



USB-100BASE-T1 CONVERTER

USER MANUAL

September 2018

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1 GENERAL INFORMATION

1.1 Functionality and Features of the USB-100BASE-T1 Converter



Figure 1–1: USB-100BASE-T1 Converter

The **Technica Engineering USB-100BASE-T1 Converter** transmits data frames from the physical layer BroadR-Reach (100BASE-T1) to USB 2.0.

Features:

- 1 port 100BASE-T1 with Broadcom BroadR-Reach Technology
- 1 port USB 2.0 mini B
- 1 Status LED

General Information:

Power requirement:	5V
Power consumption:	2,5 Watt

LINKS:

The User can download the latest firmware and documentation for the USB-100BASE-T1 Converter here:

<https://technica-engineering.de/produkt/usb-100base-t1-converter/>

1.2 Warranty and Safety Information



Before operating the device, read this manual thoroughly and retain it for your reference.

The latest documentation for the 100BASE-T1 MediaConverter_BCM can be downloaded here:

https://technica-engineering.de/produkt/100base-t1-mediaconverter_bcm/



Use the device only as described in this manual.

Use only in dry conditions.

Do not apply power to a damaged device.



Do not open the device. Otherwise warranty will be lost.



This device is designed for engineering purpose only.

Special care has to be taken for operation.

Do not use this device in a series production car.

As this device is likely to be used under rough conditions, warranty is limited to 1 year.

Manufacturer liability for damage caused by using the device is excluded.

1.3 Declaration of conformity

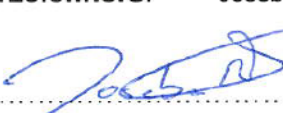
<u>EG-Konformitätserklärung</u>	
gemäß der EG-Richtlinie 2004/108/EG (elektromagnetische Verträglichkeit) vom 15. Dezember 2004	
<p>Hiermit erklären wir, dass das nachstehend bezeichnete Gerät in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie 2004/108/EG entspricht. Bei einer mit uns nicht abgestimmten Änderung des Gerätes verliert diese Erklärung ihre Gültigkeit.</p>	
Hersteller:	Technica Engineering Leopoldstr. 236 80807 München
Bevollmächtigter:	Joseba Rodriguez
Beschreibung des Gerätes:	USB-100BASE-T1 Converter
Datum der Erklärung:	03.09.2016
Name des Unterzeichners:	Joseba Rodriguez
Unterschrift:	

Figure 1–2: Declaration of conformity

2 HARDWARE INTERFACES

2.1 Connectors

On the label on top of the device you can see an overview about all HW-Interfaces of the USB-100BASE-T1 Converter.



Figure 2–1: Label of USB-100BASE-T1 Converter with pinning information

2.1.1 Black MQS Connector

The pinning of the ECU connectors is listed on the label on top of the device as well. (See Figure 2–1).

The Connector color is black.

The Tyco Electronics (TE) Micro Quad Lock System (MQS) is used.



Name	Picture	Part Number
Tyco, MQS Buchsengehäuse 3 Pol		4-1718346-1
Tyco crimp contact		928999-1

Table 2–1: Parts of black MQS connector

Note: You can use the official Tyco tool for these crimp contacts. A cheap variant is the crimp tool for “PSK” contacts.

Pin	Function
1	n.c.
2	100BASE-T1 port, positive
3	100BASE-T1 port, negative

Table 2–2: Pinning of black MQS connector

2.1.2 Universal Serial Bus Connector

There is one USB 2.0 mini B Port for connection to a laptop or PC.

2.2 Other Interfaces

2.2.1 Status LED

The USB-100BASE-T1 Converter has one status LED at the frontside of the case for the 100BASE-T1 Port.

It is lit when there is linkup. It is toggling when there is communication.

Note: There is a bug in the used BroadR-Reach PHY. When the BR Plus and Minus lines are swapped, and the 100BASE-T1 port is set to Slave then the Link LED is lit, but there is no data transmission possible. So please connect the 100BASE-T1 lines correctly.

3 INSTALLATION

3.1 Driver Installation

A driver is available for following operating Systems:

- Linux x64
- Windows x32
- Windows x64

Download-link

<https://technica-engineering.de/produkt/usb-100base-t1-converter/>

Please follow the described steps for installation:

- 1) Connect your USB-100BASE-T1 Converter device to your computer and browse your driver installation data folder

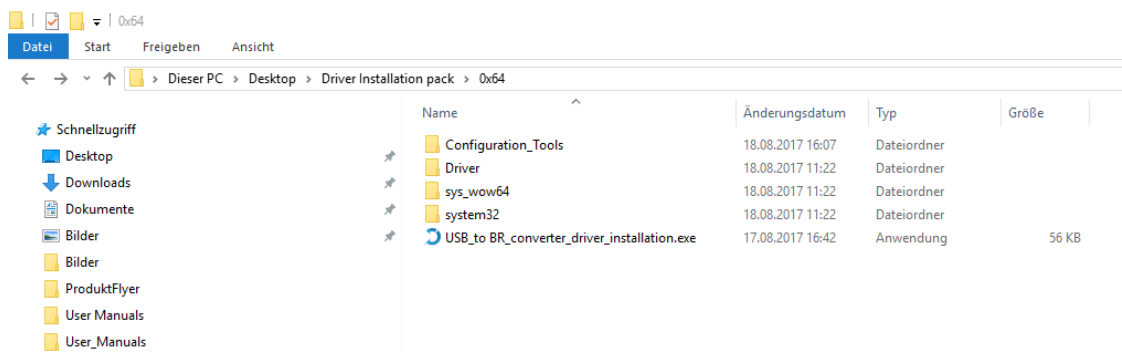


Figure 3–1: Driver Installation Data Folder

- 2) Run “USB_to BR_converter_driver_installation.exe” as an administrator, then the driver installation wizard will appear.

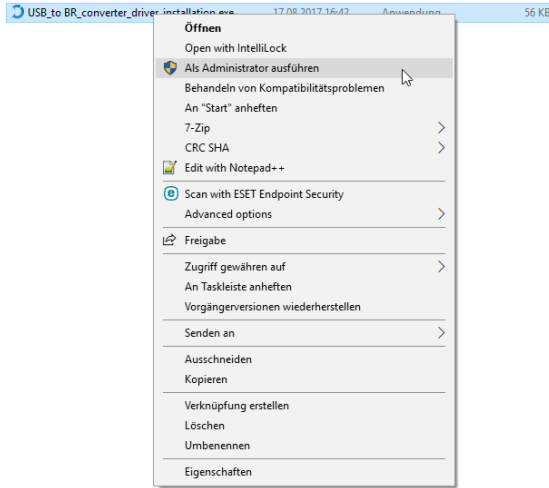


Figure 3–2: Installation as Administrator

- 3) Click next to continue installing the driver.

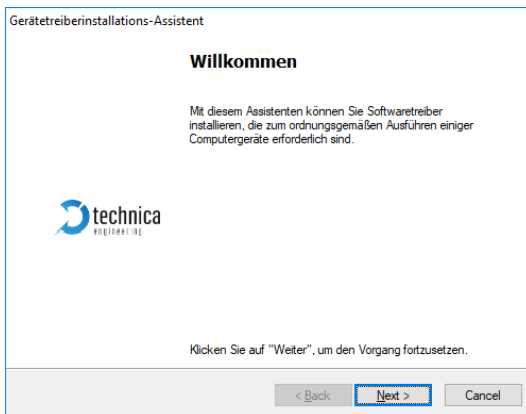


Figure 3–3: Start installing the driver

- 4) At this step the windows drivers are successfully installed. Click Finish to start installing the LibUsbDotNet library.

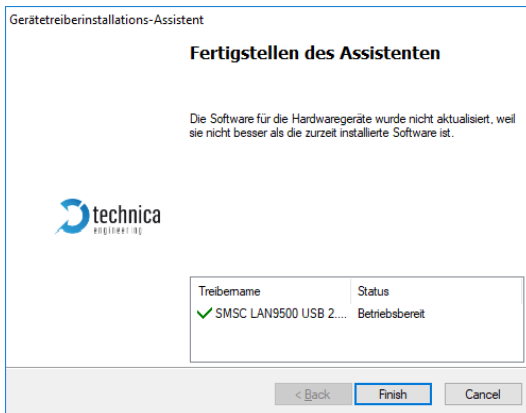


Figure 3–4: Start Installing LibUsbDotNet Library

- 5) A window will appear and asking for Installation of the LibUsbDotNet library. Click Run to start installing the library.

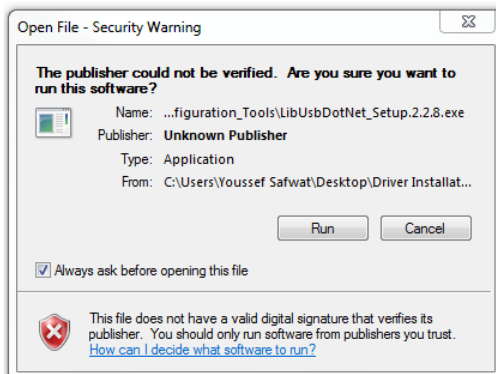


Figure 3–5: Security Warning from Windows

6) Click next to continue installing the LibUsbDotNet library and accept agreement.

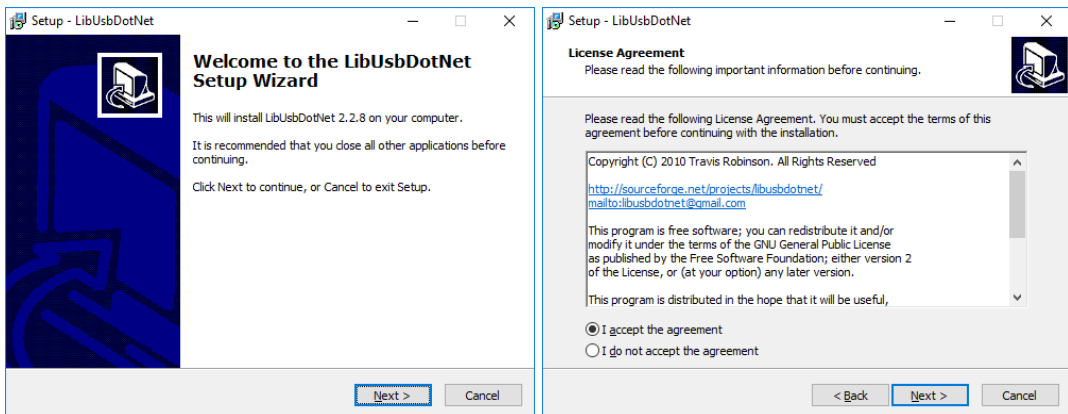


Figure 3–6: LibUsbDotNet Setup Wizard and License Agreement

7) Click next until the LibUsbDotNet library is installed

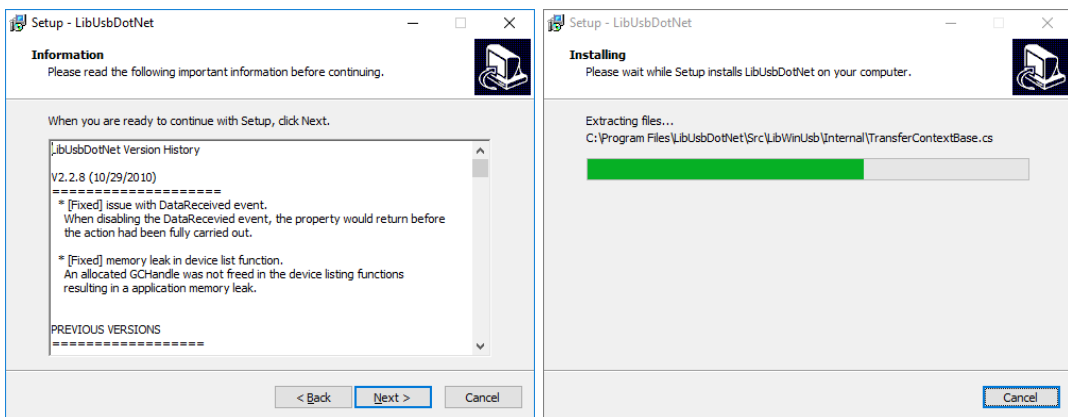


Figure 3–7: Installation Information

8) Click Finish to exit Setup and finish installing the LibUsbDotNet library.

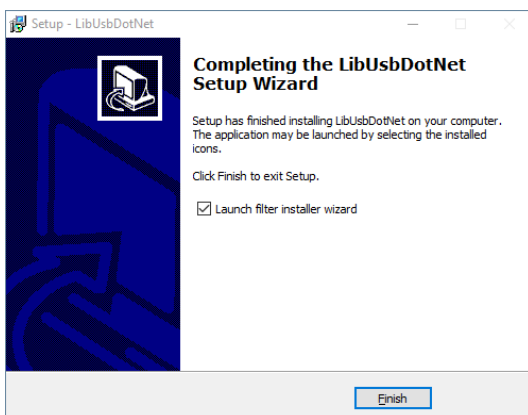


Figure 3–8: Finish of Installation

3.2 Device Installation

A libusb-win32 filter installer will appear directly after Installation of the driver. If not, then go to the directory “C:\Program Files (x86)\Technica Engineering\USB to BR Converter” and run install-filter-win.exe.

- 1) Select “Install a device filter” to install a device filter for the plugged-in device then click next (If your device is not plugged-in, click cancel to exit wizard).

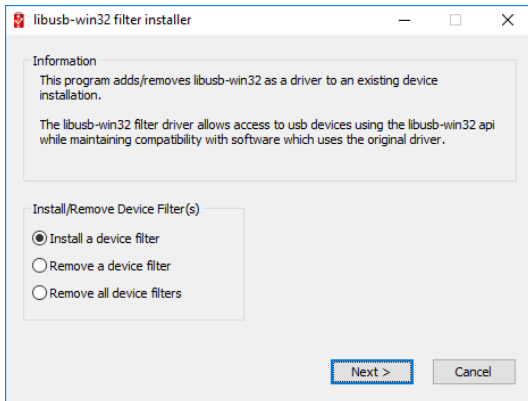


Figure 3–9: Installation of Device Filter

- 2) Select your USB-100BASE-T1 Converter device “LAN9500A USB 2.0 Ethernet 10/100 Adapter” then click Install.

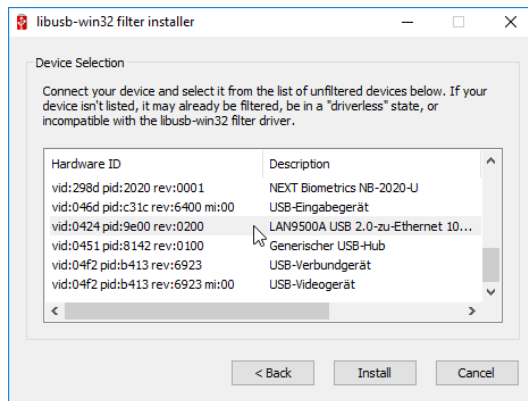


Figure 3–10: Selection of USB-100BASE-T1 Converter Device

- 3) After successfully installing your device's filter, click ok then cancel to exit the wizard.

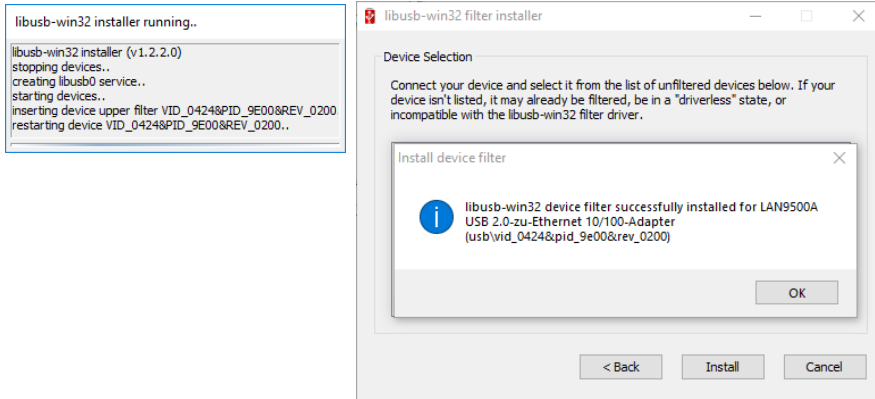


Figure 3–11: Exit of Wizard

- 4) By this time the application is installed, if your device is plugged, a system tray application to configure the USB-BR device should appear in windows system tray and taskbar.

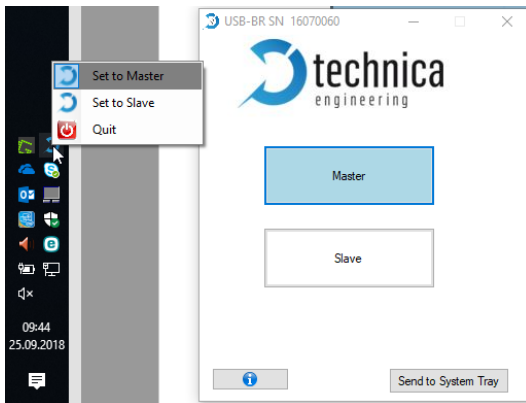


Figure 3–12: System Tray Icon and Configuration Window

3.3 INSTALLATION OF ADDITIONAL DEVICES

If you want to use a further device and you have already installed the drivers, then go to the directory “C:\Program Files (x86)\Technica Engineering\USB to BR Converter” and run install-filter-win.exe.

- 1) The libusb-win32 filter installer window should appear, select “Install a device filter” and click next.

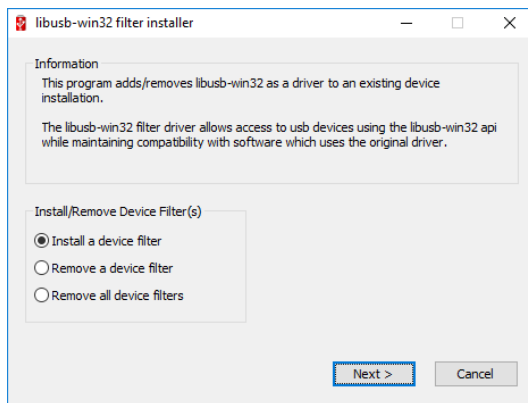


Figure 3–13: Installation of Device Filter

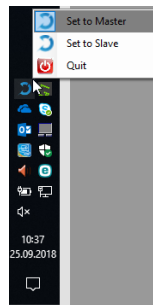
- 2) Choose the “LAN9500A USB 2.0 Ethernet 10/100 Adapter” and click install.

4 CONFIGURATION

The **USB-100BASE-T1 Converter** is configured by using the Configurator window or using directly the system tray icon.



Figure 4–1: Configurator



or

System Tray Application

Every time a device is plugged the System Tray Application will appear in Windows system tray.

Every device's System Tray Application will be linked to a certain device using the device's serial number, so if you are using multiple devices every device will have its own system- tray configurator tagged with a different serial number.

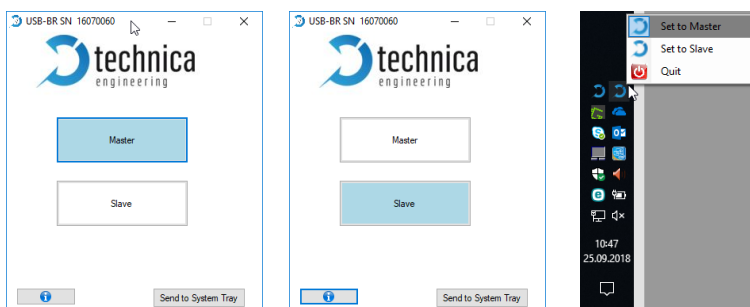


Figure 4–2: Two Devices (One Master, One Slave) and two Tray Icons

The Configurator tool can be used to configure the USB-BR device to work in two modes either as a Master or Slave.

Note: The Device is initially configured to work as a Master.

Note: In a BroadR-Reach Link one device must be set as Master, the other must be set as Slave.

Configuration Options:

- The “Master” button can be used to configure the BroadR-Reach port to work in Master mode.
- The “Slave” button can be used to configure the BroadR-Reach port to work in Slave mode.
- The “Send to System Tray” button can be used to hide the configurator window and send it to the windows system tray.
- The “information” button can be used to open this help!

Note: The windows application used to control the system-tray application is installed in windows startup folder
“AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup”
in order to run this application whenever windows starts.

If this is not desired then you can also start this application by running “Program Files (x86)\Technica_Engineering\USB_to_BR_Converter\USB_to_BR_config_tool.exe”.
Please also make sure the USB_to_BR_config_tool.exe instance in the Windows Startup is not running!

5 ADDITIONAL INFORMATION

- The maximum cable length for BroadR-Reach segments is limited to 15 meters.

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7 CHANGELOG

Version	Chapter	Description	Date
1.0	All	First release	
2.0	All	Rework of design and update of all information	25.09.2018

8 CONTACT

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