

1000BASE-T1 MEDIACONVERTER

USER MANUAL

November 2018

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1 GENERAL INFORMATION

1.1 Functionality and Features of the 1000BASE-T1 Media Converter



Figure 1–1: 1000BASE-T1 Media Converter

The **Technica Engineering 1000Base-T1 Media Converter** converts the new Standard 1000Base-T1 to the widely known 1000Base-T and vice versa. Data Transfer is full duplex in both directions.

Additional to this it has option to convert 100Base-TX to 100Base-T1 and vice versa. The mode configuration can be done very easy by DIP Switch.

Features:

- 1 Port Gigabit Ethernet 1000 BaseT/ Fast Ethernet 100BASE-TX
- 1 Port 100/1000Base-T1 full duplex on a single unshielded twisted pair.
- Automotive Tyco Nano MQS Connectors for 100/1000Base-T1 and Power Supply
- Robust steel case
- DIP Switches for easy configuration

General Information:

Power requirement:	6,5 to 16 Volt DC (nominal 12 Volt DC)
Power consumption:	2 Watt
Weight:	0,25 kg
Size:	92 x 63 x 25 mm
International Protection:	IP 2 0
Operating Temperature:	-40 to +80 °Celsius

LINKS:

The User can download the latest firmware and documentation for the 1000BASE-T1 MediaConvert here:

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

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 1000BASE-T1 MediaConverter can be downloaded here:

<https://technica-engineering.de/produkt/1000base-t1-media-converter/>



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:	1000BASE-T1 MediaConverter
Datum der Erklärung:	18.09.2017
Name des Unterzeichners:	Joseba Rodriguez
Unterschrift:	

Figure 1–3: 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 1000BASE-T1 MediaConverter.

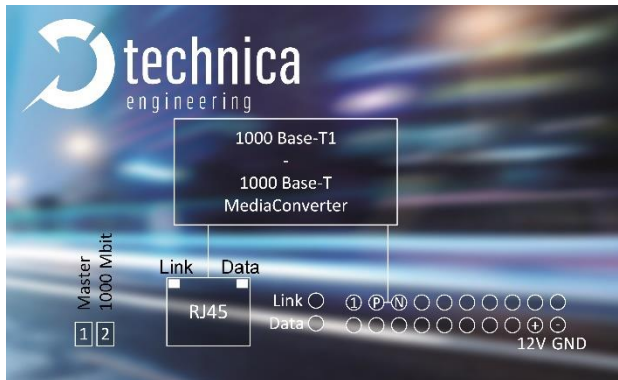


Figure 2–1: Label of 1000BASE-T1 MediaConverter with pinning information

2.1.1 nano-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 power supply for the device is supplied by pin 20 (Ground) and Pin 18 (12Volt).
100/1000Base T1 is connected to pin 3(positive) and pin 5 (negative)

Warning: If you apply a voltage higher than 18 Volt, the device will be damaged!

Pin	Function	Pin	Function
1	n.c.	11	n.c.
2	n.c.	12	n.c.
3	100/1000 BaseT1 Positive	13	n.c.
4	n.c.	14	n.c.
5	100/1000 BaseT1 Negative	15	n.c.
6	n.c.	16	n.c.
7	n.c.	17	n.c.
8	n.c.	18	Battery +12 Volt Input
9	n.c.	19	n.c.
10	n.c.	20	Battery Ground Input

Table 2–1: Pinning of black MQS connector

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



Name	Picture	Part Number
20POS NANOMQS REC HSG CODE A		2141404-1
NANOMQS RECEPTACLE TERMINAL		2-1703930-1

Table 2–2: Parts of nano-MQS connector

<http://www.te.com/usa-en/product-2141404-1.html>

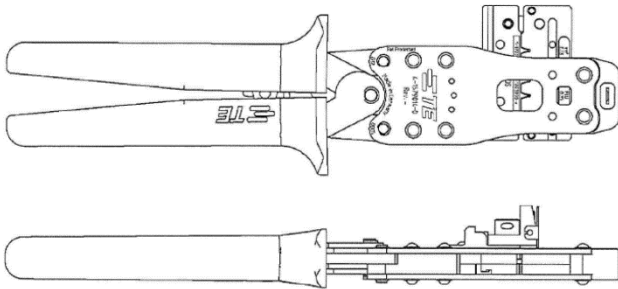
<http://www.te.com/usa-en/product-2-1703930-1.html>

<http://www.te.com/usa-en/product-4-1579014-0.html>

<http://de.farnell.com/te-connectivity/2-1703930-1/contact-socket-crimp/dp/2528666>

Note: You can use the official Tyco tool for these crimp contacts:
TE CONNECTIVITY CS11K NANO-MQS, 0.13-0.35 SQ.M
TE Internal Number: 4-1579014-0

Official Crimp Tool:



Name	TE CONNECTIVITY CS11K NANO-MQS, 0.13-0.35 SQ.M
TE Internal Number	4 -1579014 – 0
Distributor	Börsig GmbH www.boersig.com
Address	Siegmund-Loewe-Str. 5 74172 Neckarsulm

2.1.2 RJ45 Ethernet connectors

There is one RJ45 Standard Ethernet connector for Fast Ethernet (100BASE-TX).

2.2 Other Interfaces

2.2.1 DIP-Switches

The 1000BASE-T1 MediaConverter has two DIP-Switches for configuration (see Chapter 3).

2.2.2 Status LEDs

The 1000BASE-T1 MediaConverter has two status LEDs at the frontside of the case for the 1000BASE-T1 Port.

Upper LED:

Green Color. It is lit if there is a linkup on the 1000BASE-T1 port.

Lower LED:

Yellow Color. It is toggling if there is communication on the 1000BASE-T1 port

3 CONFIGURATION OF THE DEVICE

The 1000BaseT1 Media converter is configured by 2 DIP Switches on the front of the device.

DIP-Switch	Status	Description
1	ON (up)	100/1000 BASE-T1 Port is set to Master
	OFF (down)	100/1000 BASE-T1 Port is set to Slave
2	ON (up)	The device is set to 1 Gbit Mode.
	OFF (down)	The device is set to 100 Mbit Mode.

Table 3–1: Configuration of DIP-Switches

Note: In a 100/1000 BaseT1 System, one device must be set to Master, the other link partner must be set to Slave Mode.

4 1000BASE-T1 Filter

The following 1000BASE-T1 Filter is used in the 1000BASE-T1 MediaConverter:
The Pulse AE5002 is used.

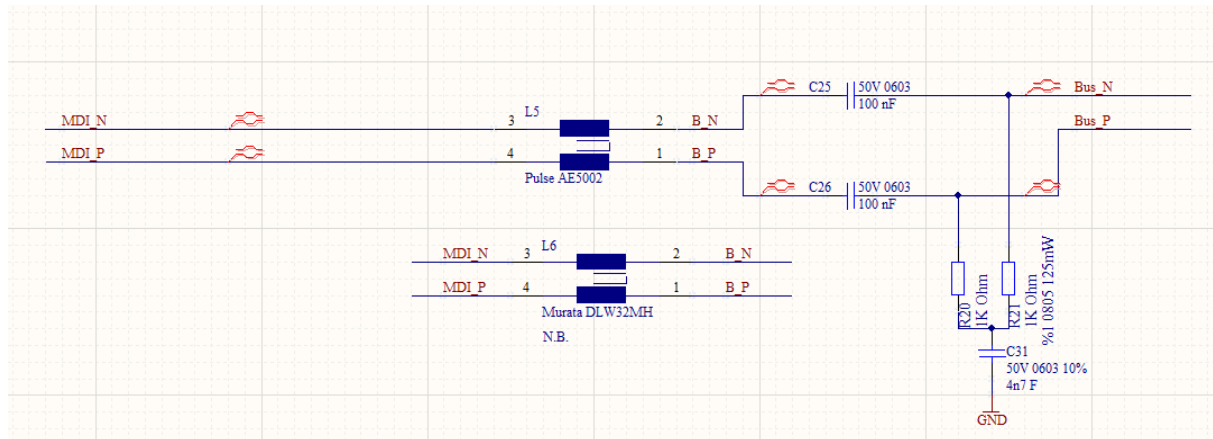


Figure 4–1: Used Filter in 1000BASE-T1 MediaConverter

5 ADDITIONAL INFORMATION

- The delay time is constant 2.0.us. The delay is independent of the Ethernet packet frame size.
- The 1000BASE-T1 MediaConverter_ is optimized for automotive use. The maximum cable length for 100/1000BASE-T1 segments is limited to 15 meters.

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7 CONTACT

If you have any questions regarding this product, please feel free to contact us:

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General information:
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Most current user manuals and product information:
<https://technica-engineering.de/>