

Excount II Functional Description

This product is a measurement system, which contains two main parts:

- A permanent mounted Sensor
- A handheld Transceiver

They use a short-range wireless system operating at 916,5MHz ($\pm 200\text{kHz}$) for communicating with each other.

- **Sensor:**

The energy system contains solar cells, field probe and a 9V battery used to distribute power via voltage regulators to the sensor system, the processing unit (ATMEL 90S2313) and the RF device (RFM TR1000).

The sensor System measures AC-current, AC-voltage and impulse current and distributes the serial data via the processing unit to the RF-device.

The processing unit converts the data to a suitable format.

The RF-device contains a RFM TR1000-hybrid-transceiver, which operates at 916,5MHz with on-off keyed (OOK) modulation.

The antenna is made as a trace (printed circuit stub) on a printed circuit board.

The antenna is matched to approx. 50Ω .

The electronics are mounted on a 4-layer PCB, which includes ground plane.

- **Transceiver:**

The energy system contains a 9V battery used to distribute power via voltage regulators to the PC-interface, the processing unit (ATMEL 90S2313) and the RF device (RFM TR1000).

The PC-interface contains a processor and a serial PC-interface.

The processor distributes the serial data via the processing unit to the RF-device.

The processing unit converts the data to a suitable format.

The RF-device contains a RFM TR1000-hybrid-transceiver, which operates at 916,5MHz with on-off keyed (OOK) modulation.

The antenna is made as a trace (printed circuit stub) on a printed circuit board.

The antenna is matched to approx. 50Ω .

The electronics are mounted on a 4-layer PCB, which includes ground plane.