

## Data Sheet

# R500-PLTE Series Ruggedized Router

2023 - 01 - 09

The R500-PLTE router with the Cradlepoint NetCloud Service for IoT is a purpose-built, low-cost User Equipment (UE) networking solution with industry-leading features for Private Cellular Networks (PCN). It is a compact, ruggedized solution for deployments in manufacturing, distribution, transportation, education, and others taking advantage of the lower fixed operating costs, enhanced data security, and improved network performance a PCN provides.

## Ideal for Private Cellular Networks

The R500-PLTE is purpose built for PCN deployments. It is an FCC Part 96 authorized end-user device for Band 48 OnGo CBRS networks providing a competitively priced compact and ruggedized PCN UE solution. The R500-PLTE accommodates a wide range of environments while delivering enterprise-class standards of reliability, scalability, comprehensive management, and security.

## Ruggedized IoT Solution

The R500-PLTE includes advanced connectivity options with a Cat 7 LTE-Advanced modem, gigabit Ethernet, Wi-Fi 5, GPIO ports, and GPS. It provides a ruggedized enterprise class networking platform that can be confidently deployed in environments such as smart cities, mining, oil and gas, shipping ports and logistics, as well as education for students and teachers. Combined with NetCloud Service for IoT, the R500-PLTE delivers complete visibility, security, and control together with health and status alerts on security posture, network conditions, and usage for connected devices anywhere.



## Notable Features

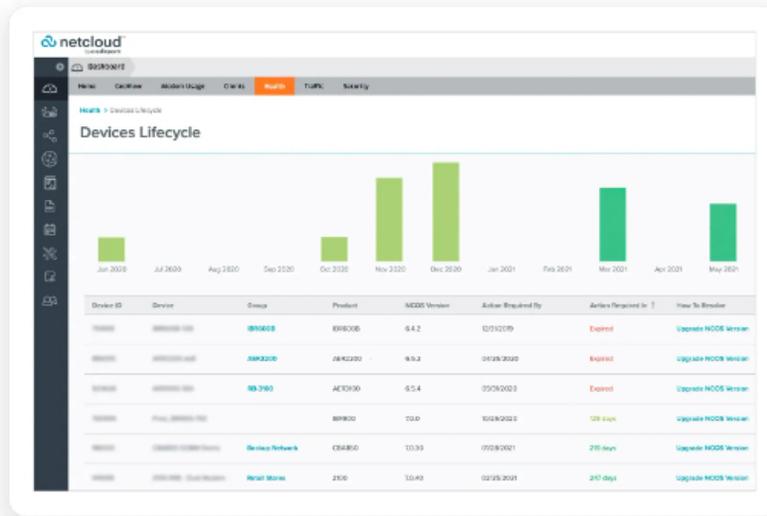
- Deploy a competitively priced value-driven Private LTE (PLTE) networking solution with industry-leading features
- Define policies through centralized cloud-based management for easy deployment at scale
- Use an FCC Part 96 authorized end-user device for Band 48 OnGo CBRS networks
- Install a compact and ruggedized router in a wide range of environments where connectivity must be reliable
- Deploy Wave 2 dual-band, dual-concurrent Gigabit Wi-Fi for the best possible connections
- Add a second cellular modem, with an Extensibility Dock, for multi-link capability to both the private and public network
- Expand with custom solutions using GPIOs, NetCloud SDK and API, and NetCloud Edge Connector for Azure IoT Central

## Key Software Capabilities

Cradlepoint NetCloud Service provides powerful centralized management for every Cradlepoint cellular-enabled router, including the R500-PLTE. NetCloud Service allows customers to build and manage wireless WANs with complete lifecycle management, zero-touch deployment, robust security, and traffic management for optimal application performance and reliability. The cloud capabilities include group policy definition, reports, troubleshooting, and analytics dashboards. The service includes a warranty for as long as the router has an active subscription, online training, live and online support, and software and firmware updates.

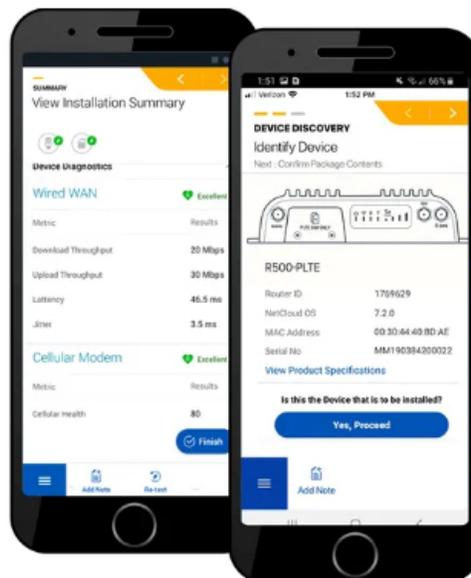
## Advanced Software Lifecycle Management

NetCloud improves the typical software lifecycle management process. New features are continuously delivered to the NetCloud Service and available for the router without interrupting network performance. Software versions are tracked for every endpoint, with the latest version just a click away. Straightforward subscription and license management is provided to keep the network running without interruption.



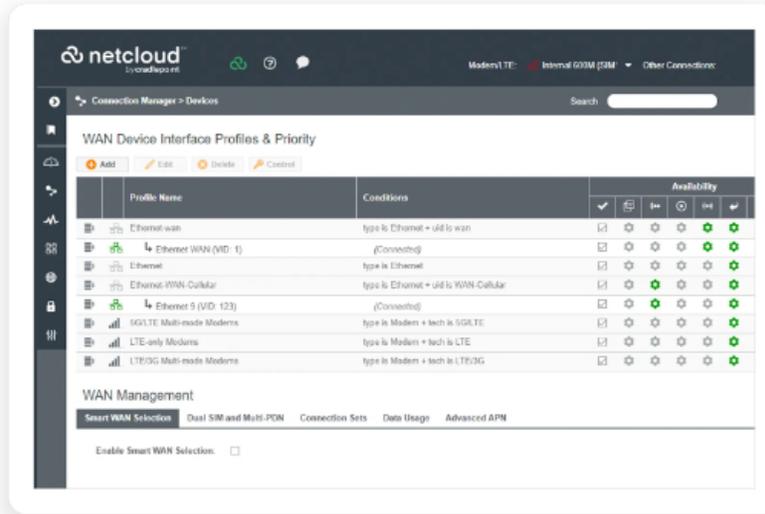
## Cradlepoint Verify Mobile Application

As an extension to NetCloud, Cradlepoint Verify is a mobile application that simplifies setting up Cradlepoint endpoints with easy, customized steps specific to the R500 router. Upon a verified installation, users receive a detailed report that includes installation pictures, speed test results, and modem health metrics.



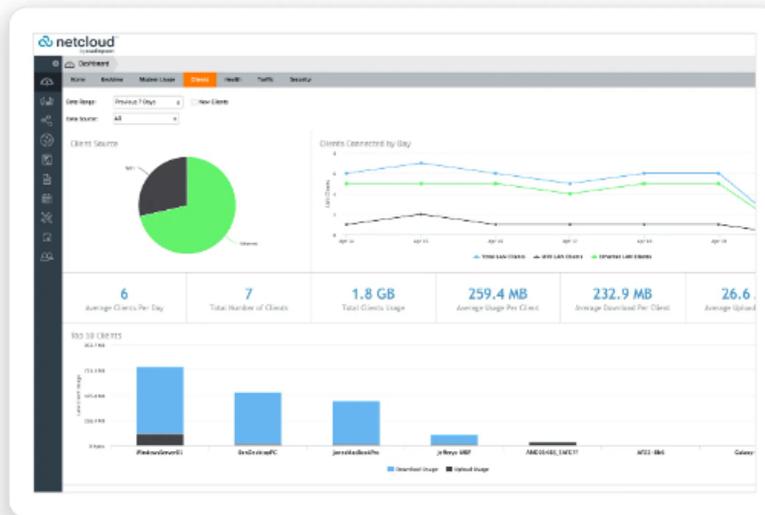
## Connection Manager

Connection Manager provides the ability to manage all WAN connection types including wireless, Wi-Fi-as-WAN, and wired, from a single software-defined policy. Our proprietary modem software ensures users establish Wireless WAN connectivity faster while maintaining the highest level of resiliency.



## Cloud Services

NetCloud Manager delivers zero-touch deployment with the ability to define and deliver policy across entire groups of endpoints. Users can gain insights and analytics required for rapid troubleshooting and diagnostic workflows. Location services provides last known map location and geofence alerting for loss prevention and physical security.



## Hardware Specifications

The following features are delivered through the hardware.

INTERFACES	
<b>Modem:</b>	<p>Embedded Category 7 Advanced LTE modem</p> <ul style="list-style-type: none"> <li>— Dual SIM slots, mini 2FF form factor</li> <li>— 2 x SMA cellular antenna connectors</li> </ul> <p>Optional dual modem</p> <ul style="list-style-type: none"> <li>— MC400 Modular Modem with optional COR Extensibility Dock</li> </ul>
<b>Ethernet:</b>	2 x GbE RJ45 (LAN/WAN switchable)
<b>Wi-Fi:</b>	<p>Dual-band, concurrent operation (2.4 GHz &amp; 5 GHz)</p> <ul style="list-style-type: none"> <li>— 802.11ac Wave 2 with up to 256 QAM</li> <li>— 2 x RP-SMA Wi-Fi antenna connectors</li> <li>— Modes: WPA/WPA2/WPA3 Personal, WPA2/ WPA3 Enterprise, WEP Auto, Open</li> </ul>
<b>Expansion:</b>	<ul style="list-style-type: none"> <li>— USB 2.0 Type A (Output: 5 V, 500 mA, 2.5 W)</li> <li>— GPIO 2-wire (combined with power cable)</li> <li>— COR Extensibility Port                             <ul style="list-style-type: none"> <li>— COR Extensibility Dock (optional)</li> <li>— COR Extensibility 9-Wire GPIO Cable (optional)</li> <li>— COR Serial Cable Adapter (optional)</li> </ul> </li> </ul>
<b>GNSS/GPS:</b>	1 x SMA GNSS antenna connector
ENVIRONMENTAL	
<b>Temperature:</b>	<ul style="list-style-type: none"> <li>— Operating: -30 °C to 70 °C (-22 °F to 158 °F) with included standard AC power supply</li> <li>— Storage: -40 °C to 85 °C (-40 °F to 185 °F)</li> </ul>
<b>Humidity (noncondensing):</b>	<ul style="list-style-type: none"> <li>— Operating: 5% to 95%</li> <li>— Storage: 5% to 95%</li> </ul>
<b>Ingress Protection:</b>	IP54 (dust protected and splashing water)
POWER	
<b>Required:</b>	<p>DC input steady state voltage range: 9–33 VDC (requires in-line fuse for vehicle installations)</p> <ul style="list-style-type: none"> <li>— For 9–24 VDC installations, use a 3 A fuse</li> <li>— For &gt; 24 VDC installations, use a 2.5 A fuse</li> </ul>
<b>Features:</b>	<ul style="list-style-type: none"> <li>— Reverse polarity &amp; transient voltage protection per ISO 7637-2</li> <li>— Ignition sensing (automatic ON &amp; time-delay OFF)</li> </ul>

<b>Consumption:</b>	<ul style="list-style-type: none"> <li>— Idle: 4 W</li> <li>— LTE Tx/Tx: 6.25 W</li> <li>— Wi-Fi Tx/Rx: 9 W</li> <li>— 12 VDC / 2 A adapter recommended</li> </ul>
<b>PHYSICAL</b>	
<b>Size:</b>	118 x 113.5 x 29.3 mm (4.6 x 4.5 x 1.2 in)
<b>Weight:</b>	.40 kg (14 oz)
<b>CERTIFICATIONS</b>	
<b>Safety:</b>	UL/cUL, CB Scheme, EN 60950-1, EN 62368-1
<b>Materials:</b>	WEEE, RoHS, REACH, California Prop 65
<b>Wi-Fi:</b>	Wi-Fi Alliance — 802.11a/b/g/n/ac Wave 2 certified
<b>Shock/Vibration/Humidity:</b>	<ul style="list-style-type: none"> <li>— MIL STD 810G</li> <li>— SAEJ1455</li> </ul>
<b>WI-FI POWER:</b>	
<b>FCC:</b>	<ul style="list-style-type: none"> <li>— 2402–2483.5 MHz: 33.2 dBm EIRP</li> <li>— 5150–5250 MHz: 32.9 dBm EIRP</li> <li>— 5725–5850 MHz: 32.8 dBm EIRP</li> </ul>
<b>PERFORMANCE</b>	
<b>Max Router Throughput:</b>	850 Mbps
<b>IPSec VPN Throughput:</b>	30 Mbps
<b>Concurrent VPN Tunnels:</b>	10
<b>Concurrent Sessions (TCP):</b>	16,000
<b>Typical Client Count:</b>	10
<b>LEDS</b>	
Refer to the <a href="#">R500 Series Enterprise Quick Start Guide</a>	

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.

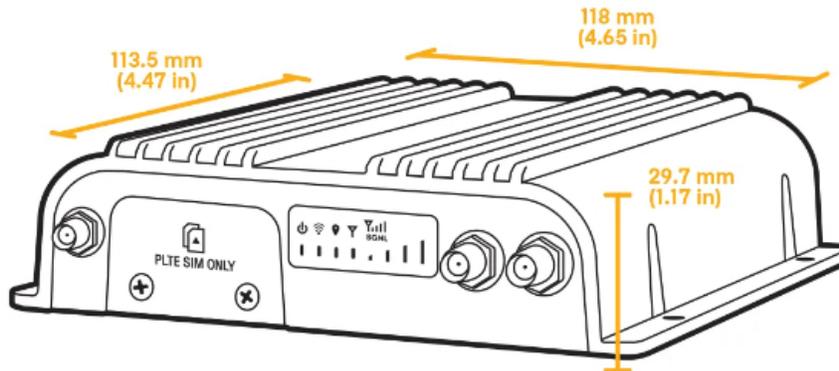
Refer to the [R500 Series Enterprise Quick Start Guide](#)

## Enterprise-Class Modem Specifications

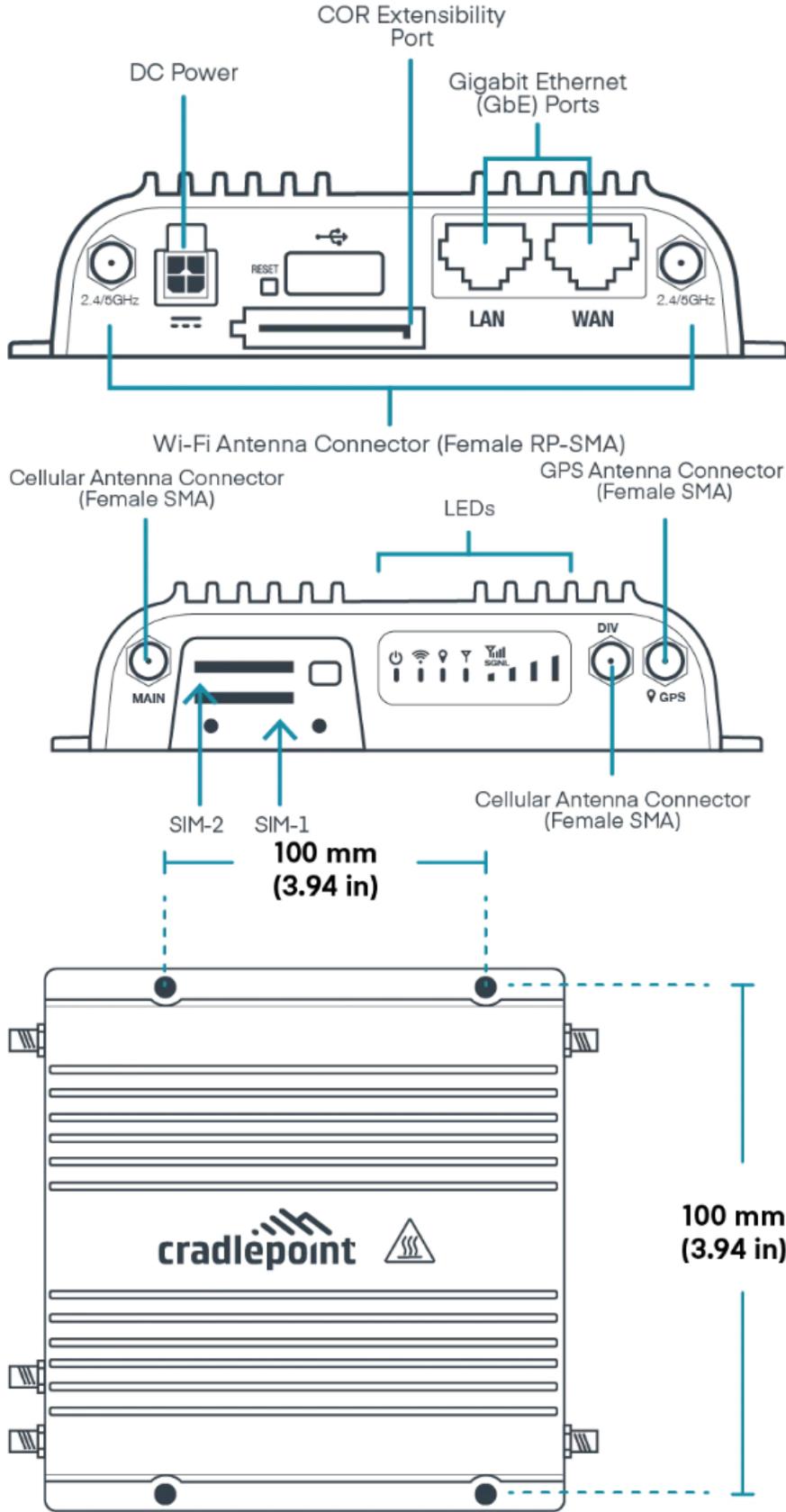
<b>SPECIFICATION</b>	
<b>Technology:</b>	Cat 7 Advanced LTE (3GPP Rel. 12) <ul style="list-style-type: none"> <li>— Dual SIM slots, mini 2FF form factor</li> <li>— Private LTE CBRS SIM cards only</li> </ul>

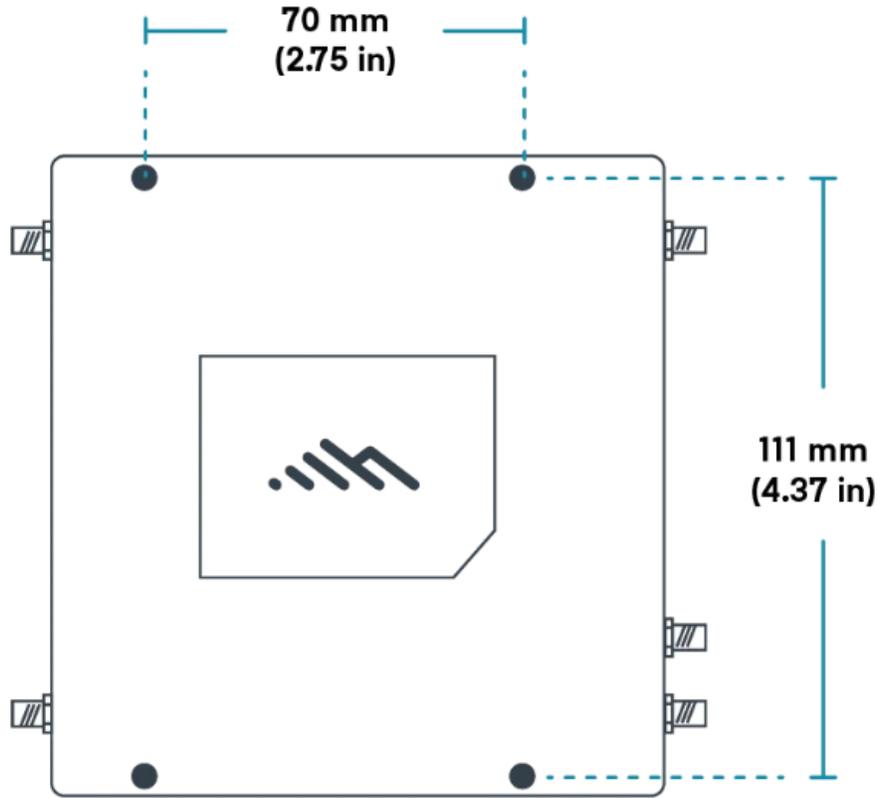
<b>Peak Downlink Rates:</b>	300 Mbps
<b>Peak Uplink Rates:</b>	75 Mbps
<b>MIMO:</b>	2x2 MIMO
<b>QAM:</b>	Up to 64
<b>4G/LTE Bands:</b>	LTE TDD <ul style="list-style-type: none"> <li>— B42, B43, B48</li> </ul>
<b>Power:</b>	LTE 23 dBm ± 1, DC-HSPA+ 23 dBm ± 1 (typical conducted)
<b>Antennas:</b>	SMA and RP-SMA male plugs, maximum torque not to exceed 4 in-lbs
<b>GNSS/GPS:</b>	Active GNSS <ul style="list-style-type: none"> <li>— GPS, GLONASS, BeiDou, Galileo</li> <li>— DC voltage bias supplied (typical 3.1 V)</li> </ul>
<b>Regulatory:</b>	FCC Part 96
<b>Private LTE:</b>	Yes, includes FCC Part 96 (CBRS OnGo Band 48)

## Physical Measurements & Features

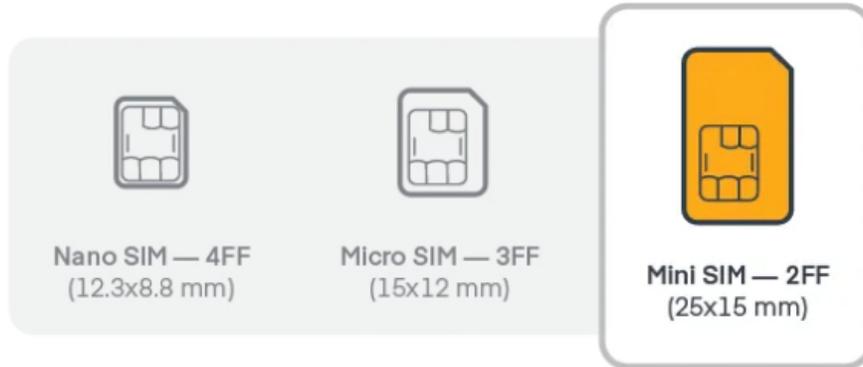


## Features





### SIM Card Info



## Ordering Guide

**NetCloud IoT Essentials** packages and plans contain all the features and capabilities required for a broad range of 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 IoT Advanced Plan** can be added to the NetCloud IoT Essentials Package at any time. See additional details of what is included in the Essential and Advanced NetCloud software: [cradlepoint.com/netcloud-service](https://cradlepoint.com/netcloud-service)

NetCloud Packages for Private Cellular Networks with the R500-PLTE Series Router

REGION	MODEM	IoT PACKAGE PLAN	PART NUMBER
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<b>North America: U.S. &amp; Canada</b>	Cat 7 with Wi-Fi (300 Mbps)	Essentials	TD0y-0500C7C-NN
	Cat 7 with Wi-Fi (300 Mbps); includes AC power supply and antennas	Essentials + Advanced	TDAy-0500C7C-NN
		Advanced (requires corresponding Essentials packages)	TD0x-NCADV
<b>United States: Federal Government</b>	Cat 7 with Wi-Fi (300 Mbps); includes AC power supply and antennas	TAA Compliant NC Essentials	TAA-TD0y-0500C7C-NN
		TAA Compliant NC Essentials + Advanced	TAA-TDAy-0500C7C-NN
<b>Renewal:</b>		Essentials	TD0x-NCESS-R
		Advanced upgrade	TD0x-NCADV-R
		Essentials + Advanced upgrade	TDAX-NCEA-R

x = 1, 3, or 5 years

y = 3 or 5 years

NetCloud Essentials packages and plans contain all the features and capabilities required for a broad range of IoT applications related to Private Cellular Networks. 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 Advanced upgrade can be added to the NetCloud Essentials Package at any time. See additional details of what is included in the Essential and Advanced NetCloud software: <https://cradlepoint.com/products/iot/>

## Accessories

INCLUDED	PART NUMBER
Power Supply for North America, 12V, 2x2, 2 meters, -20 °C to 60 °C (-4 °F to 140 °F)	170864-000
Ruggedized IoT Only:	
— Cellular Antenna, Black Mini, 600 MHz - 6 GHz, SMA, 140 mm (Qty 2)	170704-002
— Wi-Fi Antenna, Charcoal, Dual-Band 2.4/5 GHz, RPSMA, 194 mm (Qty 2)	170836-000
OPTIONAL	PART NUMBER
Power Supply for North America, 12 V, 2x2, 2 meters	170716-000
Power Supply, 12 V, Small 2x2 (C7 line cord not include), -30 °C to 70 °C (-22 °F to 158 °F)	170869-000
Power Supply, Vehicle, 12 V, 2x2, 2 meters	170635-000
Small 2x2 Power to Barrel Adapter, 152 mm	170665-000
GPIO Cable, Small 2x2, Black, 3 meters, 22 AWG	170585-001
COR Extensibility Dock†	170700-000
GPIO Cable, SATA with Lock, Black, 1.7 meters, -30 °C to 70 °C (-22 °F to 158 °F)	170680-001
COR Extensibility Cable, SATA-DB9, Black, 305 mm	170767-000
LTE Advanced Pro (1200 Mbps) modem upgrade for Mobile	MA-MC400-1200M-B
— Includes IBR1700 & COR Extensibility Dock doors, no antennas†	

UNITED STATES FEDERAL GOVERNMENT	PART NUMBER
Power Supply for North America, 12 V, 2x2, 2 meters	TAA-170716-000
Power Supply, Vehicle, 12 V, 2x2, 2 meters	TAA-170635-000
Small 2x2 Power to Barrel Adapter, 152 mm	TAA-170665-000
GPIO Cable, Small 2x2, Black, 3 meters, 22 AWG	TAA-170585-001
COR Extensibility Dock†	TAA-170700-000
GPIO Cable, SATA with Lock, Black, 1.7 meters	TAA-170680-001
LTE Advanced Pro (1200 Mbps) modem upgrade for Mobile	TAA-MA-MC400-1200M-B
— Includes IBR1700 & COR Extensibility Dock doors, no antennast	

†Refer to the [Cradlepoint MC400 Modular Modem](#) webpage for more information about modular modems.

## Support & Warranty

The R500-PLTE router is only sold as components of NetCloud IoT 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/r500-plte](https://cradlepoint.com/r500-plte)