



STEVAL-IPE011V1

Energy meter demonstration kit daughterboard based on the STPMS1

Data brief

Features

- V_{nom} : 230 V_{RMS}
- I_{nom} CT: 1 A (I_{max} 30 A)
- I_{nom} Sh: 5 A (I_{max} 80 A)
- f_{LIN} : 50 / 60 \pm 10% Hz
- Operating temperature: - 40 / + 85 °C
- RoHS compliant

Description

The purpose of the demonstration kit is to provide an evaluation platform for the STPMC1 and STPMS1 devices, but it can also be used as a starting point to design a Class 1 meter for 2 to 4-wire power line systems using delta or wye service.

The kit is made up of a motherboard (order code STEVAL-IPE010V1) with the STPMC1 mounted, and up to 5 STEVAL-IPE011V1 daughterboards, each with an STPMS1 mounted to sense the voltage and current of each phase.

Each phase is monitored by an independent daughterboard, in which an autonomous power supply is provided to the board itself and, once it is connected, also to the motherboard.

On this board, the STPMS1 device senses the phase current through a CT or a shunt sensor, and the phase voltage through a voltage divider. The presence of dedicated networks greatly reduces the sampling (aliasing) noise and the crosstalk noise between voltage and current channels, increasing meter precision. The STPMS1 produces a sigma-delta stream, sent together with the supply voltage, to the STPMC1 through a card edge connector.

The motherboard receives the sigma-delta streams from the daughterboards which are further elaborated by the STPMC1. This device, from a 4.194 MHz crystal oscillator, provides a



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common clock with programmable frequency to all the daughterboards.

Figure 1. Circuit schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Jun-2010	1	Initial release.

Obsolete Product(s) - Obsolete Product(s)

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