better, and used as a reference for comparison with the ON and OFF levels.

The DC-DC Charger will be activated (start charging) when the **Measured Voltage** goes ABOVE the **ON Level**. Thereafter it will deactivate after the **Measured Voltage** goes BELOW the **OFF Level.**

The OFF level is lower than the ON Level by 1.0V; this forms a "dead-band" where the charger will simply remain in the same state (i.e., remain ON if already ON, and remain OFF if already OFF).

ON and OFF Levels can be selected by the user/installer by choosing the corresponding position on the **Voltage Switch**, which is the left rotary switch accessible from the outside of the battery indicated by the image below:

Voltage Switch Position	ON Level	OFF Level	Application
0	11.0	10.0	Always on: Ignition Relay/ Signal
1	12.0	11.0	When dealing with extended lengths of thin cable, it is **IMPORTANT** to consider **voltage drops**. It is recommended to measure the voltage at both the battery and at the end of the connected cabling. Please see the table on page 24 for recommended cable gauges
2	13.0	12.0	
3	13.3	12.3	
4	13.5	12.5	
5	13.7	12.7	
6	14.0	13.0	

Table 9 Measured Voltage Switch Position Table

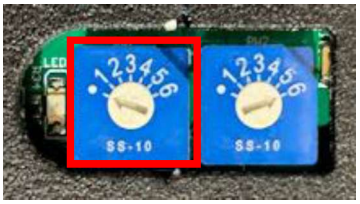


Figure 14 Left Rotary Switch for Measured Voltage Applications outlined in RED.

15.2 Delay Switch

Delay times can be selected by the user/installer by choosing the corresponding position on the **Delay Switch**, which is the right rotary switch accessible from the outside of the battery indicated in the image below:

Delay Switch Position	Delay OFF Time	Application
0	0 sec	Traditional Alternator, or Ignition Relay
1	30 sec	Vehicles with Smart Alternators
2	1 min	
3	1.5 min	
4	3 min	
5	5 min	
6*	***0 sec***	***Ignition signal control***

Table 10 Off Delay Switch Position Table

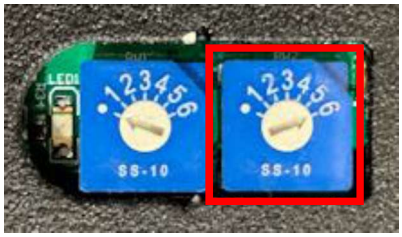


Figure 15 Right Rotary Switch for Off Delay Applications outlined in RED.

15.3 Off-Delay

After the measured voltage falls BELOW the OFF level, the DC-DC charger will incorporate a delay before turning off (ceasing to charge). This delay is implemented to accommodate smart alternators, which may lower the voltage for brief periods of time (duration may vary based on the drive cycle, vehicle model, and other factors).

During this delay period where the voltage has gone BELOW the OFF level and the DC-DC charger is "waiting" to turn OFF, the status LED will flash to indicate that it will turn off soon.

If the voltage rises ABOVE the ON level within this delay period, the timer will reset, and the DC-DC charger will stay on.

15.4 On-Delay

If the Ignition Signal is selected (position **6** on the **Delay Switch**) the DC-DC charger will wait **15 seconds** before turning ON. This delay prevents placing extra load on the start battery before and straight after the engine turns on. There is no On-Delay for other positions as the DC-DC Charger will monitor the vehicle start battery/alternator voltage to operate.

15.5 Ignition Signal

If **Position 6** on the **Delay Switch** is selected then the ignition signal (via a separate connection point) will serve as a binary reference (ON or OFF), and there will be no delay when turning off. This has two benefits:

- The ignition signal is (usually) a reliable indicator that the engine is running.
- Voltage drop considerations along the positive DC-DC charging cable are not required.

The default setting for most applications is 0 on the voltage switch and 6 on the delay switch, this enables DC-DC charging operation to be ON 15 seconds after the Ignition is on.

Note that even if the ignition signal is used for the measured voltage, there will still be a voltage drop along the negative path of the DC-DC charging cable to the start battery. Voltage drop is likely to be negligible along vehicle chassis, however, if the negative path is via a long and/or thin cable, then voltage drop may still be a factor and needs to be considered.

16. Battery Management System

The CAN Power Products are all equipped internally with a Battery Management System (BMS), which is an electronic solid-state circuit board that serves multiple important functions:

- Battery Cell Management: The BMS manages and maintains the cells within the battery.
- Safety Measures: The BMS provides safeguards that protect against overcharging and over-discharging and activates in response to situations where the battery is producing low voltage (less than 10.5V), overcurrent (more than 100A), or short-circuit situations.
- Cell Balancing: The BMS ensures that the cells within the CAN Power Products are equalised throughout its operation to promote overall efficiency and longevity.
- Cell Temperature Sensing. If the BMS detects the temperature of the cells to be above 45˚C, it will automatically stop charging and discharging until the temperature has returned within the range of 0˚C - 45˚C.

Unlike lead-acid batteries, overcharging or over-discharging a lithium battery may lead to a hazardous scenario, therefore, the BMS is essential to the lithium battery.

16.1 BMS Off Functionality

For CANR Series Products, the BMS is equipped with a remote load disconnector which can cut off power/ voltage from the main positive and negative terminals. This functionality is intended for isolating remote loads and should only be utilised as a substitute for a dedicated isolator. It can be activated by supplying 12V to PIN 12 of the MCP Connector which will internally disconnect all loads from the battery terminals. **Please Note**: The activation of this functionality will also disable the battery's ability to charge.

- For single or multiple batteries in a switched circuit setup, it is considered best practice to fuse PIN 12 to the main positive with a fuse rated for 1 to 2 Amps. **DO NOT** connect PIN 5

17. Safety Tips

The battery contains Lithium Ferrous Phosphate (LiFePO4) cells, considered to be the safest of all lithium-ion chemistries. The battery consists of a large amount of stored energy. Please follow these safety tips for use and operation:

- Ensure the battery is secured safely before travel.
- Do not drill into the enclosure. Doing so may inadvertently puncture one of the internal cells.
- Do not short-circuit the battery. Be careful not to drop a metallic object across the two exposed terminals. Always keep the terminal caps on the Positive (red) and Negative (black) posts during operation.
- Do not mount the battery upside down. The battery can also be mounted on its side if mounting upright is not an option. Correct battery mounting positions are shown in tables for relevant product series on pages 15 to 17.
- Do not connect multiple batteries in series to raise the voltage. The BMS is not designed to accommodate higher voltages.

18. Longevity Tips

Factors that mainly affect the lifespan of the battery are depth of discharge and operating temperature. To ensure longevity and use of the battery:

- Do not fully discharge the battery to zero. Each time the battery is discharged to zero, either intentionally or unintentionally, it reduces the lifespan of the battery.
- Do not discharge the battery below 80% depth of discharge (i.e., 20% full).
- Do not charge the battery outside the range 0˚C - 45˚C to maximize the life of the battery and avoid damage to the cells.
- Avoid exposing the battery to direct sunlight, mount the battery in a compartment or undercover.

The cells are designed to last 2,000 cycles at 80% DOD (Depth of Discharge) and 5,000 cycles at 50% DOD.

19. Tips for Use

- Batteries of the same voltage may be placed in parallel to increase storage capacity. However, each battery should be independently fused, and the battery must be from **CANGOEE**.
- If the battery temperature is potentially less than 0˚C it is essential to allow the battery to warm to ambient temperature before connecting power to it.
- The battery is splash-proof and water resistant but not waterproof, **DO NOT** directly submerge the battery in water.
- The battery is designed to be housed in a dry, enclosed compartment, not in direct sunlight or exposed to outside weather conditions for an extended period.
- Only use Lithium Battery Chargers to recharge the battery.

20. Maintenance Tips

If not using the battery for a prolonged period (months at a time), then store the battery as follows:

- Disconnect all loads from the battery so that there is no external current draw.
- Ensure the battery is close to full capacity as the battery will slowly self-discharge over time.
- Do not keep the battery on trickle charge as this may harm the internal battery cells.

Within every two months, give the battery a quick recharge to ensure battery longevity.

21. Overall Specifications

Specification	Bank				Node					Master
	CANONE110BA	CANS110BA	CANL110BA	CANR110BA/ BA2	CANONE110 NO20	CANS110 NO20	CANL110 NO40	CANL110N O40-HP	CANR110 NO20	CANL110MA40
Cell Type	Lithium- Ferrous Phosphate (LiFePO4)									
Total Capacity	110Ah									
Nominal Voltage	12.8V									
Charge Voltage	13.8 – 14.6V									
Float Voltage	13.6V									
Charge Current	100A									
Discharge Current	120A Cont. 240A Surge	100A Cont. 200A Surge	100A Cont. 200A Surge	100A Cont. 200A Surge	120A Cont. 240A Surge	100A Cont. 200A Surge	100A Cont. 200A Surge	200A Cont. 400A Surge	100A Cont. 200A Surge	100A Cont. 200A Surge
DC-DC Charger	X	X	X	X	20A	20A	2 x 20A	2 x 20A	20A	2 x 20A
Operating Temp.	0°C - 45°C									
Dimensions (LxWxD)	636mm x 256mm x 50mm	668.5mm x 264mm x 50mm	783mm x 262mm x 50mm	332.5 mm x 227.5 mm x 141.5 mm	636mm x 256mm x 50mm	668.5mm x 264mm x 50mm	783mm x 262mm x 50mm		332.5 mm x 227.5 mm x 141.5 mm	783mm x 262mm x 50mm

Table 11 Cangoee Power Products Specifications