

# TR321 Series

## Industrial Cellular Routers

# Bivocom



### Product Overview

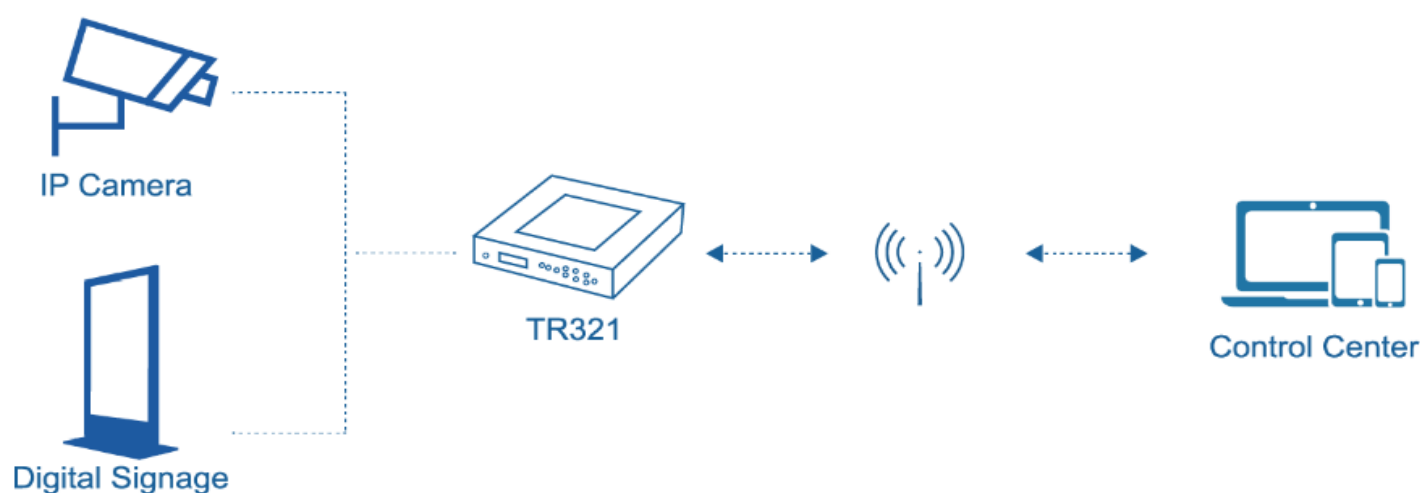
TR321 Series Router is a type of compact industrial cellular router, which adopts high-powered industrial 32-bits CPU, with multi-layer software detection and hardware protection mechanism to ensure reliability and stability of the device. It supports worldwide carrier 4G LTE CAT 6/CAT4/3G/2G and LTE CAT M1/NB-IoT cellular network. With rich interfaces, such as 1x RS232, 1x RS485, 2x Ethernet Port, and WIFI (Option), make your edge data quickly access the internet via mobile network and secure reliable data transmission.

TR321 Series Router supports multiple network and industrial protocols, like Modbus, MQTT, it's ideal for IoT (Internet of Things) and M2M (Machine to Machine) applications, and has been widely used in many industries, 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

1. LTE/3G/PPPoE/DHCP and static address connection mode, switchover between wired and wireless connectivity
2. 4G LTE, 3G and LTE CAT M1/NB-IoT version to choose
3. 1-WAN + 1-LAN or 2-LAN, 1-RS232, 1-RS485, 1-WIFI(Optional)
4. Support Modbus TCP/RTU, MQTT protocols for Serial communication
5. APN/VPDN to ensure the security of data transmission
6. Multiple VPN protocols, IPSec, L2TP, PPTP, GRE and OpenVPN
7. DHCP server, DHCP binding MAC address, DDNS, Firewall, NAT, DMZ host, QoS, Traffic Analysis, Real-time display of data transfer rate
8. TCP/IP, UDP, HTTP network protocols
9. SPI Firewall, DoS attack, VPN traversal, Access Control, Port Mapping, DMZ Mapping, Access Control List(ACL), IP-MAC binding and clone function
10. Heartbeat link detection, offline automatic reconnection
11. Hardware and software auto inspection technology, enable operation fault auto repairing
12. Status query of system, network connection, routing
13. Telnet, web, SSH configurations
14. Web upgrade, local system log, remote log, serial port output log
15. Sending SMS via web UI
16. Support Bivocom DMP (Device Management Platform)<sup>1</sup> for Remote configuration and management
17. Support Firmware customization base on OpenWrt

### Application Diagram



## Specifications

### Cellular Interfaces

Antenna Connector	1 × 50 Ω SMA Female
SIM Slot	1
ESD Protection	15KV

### Ethernet Interface

Ports	2-RJ45 (1-WAN + 1-LAN or 2-LAN)
Data Rate	10/100 Mbps (Auto-Sensing), Auto MDI/MDIX
Magnet Isolation	1.5KV

### Serial Interface

Connector	Terminal block, 5-pin 3.5 mm female socket with lock
Ports	1-RS232 + 1-RS485
Baud Rate	300bps to 230400bps
ESD protection	8KV for RS232, 15KV for RS485

### Wi-Fi (Option)

Antenna Connector	1 × 50 Ω SMA Male
Standard	IEEE 802.11b/g/n
Transmission Rate	IEEE802.11b/g: Up to 54Mbps, IEEE802.11n: Up to 300Mbps
Security	Open, WPA, WPA2, WPA/WPA2 Enterprise, Radius
Tx Power	18dBm (11g), 21dBm (11b)
Rx Sensitivity	<-72dBm@54Mbps

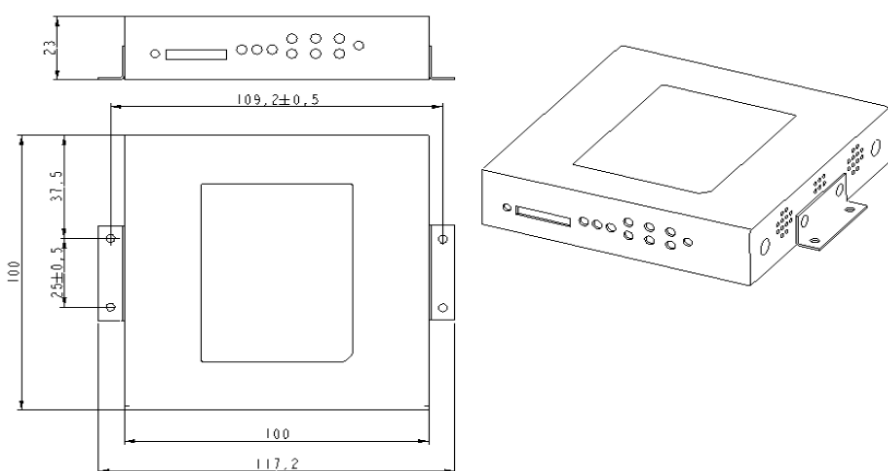
### Power Supply and Consumption

Connector	Plug In
Standard Power	DC 12V/1.5A
Input Voltage	5-35 VDC
Power Consumption	123~250mA@12VDC
Idle Consumption	110~200mA@12VDC

### Software

Network Protocols	PPP, PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, IPv4/v6, OSPF, DNS, DDNS, HTTP, ARP, QoS, STP, Telnet, VLAN, SSH, etc.
Serial Port	MQTT, Transparent (TCP Client/Server, UDP Client/Server), Modbus Gateway (Modbus RTU to Modbus TCP)
VPN Tunnel	IPsec/PPTP/L2TP/GRE/OpenVPN

### Dimensions(mm)



Firewall Management	ACL/DMZ/Port Mapping/MAC Binding
Secondary Development	Web, CLI, SMS, Cloud DMP (Device Management Platform)
	OpenWrt based, support Python, LUA

### Physical Characteristics

Ingress Protection	IP30
Housing & Weight	Metal
	320g (0.71lbs), without accessories
Dimensions	100 x 100 x 23mm (3.94 x 3.94 x 0.91 in)
Mounting	Desktop, Wall mount, DIN Rail (option)

### Environmental

Operating Temperature	-35°C to +75°C (-31°F to +167°F)
Storage Temperature	-40°C to +80°C (-40°F to +176°F)
Relative Humidity	0% to 93% (non-condensing) at 25°C/77°F
Ethernet Isolation	1.5 kV RMS

### Others

Reset Button	1-RESET
LED Indicators	1-Power, 1-Alarm, 1-WAN, 1-System, 1- Online, 1-LAN, 3-Signal Strength
Built-in	Watchdog, RTC, Timer
Certifications <sup>2</sup>	CE, RCM, NBTC, MTC, FCC*
Warranty Period	Standard: 12 Months Extended: 2-5 Years <sup>3</sup>

### Standard Package Content

TR321 Router  
 Power Adapter(DC 12V/1.5A, EU/US/UK/AU plug optional)  
 Mag-mount Cellular Antenna (SMA Male, 1 meter, 5dBi)  
 RS232 Cable (DB9 Female, 1 meter)  
 Ethernet Cable(1 meter)  
 5-Pin Terminal Block  
 Wall mount kit  
 Quick Start Guide(Printed)

### Order Information

Model	Frequency Band <sup>4</sup>
TR321-LF	4G LTE CAT 6 EMEA&APAC: B1/B3/B5/B7/B8/B20/B28 NA: B2/B4/B5/B7/B12/B13/B25 4G LTE CAT 4 EMEA: 1/B3/B5/B7/B8/B20/B38/B40/B41 ANZ/LATAM: B1/B3/B5/B7/B8/B28 NA: B2/B4/B5/B12/B13/B14
TR321-W	HSPA/UMTS/WCDMA 900/2100MHz, or 850/1900/2100MHz Global: 800/850/900/1900/2100
TR321-M	LTE CAT M1/NB-IoT/EDGE/GPRS APAC: FDD-LTE B1/B3/B5/B8 GPRS/EDGE 900/1800 MHz NA: FDD-LTE B2/B4/B12/B13 EU/AU: FDD-LTE B3/B8/B20/B28 GPRS/EDGE 900/1800Mhz Global: FDD-LTE B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B CAT-M1 only); GPRS/EDGE 850/900/1800/1900Mhz

#### Note:

- There is license fee for DMP.
- \* Under development.
- Price of extended warranty will be different.
- If you couldn't find the frequency band for your regions or have any questions, please contact Bivocom sales representatives for more information.
- From Sep 1, 2019, the RS485 of TR321 router comes as default feature.

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