

## **STMicroelectronics Unveils Solution for Modular Smart Meters**

**Industry's most cost-effective smart-meter chipset combines configurable 'measurement' IC with separate smart sensor chips to boost performance and hardware scalability**



Geneva, February 17, 2011 - As installations of smart meters in homes and businesses accelerate globally, STMicroelectronics, a global leader serving customers across the spectrum of electronics applications and a leader in semiconductors for energy management, has unveiled a new set of metering chips that offer the industry's most accurate and cost-effective solution for next-generation smart meters.

Unlike traditional induction Watt-hour meters, which are vulnerable to wear and fraud and provide only limited features, smart meters, or electronic meters, are intelligent devices that have no moving parts and can support sophisticated tamper detection and two-way communication for improved grid management and billing. More specifically, smart meters allow automatic remote meter readings by power utility companies and make energy consumption transparent and directly manageable for consumers. Some eight million smart meters were shipped in the US in 2009, while Asia is predicted to become the world's largest market by 2014, and large projects in Italy, France and Spain should help drive European installations beyond 100 million units by 2015.

"We believe that this new chipset is an important milestone that will cement ST's leadership in delivering world-class smart-meter semiconductor solutions," said Pietro Menniti, Group Vice-President and General Manager, Industrial Business Unit, Industrial and Power Conversion Division, STMicroelectronics. "The new STPMC1 and

## **STMicroelectronics Unveils Solution for Modular Smart Meters**

Published on Electronic Component News (<http://www.ecnmag.com>)

---

STPMS1/S2 chips, launched today, support a new modular approach that will offer greater accuracy and reduced costs in the development of leading-edge 'poly-phase' smart meters for industrial applications."

Smart Grids and Power-Line Communications Smart meters are a key enabler for the 'Smart Grid', a term that is widely used to describe the next generation of intelligent and digital networks that will add functions of monitoring, analysis, control and communication to the electricity grid to improve the reliability and efficiency, control costs and increase capacity. Smart grids are being designed to help meet the energy challenges of the 21st century, such as reducing consumption, managing energy from renewable sources, and handling the charging needs created by the increasingly widespread use of hybrid and electric vehicles.

In addition to smart meters, a key technology required to enable these intelligent and reliable networks is Power-Line Communications (PLC). ST's PLC chip solutions have already been massively employed in major national smart-metering infrastructure deployments, along with state-of-the-art metrology chips, or 'measurement' chips.

Modulation and Metrology in Modular Meters Smart meters include two main functions: a high-accuracy modulator for sensed current and voltage signals and a dedicated metrology processor to calculate energy consumption. In the next few years, smart-metrology functions are also expected to be widely adopted in home appliances, air-conditioning and power-supply systems. Single-phase metering chips such as ST's existing solutions - the STPM01, STPM10 and STPM11/12/13/14 chips - effectively integrate these functions in a single component.

However, in three-phase, or poly-phase, smart meters for industrial applications, a modular approach that separates the current/voltage sensing from the metrology section can improve accuracy and economy. The modulator ICs in the sensing circuitry can be mounted closer to the measurement transducers to reduce the effects of noise. In addition, the same design can be re-used cost-efficiently in a range of metering products without redesigning the metrology section, simply by adding the required number of modulators.

New STPMC1 and STPMS1/S2 Poly-Phase Metering Chipset Together, ST's new STPMC1 and STPMS1/S2 create the industry's most cost-effective chipset for modular smart meters, supporting 50-60Hz IEC and ANSI standards for up to 0.2-class AC Watt meters. The STMPC1 metrology IC, which has five input channels, accepts measurements from three phases with the option of using the fourth channel for tamper detection or temperature sensing, and the fifth channel to accept magnetic field information from a Hall sensor. The device can be configured and calibrated for any international distribution standard.

The STPMS1 and STPMS2 are dual-channel delta-sigma modulators that convert analog current and voltage values from each phase and transmit digital data to the STPMC1. They can be placed very close to the current sensor to avoid long analog tracks and high-noise capture. In addition, the reduced number of connections and the discrete implementation leads to the potential use of three shunt resistors via

## STMicroelectronics Unveils Solution for Modular Smart Meters

Published on Electronic Component News (<http://www.ecnmag.com>)

---

low-cost isolation on digital data paths, instead of using significantly more expensive isolated sensors. The STPMS1 has a first-order modulator, while the STPMS2 has a second-order modulator delivering enhanced accuracy.

Major product features:

### STPMC1

Supports Rogowski coil, current transformer, shunt or Hall-effect current sensing  
Ripple-free energy calculation algorithm OTP memory for configuration and calibration SPI interface

### STPMS1/S2

Two sigma-delta modulators

Programmable chopper-stabilized low-noise and low-offset amplifier Precision voltage reference: 1.23V and 30ppm/°C max Support IEC and ANSI standards up to 0.2 class AC Watt meters

### Pricing and Availability

The complete chipset for a three-phase meter, comprising the STPMC1 and three STPMSx modulator ICs, is priced at \$4.50 for 1000 sets. Further pricing options are available for larger quantities. The STPMC1 is in full production immediately. The STPMS1 and STPMS2 are sampling to lead customers now, with production availability expected shortly.

Further information on ST can be found at [www.st.com](http://www.st.com).

### Source URL (retrieved on 11/28/2014 - 7:19am):

[http://www.ecnmag.com/product-releases/2011/02/stmicroelectronics-unveils-solution-modular-smart-meters?qt-most\\_popular=0](http://www.ecnmag.com/product-releases/2011/02/stmicroelectronics-unveils-solution-modular-smart-meters?qt-most_popular=0)