# ATPL360

## Multi-Protocol Modem for Power Line Communication


## Summary

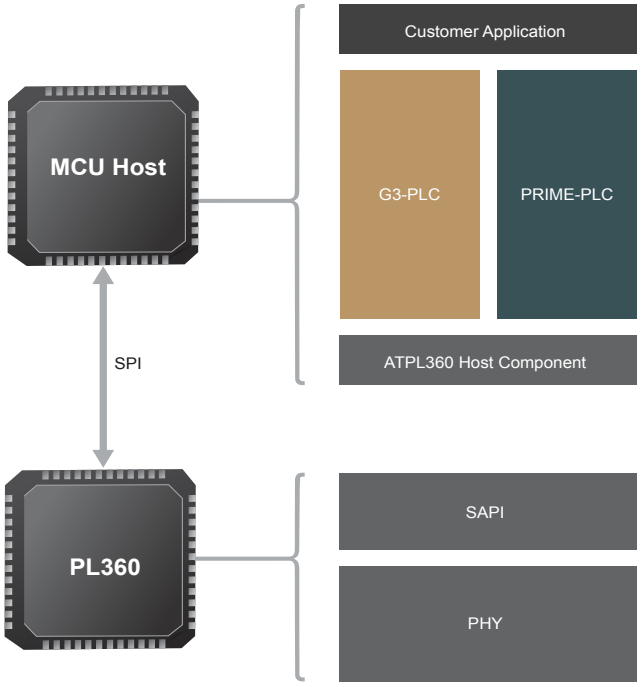
ATPL360 is a multi-protocol modem for Power Line Communication (PLC). It implements a very flexible architecture, which allows support for standard and customized PLC solutions. This compact and highly efficient device is ideal for a wide range of smart grid applications such as smart metering, lighting, industrial/home automation, home and building energy management systems, solar energy and Plug-in Hybrid Electric Vehicle (PHEV) charging stations.

The ATPL360 has to be bundled with an external microcontroller (MCU), which controls the ATPL360 PLC modem and downloads the corresponding PLC PHY layer binary before modem operation. The ATPL360 PLC binary is stored in SRAM.

Microchip provides highly efficient, reduced BOM reference designs for different coupling options, targeting common configurations in standard frequency bands which comply with existing regulations (CENELEC, FCC, ARIB).


## Key Features

- Multi-protocol PLC modem
  - G3-PLC, all profiles (CENELEC, FCC, ARIB) and modes
  - PRIME PLC, all profiles (PRIME 1.3, PRIME1.4)
  - IEEE P1901.2
  - Configurable PLC modem able to implement any NB-PLC standard
- 96 KB (up to) 128 KB of SRAM for Program
- 64 KB (up to) 96 KB of SRAM for Data
- One SPI peripheral to external MCU
- Zero-Crossing Detection (ZCD)
- Embedded PLC Analog Front End (AFE), requires only external discrete Class D Line Driver for signal injection
- Low power consumption in transmission and reception
- Temperature range: –40ºC to +85ºC
- Package
  - 48-pin QFN
  - 48-pin TQFP




## Target Applications

- Smart metering
- Street lighting
- Home and building energy management systems
- Solar energy
- Plug-in hybrid electric vehicle charging stations
- Industrial and home automation



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## ATPL360 Evaluation Kit (ATPL360-EK)

Microchip's ATPL360 Evaluation Kit is a hardware platform for evaluating the ATPL360 multi-protocol modem for power line communication. The kit will provide easy access to the features of the ATPL360, and will include a ATSAM4CMS System-on-Chip with embedded metrology. This kit makes it easy to evaluate Microchip's platform concept for smart energy applications. The kit includes:

- Two ATPL360MB modem boards
  - Two coupling boards to configure the evaluation kit for frequencies below 100 kHz (CENELEC profile)
  - Two coupling boards to configure the evaluation kit for frequencies above 150 kHz (FCC and ARIB profiles)
- Documentation for PLC hardware design
  - Schematics, PCB layout, gerbers and BOM
  - ATPL360 datasheet
  - Application notes for PLC hardware design
- PLC software (G3-PLC and PRIME)
  - Examples showing how to use and configure the PHY layer on the ATPL360
  - Complete G3-PLC and PRIME software stack to implement an end device
  - PAN coordinator/base node "lite" example application
  - Software documentation
- Microchip tools for PLC developers: PC applications to evaluate the performance of the ATPL360 and network level (PHY tester, Multi-protocol sniffer)

For more information, please email PLC@microchip.com.

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