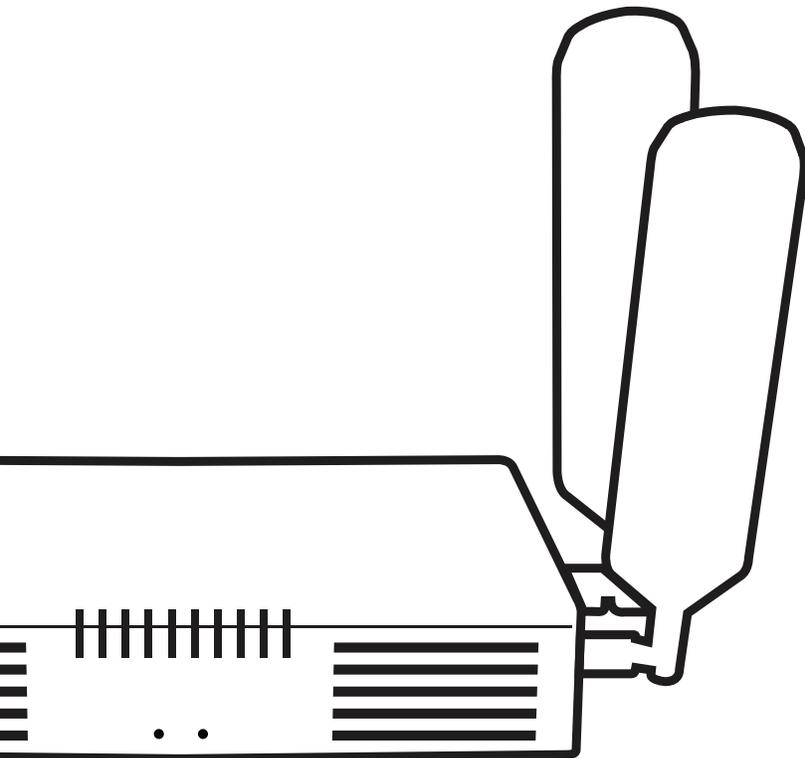**cradlepoint**

Global Leader in 4G LTE Network Solutions

AER Series Router

AER1600 / AER1650

Spec Sheet

cradlepoint.com

WHAT'S IN THE BOX

The Cradlepoint AER1600/AER1650 is available with three different modem options:

- AER1600LPE/AER1650LPE include an embedded modem and a slot to add an MC400 modem
- AER1600LP3/AER1650LP3 include a bundled MC400 modem and do not include an embedded modem
- AER1600/AER1650 only include a slot for an MC400 modem and do not include an embedded modem

Also included:
- MC400 3G/4G Modem with Antennas*
- External 3G/4G mobile broadband modem antennas‡ (2) (SMA) w/ multiplexing for GPS; finger tighten only
- 12V 3A AC/DC power adapter (**WARNING:** using a power adapter other than the one provided may damage the device and will void the warranty)
- Ethernet cable
- Quick Start Guide
- Mounting hardware
- Modem door screw
- Warranty/Regulatory information

* – Included with AER1600LP3/AER1650LP3, optional for AER1600/AER1650 and AER1600LPE/AER1650LPE

‡ – AER1600LPE/AER1650LPE only

KEY FEATURES

WAN
- Embedded 4G LTE (with 3G failover) Multi-Carrier Software-Defined radio
- Verizon, AT&T, Sprint, Europe, and generic models available
- Dual integrated modem option
- Dual SIM slot in each modem
- Most models include support for active GPS
- Five 10/100/1000 Ethernet ports (WAN/LAN switchable)
- WiFi as WAN (only on AER1600)
- Failover/Failback
- Load Balancing
- Advance Modem Failure Check
- WAN Port Speed Control
- WAN/LAN Affinity
- IP Passthrough

LAN
- Five 10/100/1000 Ethernet ports (WAN/LAN switchable)
- LLDP support
- VLAN 802.1Q
- DHCP Server, Client, Relay
- DNS and DNS Proxy
- DynDNS
- Split DNS
- UPnP

- DMZ
- Multicast/Multicast Proxy
- QoS (DSCP and Priority Queuing)
- MAC Address Filtering

WIFI (ONLY ON AER1600)
- Dual-Band Dual-Concurrent (2×2 MIMO; internal antennas)
- 802.11 (a/b/g/n/ac)
- Up to 128 connected devices (64 per channel – 2.4 GHz and 5 GHz)
- WEP Auto, WPA/WPA2 Personal, WPA2 Enterprise (WiFi)
- Hotspot/Captive Portal
- SSID-based Priority

MANAGEMENT
- OOBM (Out-of-Band Management) via USB to Serial
- Cradlepoint Enterprise Cloud Manager (ECM)[2]
- Web UI, API, CLI
- GPS Location
- Data Usage Alerts (router and per client)
- Advanced Troubleshooting (support)[5]
- Device Alerts
- SNMP
- SMS control

VPN AND ROUTING
- IPsec Tunnel – up to 20 concurrent sessions
- OpenVPN (SSL VPN)[1]
- L2TP[1]
- GRE Tunnel
- OSPF/BGP/RIP[1]
- Per-Interface Routing
- Static Routing
- NAT-less Routing
- Virtual Server/Port Forwarding
- VTI Tunnel Support
- NEMO/DMNR[1]
- IPv6
- VRRP[1]
- STP[1]
- NHRP[1]

SECURITY
- RADIUS and TACACS+ support*
- 802.1x authentication for Wireless and Wired Networks
- Zscaler Internet Security[4]
- Certificate support
- ALGs
- MAC Address Filtering

- CP Secure Threat Management[3]
- Advanced Security Mode (local user management only)
- Per-Client Web Filtering
- IP Filtering
- Content Filtering (basic)
- Website Filtering

* - Native support for authentication. Authorization and accounting support through hotspot/captive portal services.

CLOUD OPTIMIZED IP COMMUNICATIONS
- Automated WAN Failover/Failback support
- WAN Affinity and QoS allow prioritization of VoIP services
- Advanced VPN connectivity options to HQ
- SIP ALG and NAT to allow VoIP and UC communications to traverse firewall
- MAC Address Filtering
- 802.1p/q for LAN QoS segmentation and treatment of VoIP on LAN
- Private Network support (wired and 4G WAN)
- Cloud-based management[2]

1 – Requires an ECM PRIME subscription or an Extended Enterprise License
2 – Enterprise Cloud Manager requires a subscription
3 – Requires a CP Secure Threat Management license
4 – Requires Zscaler Internet Security License
5 - Requires CradleCare Support

SYSTEM REQUIREMENTS
- At least one Internet source: a Cradlepoint integrated 3G/4G modem with an active data plan, an Ethernet-based modem, or WiFi as WAN
- Windows 2000/XP/7/8, Mac OS X, or Linux computer (with WiFi adapter – 802.11n recommended – for WiFi functionality)
- Internet Explorer v6.0 or higher, Firefox v2.0 or higher, Safari v1.0 or higher

SUPPORT AND WARRANTY
CradleCare Support available with technical support, software upgrades, and advanced hardware exchange – 1-, 3-, and 5-year options.

One-year limited hardware warranty available in the US and Canada; two-year limited hardware warranty for integrated EU products when purchased from an authorized EU distributor – extend warranty to 2, 3, or 5 years.

SPECIFICATIONS

WAN:
- Embedded 4G LTE (one modem included; dual-modem option) Multi-Carrier Software-Defined radio
- 5 10/100/1000 Ethernet ports (cable/DSL/T1/satellite/Metro Ethernet; WAN/LAN switchable)
- WiFi* (as WAN; Metro WiFi) 2x2 MIMO 2.4 GHz or 5 GHz (802.11 a/b/g/n/ac; internal antennas)

LAN:
- Dual-band dual-concurrent WiFi* (802.11 a/b/g/n/ac)
- 5 10/100/1000 Ethernet ports (WAN/LAN switchable)

TEMPERATURE:
- 0°C to 50°C (32°F to 122°F) operating
- –20°C to 70°C (–4°F to 158°F) storage

HUMIDITY (non-condensing):
- 10% to 85% operating
- 5% to 90% storage

MEMORY: 256 MB DRAM; 16MB SPI Flash; 256 MB NAND Flash

SIZE:
- 8.3 x 6.6 x 1.7 in (210 x 167 x 44 mm)
- 1U height for rack mount

WEIGHT: 1 lb 4.4 oz (.58 kg)

CERTIFICATIONS: FCC, WiFi Alliance, CE, IC, carrier certifications

WAN TO LAN: 940 Mbps

LAN TO WAN: 947 Mbps

WIFI POWER (FCC):
- 2402-2483.5 MHz (2.4 GHz band): 28.51 dBm conducted
- 5150-5250 MHz (5 GHz band 1): 26.66 dBm conducted
- 5725-5850 MHz (5 GHz band 3): 23.54 dBm conducted

WIFI POWER (Europe/Rest of World):
- 2.4 GHz band: 19.95 dBm EIRP
- 5150-5250 MHz: 22.98 dBm EIRP

*-only on AER1600

ACCESSORIES

- Second integrated 4G LTE modem
  - MC400LPE-VZ (Verizon)
  - MC400LPE-AT (AT&T)
  - MC400LPE-SP (Sprint)
  - MC400LPE-GN (generic – for use on T-Mobile in the U.S. and Rogers, Bell, & TELUS in Canada)
- Directional Yagi (Log-Periodic) antennas for external (outside) mounting (Part # 170588-000)
- 12" Mag-mount antenna (Part # 170605-000)
- 4" Mini mag-mount antenna (Part # 170606-000)

BUSINESS-GRADE MODEM SPECIFICATIONS

Some AER1600/AER1650 models include an embedded 4G LTE modem. See page 2 for specific models.

Please note that LPE models are flexible and support bands for multiple cellular providers; however, only the frequency bands in **bold** below are supported by the listed provider.

AER1600LPE-VZ – 4G LTE/HSPA+/EVDO for Verizon

- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
    - LTE Band 2 (1900 MHz), **Band 4 – AWS (1700/2100 MHz)**, Band 5 (850 MHz), **Band 13 (700 MHz)**, Band 17 (700 MHz), Band 25 (1900 MHz)
    - HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
    - GSM/GPRS/EDGE (850/900/1800/1900 MHz)
    - **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power**: LTE 23 dBm +/– 1, HSPA+ 23 dBm +/– 1, EVDO 24 dBm +0.5/–1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS**: active GPS support
- **Industry Standards & Certs**: FCC, Verizon

AER1650LPE-VZ – 4G LTE/HSPA+/EVDO for Verizon

- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
    - LTE Band 2 (1900 MHz), **Band 4 – AWS (1700/2100 MHz)**, Band 5 (850 MHz), **Band 13 (700 MHz)**, Band 17 (700 MHz), Band 25 (1900 MHz)
    - HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
    - GSM/GPRS/EDGE (850/900/1800/1900 MHz)
    - **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power**: LTE 23 dBm +/– 1, HSPA+ 23 dBm +/– 1, EVDO 24 dBm +0.5/–1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS**: active GPS support
- **Industry Standards & Certs**: FCC, Verizon

AER1600LPE-AT – 4G LTE/HSPA+/EVDO for AT&T

- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
    - LTE **Band 2 (1900 MHz)**, **Band 4 – AWS (1700/2100 MHz)**, **Band 5 (850 MHz)**, Band 13 (700 MHz), **Band 17 (700 MHz)**, Band 25 (1900 MHz)
    - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
    - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**

- •   CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- **Power**: LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS**: active GPS support
- **Industry Standards & Certs**: PTCRB, FCC, IC, AT&T

AER1650LPE-AT – 4G LTE/HSPA+/EVDO for AT&T

- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
  - LTE **Band 2 (1900 MHz)**, **Band 4 – AWS (1700/2100 MHz)**, **Band 5 (850 MHz)**, Band 13 (700 MHz), **Band 17 (700 MHz)**, Band 25 (1900 MHz)
  - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
  - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**
  - CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- **Power**: LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS**: active GPS support
- **Industry Standards & Certs**: PTCRB, FCC, IC, AT&T

AER1600LPE-SP – 4G LTE/HSPA+/EVDO for Sprint

- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
  - LTE Band 2 (1900 MHz), Band 4 – AWS (1700/2100 MHz), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), **Band 25 (1900 MHz)**
  - HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
  - GSM/GPRS/EDGE (850/900/1800/1900 MHz)
  - **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power**: LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS**: active GPS support
- **Industry Standards & Certs**: FCC, Sprint

AER1650LPE-SP – 4G LTE/HSPA+/EVDO for Sprint

- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
  - LTE Band 2 (1900 MHz), Band 4 – AWS (1700/2100 MHz), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), **Band 25 (1900 MHz)**

- HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
- GSM/GPRS/EDGE (850/900/1800/1900 MHz)
- **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power**: LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS**: active GPS support
- **Industry Standards & Certs**: FCC, Sprint

AER1600LP3-EU – 4G LTE/HSPA+ for Europe

- **Technology**: LTE, HSPA+
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps (theoretical)
- **Frequency Bands**:
    - **LTE Band 1 (2100 MHz), Band 3 (1800 MHz), Band 7 (2600 MHz), Band 8 (900 MHz), Band 20 (800 MHz)**
    - **HSPA+/UMTS (800/850/900/1900/2100 MHz)**
    - **GSM/GPRS/EDGE Quad-Band (850/900/1800/1900 MHz)**
- **Power**: LTE Band 1/3/8/20 – 23 dBm +/- 1; LTE Band 7 – 22 dBm +/- 1, HSPA+ 23 dBm +/- 1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only
- **GPS**: active GPS support
- **Industry Standards & Certs**: CE, GCF-CC
- **Modem Part Number**: MC400LP3

AER1650LP3-EU – 4G LTE/HSPA+ for Europe

- **Technology**: LTE, HSPA+
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps (theoretical)
- **Frequency Bands**:
    - **LTE Band 1 (2100 MHz), Band 3 (1800 MHz), Band 7 (2600 MHz), Band 8 (900 MHz), Band 20 (800 MHz)**
    - **HSPA+/UMTS (800/850/900/1900/2100 MHz)**
    - **GSM/GPRS/EDGE Quad-Band (850/900/1800/1900 MHz)**
- **Power**: LTE Band 1/3/8/20 – 23 dBm +/- 1; LTE Band 7 – 22 dBm +/- 1, HSPA+ 23 dBm +/- 1 (typical conducted)
- **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only
- **GPS**: active GPS support
- **Industry Standards & Certs**: CE, GCF-CC
- **Modem Part Number**: MC400LP3

AER1600LPE-GN – 4G LTE/HSPA+/EVDO (generic – for use on T-Mobile in the U.S. and Rogers, Bell, & TELUS in Canada)
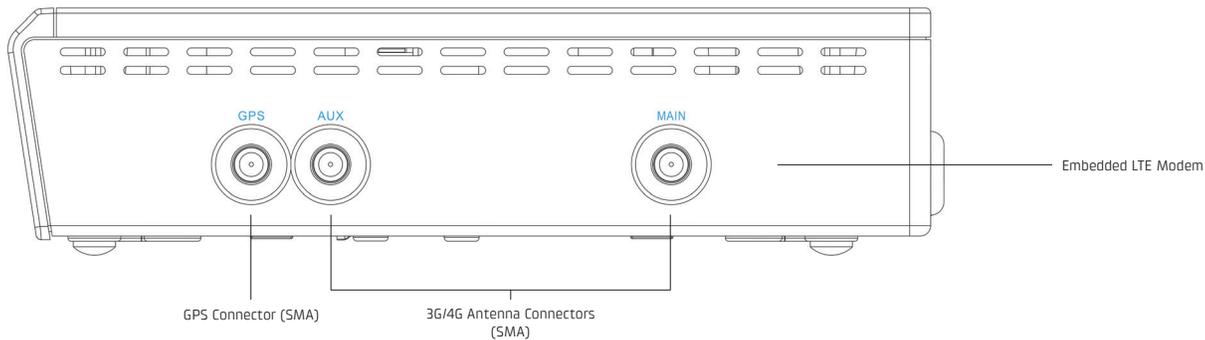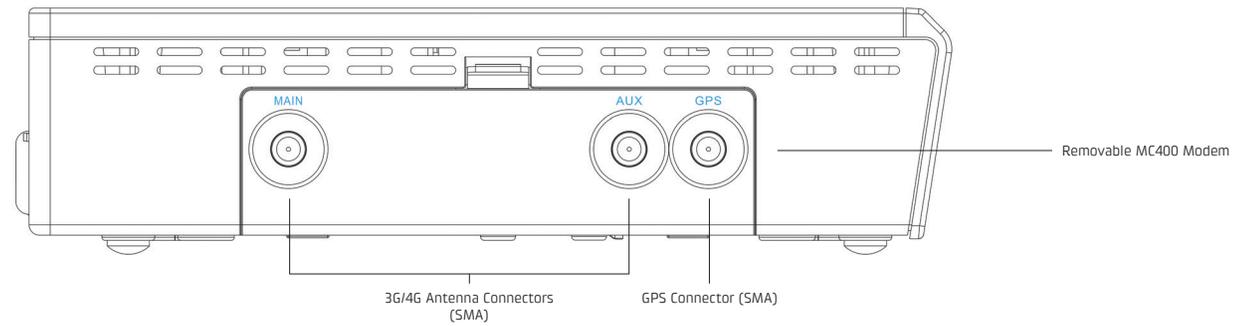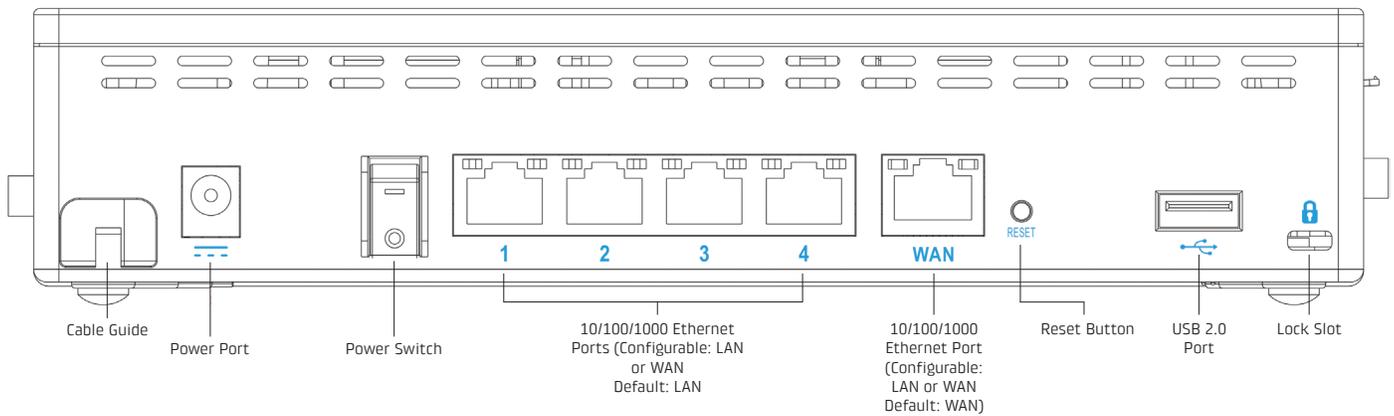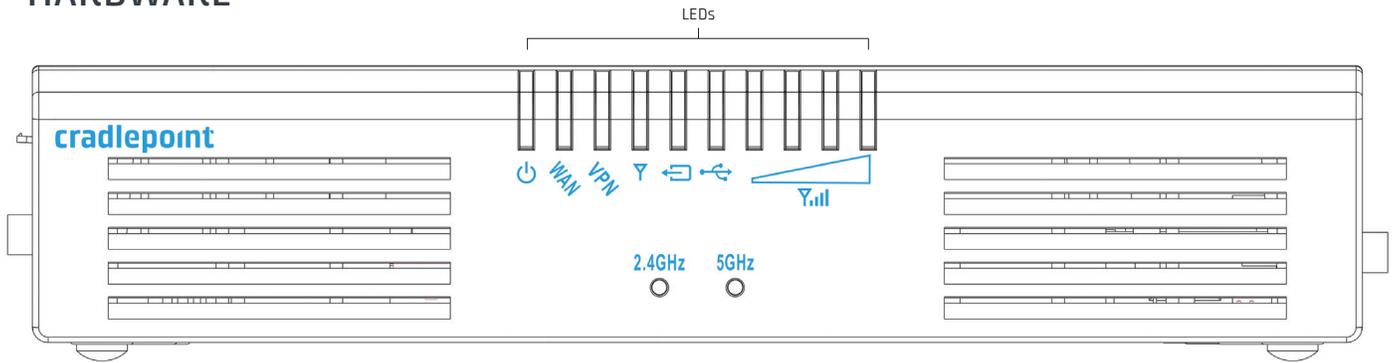
- **Technology**: LTE, HSPA+, EVDO Rev A
- **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands**:
    - **LTE Band 2 (1900 MHz), Band 4 (AWS), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), Band 25 (1900 MHz)**
    - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
    - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**

- • CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- • **Power**: LTE 23 dBm +/– 1, HSPA+ 23 dBm +/– 1, EVDO 24 dBm +0.5/–1 (typical conducted)
- • **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- • **GPS**: active GPS support
- • **Industry Standards & Certs**: PTCRB, FCC, IC

AER1650LPE-GN – 4G LTE/HSPA+/EVDO (generic – for use on T-Mobile in the U.S. and Rogers, Bell, & TELUS in Canada)

- • **Technology**: LTE, HSPA+, EVDO Rev A
- • **Downlink Rates**: LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- • **Uplink Rates**: LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- • **Frequency Bands**:
    - • **LTE Band 2 (1900 MHz), Band 4 (AWS), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), Band 25 (1900 MHz)**
    - • **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
    - • **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**
    - • CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- • **Power**: LTE 23 dBm +/– 1, HSPA+ 23 dBm +/– 1, EVDO 24 dBm +0.5/–1 (typical conducted)
- • **Antennas**: two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- • **GPS**: active GPS support
- • **Industry Standards & Certs**: PTCRB, FCC, IC

HARDWARE

LEDs

cradlepoint

⏻   WAN   VPN   ▽   ⇄   ⟷   ▂▃▅

Y▃▃▃

2.4GHz   5GHz

Cable Guide
Power Port
Power Switch

1   2   3   4   WAN

RESET

USB 2.0

10/100/1000 Ethernet Ports (Configurable: LAN or WAN Default: LAN)

10/100/1000 Ethernet Port (Configurable: LAN or WAN Default: WAN)

Reset Button

USB 2.0 Port

Lock Slot

MAIN   AUX   GPS

Removable MC400 Modem

3G/4G Antenna Connectors (SMA)

GPS Connector (SMA)

GPS   AUX   MAIN

Embedded LTE Modem

GPS Connector (SMA)

3G/4G Antenna Connectors (SMA)

Specifications subject to change without notice.