

- ▶ 100BASE-T1 (TJA1101B)
- ▶ USB-A connector
- ▶ Windows and Linux Raw-Ethernet device
- ▶ NXP TJA1101 access
- ▶ Powerful Software APIs

Overview

The FC612 USB 100BASE-T1 Stick Raw represents a compact hardware interface connecting MS-Windows and Linux based PCs with automotive Ethernet network devices and switches. Network standards like OABR (OPEN Alliance BroadR-Reach) and 100BASE-T1 are supported.

The FC612 USB 100BASE-T1 Stick Raw functions as full-featured Layer2 receiver and transmitter in an automotive Ethernet network. In comparison to the standard FC602 USB 100BASE-T1 Stick the FC612 USB 100BASE-T1 Stick Raw is not installed as network device on the Host PC, but comes with an API (Broadway2 C-API) to get full access to Layer2 raw data in an automotive 100BASE-T1 network.

The FC612 can be used for the analysis, simulation, test and validation of automotive Ethernet networks. Flexible software APIs feature full access to TJA1101 PHY internal registers. This enables cable testing and network diagnosis.

Updated from TJA1101A (red housing) to TJA1101B (grey housing).

Features

Hardware

- ▶ NXP TJA1101 100BASE-T1 PHY OABR/BroadR-Reach/100BASE-T1 physical interface with UTP connector
- ▶ NXP LPC4333 32-bit ARM Cortex-M4/M0 microcontroller
- ▶ High-Speed USB 2.0 device interface with Type-A connector
- ▶ Network Master/Slave configuration via hardware switch
- ▶ USB powered
- ▶ Compact and modular design

Software

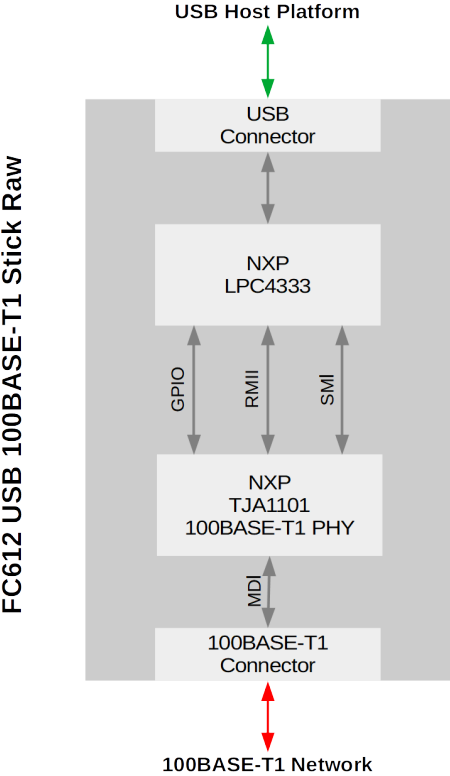
- ▶ MS-Windows and Linux compatible
- ▶ USB Bulk data In/Out to Ethernet Layer2
- ▶ Powerful and flexible API for TJA1101 SMI access
- ▶ Common C-API and Python wrapper
- ▶ Python abstraction class for TJA1101 MDIO register
- ▶ Python and C++ sample applications
- ▶ Firmware update via USB

Applications

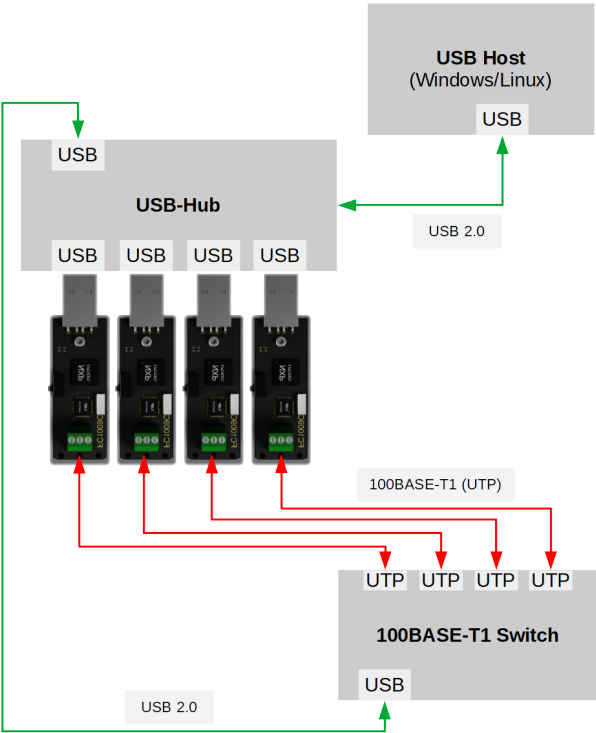
The USB interface of the FC612 USB 100BASE-T1 Stick Raw allows seamless connection to a broad variety of PCs, notebooks and embedded platforms. This enables the FC612 USB 100BASE-T1 Stick Raw for the following use cases:

- ▶ MS-Windows and Linux PC used as raw protocol analyzer for 100BASE-T1 networks
- ▶ Reception of raw Ethernet frames incl. 64-bit timestamp and sequence counter
- ▶ Decoding of ethernet raw frames with Python pypacker to ICMP, UDP/TCP-IP ..
- ▶ Transmission of Ethernet data supporting access to MAC, VLAN and raw data section
- ▶ AVB/TSN network testing
- ▶ Point-to-Point automotive Ethernet 100BASE-T1 network connection using two USB 100BASE-T1 Sticks Raw
- ▶ Evaluation of NXP TJA1101 100BASE-T1 PHY chip with full access to SMI registers
- ▶ Automotive Ethernet network simulation and demonstration

Block Diagram



Typical Application



Technical Data

Dimensions:	68 x 20 x 15 mm
Power Supply:	5 V (USB powered)
Temperature range:	0°C to +85°C
USB Connector:	USB 2.0 Type-A
OABR/BroadR-Reach/100Base-T1 Connector:	PTR screw terminal

Ordering Information

Order Number:	FC612
Product Name:	USB 100BASE-T1 Stick Raw
Deliverables:	USB 100BASE-T1 Stick Raw incl. 2 m Automotive UTP Ethernet Cable and grey sub-shell