



TR323 Series
Industrial Mini 5G IoT Routers

Introduction

The TR323 is a compact industrial 5G/4G IoT router engineered for high-speed, low-latency IoT, M2M and eMBB applications. Powered by Bivocom OS, it supports C/C++, Python (Optional) and Node-RED (Optional) for secondary development.

It features 2 Gigabit Ethernet ports, 1-RS232 debug port and 2-RS485 ports, with optional 2.4GHz Wi-Fi and GNSS. It seamlessly delivers field data to the cloud via cellular networks and supports MQTT, Modbus RTU/TCP, JSON, plus customizable protocols including BACnet IP/MSTP*, OPC UA*, IEC 101/104/61850*, etc. Equipped with WireGuard, OpenVPN, IPsec, PPTP, L2TP VPN and VXLAN, it provides robust data security and virtual networking. Combined with Bivocom DMP*, it enables centralized remote device management.

Dual-SIM redundancy ensures reliable connectivity for critical industrial projects, while integrated GNSS* supports remote asset tracking.

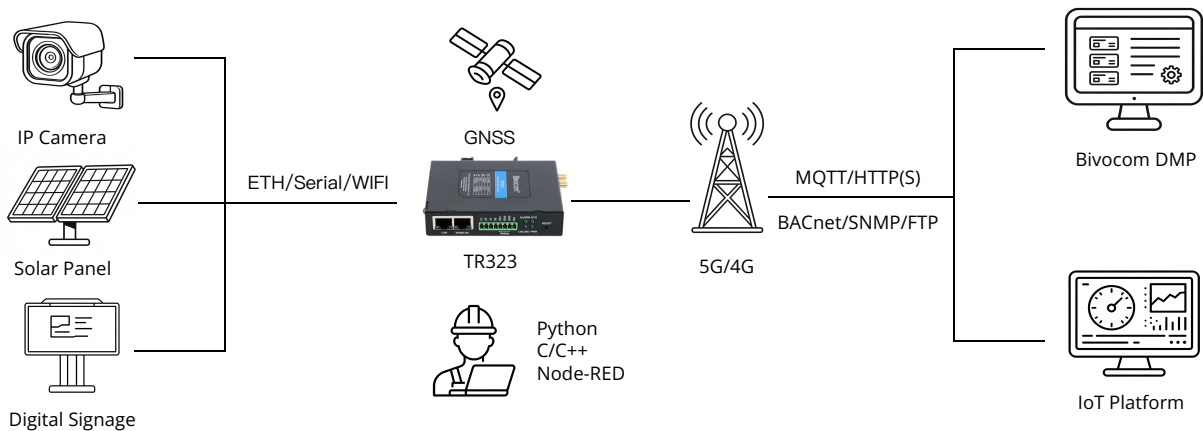
Key Features

- Optional Global 5G NR, 5G RedCap, or 4G LTE
- 2-RJ45 (GbE), 1-RS232 (Debug), 2-RS485, Optional 2.4G WIFI&GNSS
- Dual SIM automatic network failover
- Programmable Bivocom OS: C/C++, Python*, Node-RED*
- Modbus RTU/TCP, JSON, BACnet*, OPC UA*, IEC 101/104/61850* and customized industrial protocols
- MQTT, FTP*, HTTP(S), VPN, SNMP*, BGP, Telnet, SSH, CLI, Firewall

Applications

- EV Charger
- Solar Panel
- Digital Signage
- Vending
- ATMs
- IP Camera
- PLC

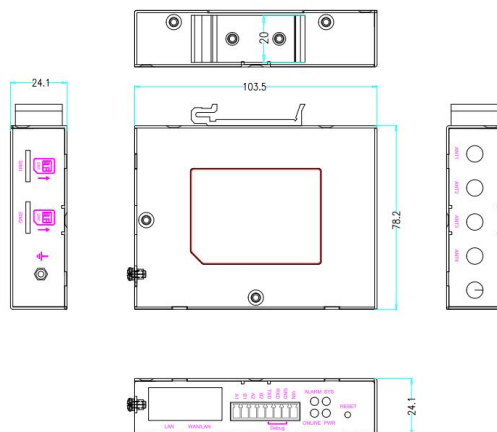
Diagram



Specifications

Systems		Physical Characteristics	
CPU	32-bit, dual core, 880MHz, MIPS	IP Rating	IP30
Flash	32MB (64MB Optional)	Housing & Weight	Metal, 268g (0.59lbs), without accessories
RAM	256MB (512MB Optional)	Dimensions	103.50 x 78.20 x 24.10mm (4.09 x 3.07 x 0.94in)
Cellular		Mounting	DIN-Rail, Desktop
Antenna	4 x 50 Ω SMA-K (TR323-NR) 2 x 50 Ω SMA-K (TR323-LF, TR323-RC)	Environmental	
SIM Slot	2 x Micro SIM (3FF)	Operating Temp.	-35° C to +75° C (-31°F to +167°F)
Ethernet		Storage Temp.	-40° C to +80° C (-40°F to +176°F)
Ports	2 x 10/100/1000 Mbps 1 x WAN, 1 x LAN, or 2 x LAN Configurable	Relative Humidity	5% to 95% (non-condensing)
Serial		Others	
Ports	1 x RS232 (Debug), 2 x RS485	Reset Button	1
Baud Rate	1200bps to 230400bps	LED Indicators	System, Online, Power, Alarm
Wi-Fi (Optional)		Built-in	Watchdog, RTC, Timer
Antenna	1 x 50 Ω RP-SMA-J	Approvals ⁵	CE*, RCM*, FCC*
Standard	IEEE 802.11b/g/n, AP/Client modes	Warranty Period ⁶	Standard: 2-Year limited warranty Extended: 3-5 Years
Bands	2.4GHz	Software	
Security	Open, WPA, WPA2, Radius	Programming	Bivocom OS (OpenWrt based Linux OS) C/C++, Python*, Node-RED*, LUA* and SDK Available Flash (32MB Version): 20MB (FW with C/C++ Only); 4MB (FW with C/C++, Python)
GNSS (Optional)		Data Protocols	Modbus RTU/TCP, SMS, SNMP*, IEC101/104*, IEC61850*, BACnet IP/MSTP*, OPC UA*
Module	GNSS from cellular module	Network Protocols	VXLAN, GNSS, IPV6*, DDNS, DNS, ARP, Static Routing, NAT, Firewall, Telnet/SSH, PPP, PPPoE, DHCP, ICMP, NTP, etc.
Antenna	1 × 50 Ω SMA-J	Server Supported	MQTT, HTTP(S), Transparent TCP/UDP, FTP*
Power		VPN	Wireguard/OpenVPN/IPsec/PPTP/L2TP
Input	5-35 VDC	Firewall	ACL/DMZ/Port Mapping/MAC Binding
Standard Power	12VDC/1.5A	Management	Web, CLI, SMS, Bivocom DMP (Device Management Platform)*
Idle Mode*	TR323-LF(4G): 236 ~ 276mA@12VDC TR323-NR(5G+WIFI): 271 ~ 417mA@12VDC	Reliability	Dual SIM, WWAN and WAN Failover, Hardware & Software Watchdog
Working Mode*	TR323-LF(4G): 248 ~ 289mA@12VDC TR323-NR(5G+WIFI): 376 ~ 802mA@12VDC		

Dimensions



Ordering Information

Model	Part Number	Cellular	Frequency Bands	Package Contents
TR323-NR	TR323 - NR <1> - <2>	5G NR	5G NR Sub-6 SA* (Optional Global or Regional Version) - 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	1. TR323 x 1 2. Cellular Antenna x 4 3. DIN-Rail Mounting Kits x 1 4. 8-Pin Terminal Block x 1 5. Ethernet Cable x 1 6. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TR323-RC	TR323 - RC <1> - <2>	5G RedCap	5G NR Sub-6 SA* (Optional Global or Regional Version) - n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78/79 - LTE FDD B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/70/71 - LTE TDD B34/38/39/40/41/42/43/48	1. TR323 x 1 2. Cellular Antenna x 2 3. DIN-Rail Mounting Kits x 1 4. 8-Pin Terminal Block x 1 5. Ethernet Cable x 1 6. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TR323-LF	TR323 - L <1> - <2>	4G LTE	4G LTE CAT 4* (Optional Global or Regional Version) - 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	
Part Number: <1>: 5G or 4G module for different countries and regions <2>: W=2.4G Single band WIFI, GN=GNSS from cellular module				

- Note:**
- Region-specific cellular modules are available; consult Bivocom sales for details.
 - Compiler & SDK are provided for secondary development. Python/LUA/Node-RED require dedicated hardware&firmware; Node-RED requires 64MB Flash.
 - DSSM: Dual-SIM single-module design with automatic network failover.
 - Bivocom DMP (Device Management Platform) requires a license fee.
 - *Optional functions rely on matching hardware/firmware versions; not all features supported on one device.
 - Power consumption is measured under laboratory conditions and is for reference only.
 - *Listed certifications are pending.
 - Extended warranty pricing varies.
 - Digital user manuals are free to download from [Bivocom](#) official website for environmental protection.

About Bivocom

Founded in 2014, Bivocom specializes in industrial IoT communication technology. Our comprehensive product portfolio covers IoT sensors, cellular gateways, industrial routers, RTUs, modems, as well as self-developed IoT cloud management platforms. We deliver ruggedized industrial wireless hardware, full-lifecycle OEM/ODM customization services and end-to-end IoT connectivity one-stop solutions to industrial partners worldwide.

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