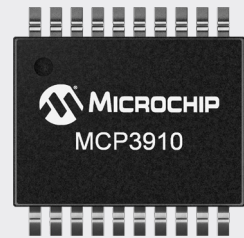


## MCP3910 3V Two-Channel Analog Front End

### General Information

The MCP3910 is a 3V dual-channel Analog-Front-End (AFE) containing two synchronous sampling Delta-Sigma Analog-to-Digital Converters (ADCs), two PGAs, phase delay compensation block, internal voltage reference, modulator output block and high-speed 20 MHz SPI-compatible serial interface. For poly-phase shunt based energy meters, the MCP3910 2-wire serial interface greatly reduces system cost by requiring only a single bidirectional isolator per phase. The MCP3910 is capable of a variety of voltage and current sensors including shunts, current transformers, Rogowski coils and Hall effect sensors.



### Features

- Two synchronous sampling 16/24-bit resolution delta-sigma ADCs
- Flexible serial interface that includes both SPI and a simple 2-wire interface ideal for polyphase shunt energy meters
- 93.5 dB SINAD, -107 dBc THD, 112 dBFS SFDR
- 2.7V–3.6V AVDD, DVDD
- Programmable data rate up to 125 kbps- 4 MHz maximum sampling frequency
- Oversampling ratio up to 4096
- Ultra-low power shutdown mode with <math><2 \mu\text{A}</math>
- -122 dB crosstalk between the two channels
- Low drift 1.2V internal voltage reference: 9 ppm/°C

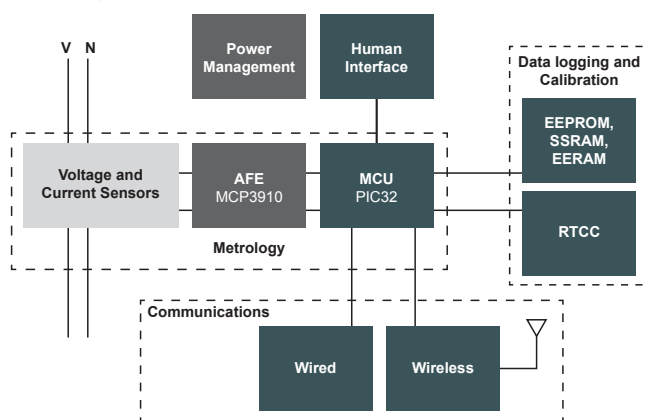
### Applications

- Single-phase and polyphase energy meters
- Energy metering and power measurement
- Automotive
- Portable instrumentation
- Medical and power monitoring
- Audio/voice recognition
- Isolated sensor applications

### Benefits

- Separate data ready pin for easy synchronization
- Individual 24-bit digital offset and gain error correction for each channel
- Continuous read/write modes for minimum communication
- Low-power consumption

### Energy Meter Block Diagram



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