Highly Adaptable Communications

Establish a communication network with existing installed power lines! The SM2400/SM2480 is the ultimate Narrow-band Power Line Communication (N-PLC) modem that combines cost effective design optimized for PLC applications with high flexibility to address industry standard protocols, future new standards and high robust proprietary modes.

SM2400

Configurable power line communications modem

System-On-Chip (SoC)

- Data rates up to 500 kbps
- Configurable operational bands (5 – 500 kHz)
  - CENELEC
  - ARIB
  - FCC
- Supports OFDM, FSK, BPSK for superior communication
- Comprehensive multi-standard capability
  - PRIME
  - G3-PLC
  - IEEE 1901.2
  - Proprietary XXR

Peripheral Interfaces

- Interfaces for adding optional components
  - UART
  - JTAG
  - SPI
  - GPIO

SM2480

Grid connected micro-inverter and lighting controller

- Includes all SM2400 features with additional analog signal control functions
- Extremely flexible PWM controller with up to 300kHz with 10ns resolution designed for fast and flexible signal adjustments
- Uniquely capable platform for MPPT and other control algorithms
- High precision dual ADCs
- 4 High speed programmable comparators for fault detection
- 5 High speed DACs

Applications

- Smart grid communication
- Advanced Metering Infrastructure (AMI)
- Automated Meter Reading (AMR)
- Street lighting control and smart ballasts
- Solar and alternative energy management
- Smart home energy monitoring
- Factory and Building Automation (BA)
- Supervisory Control And Data Acquisition (SCADA)
**Extremely Robust XXR Mode**
- Extremely robust communication adapted for power line noise profile
- Up to 4 independent channels (carriers) placed anywhere in the spectrum
  - Optimized frequency placement based on noise and impedance environment
- Channels can be used for redundancy (diversity) by sending same data
  - Data combined in optimal manner
  - Correct data reception only requires one good channel or one combination of channels
- Every channel is RS coded and includes CRC
- Capable of extended ranges up to several kilometers

**Additional Support Features**

**SMESH: “Simple Mesh” Protocol**
- Designed for solar, lighting and small metering deployments
- Self-healing and discovery
- Limited number of nodes (< 100)
- Simple network management and firmware update

**Serial-to-PLC Bridging**
- RS232 extension and RS485 replacement
- Data and command modes (ASCII or TP pass-through)
- MODBUS

**SunSpec Compliance**
- Rapid Shutdown compliant (NEC 2017) with interleaved PLC Communications

**Most comprehensive set of communication modes**

**Superior noisy performance**
**Low system cost**

**Rapid Evaluation and Development**

**Hardware**
- Plug-in module(s) optimized for FCC, CEN-A and CEN-BC
- Mini USB connection
- IEC power connection
- Built-in power line coupling circuit
- Ability to bypass on board switched-mode power supply and use external DC supply

**Software**
- Programmable/downloadable firmware
  - PRIME / G3 / IEEE 1901.2 / XXR
- Unified development framework and tools for all firmware packages
- Unified serial host protocol allowing direct interface to MACs, PHYs, CLs
- Unified GUI for testing and experimentation

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Block diagram of SM2400 modem interface solution

Block diagram of SM2480 Smart Lighting solution

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3600 Peterson Way, Santa Clara, CA 95054 USA • Phone: +1 (408) 400-0578 • e-mail: info@adestotech.com

www.adestotech.com