EV Charge Points:
PV Solar Panels in Domestic Environments

### Product: eDock EVC7001, eVoom EVC7007 and eVoomXT EVC7005

Introduction

Energy from solar or PV panels can be used to power appliances within the home and reduce the amount of energy being drawn from the grid.

This energy can also be used to charge Electric Vehicles (EVs) where they take all the energy from the solar panels or a combination where energy being drawn by the EV is coming partly from the grid, and partly from the PV panels. In a domestic installation, PV panels supply typically 4kW.

Solar Panel Systems

The energy produced by PV panels can feed into the consumer unit and supplies any electrical appliances/loads and appliances fed by it. Any additional energy supply required comes from the grid.

The PV panels feed power into the consumer unit via an inverter and a FiT (Feed-in Tariff) or generation meter which measures the amount of energy being generated and monitors the performance of the system, as seen in the diagram below.
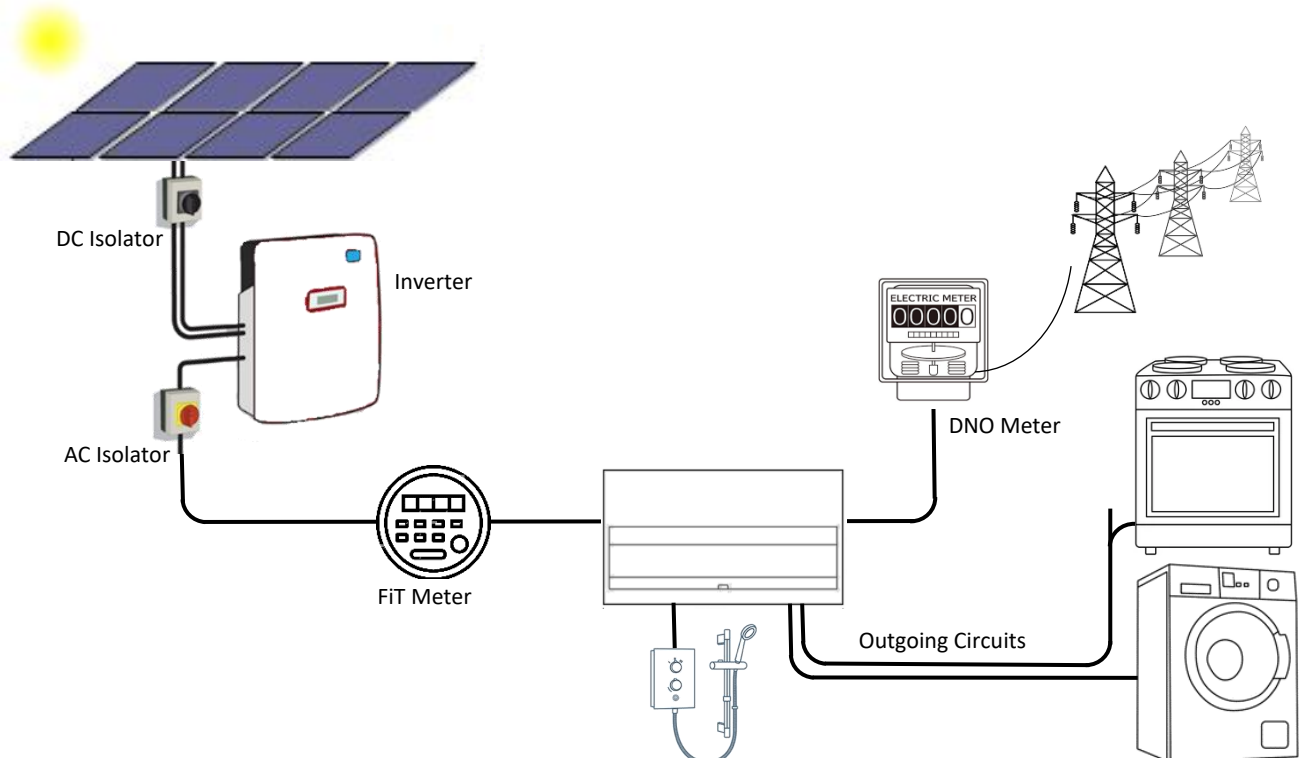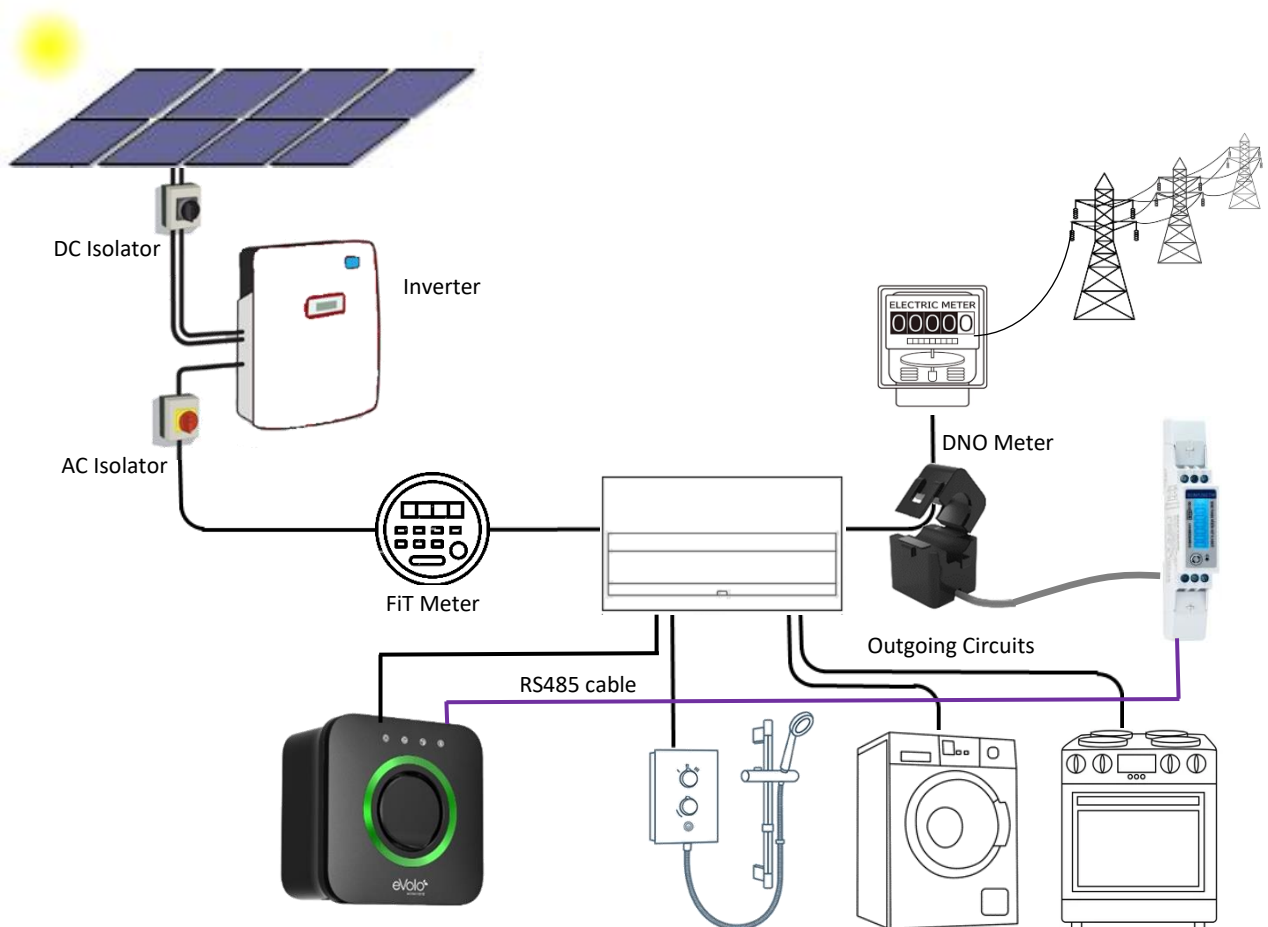
EV Charge Points

There are two general approaches when considering solar power and Electric Vehicle charge points (EVCPs). The EVCP is a large additional load on the consumer unit which can be limited using the APP depending upon the amount of headroom available. This would include reducing the power available to the EVCP depending on the other loads on the domestic installation.

The energy produced by the PV panels can be used to charge the EV and if there isn't sufficient sunlight, it will be charged by energy from the grid.

1. **Limiting the maximum power to the EVCP**

   Managing the energy available to the EVCP is described in Technical Guidance Note TNG 0024, whereby the maximum power available to the EV is limited, or by varying the power available to the EVCP depending on the other loads switching on and off. This requires the addition of an energy meter and CT clamp (depending upon the type of energy meter) which measures the power being drawn from the grid and an RS485 data cable between the energy meter and the EVCP.

DC Isolator

Inverter

AC Isolator

FiT Meter

DNO Meter

Outgoing Circuits

RS485 cable

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2. EVCP Fed from the PV Panel & Grid

Where energy from the PV panels is to supply the EVCP, a compatible energy meter is required with the CT clamp fitted around the ac cables from the inverter and an RS485 cable to the EVCP.

The PV panels need to produce a minimum of 6A for the EVCP to operate and charge the EC
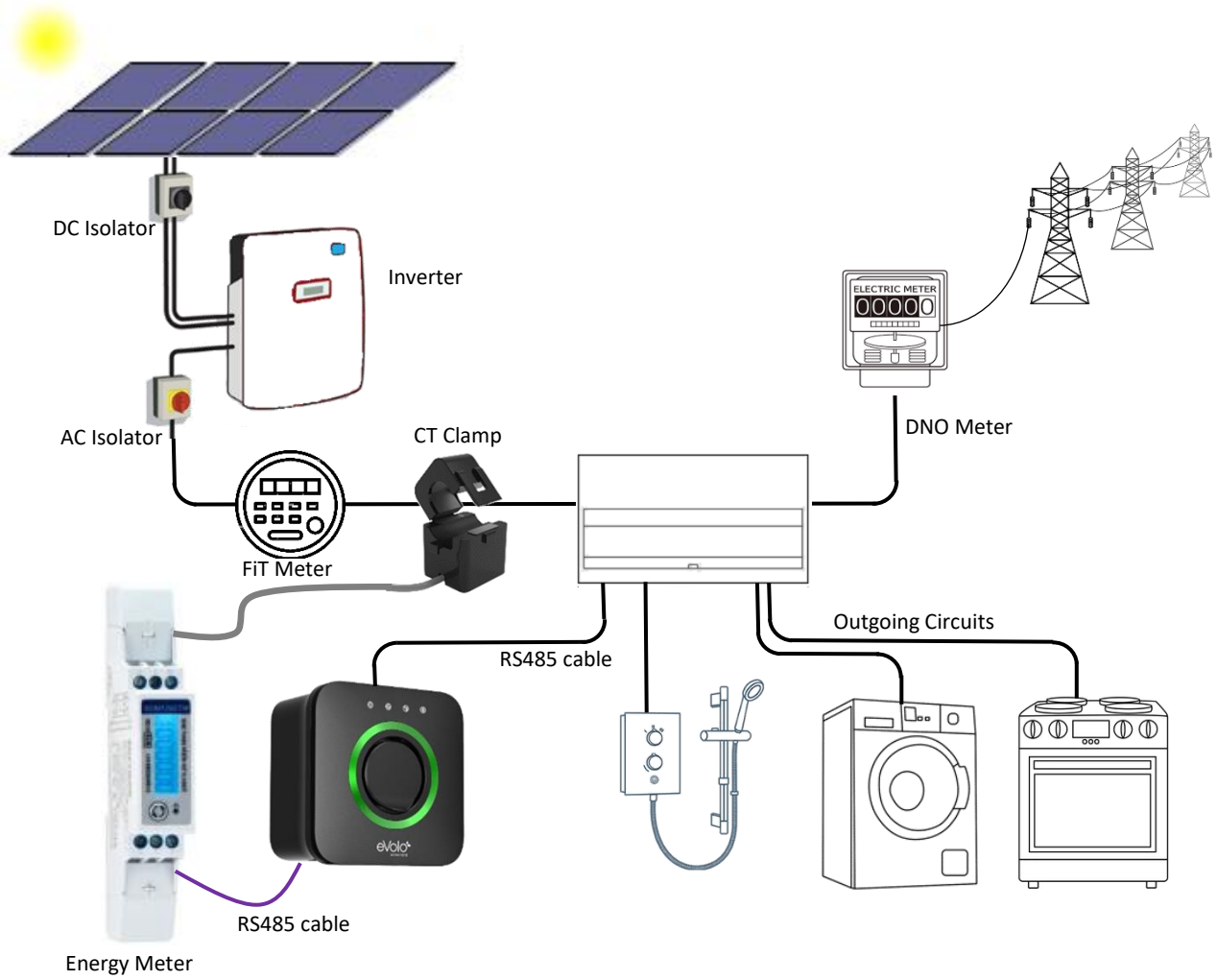
The charge point will need to be configured within the ConFig APP by selecting Local Load Balancing (Fig.5) and follow the instructions:

- Select: Adaptive Power Sharing (Single) + PV
- Select: Set as Primary
- Select: Smart Meter On (a smart meter must be connected)
- Select: Available Power: enter the size of the DNO fuse value, in kW

Check:

- that the Power Reserve is set at 10%, as recommended with Regulations
- that Number of Phases is set to Single-phase
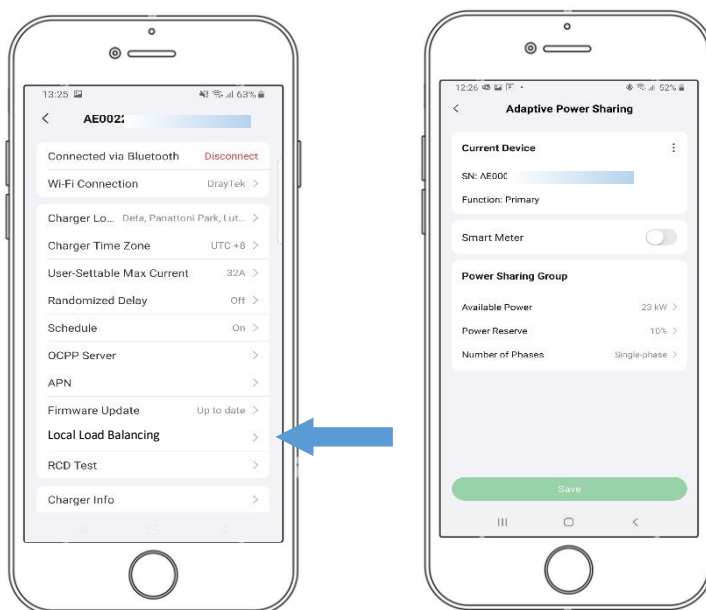
Once configured, as loads switch on and off, e.g. electric showers, washing machines, kettles switch on and off, the power available to the EV will increase and decrease automatically

If it is intended to charge the EV from both PV panels and the grid, within the Charge APP select 'AutoStart'. The EV will charge from PV panels when power is generated, otherwise it will charge from the grid.