CASE STUDY
Highlighted Project

Combining and Monitoring Different Modules
Exeter, UNITED KINGDOM

OVERVIEW

Special Focus:

Module-level monitoring

Installer: SunGift Solar

Installation Date: 9 Nov. 2010

Location: Exeter, UK

Average Irradiance:

1120 kWh/m^2/year

Installed Capacity: 3.91 kWp

Modules:
6 x Sharp NU185
4 x Sanyo HIT240
4 x Conergy PowerPlus 225
4 x REC235

Power Optimisers:

18 x PB250-AOB

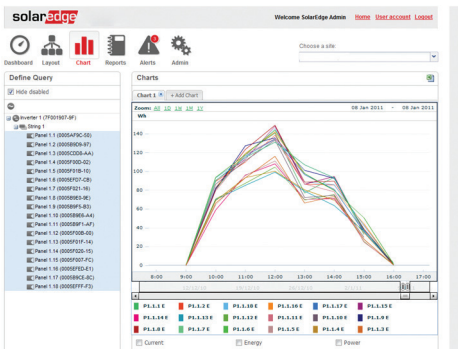
Inverters: 1 x SE4000

SunGift Solar, a leading UK installer, who specialises in the design and installation of tailor-made PV systems examined SolarEdge's potential for providing an answer to their clients' frequently asked questions: "How much energy do my modules really produce? What is the quality of this module compared to others?"

SunGift Solar installed a 4 kW test site in the city of Exeter in Southwest England in early November 2010. This test site combines four different types of modules in the same string: 6 Sharp NU185, 4 Sanyo HIT240 modules, 4 Conergy PowerPlus 225 modules and 4 REC235 modules. The total 18 modules are equipped with SolarEdge power optimisers and connected to the SolarEdge SE4000 inverter.

SolarEdge power optimisers, which are attached to each module, enable the connection of different module types in the same string. The freedom to use a variety of modules helps installers to utilise the given roof space and produce more energy per square meter of roof. The installer can also freely design PV installations next to chimneys and other roof constructions. Thanks to the power optimisers all modules work at their individual Maximum Power Point despite partial shading. Power optimisers also communicate performance data of each individual module to the SolarEdge Monitoring Portal. The monitoring portal provides precise real time data on the performance of each module individually. When modules do not function properly, the installer receives an alert specifying the type of problem and location of its source.

The pictures show four different module types before and after connecting them in one string.



The chart shows the energy output in the form of a graph for every single module in the Exeter installation. The graphs clearly demonstrate the mismatch which exists between modules with different power ratings. Each module still works at its individual MPP since the SolarEdge power optimisers perform MPPT for each module separately.

The installer can diagnose performance faults quickly and efficiently from a remote office location and saves time and money on maintaining and operating their installations.

"As installers we receive many questions about the quality and functionality of PV systems and modules. People want to get the most for their money. The novelty of the SolarEdge technology gives us unprecedented freedom in system design and helps us to follow the performance of individual modules closely. Both are essential if we want to offer the modules that are best matched to each client's individual needs.

Brian Darnell
Project Coordinator
SunGift Solar