S9925Si-5G

RICON S9925Si Router is designed and manufactured by Ricon Mobile Inc. based on fixed and wireless termination interfaces with integrated 5G cellular network capability.

The router is widely used in multiple cases like ATM connections, branch office access, data collection or vehicles etc.

This document introduces the capabilities of S9925Si and its powerful features.

S9925Si Router integrated with single radio interface which supports 5G SA, 5G NSA and LTE with multiple variations on a single box.

Features

- Gigabit class 4 x LAN Switchports
- Gigabit class 1 x WAN Switchport (PoE)
- Single radio Modem Interface
  - Single 5G (SDX62 Qualcomm)
- PoE Power Support
- 1 x External SD/TF Card Slot
- 1 x USB 2.0 Port (Type-A)
- 2 x SIM Slots
- 1 x industrial DC Power Input 2.1mm
- 1 x 2.4GHz 1 x 5GHz WiFi Interface
- 1 x Serial Console Port (RJ-45)
- MTBF: >250.000 hours

Technical specifications

Dimensions and weight

- Height: 40mm
- Width: 155mm
- Depth: 125mm
- Weight: <1Kg

Environmental

- Operating temperature: -40~70°C
- Storage temperature: -40~85°C
- Humidity: 5% ~ 95%
- Operating voltage: DC 12V~48V
- IP Rating: IP30

Certified

- **ATEX Zone 1 & 21 Certified** II 2G Ex db IIB T6 Gb / II 2D Ex tb IIIC T85°C Db (No: ICR/VC/HM2512206)

General specifications

CPU	Qualcomm IPQ4019 Quad-Core ARM Dual Cortex A9 @2.2GHz
Memory	512MB
Storage	eMMC – Samsung C499918 5.1 HS400 4Gb /w SLC mode partitioning (8Gb Full Size)
Secure Boot	ARM Trustzone
RTC (Real-Time Clock)	Phillips PCF8563
HW Watchdog	SGMICRO SGM706/C122731
SPI Flash	32MB

Interfaces and Configuration

LAN	4x100/1000 Mb
WAN	1x100/1000 Mb
DHCP Server	IPv4/IPv6 Support DHCP Server mode for native VLAN DHCP Server mode for each VLAN DHCP Forwarding/Relay Configurable scope options (IP Pool, exclude addresses, default gateway, DNS addresses, domain prefix…)

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Cellular Specifications

Cellular Modem Module	Quectel RM520N-GL (5G Qualcomm SDX62 Chipset)
Module Type	M.2
Region	Global
Chipset	Qualcomm SDX62 5G
Category	5G: 3GPP Rel-16
Cellular Bands (SDX62) Quectel RM520N-GL	5G NR/NSA n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79 5G NR/SA n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79 LTE-FDD B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29①/ 30/ 32①/ 66/ 71 LTE-TDD B34/ 38/ 39/ 40/ 41/ 42/ 43/ 46① (LAA)/ 48 (CBRS) DL 3CA Intra-Band and Inter-band DL 256QAM/ UL 64QAM Supported
SIM Support	2 x U-SIM Cards

Security Features

Firewall	Identity-Based Firewall Cloud Access Control (CASB) TLS Inspection
Filters	Domain Filters AllowList and DenyList for specific Domain Names IP Filters AllowList and DenyList for specific IP Hosts, Subnets MAC Filters WhiteList and BlackList for specific MAC Addresses
TrustZone	ARM TrustZone is supported
Misc	Security logging Security alarms Packet capture logging (Dump to file pcap)

GNSS / GPS Features

Chipset	Quectel LC29HAAMD
Supported Bands	GPS/ QZSS: L1 C/A, L5 GLONASS: L1 Galileo: E1, E5a BDS: B1I, B2a
Default Constellations	GPS + GLONASS + Galileo + BDS + QZSS
Number of Concurrent GNSS	4 + QZSS
Sensitivity	Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -159 dBm
Protocols	NMEA 0183/ RTCM 3.x
SBAS	WAAS, EGNOS, MSAS and GAGAN

Management Features

Management Interfaces	Web User Interface CLI (Telnet, SSH, SSHv2) TR069 w/ data models: TR0181 & TR098 integrated. SNMPv2, SNMPv2c, SNMPv3 AT Commands for Modem Management (CLI)
Version Management	Image Checksum Active version and backup version Auto rollback feature when remote upgrade fails
Accounts Management	Integrated Admin/Guest accounting TACACS/TACACS+, Radius Auth. models
Retrievable Parameters WEB UI / CLI / TR-069 / SNMP	- RSRP - RSRQ - RSSI - SINR - Cell ID/NCI/BTS Id - EarFCN - BAND - Bandwidth Live - Tx power - SIM ICCID - LAC - LAN IP Addresses - WAN IP addresses - Serial Number - Firmware Version - Status - Signal Level

Cellular Modem Features

APN Data Services
Dynamic APN support
Multi APN support (Max. 4 Simultaneous APN)
SIM PIN management
APN static mapping to WAN tunnel(s) & interfaces
APN static mapping to LAN & VLAN(s)
Multiple bearer support w/ Policy Routing with dual radio
Bridge Mode Support

Modem Interface Configuration
Configurable MTU size
SIM Slot selection
Full band-scan
Modem Band-Lock
Auto/On-Demand dial
Enable/Disable Radio
Pppd and DHCP dialing options

Modem Failover
Support fail-over on interface drop.
Support fail-over on traffic flow interruptions
Support Automatic connection recovery.
Auto return to Main (Supported w/ Dual Modem Modules)
Scheduled return to Main (Supported w/ Single Modem Module)

Wi-Fi

Chipset	Qualcomm IPQ4019 Integrated
Wi-Fi Specifications	**General Specifications** 2x2/40MHz Radio 2.4GHz, 5GHz full band support Up to 64 concurrent clients **2.4 GHz (WiFi4)** IEEE802.11 a/b/g/n 20/40MHz Support Tx Output Frequency Range: 2400~2496 MHz **5.8 GHz (WiFi5)** IEEE802.11 n/ac 20/40MHz Support Tx Output Frequency Range: 4900~5925 MHz
MIMO	2x2 DL MIMO MU-MIMO
Region	Global
Wireless Security	**Protocols** WEP, WPA, WPA2, WPA3 Client **Encryption** AES, TKIP
Mode	Accesspoint, WiFi Client (Station) modes supported **MU-MIMO is supported with both modes above **2x2 DL MIMO is supported with both modes above
Multi SSID	Supported with Accesspoint Mode Not supported with Client (Station) mode

Regulatory

Certifications	FCC CE-RED E-Mark (Vehicle Vibration Compliancy) RoHS
Health & Safety	IEC 62368-1:2018 EN IEC 62368-1:2020+A11:2020 EN IEC 62311:2020
EMC	ETSI EN 301 489-1 V2.2.3 ETSI EN 301 489-17 V3.2.4 ETSI EN 301 489-52 V1.2.1 EN 55032:2015+A11:2020 EN 55035:2017+A11:2020 EN IEC 61000-3-2:2019 EN 61000-3-3:2013+A1:2019
Efficient use of Radio Spectrum	• ETSI EN 300 328 V2.2.2 • ETSI EN 301 511 V12.5.1 • ETSI EN 301 908-1 V13.1.1 • ETSI EN 301 908-2 V13.1.1 • ETSI EN 301 908-13 V13.1.1

Networking Features

Routing	Static Routing RIPv1, RIPv2 OSPFv2, OSPFv3 BGP, eBGP MPLS VRF, VRF-Lite
Tunnels	IPSec IKEv1, IKEv2 Encryption Algorithms (DES, 3DES, AES, AES128, AES256) Hash (md5, SHA, SHA256) Tunnel/Transport modes Multiple Access-List configurable GRE, mGRE, DMVPN (Layer3) Configurable MTU mss-adjustment EoGRE (Layer2) L2TP Client, L2TP Server, PPTP **Multiple simultaneous tunnel existence for different LAN/VLANs*
Forwarding	NAT (Enable/Disable) PAT Port Forwarding RBUE (route Behind UE) QoS L2 Network Bridging
Load Balancing	Per-Package Forwarding Support

Security Features

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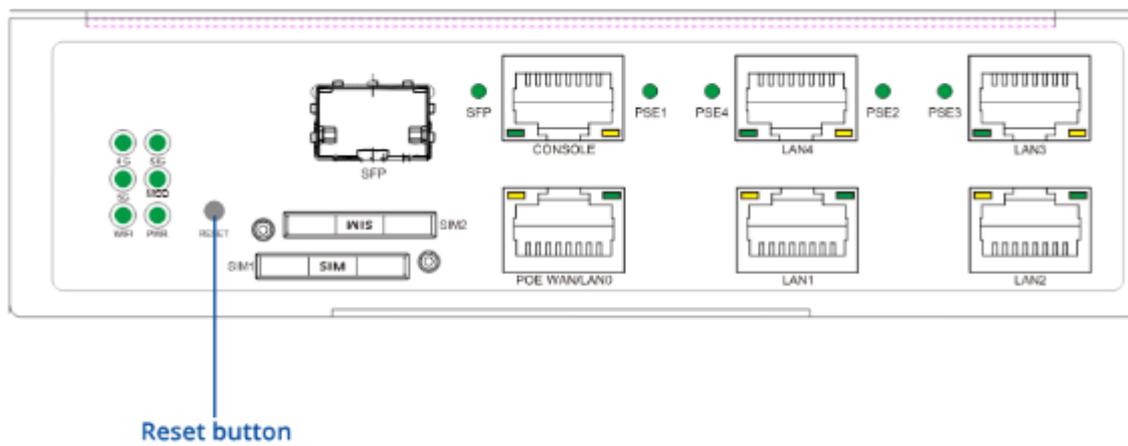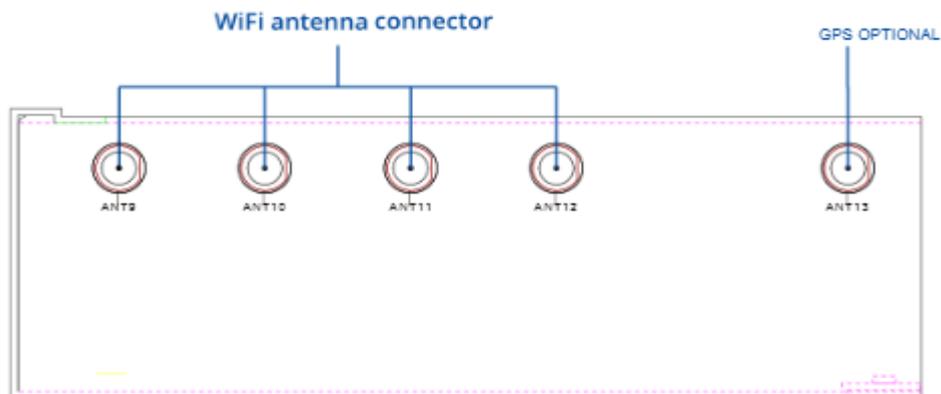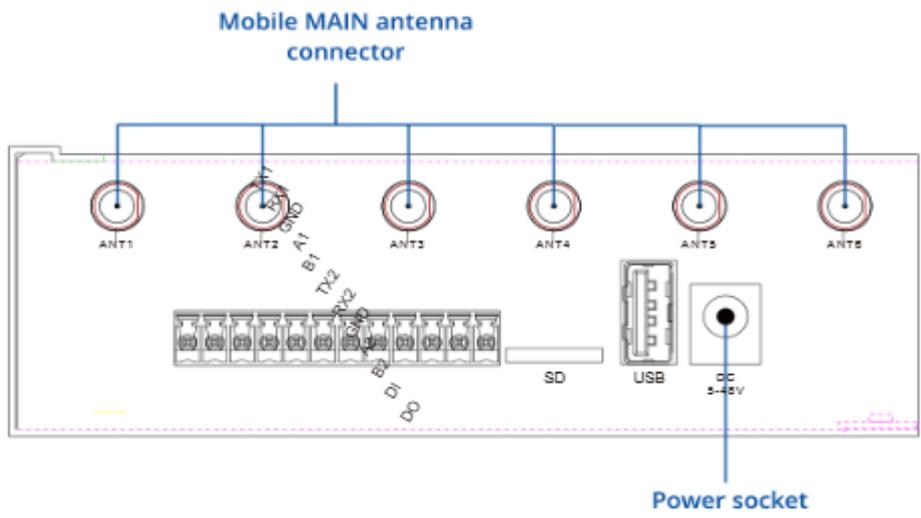## Ordering Information & Accessories

S9925Si-5G	High-Speed Mobile Router – 5G NR Single Cellular Radio Interface 4xLAN Gigabit, 1xWAN Gigabit PoE, 2xSIM Slots 2.4GHz-5GHz Wi-fi 802.11b/g/n/ac

Defaults

Default Box Contents	1 x S9925Si Router Hardware 4 x Multi-Band Omni-Directional Antennas for 5G NR 4 x WiFi antenna for 2.4GHz and 5GHz 1 x 48VDC 1.5A 60W Power Supply 1 x DIN-Rail mounting kit 1 x 12 PIN Terminal block connector (Optional) 1 x GPS Antenna 2m. Indoor 1 x 1m. CAT6 Ethernet patch cable 1 x 1.5m. CAT6 Ethernet patch cable

Mobile MAIN antenna connector

ANT1 ANT2 ANT3 ANT4 ANT5 ANT6

SD   USB   DC 5-48V

Power socket

WiFi antenna connector

GPS OPTIONAL

ANT9 ANT10 ANT11 ANT12 ANT13

SFP   CONSOLE   PSE1   PSE4   LAN4   PSE2   PSE3   LAN3

SIM2   POE WAN/LAN0   LAN1   LAN2

SIM1

Reset button

About Ricon

At Ricon, we create technology that brings the communication handy.

As a 24 years B2B technology innovation company, we are designing networks that sense, think and act across mobile, fixed and cloud networks.

Service providers, enterprises and partners worldwide trust Ricon to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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