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Data Sheet

IBR1700 Series Ruggedized Router

Cradlepoint's NetCloud Mobile Service with the IBR1700 Series Ruggedized Router is a Gigabit-Class LTE networking platform designed to provide persistent connectivity for in-vehicle deployments. Cradlepoint NetCloud provides connectivity, network, security, and location services to connect everything in the vehicle, while providing access to IT for remote management, troubleshooting, and analytics.

Notable Features

— Deploy high-speed connectivity with Gigabit LTE, Wi-Fi, and Ethernet delivering enterprise grade performance.

— Gain 5G Ready capabilities with a second modem slot and captive modem functionality for simultaneous multi-carrier connectivity.

— Prioritize access on public safety networks for reliable, secure connectivity.

— Integrate into Automatic Vehicle Location systems with discrete GNSS and dead reckoning.

— Extend your deployment with GPIOs, NetCloud SDK and API, and container support for customizable solutions.

— Define policies through centralized cloud-based management for easy deployment at scale.

— Enable unified edge security with application aware multi-zone firewalls, IDS/IPS, and internet security.

— Create a cellular coverage map for complete visibility into your area's 5G and LTE coverage (5G mapping requires an optional 5G modem).

High Performance In-Vehicle Connectivity

The Cradlepoint IBR1700 Series Ruggedized Router for vehicles with the NetCloud Mobile Service was designed for organizations that depend on field forces and mobile networks. In addition to embedded Gigabit Class LTE, it also includes tri-radio Wi-Fi allowing dedicated radios for video offload, enhanced security, better signal quality, and higher client capacities. NetCloud Mobile advanced features add threat management, web filtering, application visibility, analytics, and advanced GNSS/GPS functionality including location tracking and cellular coverage maps to the service.

5G Ready for Upward Compatibility

The IBR1700 Series Ruggedized Router for in-vehicle uses is 5G-ready with the ability to be field upgraded and accept a future generation modular 5G modem. In addition, it can act as a controller for a Cradlepoint 5G Wideband Adapter. The unique capability of Cradlepoint to operate the adapter in captive mode allows two separate, Ethernet-connected appliances to be managed as a single entity. These two capabilities ensure investment protection and upward compatibility to the latest LTE and 5G technology as they evolve over time.

Performance

Stateful Firewall Throughput:	NetCloud Perimeter Throughput:	IPSec VPN Throughput:	Concurrent VPN Tunnels:	Concurrent Sessions (TCP):	Typical Client Count:
940 Mbps	20 Mbps	20 Mbps	10	32,000	30

Performance testing was 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.

Key Software Capabilities

Cradlepoint NetCloud Mobile Service with the IBR1700 in-vehicle router provides everything needed to unlock the power of cellular technology to connect vehicles, users, and IoT to critical applications and services. NetCloud includes router software for optimizing routing, VPN, SD-WAN, and security capabilities along with capabilities centralized in the cloud such as group policy definition, reports, troubleshooting, and analytics dashboards as well as cellular coverage maps. NetCloud Service includes a warranty (for the router), online training, live and online support, and continuous software updates for both the router and the modem.

Coverage Map

NetCloud uses GNSS/GPS and 5G/4G cellular health to provide precise analytics about location and signal strength. Data can be mapped to display both the current and historical locations of a vehicle, as well as generate detailed coverage maps that display cellular health, allowing users to gain operational insights and solve problems.
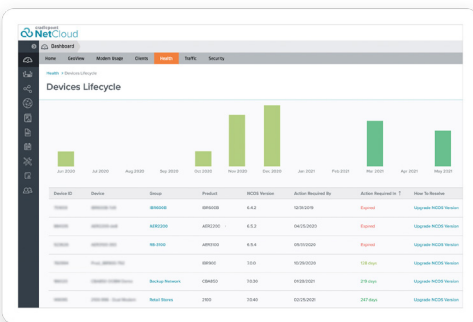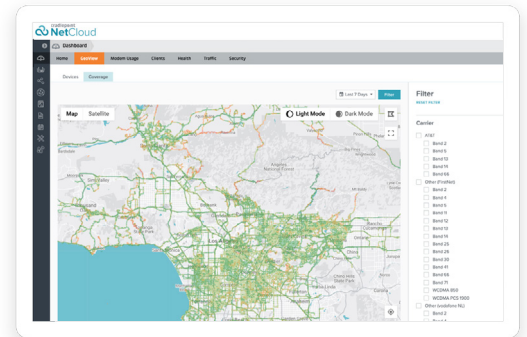
Advanced Software Lifecycle Management

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

Security Services

NetCloud Service advanced security features add application aware zone-based firewall, CP Secure Threat Management (IPS/IDS), and CP Secure Web Filter for protecting your network and meeting the evolving security needs of in-vehicle environments.
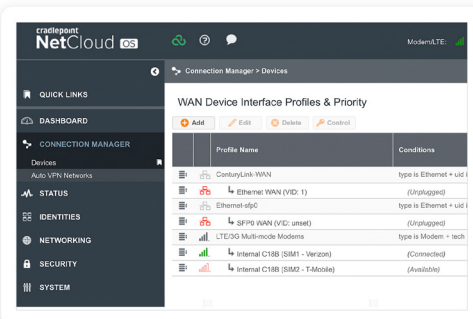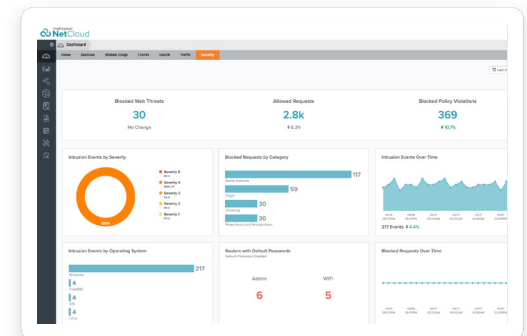
Connection Manager

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

Hardware Specifications

The following features are delivered through the hardware.

INTERFACES

Modem:
One of the following:
— Embedded 1200M-B Modem
  — 4 x SMA cellular antenna connectors
— Embedded 600M Modem
  — 2 x SMA cellular antenna connectors

Optional dual modem:
— Modular MC400 Modem

Ethernet:
5 x GbE (LAN/WAN switchable)

Wi-Fi:
Tri-radio, dual-band, concurrent operation (2.4 GHz and 5 GHz)
— Two 2x2 MU-MIMO 802.11n
— One 4x4 MU-MIMO 802.11ac Wave 2
— Modes: AP, Wireless Client, and WiFi as WAN
— Silver SMAs: 574 Mbps (2.4 GHz) and 1.2 Gbps (5 GHz)
— Gold SMAs 2x2: 574 Mbps (2.4 GHz)
— Gold SMAs 4x4: 1.733 Gbps (5GHz)
— 6 x RP-SMA Wi-Fi antenna connectors
— Multiple SSIDs
— WPA/WPA2/WPA3 Personal, WPA2/WPA3 Enterprise, WEP Auto, Open

Expansion:
1 x USB 2.0 Type A (output: 5V, 500mA, 2.5W)

1 x GPIO Connector

1 x RS-232 Serial Port

GNSS/GPS:
1 x SMA GPS antenna connector

ENVIRONMENTAL

Temperature:
Operating: -30 °C to 70 °C (-22 °F to 158 °F)

Storage: -40 °C to 85 °C (-40 °F to 185 °F)

Humidity:
Operating: 5% to 95%

Storage: 5% to 95%

Ingress Protection:
IP64 (dust tight and splashing water)

POWER

Required:
One of the following:
— 9-36 VDC steady state input (vehicle installations with 9-24 VDC requires 3A inline fuse, >24 VDC requires 2.5A fuse)
— External DC power supply, 100-240 VAC input, 12 VDC 3A output (optional)

Features:
— Reverse polarity and transient voltage protection (ISO 7637-2)
— Ignition sensing (automatic ON and time-delay OFF)

Consumption:
— Idle: 8 W
— Typical: 14 W
— Heavy: 24 W

PHYSICAL

Size:
224.3 × 190 × 44 mm (8.8 × 7.5 × 1.7 in)

Weight:
1.7 kg (3 lb 7 oz)

CERTIFICATIONS

Safety:
UL/cUL, CB Scheme, EN 62368-1, e-Mark

Materials:
WEEE, RoHS, RoHS-2, California Prop 65

Shock/ Vibration/ Humidity:
MIL STD 810G and SAE J1455

Security:
FIPS 140-2 Inside (IBR1700-FIPS models only)

WI-FI POWER

FCC:
2.4 GHz: 29.2 dBm Conducted

5150–5250 MHz: 29.0 dBm Conducted

5725–5850 MHz: 30.0 dBm Conducted

Australia/ New Zealand:
Radio 1 (2x2)
— 2.4 GHz: 33.4 dBm EIRP
— 5150-5250 MHz: 22.9 dBm EIRP
— 5250-5350 MHz: 22.9 dBm EIRP
— 5475-5725 MHz: 29.8 dBm EIRP
— 5725-5850 MHz: 35.8 dBm EIRP

Radio 2 (4x4)
— 5150-5250 MHz: 22.9 dBm EIRP
— 5250-5350 MHz: 22.9 dBm EIRP
— 5475-5725 MHz: 29.8 dBm EIRP
— 5725-5850 MHz: 35.8 dBm EIRP

EU/Rest of World:
2.4 GHz band: 19.81 dBm EIRP

5150-5250 MHz: 22.80 dBm EIRP

LEDs

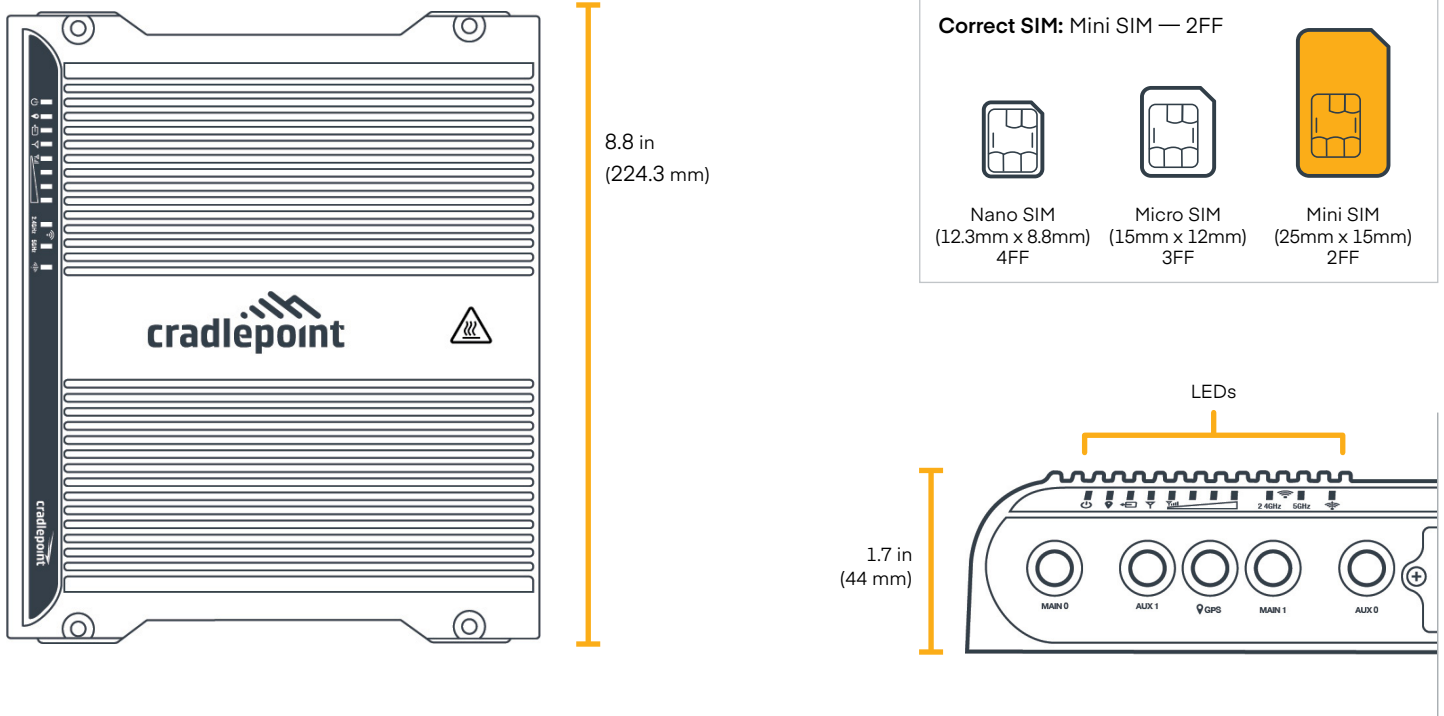Refer to the IBR1700 Series Router Quick Start Guide.

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Enterprise-Class Modem Specifications

SPECIFICATION	IBR1700-600M	IBR1700-1200M-B
Technology:	Category 11 LTE Advanced — Dual SIM slots, 2FF form factor — SIM-based auto-carrier selection	Cat 18 LTE Advanced Pro (3GPP Rel. 12) — Dual SIM slots, 2FF form factor — SIM-based auto-carrier selection
Fallback:	WCDMA/UMTS/HSPA+	WCDMA/DC-HSPA+
Carrier Aggregation:	Up to 5CA downlink, 2CA uplink Refer to the Modem Carrier Aggregations article.	Up to 5CA downlink, 2CA uplink Refer to the Modem Carrier Aggregations article.
Peak Downlink Rates:	LTE: 600 Mbps HSPA+: 42.2 Mbps	LTE: 1.2 Gbps DC-HPSA+: 42.2 Mbps
Peak Uplink Rates:	LTE: 75 Mbps HSPA+: 5.76 Mbps	LTE: 150 Mbps DC-HPSA+: 5.76 Mbps
MIMO:	2x2 MIMO	4x4 MIMO
QAM:	Up to 256	Up to 256
LTE Bands:	LTE FDD — B1, B2, B3, B4, B5, B7, B8, B12, B13, B17, B20, B25, B26, B28, B29, B30, B66 LTE TDD — B38, B40, B41	LTE FDD — B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B66, B71 LTE TDD — B38, B39, B40, B41, B42, B43, B46, B48
WCDMA Bands:	B1, B2, B4, B5, B8, B19	B1, B2, B4, B5, B8, B9, B19
Power:	LTE 23 dBm ± 1, HSPA+ 23 dBm ± 1 (typical conducted)	LTE 23 dBm ± 1, DC-HSPA+ 23 dBm ± 1 (typical conducted)
Antennas:	SMA male connectors, external 600 MHz - 6 GHz cellular paddle antennas	SMA male connectors, external 600 MHz - 6 GHz cellular paddle antennas
GNSS/GPS:	Discrete Active GPS with Dead Reckoning	Discrete Active GPS with Dead Reckoning
SMS:	Yes	Yes
Regulatory:	FCC (U.S.), IC (Canada), CE (EU), RCM (AU/NZ)	FCC (U.S.), IC (Canada), CE (EU), RCM (AU/NZ)
Network Operator Standards:	PTCRB (U.S., Canada), GCF (Worldwide)	PTCRB (U.S., Canada), GCF (Worldwide)
Network Operator Certifications:	AT&T, Verizon[†]	AT&T, Verizon[†]
Public Safety Network Certifications:	Verizon Frontline	Verison Frontline, FirstNet Ready™ (including Band 14)
Private Cellular Network:	N/A	Yes, includes FCC Part 96 (CBRS Band 48)

[†]*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, to operate on their network. 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.*

Hardware

Physical Measurements

8.8 in
(224.3 mm)

Correct SIM: Mini SIM — 2FF

Nano SIM
(12.3mm x 8.8mm)
4FF

Micro SIM
(15mm x 12mm)
3FF

Mini SIM
(25mm x 15mm)
2FF

LEDs

1.7 in
(44 mm)

MAIN 0   AUX 1   GPS   MAIN 1   AUX 0

Sides

Cellular Antenna Connectors
(Female SMA)

Modular Modem Slot

MAIN 0   AUX 1   GPS   MAIN 1   AUX 0   AUX0   SIM-1   SIM-2   AUX   GPS

GNSS Connector (Female SMA)

Wi-Fi Antenna Connectors (Female RP-SMA)

2.4/5GHz   5GHz   5GHz   2   4   2.4/5GHz   2.4/5GHz

20   11

10 9 8 7   5 4 3 2 1   RS-232   2.4GHz 5GHz   1   3   WAN   2.4GHz 5GHz   RESET

Power Port

GPIO
Connector

RS-232 Serial

Gigabit Ethernet
(GbE) Port

USB 2.0

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Ordering Guide

NetCloud Mobile Essentials packages and plans contain all the features and capabilities required for a broad range of mobile or in-vehicle 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** can be added to the NetCloud Mobile Essentials package at any time.

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

For more details on the IBR1700 series of routers, included with the NetCloud Mobile packages, see below.

NetCloud Package & Plans

REGION	PACKAGE	DESCRIPTION	PART NUMBER
The Americas: U.S., & Canada	Mobile	NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (600 Mbps modem), North America	MAx-1700600M-NNA
		NetCloud Mobile Essentials Plan, Advanced Plan, and IBR1700 router with Wi-Fi (600 Mbps modem), North America	MAAx-1700600M-NA
		NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (1200 Mbps modem), North America	MAx-1700120B-NNA
		NetCloud Mobile Essentials Plan, Advanced Plan, and IBR1700 router with Wi-Fi (1200 Mbps modem), North America	MAAx-1700120B-NA
	FIPS	NetCloud Mobile FIPS Essentials Plan, Advanced Plan, and IBR1700 FIPS router with Wi-Fi (600 Mbps modem), North America	MAx-170F600M-XFA
		NetCloud Mobile FIPS Essentials Plan, Advanced Plan, and IBR1700 FIPS router with Wi-Fi (1200 Mbps modem), North America	MAx-170F120B-XFA
		NetCloud Mobile FIPS Essentials Plan, Advanced Plan, and IBR1700 FIPS router with dual 1200 Mbps modem, Verizon & AT&T SIMs inserted, North America	MAX5-170F120B-F0
Europe: European Union, South Africa & United Kingdom	Mobile	NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (600 Mbps modem), Europe	MAx-1700600M-EWA
		NetCloud Mobile Essentials Plan, Advanced Plan, and IBR1700 router with Wi-Fi (600 Mbps modem), Europe	MAAx-1700600M-EA
		NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (1200 Mbps modem), Europe	MAx-1700120B-EWA
		NetCloud Mobile Essentials Plan, Advanced Plan, and IBR1700 router with Wi-Fi (1200 Mbps modem), Europe	MAAx-1700120B-EA

NetCloud Package & Plans

REGION		DESCRIPTION	PART NUMBER
Asia Pacific: Australia, Malaysia, New Zealand & Singapore	Mobile	NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (600 Mbps modem), APAC	MAx-1700600M-PWA
		NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (600 Mbps modem), APAC	MAAx-1700600M-PA
		NetCloud Mobile Essentials Plan and IBR1700 router with Wi-Fi (1200 Mbps modem), APAC	MAx-1700120B-PAA
		NetCloud Mobile Essentials Plan, Advanced Plan, and IBR1700 router with Wi-Fi (1200 Mbps modem), APAC	MAAx-1700120B-PA
All Regions	Mobile	NetCloud Mobile Advanced Plan	MAx-NCADV
		Renewal NetCloud Mobile Essentials Plan and Advanced Plan	MAx-NCADV-R
		Renewal NetCloud Mobile Essentials Plan	MAx-NCESS-R

x = 1, 3, or 5 years

Accessories

INCLUDED	PART NUMBER
GPIO Cable, Small, 2x2, Black, 3 meters 22AWG	170585-001

OPTIONAL	PART NUMBER
One of the following:	
— Power Supply 12V, Small, 2x2, 1.5 meters (North America Type A)	170716-000
— Power Supply, 12V, Small, 2x2, 1.5 meters (North America-United Kingdom-Europe-Australia Types A-G-C-I)	170717-000
— Power Supply, 12V, Small, 2x2 (C7 line cord not included), -30 °C to 70 °C	170869-000
GPIO Cable, DB9, Black, 3 meters	170676-000
GPIO Cable, Small, 2x10, Black, 2.3 meters	170712-000
DAT-Int Cable, OBDII-M/F with DB9-DB9, Black, 4.6 meters	170758-000
Power to Barrel Adapter, Small 2×2	170665-000
LTE Advanced Pro Modular Modem Kit†	MA-MC400-1200M-B
— MC400-1200M-B Cat 18 LTE Advanced Pro Modular Modem	
— IBR1700 MC400-1200M-B Modem Door with Screw	
— COR Extensibilty Dock MC400-1200M-B Modem Door with Screw	
— IBR1700 Rack Mount	170750-001

†Refer to the Cradlepoint MC400 Modular Modem webpage for more information about modular modems.

Support & Warranty

The IBR1700 Series Router is only sold as a component of NetCloud Mobile 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.

Find the most up-to-date information at cradlepoint.com/ibr1700