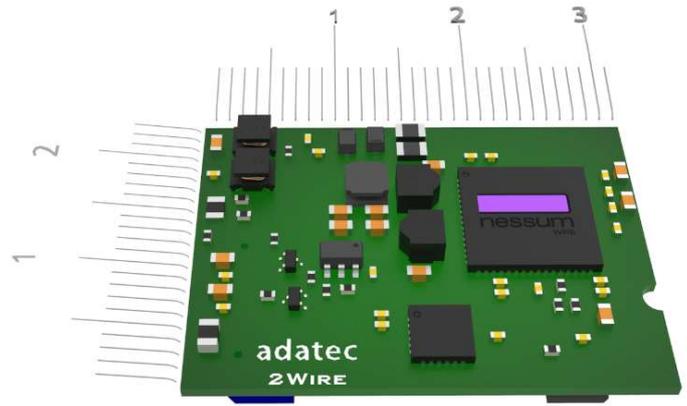


# ADATIS



## 2WIRE MODULE

### Description

The 2WIRE-Module is a communication module for transmitting and receiving data over any pair of wires, including power line, bell wire or coax cables.

It holds all functions necessary for the easy creation of an Nessum Wire (IEEE1901) compatible network device. Nessum-Wire (formerly known as HD-PLC) is based on wavelet OFDM (Orthogonal Frequency Division Multiplexing), which allows for efficient use of the available bandwidth, low power consumption, excellent noise rejection capabilities and will pass EMC regulations.

The 2WIRE-Module integrated AES-128 bit encryption, but will also allow for Plug & Play operation without configuration.

On the LAN-side 10/100 Ethernet is provided for simple connection to other device, e.g. via PHY-to-PHY coupling.

The module has been design for fast and easy integration.

### Features

- Up to 1000 m range via bell wire
- Nessum Wire encryption with 128-bit AES
- Up to 128 communication nodes
- Node pairing for enhanced security
- 10/100M Ethernet with Auto-MDIX
- UART, SPI, I2C and GPIO interfaces
- Status LEDs for Ethernet and 2WIRE lines
- Ultra-low power design, max.0.31.3W
- Only 12V power supply is needed
- Provides 3.3V output with up to 0.5A
- Physical dimension: 23.0 mm x 28.0 mm
- Horizontal mounting on a motherboard
- On board 2Wire transformer, can be bypassed by application specific transformer
- Cost-optimized design
- Industrial temperature range: -40° to +85°C

### Applications

- Ethernet extension via any wire
- Polarity agnostic 2-wire installation
- Retrofitting using existing wiring
- Security Cameras, AV-Intercoms
- Home Automation

## Nessum Wire integration into existing products

via any pair of (voltage-free) wires

# Specifications

## Integration Steps

- Power supply to the module: +12 V
- Alternative power supply: +3.3V
- Transformer for low-voltage application is already integrated; may be by-passed for alternative external transformer
- Select line coupling for the chosen medium: power line, bell wire, coax line
- External safety and filtering components are application dependent.
- Zero-cross detection circuitry is only required for power line transmission.
- 100BASE-TX Ethernet interface: just MagJack required; alternatively PHY-to-PHY coupling
- Power from the 2Wire line can be made available for remote powering.
- Additional interfaces are available on the connector: UART, SPI, I2C, GPIO
- A full featured integration guide with schematic examples is available under NDA.
- Zero code integration for Ethernet to Nessum bridging.
- Development system is available: see Adatis 2Wire-Converter datasheet.

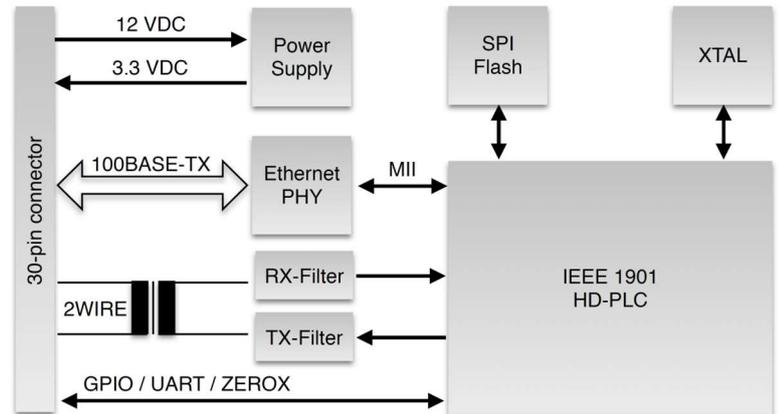
## Mechanical

- Module size: 23.0 mm x 28.0 mm
- Single connector, needs only 10.0 x 6.0 mm space on the base board.
- Area under the module can be used freely
- Half-hole for mechanical fastening of the module to the base board
- Choice of mated height: 5.0, 5.3, and 6.0mm depending on base board connector height
- Base board connector: [www.txga.com](http://www.txga.com)
- FBB05002-M30S1003K6MH\*\* H\*\*= height

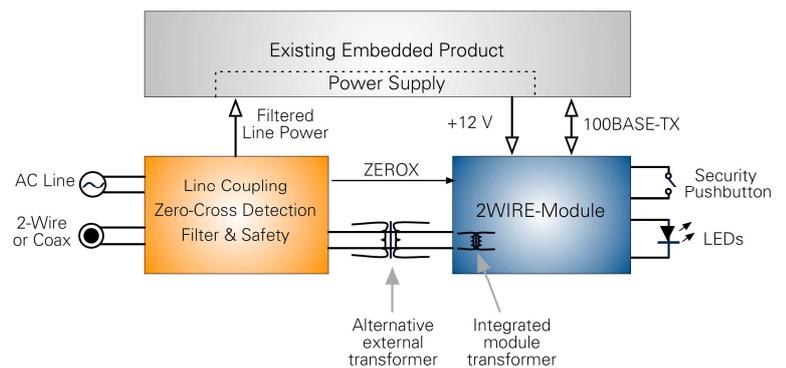
## Ordering

| PRODUCT TYPE | ORDER CODE |
|--------------|------------|
| 2Wire Module | 2WMOD      |

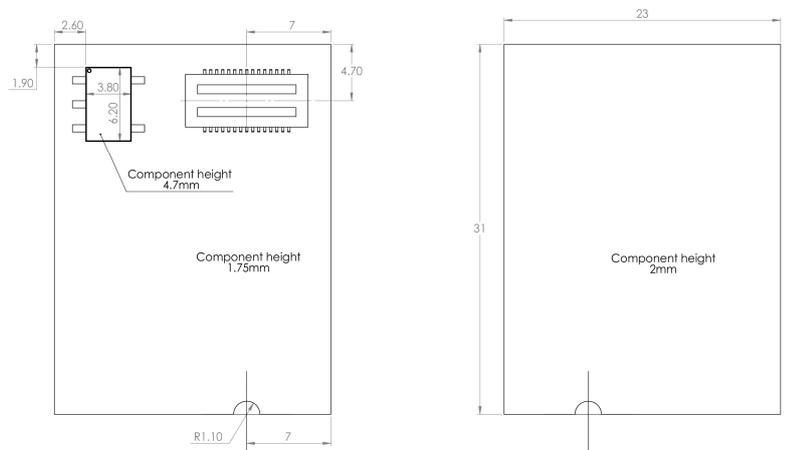
## Module Block Diagram



## Integration of the 2WIRE Module



## Dimensions



# ADATIS

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