

Data Sheet

R920 Series Ruggedized Router

2023 - 05 - 30

The R920 Series Ruggedized Router is a uniquely agile cellular networking solution that meets organizations' needs for flexible connectivity and product standardization for vehicles and IoT. The R920 Series is a ruggedized LTE networking platform available with either Mobile or Ruggedized IoT NetCloud service plans, providing features optimized for the needs of the differing deployments.

High-Performance Vehicle Connectivity

The Cradlepoint R920 router with the NetCloud Mobile service plan provides a ruggedized GNSS/GPS-enabled in-vehicle network solution. Combined with the RX20 Managed Accessory, the R920 can be field upgraded to include a second LTE or 5G modem. When coupled with the Advanced Mobile service plan, it provides threat management, web filtering, application visibility, analytics, and advanced GNSS/GPS functionality such as location tracking and cellular coverage maps. The R920 also supports NetCloud Exchange services, which provide Zero Trust Network Access and cellular-optimized SD-WAN.

Ruggedized IoT Solution

When combined with the NetCloud Ruggedized IoT service plan, the R920 provides a versatile, ruggedized 4G LTE router solution for connecting and protecting IoT devices at scale. It can be deployed in a wide range of environmentally harsh IoT use cases such as kiosks, building automation, oil and gas, utility, and smart city infrastructure deployments. The ruggedized design and the CBRS band support make it ideal for private networks. In addition, the solution is highly extensible with APIs, SDKs, and integrations into IoT platforms, and the generous memory supports onboard edge containers. The R920 also supports NetCloud Exchange services, which provide Zero Trust Network Access and cellular-optimized SD-WAN.

Notable Benefits

- Gain fast, reliable connectivity with Cat 7 LTE providing fast upload for video and data
- Add a second LTE or 5G cellular modem for multi-link dependability
- Deploy Wi-Fi 6 for the best possible connections
- Prioritize access to public safety networks for reliable, secure connectivity
- Enable unified edge security with application-aware multizone firewalls, IDS/IPS, and available FIPS 140-3 Level 1 Implementation Under Test
- Extend your deployment and enable customized solutions with powerful edge compute capabilities, including containers, connectors, SDKs, and API support
- Utilize the R920-C7A on private cellular networks with Band 48 CBRS



[Product Page](#)



[NetCloud Service](#)



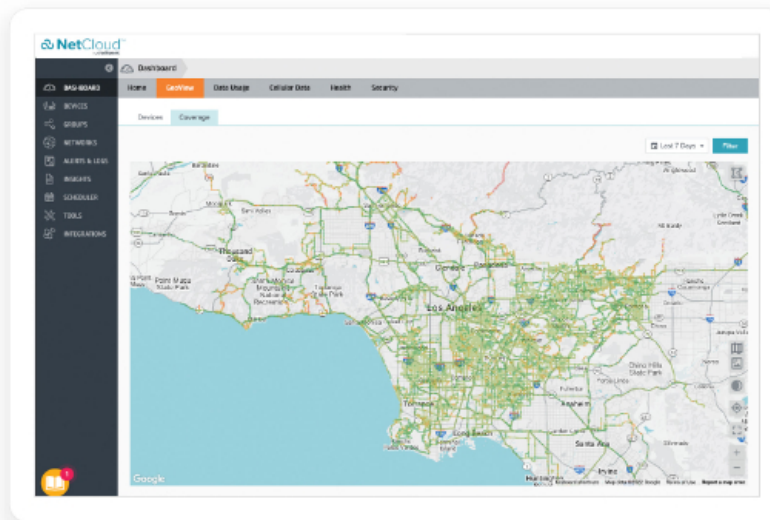
[Quick Start Guide](#)

Key Software Capabilities

Cradlepoint NetCloud Service for the R920 provides everything needed to unlock the power of LTE and connect vehicles, users, and IoT to critical applications and services. The available NetCloud IoT or Mobile service plans include the appropriate router software with powerful cloud management features for managing IoT at scale, or specific mobile features like coverage maps, integrated content filtering, intrusion detection and protection, and application-aware analytics and networking. Everything within NetCloud works together, making it easy to deploy, connect, and secure edge applications at scale across the organization.

Coverage Map

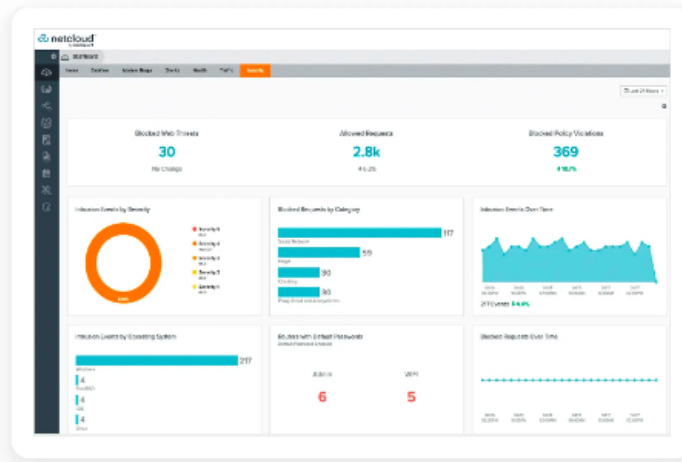
NetCloud uses GNSS/GPS and cellular health to provide precise location and signal strength analytics. Data can be mapped to display both a vehicle's current and historical locations, as well as generate detailed coverage maps that display cellular health, allowing users to gain operational insights and solve problems.



Security Services

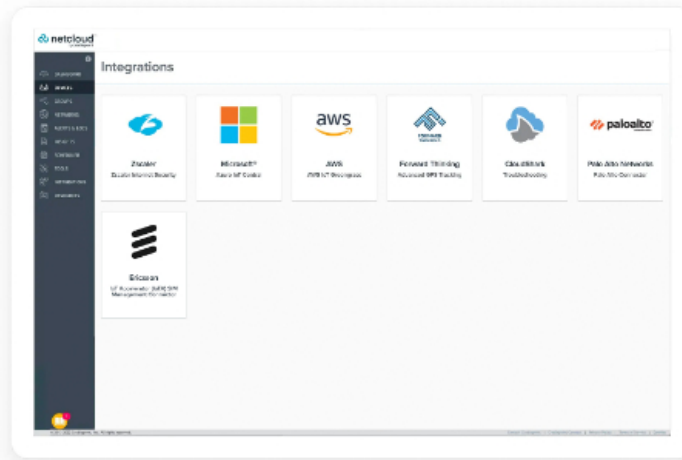
NetCloud Service includes security features and options to optimize the R920 router to meet the evolving security needs of mobile and IoT environments. The service includes a stateful zone-based firewall with the ability to add application-aware zone-based firewall, CP Secure Threat Management (IPS/IDS), and CP Secure Web Filter with the Advanced Mobile service plan.

The R920 supports NetCloud Exchange (NCX), a unified network and security WAN architecture built upon zero-trust principles and optimized for cellular. NCX helps lean IT organizations simplify deployment and management with shared policies and simplified processes.



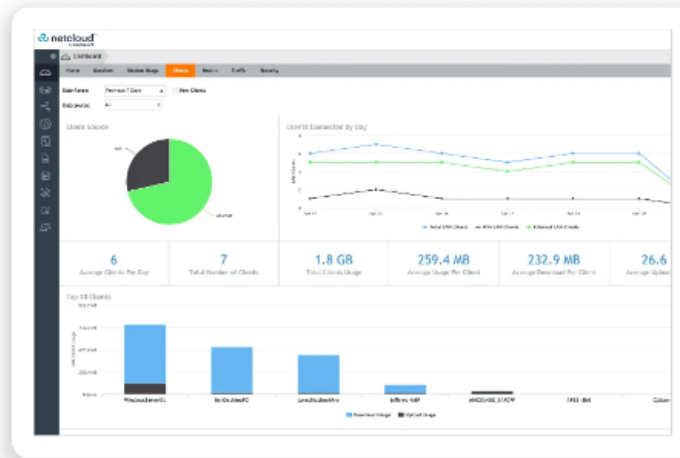
Extensibility and Integrations

NetCloud Service and the R920 router can provide higher levels of insights and control by exchanging network data with third-party applications. Leverage pre-built connections to partner applications or create custom connections across a variety of use cases using the NetCloud Container Orchestrator, NetCloud SDK, or NetCloud API.



Cloud Services

NetCloud Manager delivers true zero-touch deployment with the ability to define and deliver policy across entire groups of endpoints. Users can create a cloud-orchestrated hub and spoke VPN network, and gain insights and analytics required for rapid troubleshooting and diagnostic workflows.



Hardware Specifications

The following features are delivered through the hardware.

INTERFACES	
Modem:	Embedded Cat 7 LTE modem — 2 x SMA cellular antenna connectors
Ethernet:	2 x GbE (LAN/WAN switchable)
Wi-Fi:	Dual-radio, dual-band, concurrent operation (2.4 GHz and 5 GHz) — 2x2 MU-MIMO 802.11ax Wi-Fi 6 with DFS — Modes: AP, Wireless Client, and Wi-Fi as WAN — 574 Mbps (2.4 GHz) and 1.2 Gbps (5 GHz) — 2 x RP-SMA Wi-Fi antenna connectors — WPA/WPA2/WPA3 Personal, WPA2/WPA3 Enterprise, Open — 802.11k (AP mode only), 802.11v — Wi-Fi Alliance Certified
Expansion:	— 1 x USB 2.0 Type A (Output: 5 V, 500 mA, 2.5 W) with screw lock feature for mechanically secure connections — 1 x RP-SMA connector for Bluetooth® Low Energy module — 1 x 2-pin GPIO connector (shared with the DC power connector) — 2x2 Molex micro-fit (3 mm locking type)
GNSS / GPS:	1 x SMA GNSS antenna connector
GNSS / GPS	
Acquisition: (Time to First Fix)	32 seconds (cold start)

Protocols:	NMEA 0183
Constellations:	<ul style="list-style-type: none"> — GPS — Galileo — GLONASS — BeiDou — QZSS (simultaneous tracking)
Accuracy:	Horizontal: < 5 m (50%), < 9 m (95%)
Update Rate:	1 Hz (once per second)
Sensitivity:	<ul style="list-style-type: none"> — Acquisition: -145 dBm — Tracking: - 160 dBm
Frequencies:	L1
Power:	<ul style="list-style-type: none"> — Voltage Supply: 3.05-3.25 V — Max Current: 100 mA
ENVIRONMENTAL	
Temperature:	<ul style="list-style-type: none"> — Operating: -30 °C to 70 °C (-22 °F to 158 °F) — Storage: -40 °C to 85 °C (-40 °F to 185 °F)
Humidity:	<ul style="list-style-type: none"> — Operating: 10% to 90% — Storage: 5% to 95%
Ingress Protection:	IP64 (dust tight and splashing water)
PHYSICAL	
Size:	133.6 x 121.5 x 41 mm (5.26 x 4.78 x 1.61 in)
Weight:	595 g (1 lb 5 oz)
CERTIFICATIONS	
Safety:	<ul style="list-style-type: none"> — UL/cUL — CB Scheme — EN 62368-1
Vehicle:	<ul style="list-style-type: none"> — E-Mark — SAE J1455 Operating Sinusoidal Vibe, Category 2
Rail:	EN 61373 Category 1, Class B (Railway rolling stock)
Materials:	<ul style="list-style-type: none"> — WEEE — RoHS, RoHS-2 — California Prop 65
Security:	FIPS 140-3 Level 1 Implementation Under Test (R920 FIPS models only)

Shock/Vibration/Humidity:	<ul style="list-style-type: none"> — MIL SD 810G Meth. 514.6, Annex C, 2.1-Category 4 — MIL SD 810G Section 2.2.2 Procedure 1
Hazardous Locations:	Class 1 Div 2
POWER	
Required:	<p>DC input steady state voltage range: 9–36 VDC</p> <ul style="list-style-type: none"> — For 9–12 VDC installations, use a 3 A fuse — For > 24 VDC installations, use a 2 A fuse
Features:	Ignition sensing (automatic ON and time-delay OFF)
Consumption:	<ul style="list-style-type: none"> — Sleep: 15 mW — Idle: 9 W — Typical: 14.5 W — Heavy: 15.2 W
EDGE COMPUTING	
CPU:	Dual-core ARMv8 64-bit
Memory:	<p>Up to 921 MB</p> <p>See Adjusting Memory Resources for NetCloud Container Orchestrator for more information.</p>
Flash Storage:	<p>Up to 8 GB</p> <p>See Adjusting Memory Resources for NetCloud Container Orchestrator for more information.</p>
Applications:	Docker containerized applications
CLOUD SERVICES	
Service Plans:	NetCloud Service for Mobile, NetCloud Service for Ruggedized IoT
Service Add-Ons:	NetCloud Exchange, NetCloud Advanced
Support:	NetCloud Packages include support for the full subscription term.
Warranty:	All Cradlepoint hardware products are covered by a limited lifetime warranty for as long as they have a subscription license to an active NetCloud Service Plan.
Device Management:	NetCloud Manager for the full subscription term.
Software Updates:	NetCloud Manager for the full subscription term.
RELIABILITY	
Calculated MTBF:	388,022 hours (Telcordia SR332 at 25 °C)
WI-FI POWER	
FCC:	<ul style="list-style-type: none"> — 2.4 GHz: 23.18 dBm conducted — 5150–5250 MHz: 21.73 dBm conducted — 5250–5350 MHz: 22.17 dBm conducted — 5470–5725 MHz: 20.79 dBm conducted — 5725–5850 MHz: 20.97 dBm conducted

IC:	<ul style="list-style-type: none"> — 2.4 GHz: 23.18 dBm conducted — 5150–5250 MHz: 22.7 dBm conducted — 5250–5350 MHz: 17.16 dBm conducted — 5470–5725 MHz: 20.9 dBm conducted — 5725–5850 MHz: 22.17 dBm conducted
Europe:	<ul style="list-style-type: none"> — 2.4 GHz: 14.23 dBm conducted — 5150–5250 MHz: 17.03 dBm conducted — 5250–5350 MHz: 17.12 dBm conducted — 5500–5700 MHz: 22.05 dBm conducted
Australia/ New Zealand:	<ul style="list-style-type: none"> — 2.4 GHz: 14.23 dBm conducted — 5150–5250 MHz: 17.03 dBm conducted — 5250–5350 MHz: 17.12 dBm conducted — 5500–5700 MHz: 22.05 dBm conducted — 5475–5825 MHz: 22.18 dBm conducted
PERFORMANCE†	
Stateful Firewall Throughput:	940 Mbps
IPS Throughput:	940 Mbps
Application Aware Services & Analytics:	940 Mbps
IPsec VPN Throughput:	100 Mbps
Concurrent VPN Tunnels:	20
Concurrent Sessions (TCP):	130,000
Typical Client Count:	30
LEDs	
Refer to the R920 Series Ruggedized Router Quick Start Guide	

†Performance testing conducted based on requirements as defined in RFC2544 using fixed-frame 1518-byte packets. Throughput results reflect uni-directional UDP traffic with less than 1% packet loss as tested with wired connections. Results do not reflect performance of the cellular wireless operator networks.

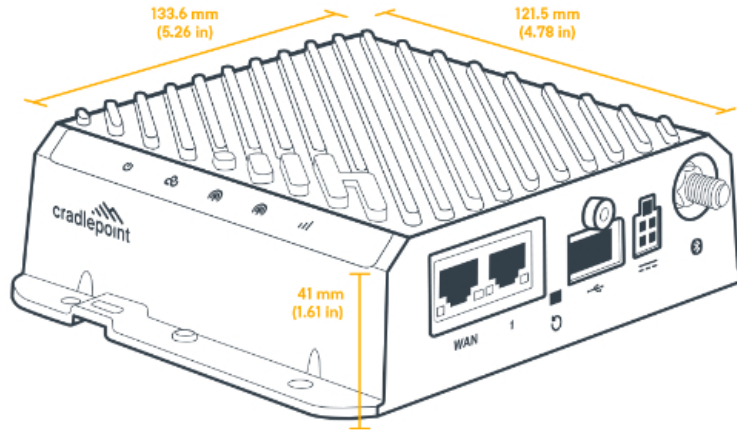
Enterprise-Class Modem Specifications

SPECIFICATION	R920-C7A	R920-C7B
Technology:	Cat 7 LTE (3GPP Rel. 11) <ul style="list-style-type: none"> — Dual SIM slots, 4FF form factor — SIM-based auto-carrier selection 	Cat 7 LTE (3GPP Rel. 11) <ul style="list-style-type: none"> — Dual SIM slots, 4FF form factor — SIM-based auto-carrier selection
3G:	WCDMA/UMTS/HSPA+	WCDMA/UMTS/HSPA+

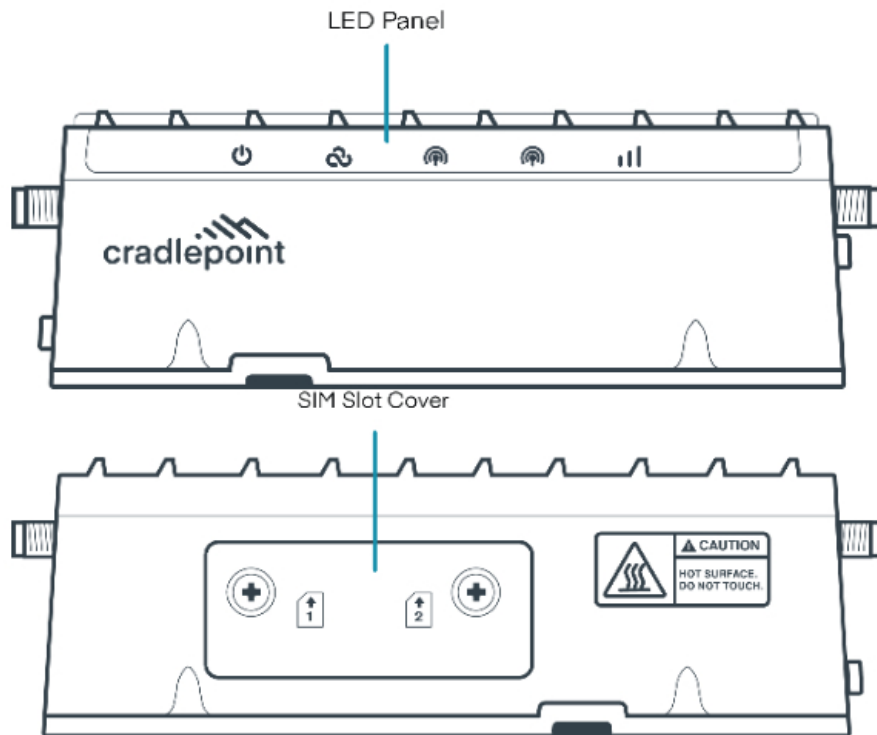
Carrier Aggregation:	<ul style="list-style-type: none"> — Downlink Cat 7 with 2 CA with 64 QAM = 300 Mbps — Uplink Cat 13 with 2 CA 64 QAM = 150 Mbps <p>Refer to the Modem Carrier Aggregations article.</p>	<ul style="list-style-type: none"> — Downlink Cat 7 with 2 CA with 64 QAM = 300 Mbps — Uplink Cat 13 with 2 CA 64 QAM = 150 Mbps <p>Refer to the Modem Carrier Aggregations article.</p>
Peak Downlink Rates:	<ul style="list-style-type: none"> — LTE: 300 Mbps — WCDMA: 42.2 Mbps 	<ul style="list-style-type: none"> — LTE: 300 Mbps — WCDMA: 42.2 Mbps
Peak Uplink Rates:	<ul style="list-style-type: none"> — LTE: 150 Mbps — WCDMA: 5.76 Mbps 	<ul style="list-style-type: none"> — LTE: 150 Mbps — WCDMA: 5.76 Mbps
MIMO:	2x2 MIMO	2x2 MIMO
Modulation:	<ul style="list-style-type: none"> — Up to 64 QAM downlink — Up to 64 QAM uplink 	<ul style="list-style-type: none"> — Up to 64 QAM downlink — Up to 64 QAM uplink
4G/LTE Bands:	<p>LTE FDD</p> <ul style="list-style-type: none"> — B2, B4, B5, B7, B12, B13, B14, B25, B26, B66, B71 <p>LTE TDD</p> <ul style="list-style-type: none"> — B41, B42, B43, B48 	<p>LTE FDD</p> <ul style="list-style-type: none"> — B1, B3, B7, B8, B20, B28, B32 <p>LTE TDD</p> <ul style="list-style-type: none"> — B38, B40, B41, B42, B43
3G Bands:	B2, B4, B5	B1, B5, B8
Power:	LTE 22.5 dBm ± 1, DC-HSPA+ 23 dBm ± 1	LTE 22.5 dBm ± 1, DC-HSPA+ 23 dBm ± 1
Antennas:	<ul style="list-style-type: none"> — SMA female connectors, external 600 MHz - 6 GHz cellular paddle antennas (Qty 2, included only with IoT packages) — (LTE) External Multi-Band 2 x 2 MIMO Antenna System 	<ul style="list-style-type: none"> — SMA female connectors, external 600 MHz - 6 GHz cellular paddle antennas (Qty 2, included only with IoT packages) — (LTE) External Multi-Band 2 x 2 MIMO Antenna System
GNSS/GPS:	Active GNSS	Active GNSS
SMS:	Yes	Yes
Regulatory:	FCC (U.S.), IC (Canada)	CE (EU)
Network Operator Standards:	PTCRB (U.S., Canada)	GCF (Worldwide)
Network Operator Certifications:	AT&T, T-Mobile, Verizon [†]	See note [†]
Public Safety Network Certifications:	FirstNet Trusted™, T-Mobile Connecting Heroes, Verizon Frontline	N/A
Private Cellular Network:	Yes, includes FCC Part 96 (CBRS Band 48)	N/A

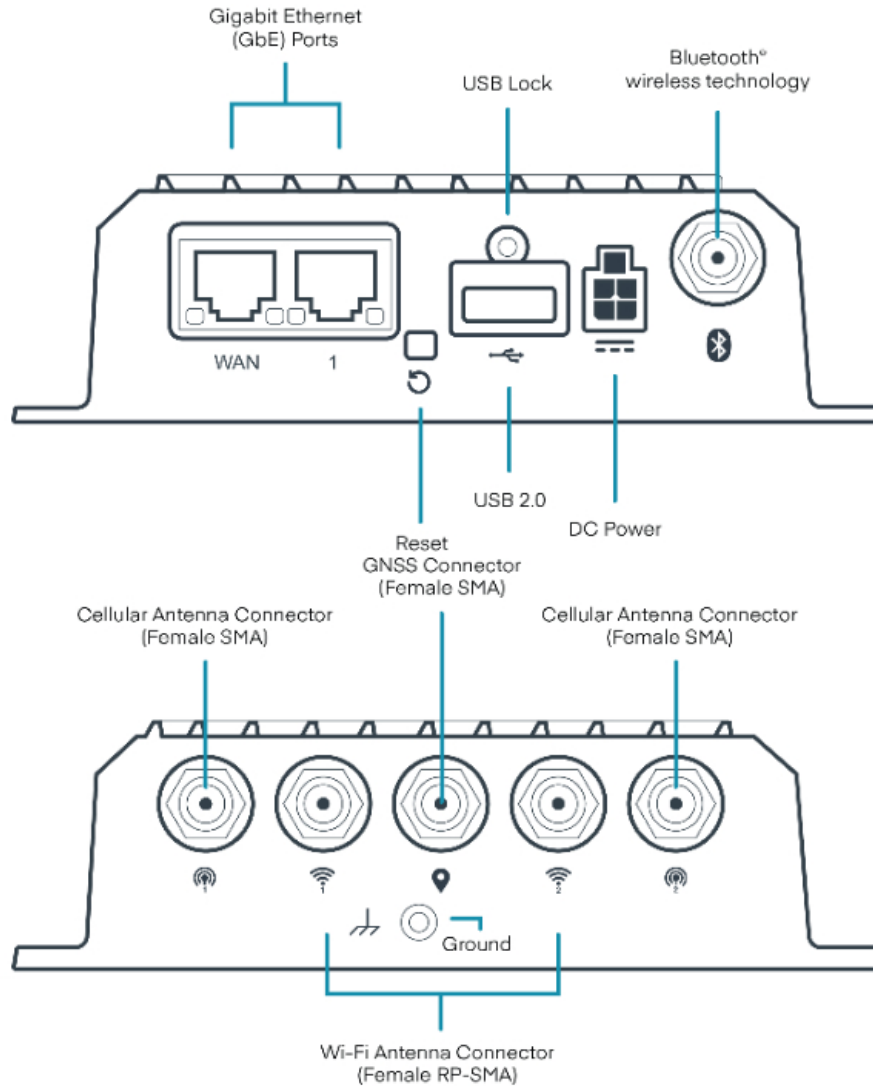
[†]Cellular carriers and operators throughout the world may only require telecom industry certifications, like PTCRB or GCF, to operate on their network. Some carriers require additional testing and approval, beyond telecom certifications. A carrier listed in the approvals section means Cradlepoint completed additional testing and acquired technical approval for that given carrier. Any carrier not listed may not require additional testing or approval beyond telecom industry certifications to operate on their network

Physical Measurements & Features

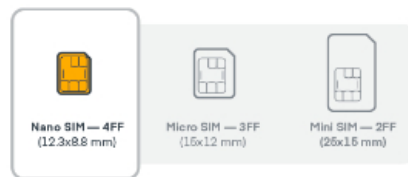


Features





SIM Card Info



Ordering Guide

NetCloud Mobile and NetCloud Ruggedized IoT Essentials packages and plans contain all the features and capabilities required for a broad range of mobile, in-vehicle, and IoT applications. Essentials packages include 24x7 support (phone support: 24 hour weekdays with emergency response on weekends, web: 24x7, chat: 24x5) and a limited lifetime warranty.

For additional capabilities, a **NetCloud Mobile Advanced Plan** or **NetCloud Ruggedized IoT Advanced Plan** can be added to the NetCloud Mobile or Ruggedized IoT Essentials Package at any time.

See additional details of what is included in the Essential and Advanced NetCloud software: cradlepoint.com/netcloud-service

NetCloud Packages for the R920 Series Router

REGION	MODEM	PACKAGE PLAN	PART NUMBER
North America: U.S. & Canada	Cat 7 with Wi-Fi (300 Mbps), <u>no</u> AC power supply or antennas	Mobile — Essentials	MA0x-0920-C7A-NA
		Mobile — Essentials + Advanced	MAAx-0920-C7A-NA
	Cat 7 with Wi-Fi (300 Mbps), with AC power supply and antennas	Ruggedized IoT — Essentials Ruggedized IoT — Essentials + Advanced	TC0y-0920-C7A-NN TCAy-0920-C7A-NN
United States: Federal Government	Cat 7 with Wi-Fi (300 Mbps), <u>no</u> AC power supply or antennas	Mobile TAA Compliant NC — Essentials	TAA-MA0y-0920-C7A-NA
		Mobile TAA Compliant NC — Essentials + Advanced	TAA-MAAy-0920-C7A-NA
	Cat 7 with Wi-Fi (300 Mbps), <u>no</u> AC power supply or antennas	FIPS TAA Compliant NC Mobile , Isolated Network Plan, NC-LOAD — Essentials + Advanced	TAA-MAAy-0920-C7A-FA
	Cat 7 with Wi-Fi (300 Mbps), <u>no</u> AC power supply or antennas	FIPS TAA Compliant NC Mobile — Essentials + Advanced	TAA-MAGy-0920-C7A-FA
		Mobile FIPS only — Essentials + Advanced	MAAx-NCESSF
		Renewal — Mobile FIPS only Essentials + Advanced	MAAx-NCESSF-R
	Cat 7 with Wi-Fi (300 Mbps), with AC power supply and antennas	Ruggedized IoT TAA Compliant NC — Essentials	TAA-TC0y-0920-C7A-NN
		Ruggedized IoT TAA Compliant NC — Essentials + Advanced	TAA-TCAy-0920-C7A-NN
Rest of World: Australia, European Union, Malaysia, New Zealand, Singapore, South Africa, and United Kingdom	Cat 7 with Wi-Fi (300 Mbps), <u>no</u> AC power supply or antennas	Mobile — Essentials	MA0x-0920-C7B-GA
		Mobile — Essentials + Advanced	MAAx-0920-C7B-GA
	Cat 7 with Wi-Fi (300 Mbps), with AC power supply and antennas	Ruggedized IoT — Essentials Ruggedized IoT — Essentials + Advanced	TC0y-0920-C7B-GM TCAy-0920-C7B-GM
All Regions:		Mobile — Renewal	
		— Essentials	MA0x-NCESS-R MA0x-NCADV
		— Advanced Upgrade (requires Essentials) — Advanced Renewal (requires Essentials)	MA0x-NCADV-R

Ruggedized IoT — Renewal	
— Essentials	TC0x-NCESS-R
— Advanced Upgrade (requires Essentials)	TC0x-NCADV
— Advanced Renewal (requires Essentials)	TC0x-NCADV-R

x = 1, 3, or 5 years

y = 3 or 5 years

Accessories

INCLUDED	PART NUMBER
NetCloud Mobile Packages only:	
— GPIO Cable, small 2x2, black, 3 meters, 20 AWG	170864-000
— Mounting Template	
NetCloud Ruggedized IoT Packages only:	
— Cellular Antennas, charcoal, 600 MHz - 6 GHz, SMA, 180 mm (Qty 2)	170801-000
— Wi-Fi Antennas, charcoal, dual-band 2.4/5 GHz, RP-SMA, 194 mm (Qty 2)	170836-000
— AC power adapter	
NetCloud Ruggedized IoT Packages only, one of the following:	
— Power Supply, 12 V Small 2x2 1.5 meters (North America Type A)	170716-001
— Power Supply, 12 V Small 2x2 1.5 meter (North America-United Kingdom-Europe-Australia Types A-G-C-I)	170717-000
OPTIONAL	PART NUMBER
Vehicle Charger, 12 V, 2x2, 2 meters	170635-000
Small 2x2 Power to Barrel Adapter, 152 mm	170665-000
Mag Mount Kit	170718-000
Power Supply, 12 V Out, small 2x2 (C7 line cord not include), -30 °C to 70 °C (-22 °F to 158 °F)	170869-000
USB to RS232 Extensibility Cable	170873-000
5G Captive Modem and Wi-Fi Accessory, outdoor, R2105-5GB (4.1 Gbps modem), Global	170900-014
5G Captive Modem Accessory, outdoor, R2155-5GB (4.1 Gbps modem), Global	170900-015
DIN Rail Mounting Bracket	170904-000
RX20-MC Managed Accessory — Modular Modem, GPIO and serial (modem sold separately)	MA-RX20-MC
— MC400 5G Modem (requires 4FF SIM)	MB-MC400-5GB
UNITED STATES FEDERAL GOVERNMENT INCLUDED	PART NUMBER
Cellular Antenna, charcoal, 600 MHz - 6 GHz, SMA, 180 mm	TAA-170801-000
Power Supply, vehicle, 12 V, 2x2, 2 meters	TAA-170635-000
Power Supply, 12 V, small 2x2, 1.5 meters (North America Type A)	TAA-170716-000

Power Supply, 12 V, small 2x2, 1.5 meters (North America-United Kingdom-Europe-Australia Types A-G-C-I)	TAA-170717-000
Small 2x2 Power to Barrel Adapter, 152 mm	TAA-170665-000
GPIO Cable, small 2x2 black, 3 meters, 20 AWG	TAA-170864-000
UNITED STATES FEDERAL GOVERNMENT OPTIONAL	PART NUMBER
RX20-MC Managed Accessory — Modular Modem, GPIO and serial (modem sold separately)	TAA-MA-RX20-MC
— MC400 5G Modem (requires 4FF SIM)	TAA-MB-MC400-5GB
Mag Mount Kit	TAA-170718-000
5G Captive Modem and Wi-Fi Accessory, outdoor, R2105-5GB (4.1 Gbps modem), Global	TAA-170900-014
5G Captive Modem Accessory, outdoor, R2155-5GB (4.1 Gbps modem), Global	TAA-170900-015

Support & Warranty

The R920 mobile router is only sold as a component of NetCloud Mobile / NetCloud Ruggedized IoT Essentials or Essentials and Advanced Packages.

- NetCloud Packages include support for the full subscription term.
- All Cradlepoint hardware products are covered by a limited lifetime warranty for as long as they have a subscription license to an active NetCloud Service Plan.

More Information

[Find the most up-to-date information at cradlepoint.com/r920-series](https://www.cradlepoint.com/r920-series)