

DATASHEET

MEDIACONVERTER 100/1000BASE-T1

General description

Technica Engineering's MediaConverters are compact and reliable devices for Automotive Ethernet development and testing activities. These hardware tools establish a physical layer conversion between electronic control units (ECUs) with Automotive Ethernet interfaces and devices with a standard Ethernet interface, like PC Network Interface Cards with RJ-45 connector or Ethernet Switches.

Additionally, MediaConverters TE-1405 and TE-1406 support the MACsec technology implemented in hardware, allowing MACsec to run at full speed, up to 1Gpbs.

Conversion

MediaConverters transmit data frames directly from the physical layer 100 or 1000BASE-T1 and the physical layer 100BASE-TX or 1000BASE-T, with a deterministic and constant delay of approximately 2 microseconds.

Application Areas

Technica Engineering's MediaConverters can be used on the development desk and even in harsh vehicle environments. These devices are adapted for continuous operation in Testbenches, which also corresponds temperature range in which they can work and their robust casing.

Configuration

MediaConverters can be statically configured for standalone operation but also controlled remotely for dynamic operation.

Standalone operation is defined via 4x DIP switches for basic configuration of the device:

- DIP Switch 1: Master/Slave
- DIP Switch 2: 100/1000 Mbps
- DIP Switch 3: IEEE-/Legacy-mode (TE-1402/TE-1403)
- DIP Switch 3: Autosearch ON/OFF (TE-1405/TE-1406)
- DIP Switch 4: Frame Generator (ON/OFF)

Finally for advanced use cases, to control remotely the operation or additional debugging purposes, there is a serial interface (console), which is accessible through micro-USB-B connector. This interface enables the users to read TX/RX register counters, SQI values of the channels, CRC errors, and other information as well as dynamically change the MediaConverters configuration overriding DIP switches. It can also be used for Firmware updates of the device.

For the MediaConverter variants TE-1405 and TE-1406, a WEB GUI PC application is available, providing a more user-friendly interface for configuration and management.

MATenet variant



H-MTD variant



Technical Data

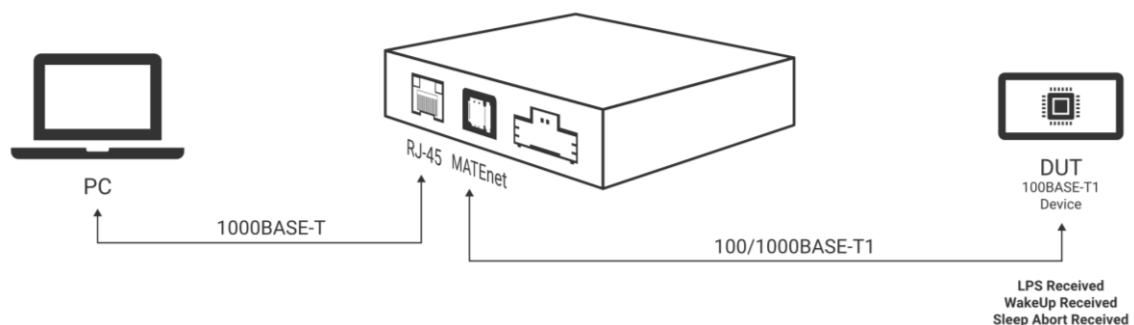
Operating Temperature	-40 °C to +85 °C
Supply Voltage	6 V to 30 V DC (typ. 12 V)
Power connector	MQS 6 pin (plug counterpart BU-GEH 6P)
Power consumption	2 Watt
IP Protection Class	IP 20
Housing Dimensions	89 mm (W), 72 mm (L), 28 mm (H)
Weight	0,2 kg (approx..)
Interfaces	1x 100BASE-T1/1000BASE-T1 (MATEnet/H-MTD) 1x 100BASE-TX/1000BASE-T (RJ45) Micro USB-B

Characteristics of MediaConverter variants

		TE-1402	TE-1403	TE-1405	TE-1406
Ports/Connectors	RJ-45 Ethernet port	✓	✓	✓	✓
	MQS power connector	✓	✓	✓	✓
	MATEnet	✓	-	✓	-
	H-MTD	-	✓	-	✓
	Micro USB-B debug port	✓	✓	✓	✓
Configuration method	DIP Switches	✓	✓	✓	✓
	Console (serial Interface)	✓	✓	✓	✓
	WEB GUI PC Application	-	-	✓	✓
Features/Functions	Open Alliance TC10 (Wake/Sleep)	-	-	✓	✓
	Frame generator	✓	✓	✓	✓
	Legacy mode	✓	✓	-	-
	Auto Search feature	-	-	✓	✓
	Status LEDs and diagnostics	✓	✓	✓	✓
	IEEE test modes	-	-	✓	✓
	Firmware updates	✓	✓	✓	✓
	Import/Export configuration	-	-	✓	✓
Transceiver	Marvell 88Q2112 A2	✓	✓	-	-
	Marvell 88Q2221M B2	-	-	✓	✓
MACsec feature package*	MACsec (802.1AE) configuration	-	-	✓	✓
	MACsec with hardcoded keys (no MKA)	-	-	✓	✓

* Needs to be ordered separately

Use case



Order Information

Name	Article Number	Cable set number*	MACsec Feature package*
MediaConverter 100/1000BASE-T1 MATEnet	TE-1402	KS-1402	Not available
MediaConverter 100/1000BASE-T1 H-MTD	TE-1403	KS-1403	Not available
MediaConverter 100/1000BASE-T1 MATEnet TC10	TE-1405	KS-1402	TE-1405_MACsec
MediaConverter 100/1000BASE-T1 H-MTD TC10	TE-1406	KS-1403	TE-1406_MACsec

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