FC602 USB 100BASE-T1 Stick

- ▶ 100BASE-T1 (TJA1101)
- ▶ USB-A connector
- ▶ Windows and Linux network device
- ▶ NXP TJA1101 access
- ▶ Flexible Software APIs

Overview

The FC602 USB 100BASE-T1 Stick represents a compact hardware interface connecting MS-Windows and Linux based PCs with automotive Ethernet network devices and switches. Automotive Ethernet network standards OABR (OPEN Alliance BroadR-Reach) and 100BASE-T1 are supported.

The FC602 USB 100BASE-T1 Stick functions as seamless media converter between a standard USB 2.0 interface and an automotive Ethernet network. On Windows and Linux host PCs the USB 100BASE-T1 Stick is detected as standard Ethernet device.

Flexible software APIs feature full access to the TJA1101 PHY internal registers. This enables cable testing and network diagnosis.

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
- ▶ Standard Ethernet Network device on host PC
- ▶ USB CDC/ECM driver for MS-Windows
- ▶ 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 FC602 USB 100BASE-T1 Stick allows seamless connection to a broad variety of PCs, notebooks and embedded platforms. The USB Control and CDC/ECM profiles enable the usage of USB hosts running MS-Windows as well as Linux operating systems. This enables the USB 100BASE-T1 Stick for the following applications:

- ▶ Standard Ethernet network device supporting OABR/BroadR-Reach/100BASE-T1 pyhsical interface
- ▶ MS-Windows and Linux PC used as protocol analyzer for 100BASE-T1 networks
- ▶ Point-to-Point automotive Ethernet network connection using two USB 100BASE-T1 Sticks
- ▶ Evaluation of NXP TJA1101 100BASE-T1 PHY chip with full access to SMI registers
- ▶ 100BASE-T1 cable testing and network diagnosis
- ▶ Simulation of multiple nodes on automotive Ethernet switch designs
- ▶ Automotive Ethernet network simulation and demonstration

Block Diagram
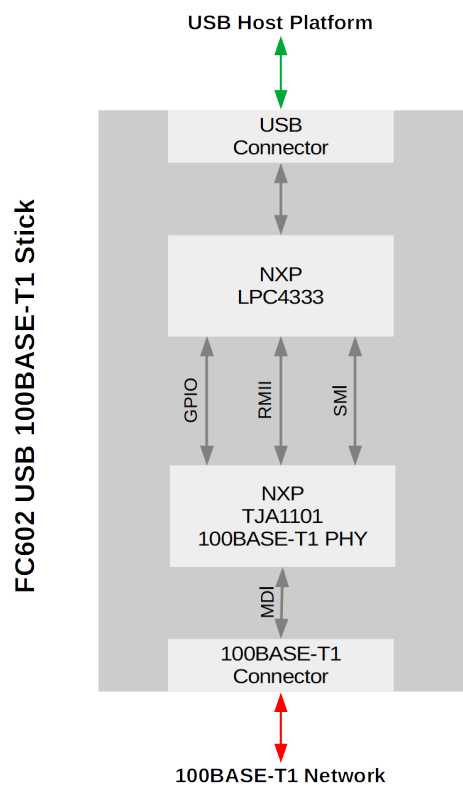
Typical Application
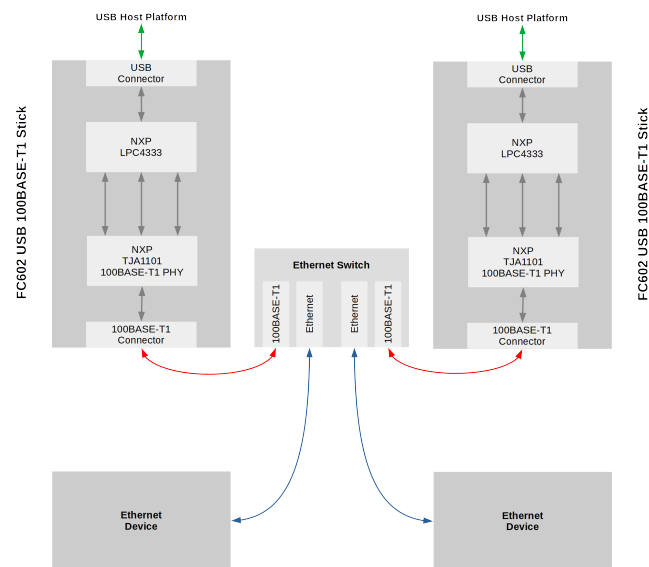
Technical Data

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:	FC602
Product Name:	USB 100BASE-T1 Stick
Deliverables:	USB 100BASE-T1 Stick incl. 2 m Automotive UTP Ethernet Cable and black sub-shell