

# GW3010

## Power Line Communication(PLC) Modem SoC

### Description

The GW3010 is a comprehensive system-on-chip (SoC) solution that integrates all the necessary components of a power line communication (PLC) modem into a single chip. It includes a PLC modem with AFE (Analog Front End), PHY (Physical Layer), MAC (Media Access Control), and upper layers up to IPv6. With its advanced OFDM line coding and proprietary algorithms, the modem supports multi-mode modulation, ensuring reliable data transmission over power line networks. This highly integrated chip fulfills all the silicon requirements for a PLC modem, offering a compact and efficient solution.

The GW3010 supports multiple implementations, including ITU-T G.9903 (G3-PLC), ITU-T G.9904 (PRIME), IEEE P1901.2, and IEC 61334 (S-FSK). It integrates a microcontroller with internal SRAM and Flash memory. Additionally, it provides SPI, I2C, and UART interfaces, along with standard features like timers, GPIO, and interrupt capabilities.

### Features

- Complete single chip multi-mode PLC modem solution supporting OFDM Modulation.
- Integration of AFE (Analog Front End), PHY (Physical Layer), MAC (Media Access Control), and Upper layers.
- 32-bit RISC microcontroller integration with integrated SRAM and Flash memory.
- Compliant with frequency bands: CENELEC A, B, C, D, FCC, and ARIB.
- Standard and Semtech-Proprietary High-Performance Forward Error Correction (FEC)
- Integrated hardware AES Engine encryption/decryption accelerator.
- User-configured start and end operating frequency.
- Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA) channel access.
- Automatic Repeat Request (ARQ) for enhanced error detection and improved data reliability.

- Support for SPI, I2C, and UART interfaces.
- OTW (Over The Wire) field upgrades.
- Industrial temperature operating range (-40°C to +85°C).

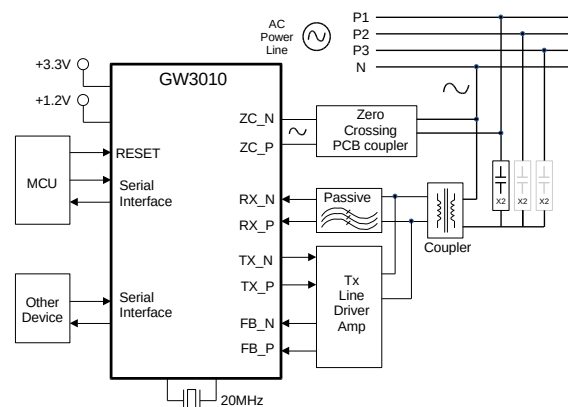
### Physical Characteristics

- Operating voltages
  - Analog core voltage: 3.3V
  - Digital core voltage: 1.2V
  - I/O voltage: 3.3V
  - OTP programming voltage: 2.5V
- Operating temperature: (-40°C to +85°C)
- PLC frequency of operation: 36 ~ 490 KHz
- Available in 64-LQFP and 56-MLPQ packages

### Typical Applications

- Smart grid
- Home automation
- Building automation
- Industrial automation
- Internet of things (IoT)
- Street lighting

### Basic Application Diagram



## Block Diagram

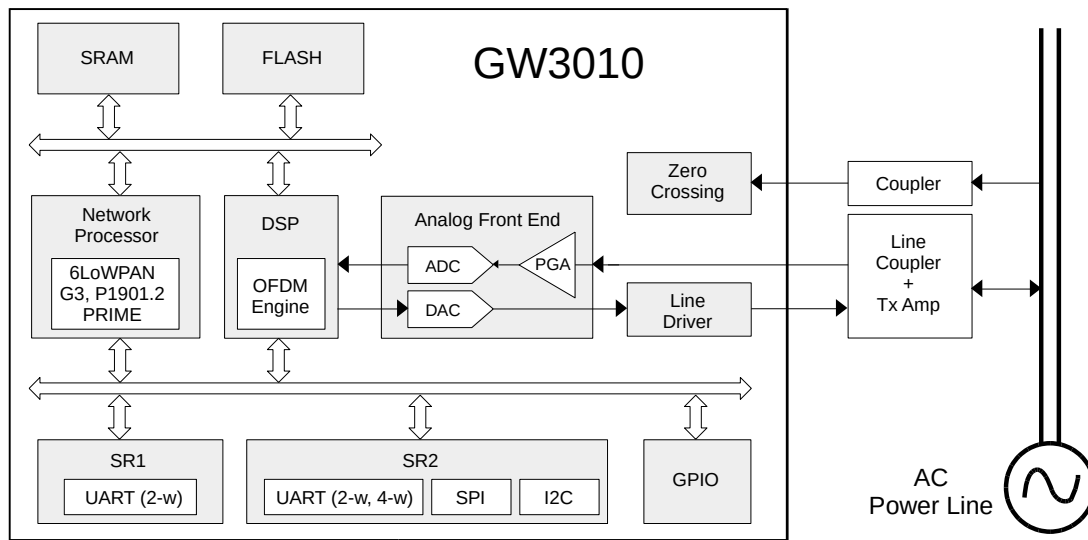
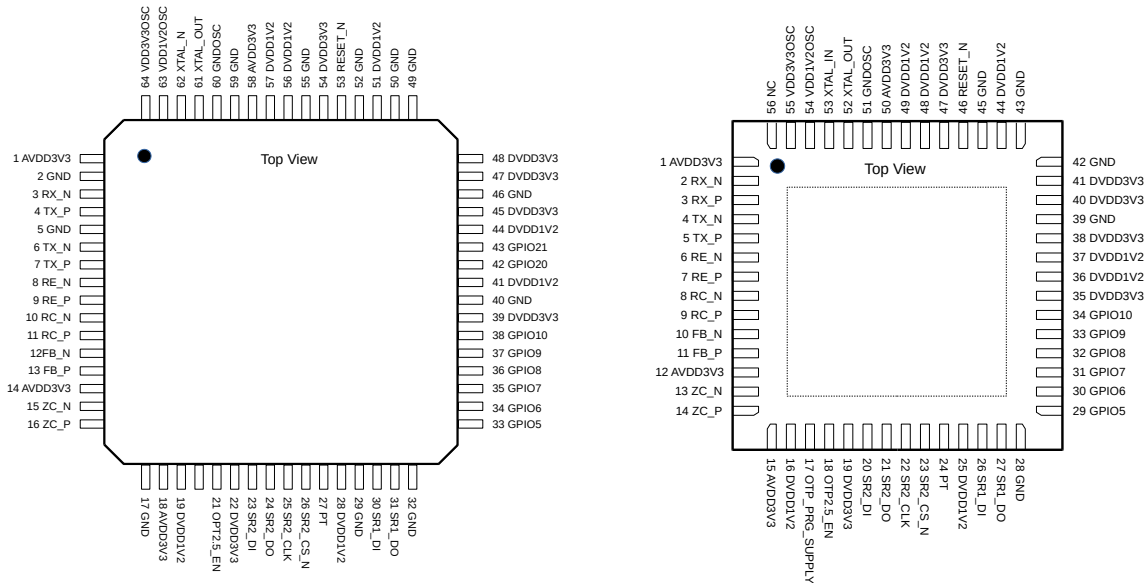


Figure 1 Functional Block Diagram of the GW3010

## Package Information



## Ordering Information

Device name	Package	Remark
GW3010_L64	64LQFP, 10x10	LQFP, Industrial
GW3010_M56	56MLPQ, 8x8	MLPQ, Industrial

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