

# 10GBASE-T1-TX



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## 1. General Description:

The converter features bi-directional conversion between 10G/5G/2.5 GBASE-T1 and 10G/5G/2.5G/1G/100M BASE-T. A massive stainless-steel housing, coupled with switches for ease of configuration enables the user to interact with the converter, effortlessly. Its design makes it portable and easy to install in test racks. The galvanized sheet steel with black powder coating housing makes it robust. The device is capable to function in a varying temperature range from -40 Celsius to +80 Celsius.

Utilizing the commonly applied automotive Ethernet standard, Rosenberger H-MTD interface type, the product converts automotive Ethernet standards 10G/5G/2.5G BASE-T1 to industrial-grade 10G/5G/2.5G/1G/100M BASE-T standards, thereby allowing connection to computers or industrial PCs. The product achieves full-duplex physical layer conversion between 10G/5G/2.5GBASE-T1 and 10G/5/2.5G BASE-T, enabling direct point-to-point conversion between automotive ECUs using 10G/5G/2.5GBASE-T1 and any standard fast Ethernet device with an RJ-45 connector or fiber optic interface, without storing or modifying any data packets.

No customized driver is needed to interact with our converter. The device communicates with standard Ethernet through an RJ-45 connector. It comes with a A custom-made SFP+ to RJ45 module transceiver.

## 2. Features

1. 10G/5G/2.5GBASE-T1 to 10G/5G/2.5G/1G/100M BASE-T (RJ45/SFP+) Full Duplex Conversion. point-to-point data transmission, with no delay, no data packet modification, and no data storage. Base on the Broadcom BroadR-Reach PHY bcm89890.
2. Plug and Play, No need to install the drivers. TI port Support for Speed Fixed and Speed Auto-Negotiation Mode configuration
3. By using the DIP switch, you can easily set the Speed mode of T1, the master/slave operation mode, and the Auto Negotiation mode.
4. Features with Speed and link state indicator LED.
5. A custom-made SFP+ to RJ45 module transceiver is included with the shipment. Please do not use other commercially available SFP+ to RJ45 modules with this setup.

## 3. Hardware Description

### 3.1 General Information

Items	Description
Power Input Requirement	6~36V/1A Input
Power Consumption	<5W
Size W* L * H	126 mm x 105 mm x 38 mm(Include the module)
Weight	220g
Operating Temperature	-40 to 85 Celsius
PHY Chip	bcm89890

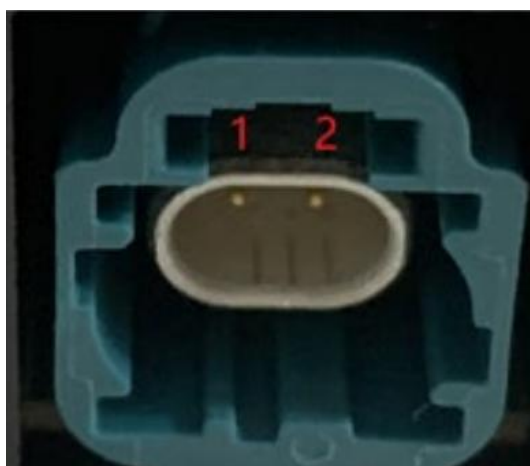
### 3.2 Interface



## (1) LED Indicator

LED Function Instructions	LED1	LED2	LED3	LED4
T1-RJ45/SFP + Link Down	OFF	OFF	/	/
T1-RJ45/SFP + Link Up(traffic ) at 10G	ON (Blink)	ON (Blink)	/	/
T1-RJ45/SFP + Link Up(traffic ) at 5G	ON (Blink)	OFF	/	/
T1-RJ45/SFP + Link Up(traffic ) at 2.5G	OFF	ON (Blink)	/	/
T1 port link state	/	/	ON/OFF	/
Power State	/	/	/	ON/OFF

## (2) T1 Port



PIN	Symbol	Description
1	TRD+	Positive Differential Signal
2	TRD-	Negative Differential Signal

### (3) Dip Switch

Switch Configuration		ON(level 0)	OFF(level 1)
Speed Mode	SW1	[ SW1 SW2 ] 11 : 10Gb/s      10 : 5Gb/s 01 : 2.5Gb/s    00 : Reserve	
	SW2		
MS Mode	SW3	Slave	Master
AutoNeg	SW4	Disable	Enable
Reserve	SW5	/	/
	SW6	/	/

### (4) Power Input

6~36V/1A

### (5) RJ-45 SFP+ Port

There is one RJ45 Standard Ethernet connector for Fast Ethernet. Comes with a 10GBase-T SFP+ transceiver.



10GBase-T SFP+ Transceiver  
Included x1



## 4. Usecase

### 4.1 Standard Usecase



10GBASE-T1-TX device is used to connect a PC/SBC to a T1 peripheral.

The mode of device is dependent on the DUT. If DUT is Master, MC must be configured as Slave (DIP-switch : S) and vice versa. If you don't know the mode of DUT, you could switch the mode of 10GBASE-T1-TX for testing. The BR Link led will be lit when the 10GBASE-T1-TX is paired with the DUT.

SE-T1-TX and two standard PCs/SBC with RJ45 connectors together over a 2-wire T1 network. The converters communicate with each other via T1 2-Wire.

## 5. User Manual Version Descriptions

Version	Description	Date	E-mail
V1.0		2024.11.21	<a href="mailto:support@inno-maker.com">support@inno-maker.com</a> <a href="mailto:sales@inno-maker.com">sales@inno-maker.com</a> <a href="mailto:calvin@inno-maker.com">calvin@inno-maker.com</a>

If you have any suggestions, ideas, codes and tools please feel free to email to me. Look forward to your letter and kindly share.