GivEnergy®
Commercial

SME AND COMMERCIAL

QUICK START END USER GUIDE

V 1.0 05/23

This guide is intended to support the end user in identifying components of the system, how to interpret the information available on the screen(s) and how to safely turn the system on and off again. More detailed information on how to program the system can be found in the relevant installation manuals.

Support

For technical support or enquiries contact us on:

commercial@givenergy.co.uk

01377 252 874 (opt 6)

Caution: High DC voltage can be present even when the system is turned off, do not attempt to remove any covers, plugs, or sockets. Please speak to GivEnergy or your installer if you think the system is not operating correctly.

Housekeeping

Due to the presence of high voltages and heat generation from the system, access should be restricted to authorised persons only. Nothing must be stored against any component of the system and the ventilation louvers of all components must be kept clear and clean to ensure efficient operation.

Getting to know your system

Every system will have an inverter (PCS) and at least one bank of batteries. Larger systems with multiple battery banks will also have a DC combiner cabinet.

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PCS size options are 30, 50, 100, 150, 250, and 500kW.

Operating principles are the same through all models. The 250 and 500kW units have double opening doors, with smaller units having a single door.

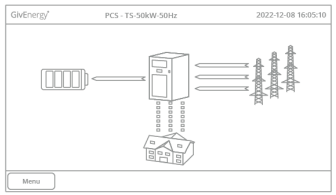
Every PCS has an Emergency Stop button (EPO) on its front door which can be pressed to stop the PCS operation in an emergency. Pressing this button will also disconnect the connection to the site's electrics.

The PCS is what is used to charge and discharge the batteries. Its main purpose is to converter AC > DC < AC and to synchronize its output to the grid. The PCS can also provide electric to site in the event of a grid failure if it is configured to do so.

Inside the doors several switches can be seen:

1. QDC To the left is the DC switch, which disconnects the batteries. This switch should never be operated whilst the PCS is running
2. QAC2 In the middle is the supply MCB, which disconnects the AC
3. QAC1 to the right disconnects the AC output*

**QAC1 'EPS output' is optional. Normally the PCS charges and discharges via the same cable, anything connected to QAC1 benefits from still having power in the event of a grid failure. If the EPS output is not configured on your system you must speak to GivEnergy or your installer before making any changes.*



PCS screen LED status lights

LED	Status	Description
Green	Solid	Normal operation
	Flashing	Standby
	Off	Off
Green	Solid	Grid ok
Red	Solid	Fault / Alarm

Operational information can be seen on the screen. Tap the screen to light it up if it is off or dull.
Settings access is for access to the menu — speak to your installer or GivEnergy.
Each of the icons on the screen can be pressed to show more detailed live information.

Home screen

Battery	Battery information
PCS	PCS information
Grid	Grid information
Load	Not used

Menu button

Battery	Turn on	Battery information
PCS	Stand-by	PCS information
Grid	Turn off	Grid information
Load	Host	Not used
System *Parameter setting*	Control mode	**Local** - Control operation from PCS screen **Remote** - Control via EMS
	Constant power	Operating power of PCS *(Auto set when in remote control)*
	Advance settings	GivEnergy operation only
System *Battery setting*	GivEnergy operation only	
System *Automatic operation*	GivEnergy operation only	

DC CABINET

The DC cabinet is used to combine multiple battery racks to one or more PCS units. The screen on the DC cabinet can be used to view detailed information about the batteries. Single battery systems will not have a DC cabinet installed.

To log in to the screen:

User: Operator
Password: 1111

The internal covers may only be removed by competent electricians or GivEnergy engineers due to potential high DC voltages.

Status lights;

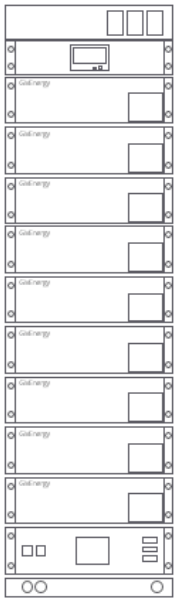
LED	Name	Definition
Colour	Power	DC cabinet on
Red	Closing	DC contactor on
Green	Switch	DC contactor off
Amber	Fault	Fault/notification

DC cabinet screen information

- Overall rack voltage
- Overall rack charge/discharge current
- Rack SOC %
- Highest and lowest cell voltage
- Highest and lowest pack temperature
- ON/OFF state of the electrical contactor with the high voltage box of each rack

BATTERY RACKS

SME



Inside the cabinet you will find:

At the very top is an MCB for the control systems, you will also see the power supply to the EMS.

Below this is a UPS (single battery systems only). The UPS is used to ensure a constant supply of power to the control systems in the event of a grid failure.

The next 9 units above are each a 7.68kWh battery.

At the very bottom you will find the high voltage box, this combines all the battery packs of this rack together. On the front of this you will find a Run button and a DC MCB.

Commercial battery rack

Larger system comprise of open rack style batteries. None of the connections must be plugged in or removed whilst the system is turned on.

The bottom right module is the high voltage box, this combines all the battery packs of the rack together. On the front of this you will find a Run button, Alarm light and On/Off switch.

These racks normally consist of 19 10.8kWh battery packs, each having a positive, negative and 2 data connections.

On single rack systems you will find the EMS in the bottom left pocket.

Above this is a UPS (single battery systems only). The UPS is used to ensure a constant supply of power to the control systems in the event of a grid failure.

Ensuring all connections are terminated correctly, the following turn-on procedure should be followed.

Power-on procedure:

1. Release all EPO buttons if pressed
2. At the PCS
    a. Turn on the AC Supply MCCB **(QAC2)**
    b. Wait for the screen to power up and display correct grid voltages*
    c. Turn on the EPS output MCCB **(QAC1)**
    d. Wait for the screen to show voltages on 'load'
3. At the battery rack(s)
    a. Turn on all switches / DC MCBs on each high voltage box
4. At the DC cabinet (if fitted)
    a. Open the door and turn on all MCBs
    b. Press the on button on the screen
5. Turn on the QDC Switch and check for the correct DC voltage from the batteries

**On first start up/initial commissioning, it is advised that the operational settings are checked after step 2 before proceeding to the next steps.*

SHUT DOWN PROCEDURE

In an emergency press the EPO on the PCS first then the EPO on all battery cabinets/racks.

1. At the PCS
    a. Press the EPO button
    b. Turn off the AC and EPS MCCBs **(QAC1 & QAC2)**
    c. Turn off DC switch
2. At the DC cabinet (if fitted)
    a. Turn on all switches / DC MCBs on each high voltage box
    b. Open the door and turn off all MCBs
3. At the battery rack(s)
    a. Turn off all switches / DC MCBs on each high voltage box

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