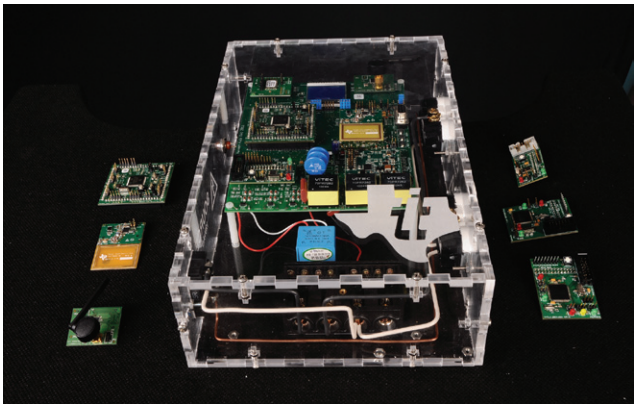
TI Smart Grid Tools

Smart Meter Board 3.0 (SMB 3.0)

The SMB 3.0 is a modular development platform incorporating key TI Smart Grid devices to demonstrate the capabilities of a smart meter. SMB 3.0 is a unique tool with multiple features; it performs energy or electricity metering and has the capability of transferring key metering data via wired power-line (PLC) and wireless (Wi-Fi®, ZigBee®, sub-1-GHz) communication to showcase a simple automatic meter reading (AMR) and automatic metering infrastructure (AMI) system. The development platform takes advantage of TI Smart Grid software libraries to implement key communication standards and typical utility-meter functions; and, along with the hardware, allows developers to choose the development tool matching their project needs.



Features

- Smart-meter development platform to develop AMR and AMI systems
- Supports 1-phase and 3-phase metrology function
- Supports application processor ranging from Cortex™-M to Cortex-A8
- Low-power RF sub-1-GHz and 2.4-GHz ZigBee implementation
- Supports power-line communication for PRIME/G1/G3/P1901.2
- Prepayment/NFC capabilities
- Wi-Fi capability to connect smart meter to the IP network
- Supports TI Smart Grid software libraries: SEP1.x, SEP2.0, wM-Bus, 15.4g, 1-phase/3-phase metrology, THD, DLMS, prepayment, MIFARE™, encryption

Benefits

- Modular and scalable: Tune the tool to your needs
- Support from low-end to advanced smart meter
- Supports discrete to integrated implementation with smart-meter SoC
- Ease of software integration with TI Smart Grid software libraries
- Open platform for further development and differentiation

Three-Phase E-meter (Anti-Tamper) Evaluation Module

(EVM430-F47197) ***E-Meter***

Features a system-on-chip MSP430F47197 16-MHz metrology with up to seven sigma-delta converters which allow measurement of three phases with anti-tamper. The 160-segment LCD displays energy, voltage, current and more for all three phases.

Single-Phase E-Meter Evaluation Module

(EVM430-F6736) ***E-Meter***

Single-phase electricity meter EVM features the 25-MHz MSP430F6736 with three 24-bit sigma-delta converters for 50% lower power consumption in metering applications. Includes LCD display for easy readout.

Single-Phase E-Meter (Analog Front End) Evaluation Module

(EVM430-AFE253) ***E-Meter***

Single-phase electricity meter (with anti-tamper) EVM features the MSP430AFE253 which is the industry's first programmable microcontroller with an analog front end. Quickly understand calibration, anti-tamper, and precise measurements which achieve >99.9% accuracy across a dynamic range of 2400:1.

Sub-1-GHz SoC Wireless Development Tool

(EM430F6137RF900) ***Wide-Area-Network***

Complete development tool for an entire wireless project featuring the CC430 system-on-chip RF transceiver. Kit includes two sub-1-GHz wireless target boards with antennas (868/915 MHz) and the highly integrated MSP430F6137IRGC RF system-on-chip. SimpliciTI™ software stack available.

Energy Watchdog Tool

(MSP-NRGWTCHDG) ***Power Monitor***

This smart plug reference design features the MSP430AFE253 and monitors electricity consumption for any household electrical appliance. Incoming AC voltage, current, frequency, active power, reactive power, apparent power, power factor and energy consumption in kWh is measured and displayed on the LCD.

Smart Grid Infrastructure Evaluation Module

(TMDSSGI-EVML138) ***Grid Infrastructure***

The SGI EVM was developed for customers looking to create the next generation data concentrators and power analytics devices. The OMAP™-L138 processor is featured on this device for control, communications, and signal processing. Several control and data communications are supported including Ethernet, PLC, <1-GHz RF, RS-232, USB and CAN.

Power Line Modem Developer's Kit

(TMDSPLCKIT-V3) ***PLC***

Enables easy development of software based Power Line Communication (PLC) modems. Kit includes two PLC modems, software supporting OFDM (PRIME/G3 and FlexOFDM™) and SFSK communication, plus more!

ZigBee®/IEEE 802.15.4 Development Kit

(CC2530ZDK) ***ZigBee Home-Area-Network***

Kit includes all necessary hardware in order to properly evaluate, demonstrate, prototype and develop software targeting not only ZigBee or 802.15.4 compliant applications, but also proprietary applications requiring a DSSS radio. Also features TI's second generation ZigBee/IEEE 802.15.4 RF transceiver for 2.4 GHz band.

Visit www.ti.com/smartgrid-tools for more information on all available TI Smart Grid tools.

TI Smart Grid Tools

Sub-1-GHz Performance Line Development Kit

(CC1120DK) ***Wide-Area-Network***

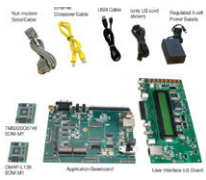
Kit provides a complete hardware performance testing and software development platform for TI's sub-1-GHz Performance Line devices. Test power consumption and RF range/robustness with different settings (supports 868/915 MHz). Additional kits can be purchased separately to support other frequencies.

In-Home-Display with Wi-Fi® Evaluation Module

(TMDXEVMWIFI1808L) ***Home Automation***

Full-featured application development kit for evaluating the functionality of TI's highly integrated, energy-efficient AM1808, AM1806 and AM1802 application processors. Also features *Bluetooth*® and Wi-Fi connectivity with integrated LCD, touch and backlight display.

OMAP-L138 Evaluation Module



(TMDSEVML138) ***Grid Infrastructure***

Evaluate TI's solutions for grid infrastructure on the OMAP-L138/C6748. Kit includes two SOMs (OMAP-L138 SOM-M1 and TMS320C6748 SOM-M1), application baseboard, 4.3" touch-screen display kit, user interface (UI) board, accessories, and software required for out-of-box demos to immediately begin development work.

ZigBee Network Processor Mini Development Kit

(CC2530ZDK-ZNP-MINI) ***ZigBee Home-Area-Network***

This kit provides the perfect introduction to 2.4-GHz ZigBee wireless sensor networks.Designed for engineers who want to get familiar with this technology without having to port a lot of software to get up and running.

In-Home-Display Reference Design Kit

(RDK-IDM-SBC) ***Home Automation***

This intelligent-display, single-board computer is a reference design for a complete 3.5" QVGA touch-screen user interface for control, automation, and instrumentation applications. It is based on the feature-rich Stellaris® LM3S9B92 microcontroller featuring Ethernet, USB OTG/Host/Device, and CAN.

RFID/NFC Transceiver Evaluation Module Kit

(TRF7960AEVM/TRF7970AEVM) ***Secure Prepayment***

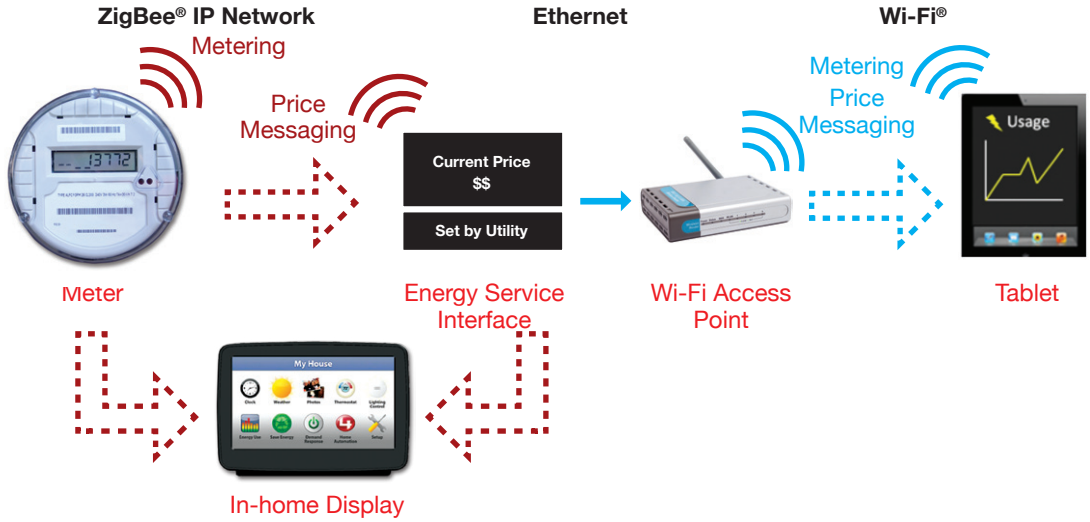
Self contained development platform which can be used to independently evaluate/test the performance of the TRF7960A or TRF7970A RFID/near-field-communications transceiver IC, custom firmware, customer designed antennas and/or potential transponders for a customer defined RFID/NFC application.

Smart Energy Profile 2.0 Demonstration

SEP2.0 is an IP-based application specification under development by the ZigBee and Wi-Fi Alliances along with other industry groups. SEP2.0 has also been identified by the National Institute of Standards and Technology as the recommended protocol for energy information and control in the Home Area Network, or HAN.

SEP2.0 is a PHY diagnostic profile that is designed to run on multiple PHY technologies such as IEEE 802.15.4, power line communications, Ethernet, and Wi-Fi. Device manufacturers can implement any MAC/PHY under an IP layer. This is important in the Home Area Network as it allows consumers to purchase different types of SEP2.0-enabled products and be assured that they will interoperate. It also enables SEP2.0 devices to be seamlessly integrated with existing IP-based utility IT infrastructure.

TI can help with your SEP2.0 Applications with TI hardware and software capable of operating across multiple communications networks including ZigBee IP, Wi-Fi, Power Line Communication, and Ethernet. A SEP2.0 demonstration utilizing TI tools and software can be found on our website.



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