

## TR321-M Series LTE-M/NB-IoT Routers

### Introduction

TR321-M Series LTE CAT M1/NB-IoT Router is a type of compact industrial cellular router based on LPWA technology, which adopts high-powered industrial 32-bits CPU, with multi-layer software detection and hardware protection mechanism to ensure reliability and stability of the device. It supports worldwide carrier LTE CAT M1(eMTC)/NB-IoT cellular network. With rich VPN protocols (IPSEC, PPTP, L2TP, GRE, OpenVPN) to ensure the security of data transmission, and rich interfaces, such as RS232, RS485(Optional), Ethernet Port, GPS(Optional) and WIFI(Optional), etc.

TR321-M Series Router enables users to quickly access the Internet, to ensure secure and reliable data transmission. It's ideal for IOT (Internet of Things) and

M2M (Machine to Machine) applications, and has been widely used in many applications, such as Intelligent Transportation, Smart Grid, Oil and Gas, ATM, Vending Machine, Agricultural Irrigation, Environmental Protection, Industrial Automation, Energy Saving, Smart Home, etc.

### Key Features

- OPEN WRT, support second development
- 1x WAN(Can be configured as LAN), 1x LAN(10/100M), 1x RS232, 1x RS485(Optional)
- LTE-M/PPPoE/DHCP and Static address connection mode, switchover between wired and wireless connectivity
- Support MQTT protocol
- APN/VPDN to ensure the security of data transmission.
- Multiple VPN protocols, IPSec, L2TP, PPTP, GRE(Optional) and OPEN VPN.
- DHCP server, DHCP binding MAC address, DDNS, Firewall, NAT, DMZ host, QoS, Traffic Analysis, Real-time display of data transfer rate, etc.
- TCP/IP, UDP, FTP, HTTP network protocols.
- SPI Firewall, DoS attack, VPN traversal, Access Control, Port Mapping, DMZ Mapping, Access Control List(ACL), IP-MAC binding and Clone function, etc.
- Heartbeat link detection, offline automatic reconnection.
- Hardware and software auto inspection technology, enable operation fault auto repairing.
- Status query of system, network connection, routing.
- Telnet, web, ssh configurations.
- Web upgrade, local system log, remote log, serial port output log.
- WIFI(Optional) or GPS(Optional)
- Remote configuration and management

### Specifications

#### System

**CPU:** Industrial 32-bit

**FLASH:** 16MB(Extendable to 32MB)

**SDRAM:** 128MB(Extendable to 256MB)

#### Cellular Interface

LTE CAT M1/NB1, EDGE/GPRS

Note: CAT NB1, EDGE/GPRS are unavailable on TR321-MS7A

#### Cellular Antenna Interface

**Number of Ports:** 1

**Note:** Standard SMA female antenna interface, characteristic impedance 50Ω

#### SIM Interface

**Number of Ports:** 1

**Note:** Standard drawer type card holder, support 1.8V/3V

SIM/UIM card, built-in 15KV ESD protection

## Ethernet Port(RJ45)

**Number of Ports:** 2, 1x WAN(Can be configured as LAN), 1x LAN

**Note:** 10/100M, Auto MDI/MDIX, 1.5KV magnetic isolation protection

## WiFi (Option)

**Standard:** IEEE802.11b/g/n for wireless LAN

**Transmission Rates:**

IEEE802.11b/g: Up to 54Mbps, IEEE802.11n: Up to 300Mbps

**Security:** WEP, WPA/WPA2

**TX Transmit Power:** 18dBm(11g), 21dBm(11b)

**RX Sensitivity:** <-72dBm@54Mbps

## GPS (Option)

Support from the built-in cellular module

**Note:** GPS may be unavailable for some cellular modules.

## Serial Interface (5-PIN Industrial terminal block)

**Number of interfaces:** 2, 1x RS232, 1x RS485(Option)

**Note:** Built-in 15KV ESD protection, and TTL GPIOs is customizable

## Serial Communication Parameters

**Baudrate:** 300~230400bits/s

**Data Bit:** 5, 6, 7, 8 bits

**Stop Bit:** 1, 1.5, 2 bits

**Check:** No, Even-parity, Odd Parity, SPACE and MARK

## Power Requirements

**Standard Power:** DC 12V/1.5A

**Power Range:** DC 5~35V

**Note:** Built-in power inverting protection and over voltage protection

## Power Consumption

**Communication:** 123~250mA@12VDC

**Standby:** 110~200mA@12VDC

**Scheduled Shutdown:** 2mA@12VDC

## LED Indicators

Power, Signal Strength, System, Online, Alarm, WAN and LAN

## Reliability

EMC up to level 3

Use NTP technology, build-in RTC

SIM/UIM card port built-in 15KV ESD protection

## Warranty

**Warranty Period:** 12 months

## Environmental Limits

**Operating Temperature:** -35~+75°C(-31~+167 °F)

**Storage Temperature:** -40~+80°C(-40~+176 °F)

**Ambient Relative Humidity:** 93%±3%, non-condensing

## Physical Characteristics

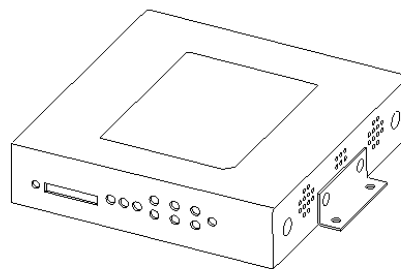
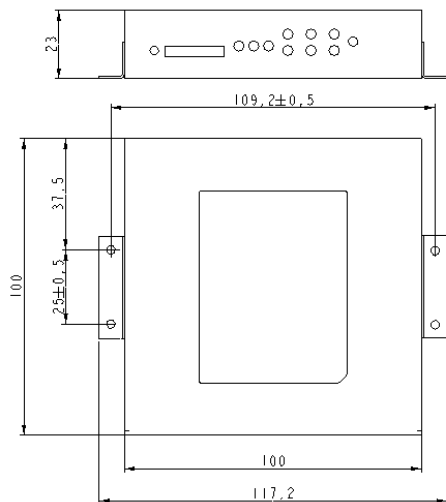
**Protection Class:** IP30, Housing and system are isolated safely, ideal for industrial automation application

**Housing:** Iron

**Weight:** 320g(0.71lbs), router host only, accessories not included.

**Dimension:** 100x100x23mm(3.94x3.94x0.91 inches), Antenna and other accessories not included

## Dimensions



## Order Information

Model	Part Number	Product Description	Frequency Band	Network
TR321-M	TR321-MS7C	Industrial LTE CAT M1/NB1 Modem	FDD-LTE B1/B3/B5/B8 GPRS/EDGE 900/1800 MHz	LTE CAT M1, NB-IoT, GPRS/EDGE
TR321-M	TR321-MS7A	Industrial LTE CAT M1 Modem	FDD-LTE B2/B4/B12/B13	LTE CAT-M1 only
TR321-M	TR321-MS7E	Industrial LTE CAT M1/NB1 Modem	FDD-LTE B3/B8/B20/B28 GPRS/EDGE 900/1800Mhz	LTE CAT M1, NB-IoT, GPRS/EDGE
TR321-M	TR321-MS7G	Industrial LTE CAT M1/NB1 Modem	FDD-LTE B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/B39 (B39 CAT-M1 only); GPRS/EDGE 850/900/1800/1900Mhz	LTE CAT M1, NB-IoT, GPRS/EDGE

## Package Content

- TR321 Router Host
- Power Adapter(DC 12V/1.5A)
- Cellular Antenna (Male SMA, 1 meter)
- Console Cable(RS232, 1 meter)
- Ethernet Cable(1 meter)
- 5-Pin Terminal Block

Note: Please visit our website for available frequency band of Bivocom industrial cellular routers, or contact [sales@bivocom.com](mailto:sales@bivocom.com) for more information.