

# TR321 Series

## Industrial Cellular Routers

# Bivocom



### Product Overview

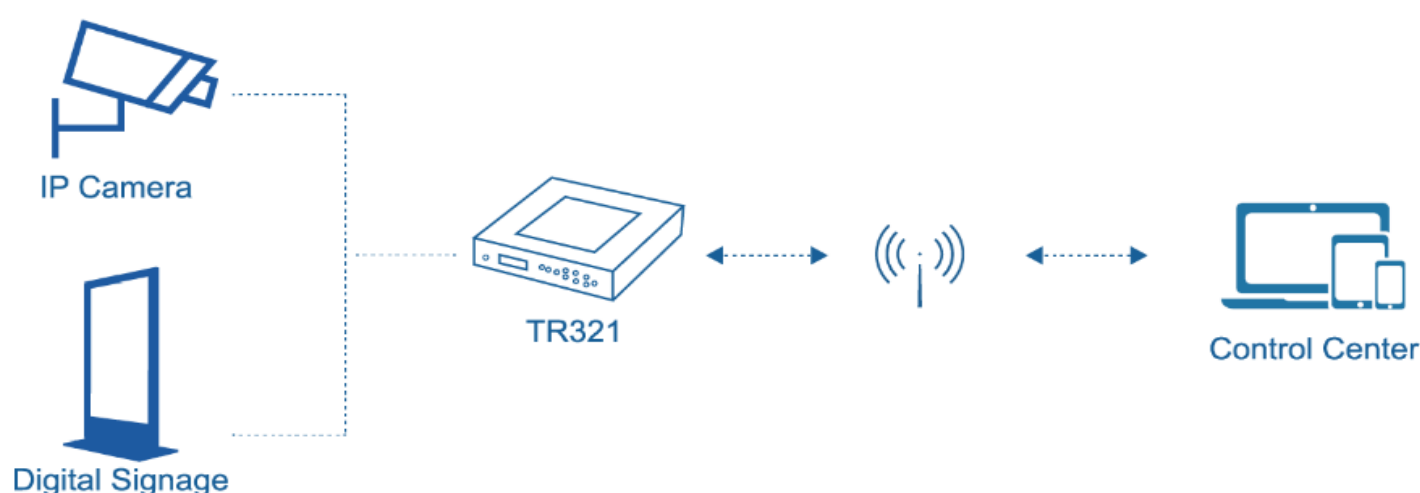
TR321 Series Router is a type of compact industrial cellular router, which adopts high-powered industrial 32-bits CPU, with multi-layer software detection and hardware protection mechanism to ensure reliability and stability of the device. It supports worldwide carrier 4G LTE CAT 6/CAT4/3G/2G cellular network FDD-LTE, TDD-LTE, and WCDMA, EVDO, TD-SCDMA, EDGE, CDMA 1X and GPRS/GSM. 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. 1-WAN + 1-LAN or 2-LAN, 1-RS232, 1-RS485, 1-WIFI(Optional)
3. Support Modbus TCP/RTU, MQTT protocols for Serial communication
4. APN/VPDN to ensure the security of data transmission
5. Multiple VPN protocols, IPSec, L2TP, PPTP, GRE and OpenVPN
6. DHCP server, DHCP binding MAC address, DDNS, Firewall, NAT, DMZ host, QoS, Traffic Analysis, Real-time display of data transfer rate
7. TCP/IP, UDP, HTTP network protocols
8. SPI Firewall, DoS attack, VPN traversal, Access Control, Port Mapping, DMZ Mapping, Access Control List(ACL), IP-MAC binding and clone function
9. Heartbeat link detection, offline automatic reconnection
10. Hardware and software auto inspection technology, enable operation fault auto repairing
11. Status query of system, network connection, routing
12. Telnet, web, SSH configurations
13. Web upgrade, local system log, remote log, serial port output log
14. Sending SMS via web UI
15. Support Bivocom DMP (Device Management Platform)<sup>1</sup> for Remote configuration and management
16. 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  |

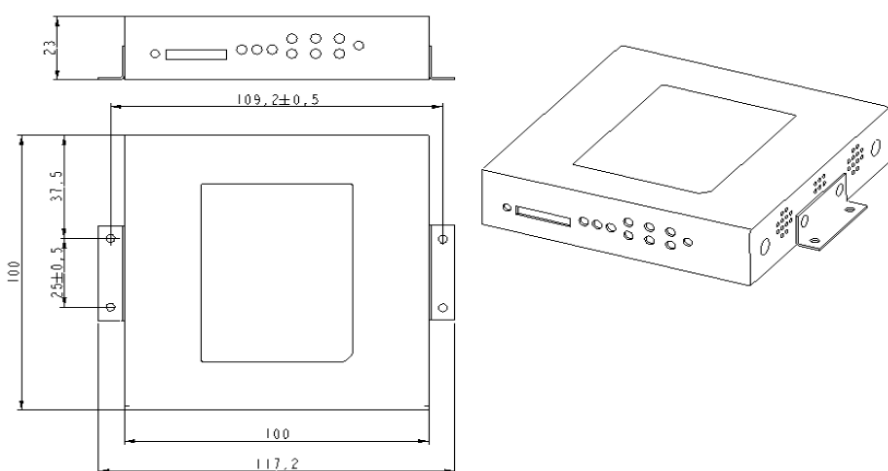
### Power Supply and Consumption

|                   |                 |
|-------------------|-----------------|
| 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)                    |
| 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, FCC*   |
| EMC                         | IEC 61000-4-2 Level 3, IEC 61000-4-3 Level 4<br>IEC 61000-4-4 Level 3, IEC 61000-4-5 Level 4<br>IEC 61000-4-6 Level 3, IEC 61000-4-11 Level 4 |
| Warranty Period             | Standard: 12 Months<br>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<br>EMEA&APAC: B1/B3/B5/B7/B8/B20/B28<br>NA: B2/B4/B5/B7/B12/B13/B25                   |
|          | 4G LTE CAT 4<br>EU: B1/B3/B7/B8/B20/B28/B31<br>AU: B1/B3/B5/B7/B8/B28,<br>NA: B2/B4/B5/B12/B13/B14 |
| TR321-W  | HSPA/UMTS/WCDMA<br>900/2100MHz, or 850/1900/2100MHz  |
|          | Global: 800/850/900/1900/2100  |

#### 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.

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