



# STEVAL-IPE010V2

## Energy meter demonstration kit motherboard based on the STPMC1

Data brief

### Features

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

### Description

The purpose of the demonstration board is to provide an evaluation platform for the STPMC1 and STPMS2L 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 STPMC1 is a metering ASSP implemented through an advanced 0.35 µm BCD6 technology.

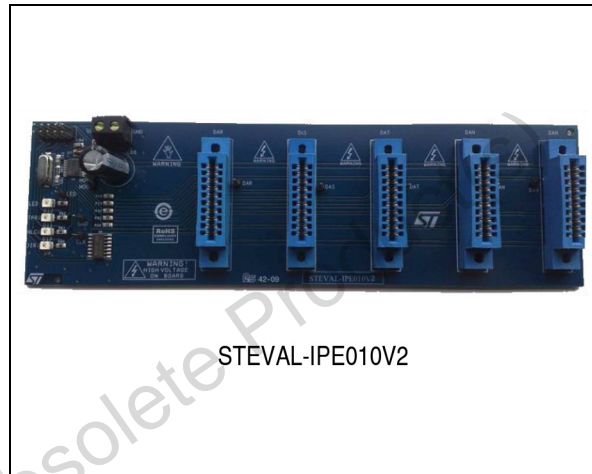
The STPMS2L is an ASSP designed as a building block for single or multi-phase energy meters.

The STEVAL-IPE010V2 board is the motherboard based on the STPMC1 and works in conjunction with up to 5 STEVAL-IPE014V1 daughterboards (to be ordered separately), each with an STPMS2L 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 STPMS2L 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 STPMS2L produces a sigma-delta stream, sent



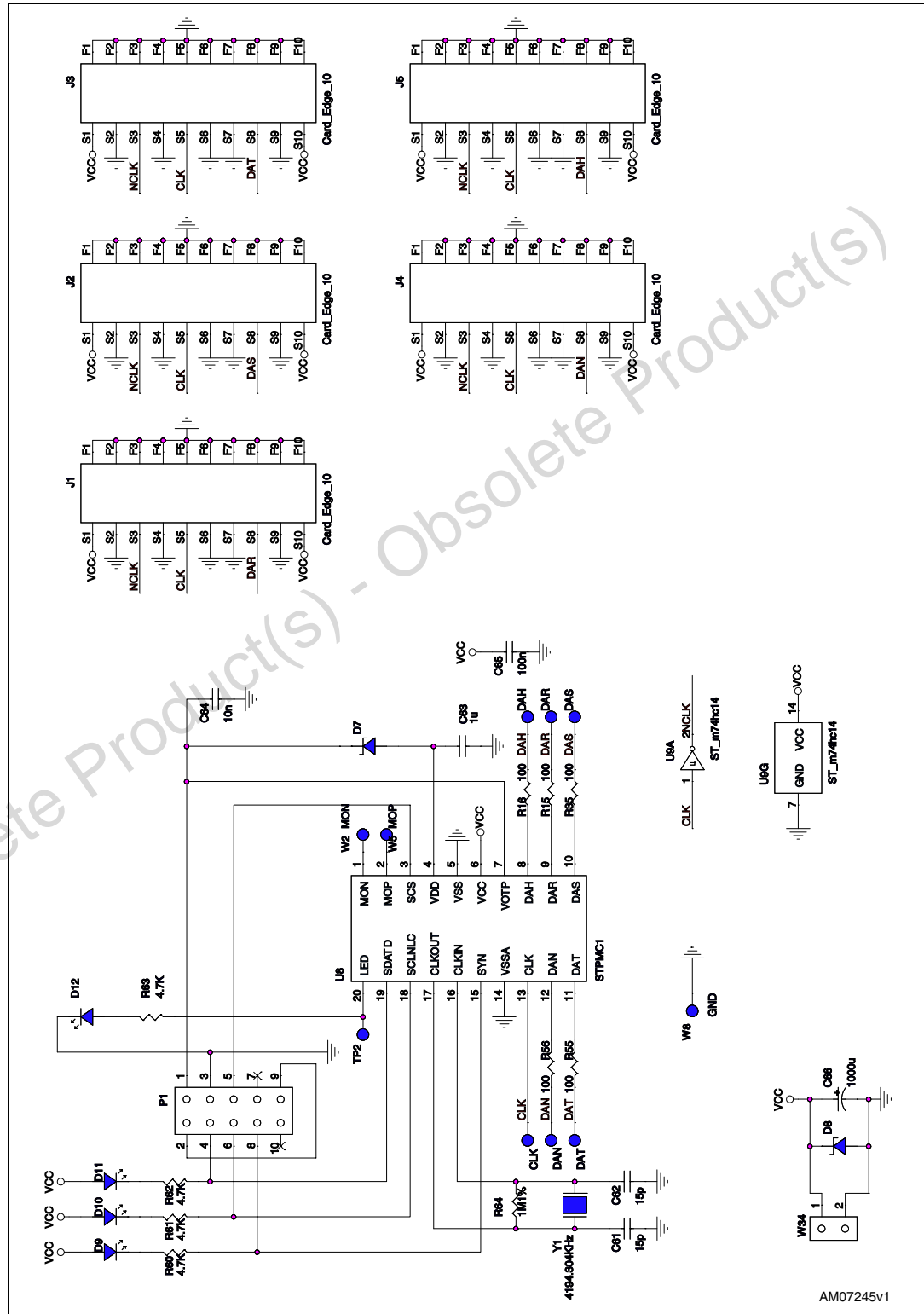
together with the supply voltage, to the STPMC1 through a card edge connector.

The STEVAL-IPE010V2 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 common clock with programmable frequency to all the daughterboards.

The STEVAL-IPE010V2 motherboard, through a 10-pin flat cable connector, can be interfaced to a microprocessor board to implement advanced metering features (multi-tariff, data management and storage, communication, etc). It also has stepper motor connectors for simple energy meter implementation.

# 1 Schematic diagram

Figure 1. Circuit schematic



## 2 Revision history

Table 1. Document revision history

Date	Revision	Changes
01-Feb-2012	1	Initial release.
15-Feb-2012	2	Modified: description

Obsolete Product(s) - Obsolete Product(s)

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