



DCS PV Series 15kWh

Operating Manual & Installation Guide

Key Information & Intended Use

This LFP battery system has been designed to be used in residential and commercial ESS (Energy Storage Systems). It is a 51.2V (48V) storage system, suitable for off-grid and grid interactive (hybrid) systems when used with compatible 48V inverters.

The battery system has been designed and tested in accordance with international safety requirements. However, in order to prevent personal injury and property damage and ensure long-term operation of the battery system, please read the following sections carefully.

Installation locations:

To achieve the maximum service life it is highly recommend to install these batteries inside dry cool locations with stable temperatures. Ideally these batteries should be installed inside climate controlled rooms and kept between 20 - 25 Degrees C all year round. This is also the best environment for the inverting electronics.

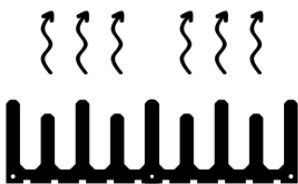
If a climate controlled environment is not possible, pick a location that is well ventilated, dry and cool. Never install batteries in locations where they will be subject to the elements such as direct sunlight and rain. If installing externally pick a well protected and permanently shaded and covered location.

Installation:

The batteries are designed to be wall mounted and included in the scope of delivery is a sturdy wall mounting bracket. If installing to a timber stud wall, it is important to brace in-between the studs to strengthen the load carrying ability. Using a plywood sheet is an easy way to spread the weight of the mounting bracket over a larger surface area and also provides more surface area for mounting other equipment, such as isolators and inverters.

There is a lifting point and eyelet located at the top of the battery pack, the batteries are designed to be lifted onto the wall mounting bracket and gravity located into position.

If installing inside a garage ensure the batteries are positioned low to the ground, e.g. 200-300mm above floor level, to avoid the hotter ceiling temperatures especially over the summer months.



These batteries are passively cooled via a large network of copper heatsinks. During battery operation the heatsinks are constantly pulling heat away from the battery cells and exchanging that heat with atmosphere via the stainless steel cover and black body magnesium alloy frame. It is important that the battery packs are never accidentally covered with any towels or rags and there is a minimum of 300mm clearance above the batteries and the front of the batteries so the cooling performance is not effected.

Electrical Connection:

Once the battery pack is mounted on the wall, at the bottom of the battery case there are two terminal boxes. Remove the dust covers to expose the M8 battery terminals and cable glands.



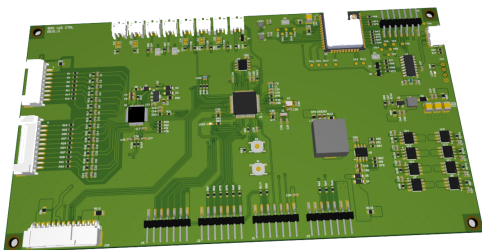
Both the positive (RED) and negative (BLACK) terminal boxes feature 2 x M8 terminals. Each terminal can carry up to 100A 5kW continuously. If connecting the batteries to a 5kW (100A) inverter only one pair of terminals can be used.

If connecting the batteries to a larger system that exceeds 5kW (100A) both terminals must be used with a maximum current limit for charge/discharge of 10kW (200A).

Battery Management System:

External data communications are not required between the batteries and the compatible inverters. As long as the voltage settings are correctly configured in the inverters settings (refer to the 'Inverter Settings' in the next section). The onboard BMS (Battery Management System) inside the batteries will always keep the batteries operating at their optimum, external throttling commands are not required to be executed and sent to the inverter by the BMS.

Should there be an inverting equipment or switch gear failure, the BMS will protect the batteries from over discharge for a maximum period of up to 30 days. If the BMS open circuits then battery terminals (because the battery pack is over-discharged), damage can start to occur to the battery cells from over-discharge. It's important to isolate all loads from the batteries as soon as possible to limit the amount of drain on the batteries. Any failed equipment should be replaced and the batteries fully charged within 30 days of the failure event.



Inverter Settings:

Cycle Voltage Range: 50.0V - 55.0V

Battery Capacity: 293Ah

Over Voltage Protection: 56.5V

Bulk Charge voltage: 55.0V

Float Voltage: 54.0V

Maximum charge/discharge current: 200A

Grid/Generator Support Voltage: 50.0V

When configuring an off-grid system Generator Backup support voltage should be set to 50.0V.

When configuring a hybrid (grid interactive) system Grid Support Voltage should be set to 51.2V. Depending on the inverter manufacturer, some manufacturers will refer to this setting as “Over Discharge Voltage” OR “Discharge End Voltage”.

Switch the inverter on first, configure the battery settings as per above and ensure the settings have been saved successfully before switching the batteries on.

Maintenance and Storage:

The battery cover is made from 316 marine grade stainless steel, it is polished with a 3M protective coating. To maintain this appearance it's best to polish the stainless steel once a year using a suitable polish and wiping it down with a white non-abrasive cloth.

If the batteries are disconnected and not in service, they should be stored in an environment between 0 - 30 degrees C at around 50%SOC. Every 3 months the batteries should be fully cycled from 50V - 55.V and then left at around 50%SOC.

Technical Information:

Design Voltage: 48V

Nominal Voltage: 51.2V

Nominal Capacity: 293Ah

Nominal Energy: 15,000Wh

Usable Storage: 15kWh

Case Dimensions: 1440 x 440 x 215mm

Weight: 145KGs

Continuous Charge / Discharge: 200A (10kW)

Cycling Voltage Range: 50.0V - 55.0V

Bulk Charge: 55.0V

Float Voltage: 54.0V

LVD (Low Voltage Disconnect): 50.0V

Nominal Charge/Discharge Current: 1C

Battery Round Trip Efficiency: 97% (0.3C @ 25 Degrees C)

Optimal Operating Temperature: 15 - 30 degrees C

Cooling Design: Natural Convection Copper Heatsinks

Ingress Rating: IP-56

Certifications: IEC62133, IEC62619, UN38.3

Contact Information:

Deep Cycle Systems Pty Ltd

Unit 2, 5 McPhail Road

Coomera, QLD 4209, Australia

Tel: 1300 795 327