

W5100 Hardwired TCP/IP Embedded Internet-Controller

The W5100 not only integrates the first (PHY) and second (MAC) layer of the Ethernet protocol into the hardware, but also the third and fourth. It supports TCP, IPv4, UDP, ICMP, ARP, PPPoE and Multicast. Thus the W5100 offers TCP/IP+MAC+PHY on a single chip for embedded Ethernet applications. The W5100 can establish a TCP/IP-connections on it's own and execute handshakes, hence the system controller is released from all protocol tasks. Even 8bit-controller like the 8051, AVR or PIC can quickly and easily be connected.

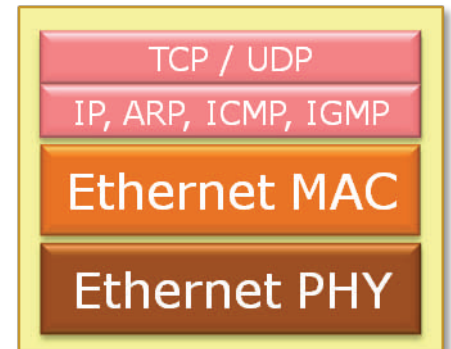
The 8bit address-/data bus or SPI support data rates up to 25MBits/s on application level.

As TX/RX-buffer a free configurable 16kByte dual-port SRAM is available.

The W5100 is IEEE 802.3 (10Base-T) and 802.3u (100Base-TX) compliant and qualified for industrial temperature standards.

Open source drivers and examples for different μ C-platforms are available without extra charge. No operating system is needed even for WEB-, FTP- or DHCP-client or server.

	Software Stack	W5100
Leistung	Niedrig und Task abhängig	Hoch und Stabil
Aufwand	Software-Entwicklung Schwer zu debuggen	In Applikation leicht integrierbar
Grundlage	TCP/IP Protocol & OS Kernel, Treiber & Socket	Nur Socket bzw. API Programmierung
Stabilität	Abhängig vom Betriebssystem	Kein OS notwendig, Stack ist angreifbar



Features

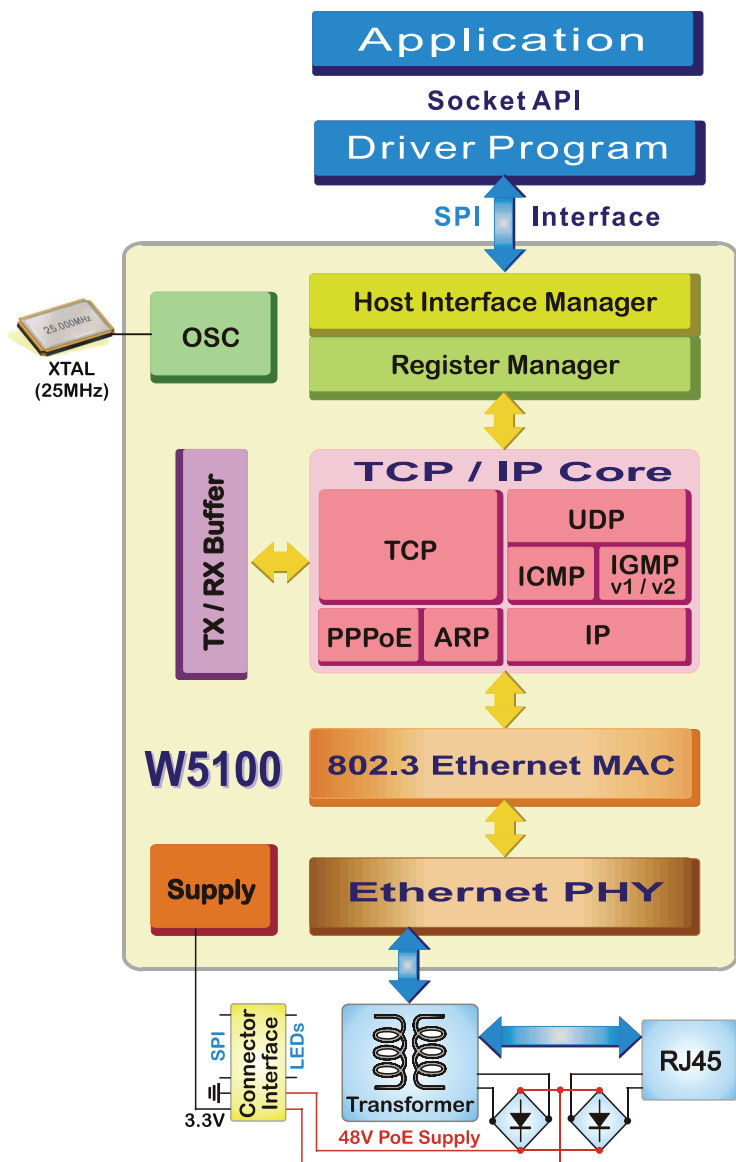
- ◆ Hardwired TCP/IP:
 - TCP, UDP, ICMP, IGMP, IPv4, ARP
 - Ethernet
- ◆ Embedded Ethernet-MAC:
 - Multicast
 - Connection PPPoE protocol with PAP/CHAP authentication mode for ADSL
- ◆ Embedded 10BaseT/100BaseTX PHY:
 - Auto Negotiation for full- and half-duplex
 - Auto MDI/MDIX for auto crossover
- ◆ 4 Independent sockets simultaneously
- ◆ Internal 16Kbytes dual port SRAM for TX/RX buffer
- ◆ Interface:
 - 8 Bit Address/Data Bus for direct- & indirect-mode
 - Serial Peripheral Interface for SPI-mode 0 and 3
- ◆ Up to 25MBit/s thrupt at application layer
- ◆ Multi-Function LED outputs:
 - TX, RX, full-/half-duplex, collision, link, speed
- ◆ 3.3V operation with 5V I/O signal tolerance
- ◆ Temperature range: -40°C to 85°C
- ◆ Small 80 Pin LQFP Package

Hybrid Architectur

The W5100 supports up to 4 connections at the same time over the TCP/IP-core. One of these sockets can be used as a normal MAC-controller over the so called "MAC-RAW"-mode. This hybrid architecture allows direct access to the MAC-layer.

Therefore proprietary protocols can be implemented in software and additional connections can be established.

Block Diagramm W5100-PoE Modul



Applicationen

- ◆ Sensornetze
- ◆ RF, Industriebus Gateways
- ◆ Zugangsterminals
- ◆ Mess- & Medizinische Geräte
- ◆ Heim Automatisierung
- ◆ Smart Metering
- ◆ Data Logging

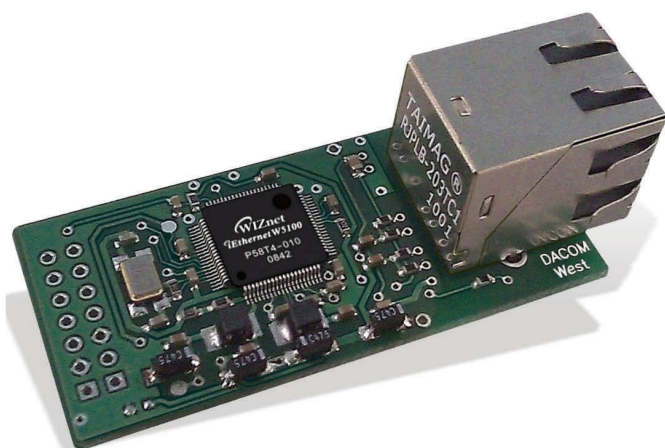
W5100-PoE Modul

The W100-PoE module enables the easy usage of the W5100 Hardwired TCP/IP chips as SPI-module. The SPI interface, power supply and status signal are accessible over a plug.

PoE Option

The W5100-PoE-Modul has an integrated bridge rectifier and enable the voltage supply for the application as "powered device PD" over power-over-Ethernet. This is possible over data lines (1, 2, 3 & 6) and over data lines (4, 5, 7 & 8). This option is fully IEEE-standard 802.3af compliant.

W5100-PoE Modul



- ◆ Board size: 60 x 25.4 x 23.5mm
- ◆ Connector 1: RJ45 PoE
- ◆ Connector 2: 2x7 pin / 2,54mm