Bivocom®

TR323 Series

Industrial Mini 5G IoT Routers

Key Features

- Compact design with DIN-Rail Mounting
- Global 5G NR, 4G LTE to choose[1]
- 2-RJ45(GbE),1-RS232(Debug), 2-RS485, 2.4G WIFI(Option), GNSS(Option)
- Dual SIM for failover
- OpenWRT based Linux OS, Python, C/C++ programmable[2]
- Wide operating temperature: -35~+75 °C
- Modbus RTU/TCP, MQTT, JSON, TCP/UDP, OPC UA and customized industrial protocols
- VPN, SNMP, BGP, HTTP, Telnet, SSH, CLI, SPI firewall

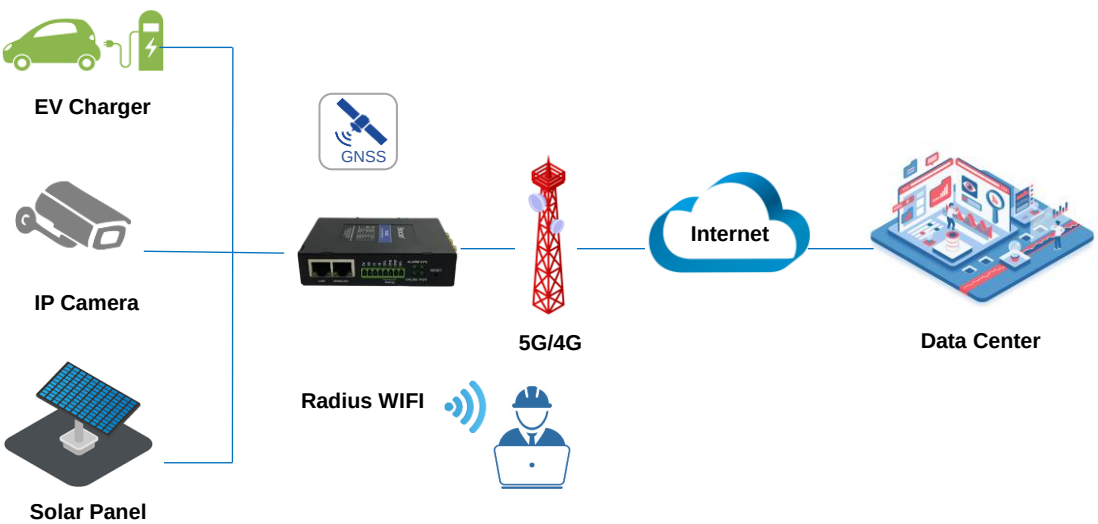
Introduction

The TR323 is a mini industrial 5G NR IoT router designed for IoT, M2M, and eMBB applications requiring higher speed, lower latency data transmission. It provides OpenWRT based Linux OS embedded environment that allows IoT developers and engineers to program and install their own applications based on Python, C/C++ to the hardware.

The TR323 router has 2-Gigabit ethernet ports, 1-RS232(debug), 2-RS485, to connect to ethernet and serial controllers, sensors, transferring the data to the cloud server via 5G/4G LTE cellular network. It comes with industrial protocols, such as MQTT, Modbus RTU/TCP, JSON, TCP/UDP, OPC UA and VPN to provide you an efficient and secure IoT data connectivity between field devices and cloud server.

The TR323 router supports dual sim for failover, providing robust and reliable wireless and wired connectivity for your mission-critical industrial applications, and GNSS to track your remote assets, such as EV charging station, solar power, smart pole, smart cities, smart office, smart buildings, smart traffic light, digital signage advertising, vending machines, ATM, etc.

Applications



Specifications

System

- **CPU** 32-bit, dual core
- **Flash** 32MB
- **RAM** 256MB

Cellular Interfaces

- **Antenna Connector** 4 × 50 Ω SMA Female(5G Version TR323-NR)
2 × 50 Ω SMA Female(4G Version TR323-LF)
- **SIM Slot** 2 x Micro SIM[3]
- **ESD Protection** 15KV

Ethernet Interface

- **Ports** 2-RJ45 (1-WAN, 1-LAN or 2-LAN configurable)
- **Data Rates** 10/100/1000 Mbps (Auto-Sensing), Auto MDI/MDIX
- **ESD Protection** 1.5KV

Serial Interfaces

- **Connector** Terminal block, 3.5 mm female socket
- **Ports** 1-RS232(Debug), 2-RS485
- **Baud Rate** 300bps to 230400bps
- **ESD protection** 8KV for RS232, 15KV for RS485

Wi-Fi(Option)

- **Antenna Connector** 1 × 50 Ω RP-SMA Female
- **Standard** IEEE 802.11b/g/n, AP and Client modes
- **Transmission Rate** IEEE802.11b/g: Up to 54Mbps
IEEE802.11n: Up to 300Mbps
- **Security** Open, WPA, WPA2, WPA/WPA2 Enterprise, Radius

GNSS (Option)

- **Module** GNSS from cellular module
- **Antenna Connector** 1 × 50 Ω SMA Female

Power Supply and Consumption

- **Connector** Terminal block, 3.5 mm female socket
- **Standard Power** DC 12V/1.5A
- **Input Voltage** 5-35 VDC
- **Idle Mode** 200 ~ 230mA@12VDC
- **Working Mode** 360 ~ 430mA@12VDC

Software

- **Network Protocols** PPP, PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, RIPv1/v2, OSPF, BGP, DNS, DDNS, HTTP, ARP, QoS, SNTP, Telnet, SSH
- **Serial Port** MQTT, Transparent (TCP/UDP Client/Server), Modbus RTU/Modbus TCP
- **VPN Tunnel** IPsec/PPTP/L2TP/GRE/OpenVPN
- **Firewall** ACL/DMZ/Port Mapping/MAC Binding
- **Management** Web, CLI, SMS, Cloud DMP (Device Management Platform)[4]
- **Reliability** Dual SIM, WWAN and WAN Failover, Hardware & Software Watchdog
- **Secondary Development** OpenWrt based Linux OS, C/C++, Python, LUA and SDK

Physical Characteristics

- **Ingress Protection** IP30
- **Housing & Weight** Metal, 268g(0.59lbs), without accessories
- **Dimensions** 103.50x78.20x24.10mm (4.09 x 3.07 x 0.94in)
- **Mounting** Desktop, DIN-Rail

Environmental

- **Operating Temperature** -35°C to +75°C (-31℉ to +167℉)
- **Storage Temperature** -40°C to +80°C (-40℉ to +176℉)
- **Relative Humidity** 5% to 95% (non-condensing)
- **Ethernet Isolation** 1.5 kV RMS

Others

- **Reset Button** 1
- **LED Indicators** System, Online, Power, Alarm
- **Built-in** Watchdog, RTC, Timer
- **Approvals**[5] CE*, RCM*, FCC*
- **Warranty Period**[6] Standard: 12 Months
Extended: 2-5 Years

Standard Package Content

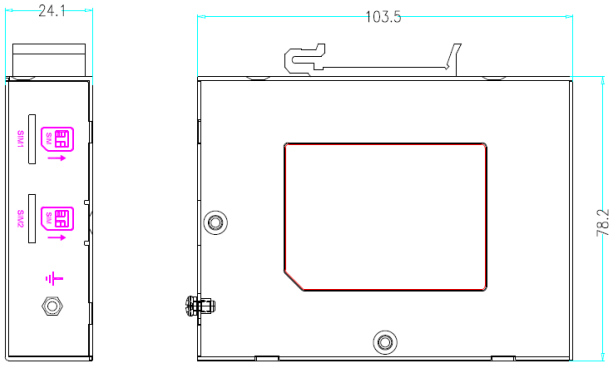
1.	TR323 Router	1 PCS
2.	Power Adapter(DC 12V/1.5A, EU/US/UK/AU plug optional)	1 PCS
3.	Mag-mount Cellular Antenna (SMA Male, 1 meter, 5dBi)	5G Version: 4 PCS 4G Version: 2 PCS
4.	RS232 Cable (DB9 Female, 1 meter)	1 PCS
5.	Ethernet Cable(1 meter)	1 PCS
6.	8-Pin Terminal Block	1 PCS
7.	DIN-Rail Mount Kits	1 PCS

Order Information

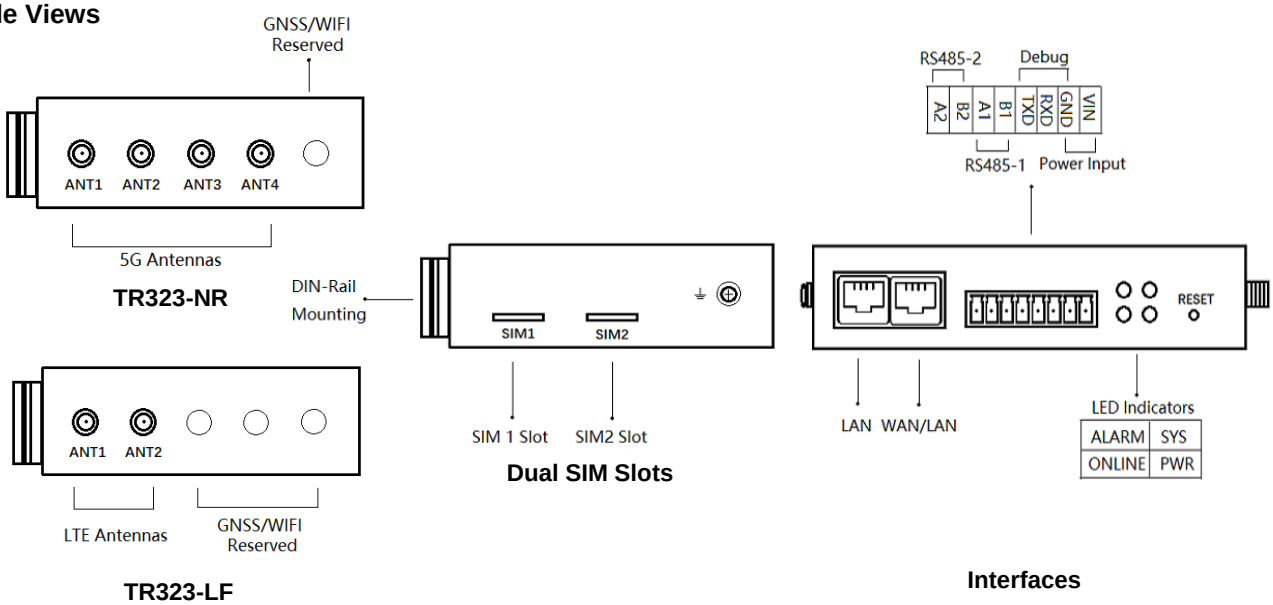
Model	Part Number	Description	Frequency Band[7]
TR323-NR	TR323 - N<1><2> - <3>	5G Router, 5-GE, 1-RS232, 2-RS485, 2.4G WIFI(option), or GNSS(Option)	5G NR Sub-6 • n1/n2/n3/n5/n7/n8/n12/n20/n28/n41/n66/n71/n77/n78/n79 • LTE FDD:B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21(TBD)/B25/B26/B28/B29/B30/B32/B66/B71 • LTE TDD: B34/B38/39/B40/B41/B42/B43/B48
TR323-LF	TR323 - L<1><2> - <3>	4G Router, 5-GE, 1-RS232, 2-RS485, 2.4G WIFI(option), or GNSS(Option)	4G LTE CAT 4 • EMEA/Asia: B1/B3/B5/B7/B8/B20/B38/B40/B41 • ANZ/LATAM: B1/B3/B5/B7/B8/B28 • NA: B2/B4/B5/B12/B13/B14

<1>: 5G or 4G module for different countries and regions
<2>: DS=dual SIM on single module, failover only
<3>: W=2.4G Single band WIFI
GN=GNSS from cellular module

Dimensions(103.5x78.2x24.1mm)



Side Views



Related Products

4G IoT Router
TR321 Series

- ✓ 4G LTE, LTE-M/NB-IoT
- ✓ OpenWrt based Linux OS, C/C++, Python programmable
- ✓ 1-RS232, 1-RS485, 2-RJ45

5G NR IoT Gateway
TG453 Series

- ✓ 5G NR NA/NSA dual mode
- ✓ Serial and Gigabit ethernet ports, with mainstream industrial protocols
- ✓ OpenWrt based Linux OS, C/C++, Python programmable

Note:
1. There are different modules for different regions to choose.
2. Bivocom provides complier and SDK for customers to do their second development, and Python, LUA is a customized firmware.
3. DSSM=dual sim on single module, supports failover.
4. There has a license fee for DMP.
5. * Under progress
6. Price of the extended warranty will be different.
7. If you couldn't find the frequency band for your regions or have any questions, please contact Bivocom sales representatives for more information.
8. To save the earth, Bivocom doesn't print the user guide, if you need it, please go to Bivocom website to download.