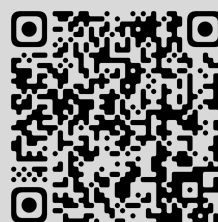


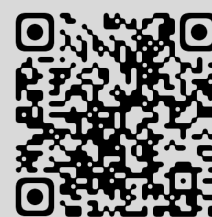
**EC1001**

# Ethernet Converter 100Mbps

Product Manual v1.1



manual



products

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# 100Base-T1 Ethernet Converter Introduction

The EC1001 Ethernet Converter seamlessly converts 100BASE-T1 automotive Ethernet to 100BASE-TX Fast Ethernet via an RJ45 interface. It supports bidirectional transmission in full-duplex mode, enabling reliable communication between standard computers and 100BASE-T1-based vehicle controllers.



## Key Features

- MOLEX Mini50 automotive Ethernet interface
- 4.5V to 50V ultra-wide voltage input, withstanding up to -40V to +60V; compatible with 12V/24V systems
- Compliant with ISO 16750-2 and ISO 7637-2 testing standards for 12V/24V vehicles, suitable for in-vehicle use
- Supports multiple power supply interfaces: USB, Banana plug, and DC 5.0

- Link LED for real-time connection status; Rainbow LED for real-time communication quality monitoring
- DIP switches for effortless configuration
- Zero data modification for lossless, transparent transmission

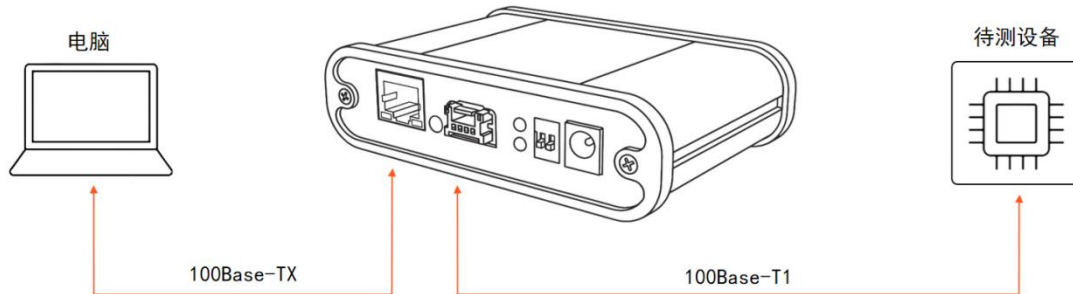
## Product Information

Parameter	Description
Input Voltage:	4.5~50VDC
Withstand Voltage Range:	-40~60VDC
Power Consumption:	<2W
Dimensions:	69x104x30mm
Net Weight:	175g
Operating Temperature:	-40°C~+80°C
Protection Rating:	IP20

## Package Contents

- 1 × 100Base-T1 Ethernet Converter
  - 1 × 1 m USB power cable
  - 1 × 30 cm banana-plug power cable
  - 1 × Mini50 connector to quick connector\*
- \* Custom adapter cables are available upon request.

## Standard Use Case



The DIP switch configuration of the EC1001 depends on the device under test. If the device under test is a master, the EC1001 must be configured as a slave. Refer to the DIP Switch section for details.

## DIP Switch

DIP Switch	State	Description
1	ON (up)	100Base-T1 port set to Slave mode
	OFF (down)	100Base-T1 port set to Master mode
2	Reserved	

Note: In a 100Base-T1 link, one device must be configured as the master and the other as the slave. The 100Base-TX interface uses auto-negotiation.

## LED Information

Functional Domain	Indicator	State	Color	Description
100Base-T1	ON	Steady on	Red	Power connected
		Off	—	Power not connected
	LN	Steady on	Red	100Base-T1 link established

		Blinking	Red	100Base-T1 communication
		Off	—	100Base-T1 link not established
	SQI	Steady on	Multicolor	Signal quality; Lower value indicates poorer signal (Red, Orange, Yellow, Green, Cyan, Blue, Purple: 1-7)
		Off	—	No signal
		Blinking	Red	Functional error
100Base-TX	RJ45 Left	Steady on	Green	100Base-TX link established
		Off	—	100Base-TX link not established
		Blinking	Green	100Base-TX communication
	RJ45 Right	—	—	Reserved

## Application Scenarios



### Scenario 1: Laboratory ECU Communication Debugging

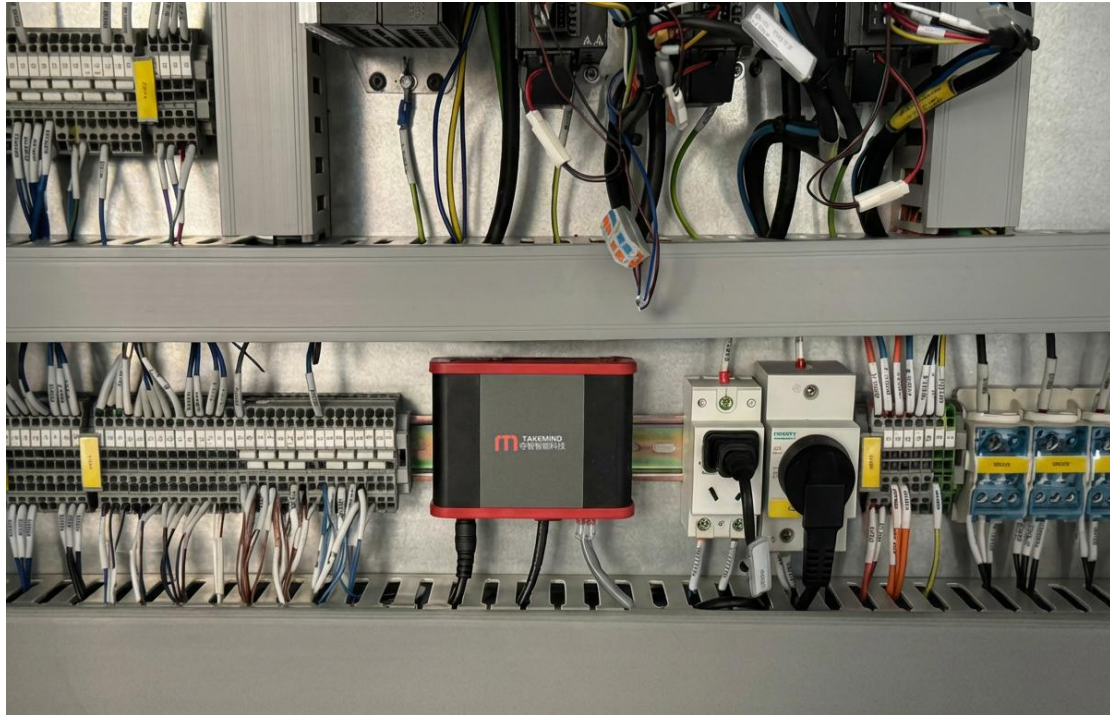
This scenario demonstrates a typical connection between a vehicle controller and a host computer in a laboratory setting. The EC series device acts as a communication interface node, establishing a stable data exchange link

between the controller and the PC via cables. Engineers can monitor, debug, and verify functions on the computer, ensuring the reliability and consistency of the communication process.



### Scenario 2: In-Vehicle Environmental Debugging

This scenario showcases the application in an actual vehicle environment. The EC series interface device connects to the vehicle's ECU through an Automotive Ethernet port, enabling high-speed communication with external test systems. Used directly on the vehicle, it handles data access and transmission, supporting engineers in performing network debugging, data acquisition, and system validation under real driving conditions. This configuration is ideal for R&D road tests, control strategy verification, and real-time vehicle network diagnostics.



### Scenario 3: Industrial Production Environment

In an industrial production control cabinet, the EC series Automotive Ethernet converter serves as a communication bridge for ECU testing. The device provides stable and reliable data conversion between Automotive Ethernet and Standard Ethernet. This configuration is widely utilized in ECU End-of-Line (EOL) testing processes.

## Warranty Information

Please use this product under the conditions described in this manual. The warranty period is limited to one year. Do not disassemble the enclosure; otherwise, the warranty will be void.

## Revision History

Version	Section	Description	Date
1.0	All	Initial release	2022/09/01
1.1	Application Scenarios	Added application scenario description	2025/10/21

Users can download the latest documentation for the EC1001 100Base-T1

Ethernet Converter at:

<http://www.takemind.com/en/ec100x-en/>

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