## Data Sheet

# R980 Series Ruggedized Router

2024 - 10 - 16

The Ericsson Cradlepoint R980 is a ruggedized, secure appliance and router that broadens access to the increased speed and performance of 5G to support advanced applications and critical communications. Designed for the 5G future, it is 5G network slicing ready with the deployment flexibility of eSIMs which allow carrier switching without changing physical SIMs. (eSIM will be functional with future NetCloud releases.) It is a ruggedized 5G networking platform able to withstand wide temperature extremes, harsh environments, and hazardous locations while delivering enterprise-class standards of reliability, scalability, comprehensive management, and security. The R980 is available with either Mobile or Ruggedized IoT NetCloud service plans, providing features optimized for the needs of the differing deployments. The R980 also supports NetCloud Exchange and SASE services, which provide Zero Trust Network Access and cellular-optimized SD-WAN.

# High-Performance Vehicle Connectivity

The Ericsson Cradlepoint R980 router with a NetCloud Mobile service plan provides a ruggedized GNSS/GPS-enabled in-vehicle network solution. 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 R980 with SD-WAN provides resilient in-vehicle connections by optimizing traffic across LTE, 5G, 5G stand-alone network slices, satellite, and Wi-Fi as WAN.

# Ruggedized IoT Solution

When combined with a NetCloud Ruggedized IoT service plan, the R980 provides a versatile, ruggedized 5G 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 oil and gas, utility, and smart city infrastructure, in addition to next-gen kiosks, and video surveillance, deployments. The ruggedized design and CBRS bond 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.

# Notable Benefits

— Gain fast, reliable connectivity with 5G NR or 19 LTE providing fast upload for video and data

— Prioritize access to public safety networks for reliable, secure connectivity

— Use advanced GNSS/GPS functionality for location tracking and cellular coverage maps

— Enable zero trust security and SD-WAN with 5G SASE

— Extend your deployment and enable customized solutions with powerful edge compute capabilities, including containers, connectors, SDKs, and API support

— Take advantage of 5G network slices to segment and isolate applications or devices, prioritize traffic, and have greater control over wireless network services

— Change carriers over the air quickly and easily with built-in eSIM capability (Will be functional with future NetCloud OS releases.)

## Key Software Capabilities

NetCloud Service for the R980 provides everything needed to unlock the power of 5G 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, 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.
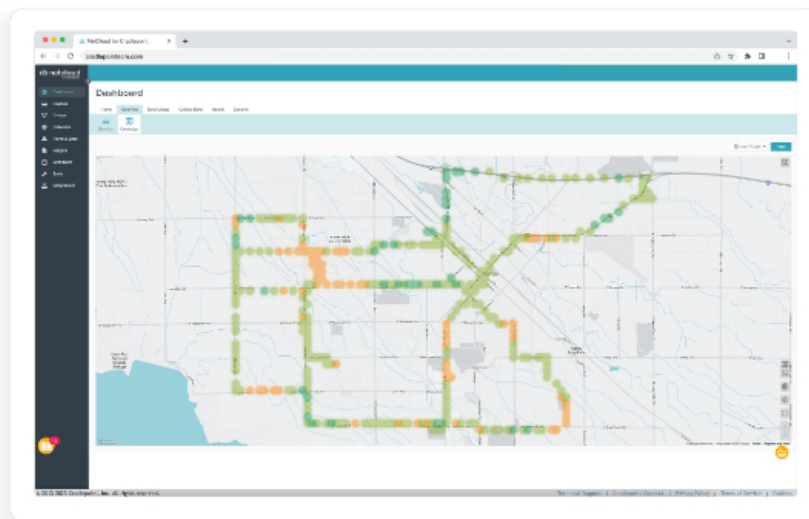


# Security Services

NetCloud Service includes security features and options to optimize the R980 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 an application-aware zone-based firewall, threat management (IPS/IDS), and web filtering with the Advanced Mobile service plan.

The R980 supports NetCloud SASE and NetCloud Exchange, a unified network and security WAN architecture built upon zero-trust principles and optimized for cellular, helping lean IT organizations simplify deployment and management with shared policies and simplified processes. With NetCloud zero trust security networking, delivered through Secure Connect, other devices simply connect to the router with encrypted tunnels to build micro-segmented networks that are instantly hidden from internal and external sites. Access policies are easily defined to enable routing devices to communicate only with their authorized resources or applications and nothing else. The simple and secure zero trust access, delivered through Zero Trust Network Access, also delivers authorized contractors and third parties secure remote access to IoT devices on the WAN for remote monitoring and maintenance.
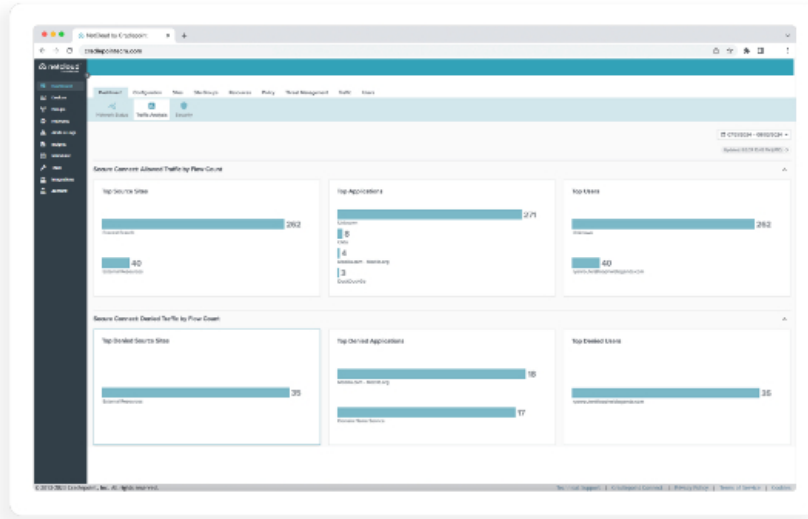
# Extensibility and Integrations

The NetCloud Service and the R980 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.
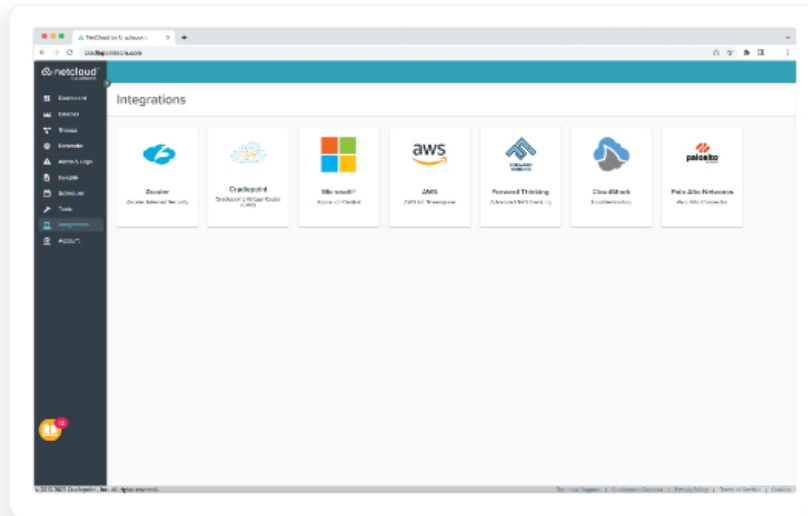


# Cloud, Routing, and SD-WAN Services

The NetCloud service plus R980 provides local processing power to handle routing, and traffic steering.  Optional add-on includes 5G SASE and NetCloud Exchange SD-WAN which delivers cellular-optimized traffic, traffic steering, and Quality of Experience.  A single policy engine integrates policies for Secure Connect, SD-WAN, and Zero Trust Network Access for a truly unified visibility and management experience.
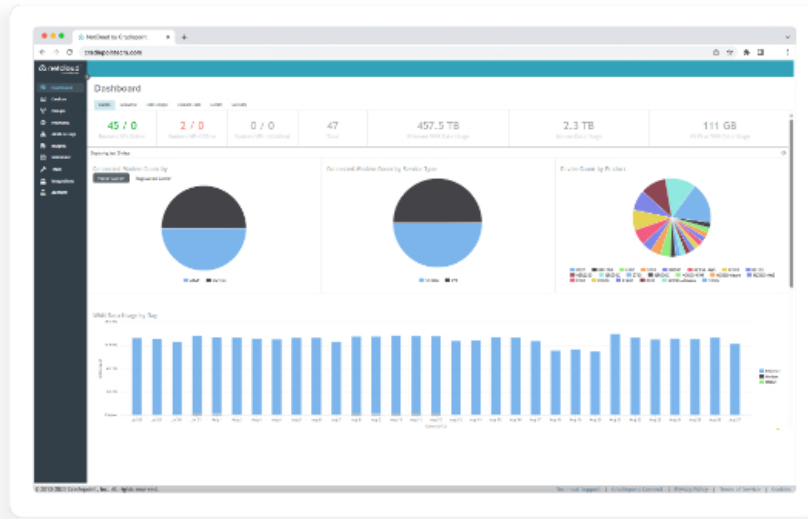
# Hardware Specifications

The following features are delivered through the hardware.

| INTERFACES | |
|---|---|
| **Modem:** | Embedded 5G NR FR1 land 4G LTE modem<br><br>— 4 x SMA cellular antenna connectors<br>— 2 x 4FF SIM slots<br>— 1 x MFF2 eSIM hardware |
| **Ethernet:** | 2 x GbE RJ45 (LAN/WAN switchable) |
| **Wi-Fi:** | Dual-radio, dual-band, concurrent operation (2.4 GHz and 5 GHz)<br><br>— 2x2 MU-MIMO 802.11ax Wi-Fi 6 with DFS<br>— Modes: AP, Wireless Client, and Wi-Fi as WAN<br>— 574 Mbps (2.4 GHz) and 1.2 Gbps (5 GHz)<br>— 2 x RP-SMA Wi-Fi antenna connectors[†]<br>— Global Optimized Wi-Fi and International SDR<br>— WPA/WPA2/WPA3 Personal, WPA2/WPA3 Enterprise, Open<br>— 802.11k, 802.11v<br>— Wi-Fi Alliance Certified |
| **Bluetooth:** | N/A |
| **Expansion:** | — 1 x USB 2.0 Type A (Output: 5 V, 500 mA, 2.5 W) with screw lock feature for mechanically secure connections |
| **GNSS / GPS:** | 1 x SMA GNSS antenna connector |
| **GNSS / GPS** | |

| Acquisition: (Time to First Fix) | 30 seconds (cold start) |
|---|---|
| Protocols: | — NMEA 0183<br>— TAIP |
| Constellations: | — GPS<br>— Galileo<br>— GLONASS<br>— BeiDou (concurrent reception) |
| Accuracy: | Autonomous 1 meter |
| Update Rate: | 1 Hz (once per second) |
| Sensitivity: | — Acquisition: -148 dBm<br>— Tracking: -161 dBm<br>— Cold start: -146 dBm |
| Frequencies: | L1 |
| Power: | — Voltage Supply: 2.9-3.15 VDC<br>— Max Current: 100 mA |

## ENVIRONMENTAL

| Temperature: | — Operating: -30 °C to 70 °C (-22 °F to 158 °F)[††]<br>— Storage: -40 °C to 85 °C (-40 °F to 185 °F) |
|---|---|
| Humidity: | — Operating: 10% to 90%<br>— Storage: 5% to 95% |
| Ingress Protection: | IP64 (dust tight and splashing water) |

## POWER

| Required: | DC input steady state voltage range: 9—36 VDC (requires in-line fuse for vehicle installations)<br><br>— For 9—24 VDC installations, use a 3 A fuse<br>— For > 24 VDC installations, use a 2 A fuse<br>— Connector type: 4-pin 2x2 Molex micro-fit<br><br>For light rail applications: 24 VDC nominal |
|---|---|
| Features: | — ISO 7637-2 reverse polarity and transient voltage protection<br>— Ignition sensing (automatic ON and time-delay OFF) |
| Consumption: | — Sleep: 15 mW<br>— Idle: 8 W<br>— Typical: 11 W<br>— Heavy: 13 W |

| PHYSICAL | |
|---|---|
| Size: | 133.6 x 121.5 x 41 mm (5.26 x 4.78 x 1.61 in) |
| Weight: | 601 g (1 lb 5.2 oz) |
| **RELIABILITY** | |
| Calculated MTBF: | 1,407,191 hours (Telcordia SR332 at 25 °C) |
| **CERTIFICATIONS** | |
| Safety: | — UL/cUL<br>— CB Scheme<br>— EN 62368-1 |
| Vehicle: | — E-Mark<br>— SAE J1455 |
| Materials: | — WEEE<br>— RoHS<br>— REACH<br>— California Prop 65 |
| Security: | FIPS 140-3 Level 1 Module in Process (R980 FIPS models only) |
| Shock/Vibration/Humidity: | — MIL STD 810H Method 514.8, Annex C-1, Category 4<br>— MIL STD 810H Method 516.8, Procedure I<br>— MIL STD 810H Method 516.8, Procedure V |
| Hazardous Locations: | Class I Div 2 |
| North American Fire Safety: | NFPA 130 |
| Flame Smoke Toxicity Test: | BSS 7239 |
| **EDGE COMPUTING** | |
| CPU: | Dual-core ARMv8 64-bit |
| Memory: | Up to 921 MB<br>See Adjusting Memory Resources for NetCloud Container Orchestrator for more information. |
| Flash Storage: | Up to 8 GB<br>See Adjusting Memory Resources for NetCloud Container Orchestrator for more information. |
| 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. |
| **WI-FI POWER** | |

| FCC: | — 2412-2462 MHz (2.4 GHz): 26.42 dBm Conducted |
|---|---|
| | — 5180–5250 MHz: 21.63 dBm Conducted |
| | — 5250–5350 MHz: 21.20 dBm Conducted |
| | — 5470–5725 MHz: 22.17 dBm Conducted |
| | — 5725–5835 MHz: 23.14 dBm Conducted |
| IC: | — 2412-2462 MHz (2.4 GHz): 26.42 dBm Conducted |
| | — 5180–5250 MHz: 16.48 dBm Conducted |
| | — 5250–5350 MHz: 18.33 dBm Conducted |
| | — 5470–5725 MHz: 22.17 dBm Conducted |
| | — 5725–5835 MHz: 23.14 dBm Conducted |
| CE/UKCA: | — 2412-2472 MHz (2.4 GHz): 13.91 dBm Conducted |
| | — 5180–5250 MHz: 18.04 dBm Conducted |
| | — 5250–5320 MHz: 17.92 dBm Conducted |
| | — 5500–5700 MHz: 21.48 dBm Conducted |
| RCM: | — 2412-2472 MHz (2.4 GHz): 13.91 dBm Conducted |
| | — 5180–5250 MHz: 18.04 dBm Conducted |
| | — 5250–5320 MHz: 17.92 dBm Conducted |
| | — 5500–5700 MHz: 21.48 dBm Conducted |
| | — 5725–5835 MHz: 23.14 dBm Conducted |

| PERFORMANCE[†††] | |
|---|---|
| Stateful Firewall Throughput: | 940 Mbps |
| IPS Throughput: | 940 Mbps |
| Application Aware Services & Analytics: | 940 Mbps |
| IPsec VPN Throughput: | 400 Mbps |
| Concurrent VPN Tunnels: | 20 |
| Concurrent Sessions (TCP): | 32,000 |
| Typical Client Count: | 50 |
| Layer 2 / Layer 3 VLANs: | Up to 64 |
| LEDs | |
| | See the R980 Series Ruggedized Router Quick Start Guide. |

[†]NOTE: All antenna interfaces require cabled out external antennas and are not compatible with direct-attached antennas.

[††]Wi-Fi and cellular performance may degrade when operating above 70 °C.

[†††]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 | R980-5GD |
|---|---|

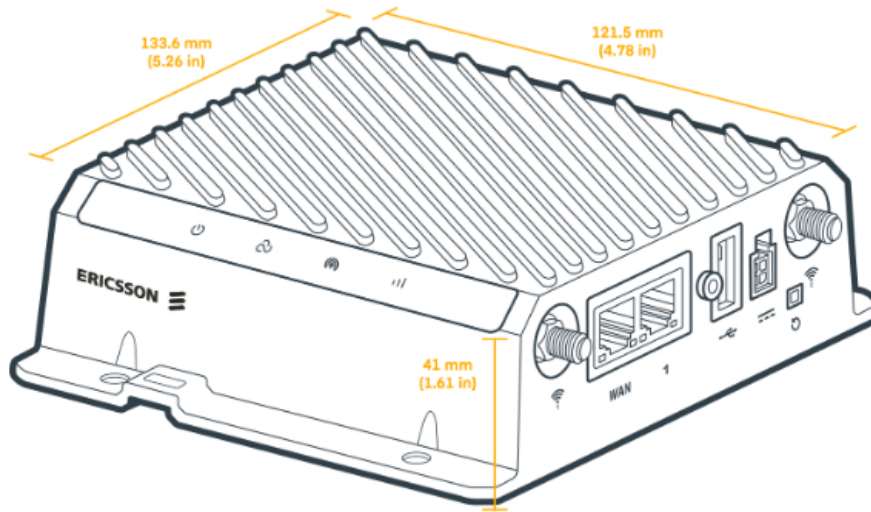| Technology: | 5G NR low-, mid-band, and 4G LTE |
| --- | --- |
| | — 600 MHz-6 GHz spectrum |
| | — 5G non-standalone (NSA) and 5G standalone (SA) networks |
| | — LTE Advanced Pro Category 19 fallback |
| | — Dual SIM slots, 4FF form factor |
| | — Embedded MFF2 eSIM hardware |
| | — 5G network slicing |
| | — 3GPP Release 16 |
| 3G: | WCDMA/UMTS/HSPA+ |
| Carrier Aggregation: | LTE Only |
| | — Downlink: Up to 5 CA |
| | — Uplink: Up to 2 CA |
| | LTE + 5G NR ENDC |
| | — Downlink: Up to 4 CA (LTE) + Up to 1 CA (5G NR) |
| | — Uplink: Up to 2 CA (LTE) + Up to 2 CA (5G NR) |
| | 5G NR Only |
| | — Downlink: Up to 2 CA |
| | — Uplink: 1 CA |
| | See Understanding Carrier Aggregation. |
| Peak Rates: | NSA |
| | — Downlink: Up to 3.4 Gbps |
| | — Uplink: Up to 550 Mbps |
| | SA |
| | — Downlink: Up to 2.4 Gbps |
| | — Uplink: Up to 450 Mbps |
| | LTE |
| | — Downlink: Up to 1.6 Gbps |
| | — Uplink: Up to 200 Mbps |
| MIMO: | 4x4 MIMO |
| Modulation: | 5G FR1 |
| | — Downlink: Up to 256 QAM |
| | — Uplink: Up to 256 QAM |
| eSIM: | Up to eight carrier profiles |
| 5G Network Slicing: | Up to four DNN/PDN instances |

| 4G/LTE Bands: | FDD |
|---|---|
| | — B1 (2100), B2 (1900), B3 (1800), B4 (1700), B5 (850), B7 (2600), B8 (900), B12 (700), B13 (700), B14 (700), B17 (700), B18 (850), B19 (850), B20 (800), B25 (1900), B26 (850), B28 (700), B29 (700), B30 (2300), B32 (1500), B66 (1700), B71 (600) |
| | TDD |
| | — B34 (2000), B38 (2600), B39 (1900), B40 (2300), B41 (2500), B42 (3500), B43 (3700), B46 (5200), B48 (3500) |
| 5G NR Bands: | NSA and SA |
| | — n1 (2100), n2 (1900), n3 (1800), n5 (850), n7 (2600), n8 (900), n12 (700), n13 (700), n14 (700), n18 (850), n20 (800), n25 (1900), n26 (850), n28 (700), n29 (700), n30 (2300), n38 (2600), n40 (2300), n41 (2500), n48 (3500), n66 (1700/2100), n71 (600), n75 (1500), n76 (1500), n77 (3700), n78 (3500), n79 (4900) |
| 3G Bands[†]: | B1, B2, B4, B5, B8, B19 |
| Power: | LTE |
| | — LTE Power Class 3 bands: 23 dBm ± 2 (typical conducted) |
| | — LTE Power Class 2 bands: 26 dBm ± 2 (typical conducted) |
| | 5G NR |
| | — 5G NR Power Class 3 bands: 23 dBm ± 2 (typical conducted) |
| | — 5G NR Power Class 1.5 bands: 29 dBm ± 2 (typical conducted) |
| Antennas: | SMA female connectors, external 600 MHz - 6 GHz cellular paddle antennas (not included) |
| GNSS/GPS: | Active GNSS |
| | — GPS |
| | — Galileo |
| | — GLONASS |
| | — BeiDou |
| SMS: | Yes |
| Regulatory: | — FCC (U.S.) |
| | — IC (Canada) |
| | — CE (EU) |
| | — RCM (AU/NZ) |
| | — UKCA (UK) |
| Network Operator Standards: | — PTCRB (U.S., Canada) |
| | — GCF (Worldwide) |
| GCF Global Operators: | https://www.globalcertificationforum.org/membership/gcf-members.html[††] |
| PTCRB North America Operators: | https://www.ptcrb.com/about/ |

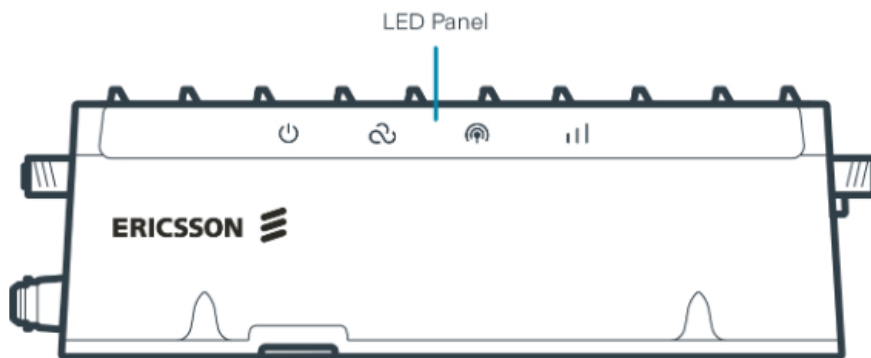| Network Operator Certifications: | AT&T, T-Mobile, Verizon[††] |
|---|---|
| Public Safety Network Certifications: | ESN (4G), FirstNet Trusted™, T-Mobile Connecting Heroes, Verizon Frontline, Verizon Response Verified (pending) |
| Private Cellular Network: | Yes, includes FCC Part 96 (CBRS Band 48) |

[†]Carrier Certification may affect band support.

[††]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

cradlepoint PART OF ERICSSON



SIM Slot Cover

Gigabit Ethernet
(GbE) Ports

Wi-Fi Antenna Connector
(Female RP-SMA)

USB Lock

Wi-Fi Antenna Connector
(Female RP-SMA)

WAN     1

USB 2.0          Reset

DC Power

GNSS Connector
(Female SMA)

Ground

Cellular Antenna Connector
(Female SMA)

## SIM Card Info



Nano SIM — 4FF
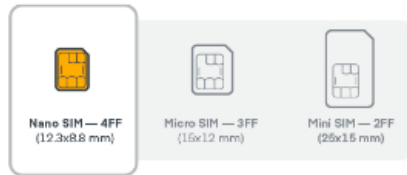(12.3x8.8 mm)

Micro SIM — 3FF
(15x12 mm)

Mini SIM — 2FF
(25x15 mm)
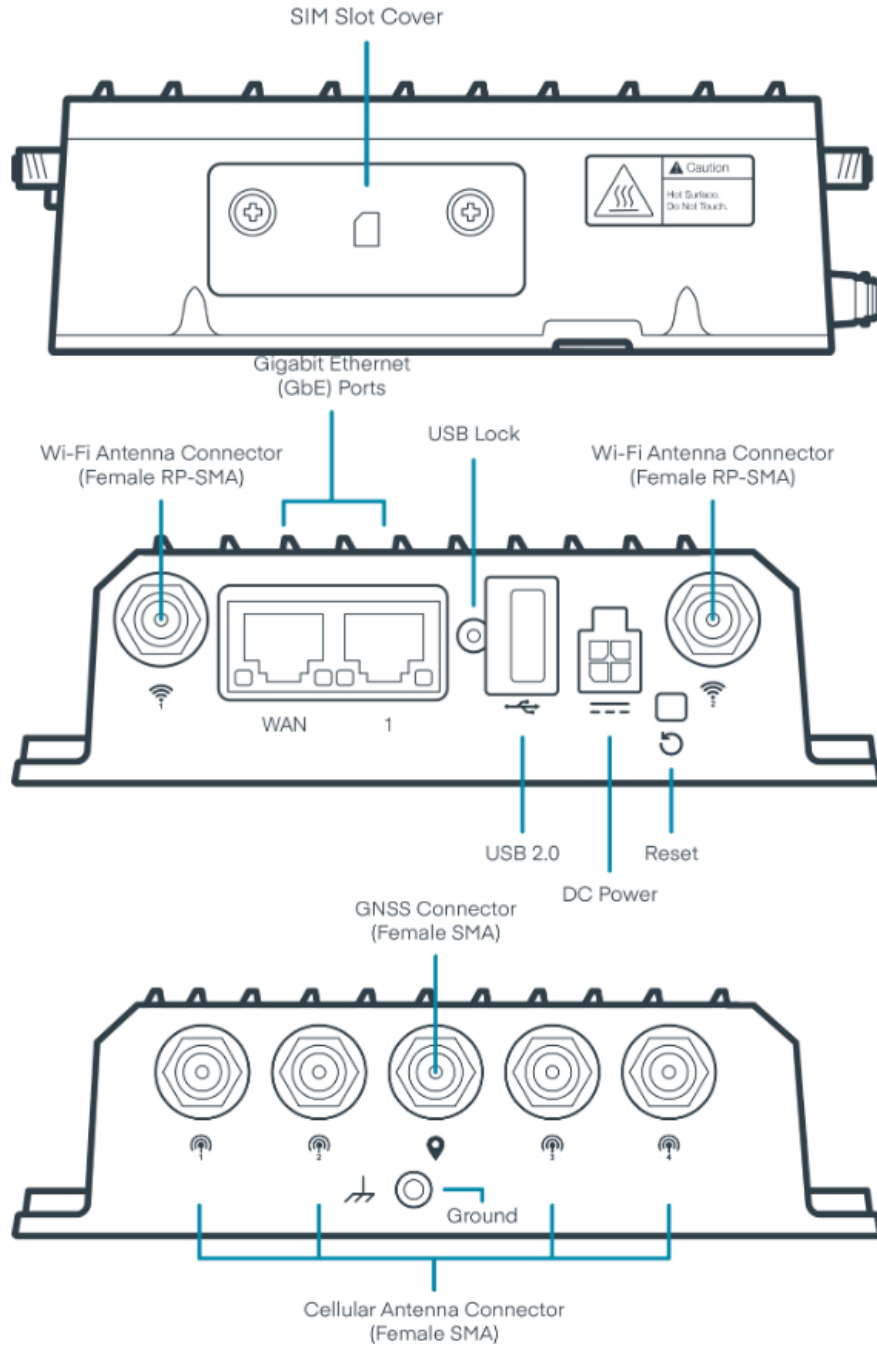
## Ordering Guide

**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 R980 Series Router

| REGION | MODEM | PACKAGE PLAN | PART NUMBER |
|---|---|---|---|
| **Global:** U.S., Australia, Canada, European Union, New Zealand, and United Kingdom | R980 Router with Wi-Fi (5G modem 4FF SIM slots, and embedded eSIM), no AC power supply or antennas | **Mobile** — Essentials **Mobile** — Essentials + Advanced | MB0x-R980-5GD-A MBAx-R980-5GD-A |
| | R980 Router with Wi-Fi (5G modem 4FF SIM slots, and embedded eSIM), no AC power supply or antennas | Ruggedized **IoT** — Essentials Ruggedized **IoT** — Essentials + Advanced | TC0y-R980-5GD-A TCAy-R980-5GD-A |
| **United States:** **Federal Government** | R980 Router with Wi-Fi (5G modem 4FF SIM slots, and embedded eSIM), no AC power supply or antennas | **Mobile** TAA Compliant NC — Essentials **Mobile** TAA Compliant NC — Essentials + Advanced | TAA-MB0x-R980-5GD-A TAA-MBAx-R980-5GD-A |
| | R980 Router with Wi-Fi (5G modem 4FF SIM slots, and embedded eSIM), no AC power supply or antennas | Ruggedized **IoT** TAA Compliant NC — Essentials Ruggedized **IoT** TAA Compliant NC — Essentials + Advanced | TAA-TC0y-R980-5GD-A TAA-TCAy-R980-5GD-FA |
| | R980 FIPS 140-3 Router with Wi-Fi (5G modem 4FF SIM slots, and embedded eSIM), no AC power or antennas | FIPS TAA Compliant NC **Mobile** — Essentials + Advanced | TAA-MBAx-R980-5GD-FA |
| | R980 FIPS 140-3 Router with Wi-Fi (5G modem 4FF SIM slots, and embedded eSIM), no AC power or antennas | FIPS TAA Compliant NC Ruggedized **IoT** — Essentials + Advanced | TAA-TCAy-R980-5GD-FA |
| | | **Mobile** FIPS only — Essentials + Advanced | MAAx-NCESSF |
| | | Renewal — **Mobile** FIPS only Essentials + Advanced | MAAx-NCESSF-R |
| **All Regions:** | | **Mobile** — Renewal  — Essentials — Advanced Upgrade (requires Essentials) — Advanced Renewal (requires Essentials) | MA0x-NCESS-R MA0x-NCADV 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:<br><br>— GPIO Cable, small 2x2, black, 3 meters, 20 AWG<br>— Mounting Template | 170864-000 |
| **OPTIONAL** | **PART NUMBER** |
| Cellular Antenna, charcoal, 600 MHz - 6 GHz, SMA, 180 mm | 170801-000 |
| Wi-Fi Antenna, Charcoal, Dual-Band 2.4/5 GHz, RPSMA | 170836-000 |
| 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 included), -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 |
| **UNITED STATES FEDERAL GOVERNMENT** | **PART NUMBER** |
| 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** |
| Cellular Antenna, charcoal, 600 MHz - 6 GHz, SMA, 180 mm | TAA-170801-000 |
| Wi-Fi Antenna, Charcoal, Dual-Band 2.4/5 GHz, RPSMA | TAA-170836-000 |
| 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 R980 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/r980-series

## ⋈ MOBILE**CORP**

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