

The Solar Power System

The solar server is located on ITU's roof, and is powered by a solar power system with the following characteristics:

- 2 100Wp Solar (PV) Panels
- 1 Solar Charge Controller with 12V to 5V DC-DC stepdown
- 1 XXXAh (MWh) Acid Lead battery

Power Measurements

We currently have no external way to measure the power, current and voltage inputs to the solar server.

The original plan was to set up a [INA260](#) monitor, however this never materialised. We currently have a software measurement approximation of power, this implementation by [jfikar uses a linear correction to close the gap between hardware and software measurements](#). These measurements are updated every 90 seconds and are available at <https://solar.itu.dk/power.json>

The goal with capturing power measurements:

- Get an idea of the viability of the server at different loads and at different weather conditions
- Create a dataset for further analysis
- Feed and use this data as trigger for further optimisations for apps and the OS
 - For example: If the solar panel is receiving less energy, the server could only serve those web apps which we have classified to be 'lightweight'. Similarly, when the weather is good we could not only serve

For this, an external power monitor such as the INA260 is needed. If you would like to help us set this up, [please get in touch!](#)

Types of batteries

Acid-Lead vs Lithium Ion

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