

The First 32-bit ARM-Based Solution for Non-Billing Metering Applications

NXP Semiconductors N.V. announced the EM773 energy metering IC - the world's first 32-bit ARM®-based solution designed specifically for non-billing electricity metering applications. In recent years, Advanced Metering Infrastructure (AMI) and smart meters have become popular with regulators and utilities as a means to introduce more sophisticated pricing models and tariffs, and incentivize customers to adjust their energy consumption accordingly.

The NXP EM773 takes energy metering beyond this traditional billing context, by making it easy for system designers to integrate energy metering functionality into almost any type of device, and make information on electricity consumption more accessible and intuitive for the end user. With the EM773, consumers and industrial users can monitor energy consumption in real-time, in devices ranging from smart plugs, smart appliances and green consumer electronics, to building sub-meters, industrial sub-meters, and even clusters of rack-mounted servers in the data center.

Featuring a metrology engine with automatic single phase, power and energy measurement, the EM773 energy metering IC includes an API which vastly simplifies the design of non-billing metering applications. The NXP EM773 is built on an ARM Cortex-M0 processor.

By using the powerful ARM Cortex-M0 platform, the NXP EM773 is able to support complex communication tasks such as running a feature-rich wireless m-bus stack, so that data on energy use can be transmitted quickly throughout the home or business, and displayed on other devices such as PCs and smartphones. The standard demonstration kit for the EM773 ships with a wireless plug meter transmitting data from the metrology engine via the wireless m-bus to a USB-based dongle. The USB dongle uses the OL2381 wireless transceiver and LPC1343 microcontroller, both from NXP.

The NXP metrology engine, which is accessible via a simple API, automatically calculates active power in Watts within one percent accuracy; the engine also calculates reactive power, apparent power, the power factor ratio, and even THD (Total Harmonic Distortion). In addition, data on kilowatt hours (kWh) is integrated into the open-source plug meter application that ships with the energy metering IC demo kit, and can be transmitted to and displayed on a PC.

The powerful 32-bit Cortex-M0 platform provides system designers with performance of up to 48 MHz, while maintaining a small footprint and lower silicon cost equivalent to a traditional 8- or 16-bit MCU. With 32KB of flash and 8KB SRAM memory, the NXP EM773 supports complex customer application software, and offers cost-efficient implementation by reducing the number of external components required. The EM773 further reduces costs through the availability of

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the complete demo design from NXP, as well as the support of the standard ARM tool chain environment.

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