



# MXConnect Series

## 4G/LTE Enterprise Multi-Carrier Router

BEC MX-1000



### Overview

The BEC MX-1000 4G/LTE Enterprise Multi-Carrier Router is a high performance all-in-one fixed wireless communications platform with advanced software enabling high availability, reliable and secure wireless connectivity for mission critical applications. The compact rugged design integrates a 4-port Gigabit switch, carrier-grade Wi-Fi access point, multi-function USB host interfaces, embedded GPS with concurrent-multi-GNSS engine for GPS or GLONASS as well as a variety of configurable options such as: dual SIM dual radio, enterprise routing, secured VPN, cloud-based remote device management and power ignition control for in-vehicle applications. The MX-1000 is specifically designed to support a wide range of applications and vertical machine-to-machine (M2M) market segments.

### High Availability and Network Resilience

The MX-1000 is a feature rich enterprise class router coupled with robust network processing and Multi-WAN connectivity, purpose built for network resilience and business continuity. The platform support dual sim and dual LTE radios for carrier redundancy or seamless failover between carriers networks. In the event of a connectivity failure of the primary WAN interface, traffic is automatically redirected to the secondary WAN interface. The MX-1000 will also fallback when the primary interface connection is restored. This functionality operates regardless of whether the primary connection is LTE or a wired connection such as fiber, Cable or DSL. Load balancing and traffic prioritization mechanisms can be enabled to enhance failover performance and maximize bandwidth utilization for critical applications delivery.

### Advanced Quality of Service (QoS) Framework

The MX-1000 supports a QoS framework based on the EPS bearer model. Default bearers are supported for best effort services and multiple dedicated bearers, GBR (guaranteed bit rate) resource types and QoS class of identifiers (QCI) are supported for real-time voice and video applications that require dedicated network resources. BEC's comprehensive QoS capabilities, leverage IP QoS concepts and standards such as DiffServ along with the LTE QoS framework to achieve the best QoE (Quality of Experience) for each subscriber.

### Carrier-grade Wireless LAN

The MX-1000 integrates a 802.11n access point supporting data rates of up to 300Mbps. Security functionality includes: WEP 64/128 bit, WPA, WPA2 (PSK, TKIP and AES, 802.1X, SSID broadcast disable and wireless MAC address filtering and MSSID with Client Isolation to enhance the level of transmission security and access control over the Wireless LAN. The MX-1000 also supports hotspot functionality with a Captive Portal allowing businesses/operators a unique business opportunity to increase business revenue for wireless access. The Portal can be customized to use you own logos, branded splash page, specific redirect and advertising options.

### Remote Management and Network Visibility

Remote monitoring, management and control of devices in real-time is essential for M2M applications. The BEC LRMS (LTE Remote Management System) is a comprehensive device management platform designed to minimize deployment, lower support expenses and maximize the operational efficiency and profitability of the operator. The LRMS provides access to critical information for LTE Network diagnostics and troubleshooting, such as: signal quality measurements (RSSI, RSRP, RSRQ and SINR), network status/APN, location ID and Cell ID. Additional functionality includes OTA firmware upgrades (individual or batch), LAN and WLAN setting configuration settings on the MX-1000.

### Carrier Certifications



### High performance & reliability and easy to manage and access

- Offers 4G/LTE broadband connectivity (3G Fallback is optional)
- Multi-WAN interfaces: Dual SIM/Dual Radio and EWAN for network resilience and reliable connectivity
- Multi-Service APN Selection and Management
- Carrier Grade Wi-Fi, and Hotspot and Captive Portal Functionality
- Embedded GPS option for real-time asset tracking and location data-based applications
- Local and Remote management via SNMP or BEC LCMS (LTE Remote Management System) (cloud based)

### QoS (Quality of Service)

- Traffic prioritization based-on IP protocol, port number, and IP address
- Enhanced IGMP, Proxy/Snooping & Fast Leave

### Enterprise Class Routing and Security

- Dynamic Routing Protocols (BGP, OSPF)
- Secured VPNs (IPSec, GRE, LT2P, PPTP)

### Compact and unobtrusive design

- Small form factor with multiple mounting options, easily installed by a single person
- Power ignition control option when mounted within vehicles

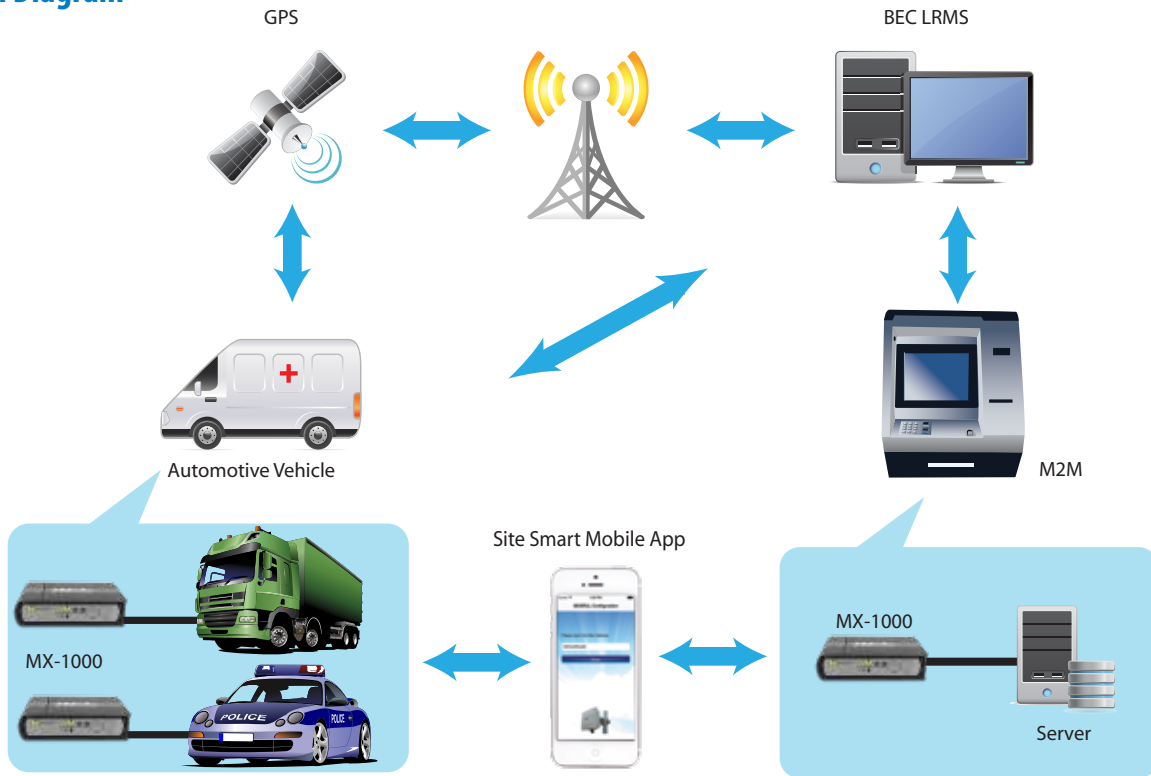
### Designed for challenging / rugged deployments

- Hardened enclosure with Industrial-graded components
- Designed to withstand heat, humidity and protect from shock, vibration, etc.
- MIL-STD-810G Compliant

### Ideal Solution for

- Enterprise, Business Continuity, Logistics/Transportation and Fleet, Public Safety/FirstNet applications.

## Application Diagram



## Features & Specifications

### Availability and Resilience

- Dual-WAN Interfaces (Dual LTE Modules)
- Auto fail-over and failback
- Load Balancing

### Supported Frequency Bands

- Primary WAN LTE: FDD and TDD (Bands depend on module configuration)
- Secondary WAN LTE: Optional (Bands depend on module configuration)
- Peak downlink speeds up to 100Mbps and peak uplink speeds up to 50Mbps
- Channel Bandwidth 5MHz, 10MHz, 15MHz, 20MHz
- RF Characteristics  
Transmit Power: +23dBm  
Sensitivity: -96dBm

### Network Protocols and Features

- IPv4, IPv6, IPv4 / IPv6 dual stack
- IP Tunnel IPv6 in IPv4 (6RD)
- IP Tunnel IPv4 in IPv6 (DS-Lite)
- NAT, static routing and RIP-1/2
- Universal Plug and Play (UPnP) compliant
- Dynamic Domain Name System (DDNS)
- Virtual server and DMZ
- SNTP, DNS relay, IGMP proxy and IGMP snooping for video service
- MLD proxy and MLD snooping for video service
- Supports port-based Virtual LAN (VLAN)

### Quality of Service Control

- Traffic prioritization based-on IP protocol, port number, and IP address

### USB Application Server

- Storage: FTP server and Samba server

### Firewall

- Built-in NAT Firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- Access Control
- IP Filtering, MAC Filtering, URL Filtering
- Password protection for system management
- VPN Passthrough

### Wireless

- Compliant with IEEE 802.11n standard
- Backward compatible with IEEE 802.11b and 802.11g standards
- Up to 300Mbps wireless operation rate
- WPS (Wi-Fi Protected Setup) for easy setup
- 64/128 bits WEP supported for encryption
- Wireless security with WPA-PSK/WPA2-PSK
- Supports WDS repeater function

### VPN (Optional)

- IPSec VPN Tunneling (up to 8 tunnels)
- PPTP VPN Tunneling (up to 4 dial-in/dial-out tunnels)
- L2TP over IPSec VPN Tunneling (up to 4 dial-in/dial-out tunnel)
- GRE (up to 8 tunnels)
- Embedded PPTP / L2TP / IPSec Client and Server
- IKE Key Management
- MPPE Encryption for PPTP
- IPSec DES, 3DES and AES encryption

### Management

- Quick Installation Wizard
- Web-based GUI for remote and local management

### Management (Cont.)

- Firmware upgrade and configuration data upload and download via web-based GUI and over-the-air
- Supports DHCP server/client/relay
- TR-069 supports remote management
- Support SNMP
- Syslog monitoring

### Hardware Specifications

#### Physical Interface

- Antenna:
  - Wireless: two(2) detachable antennas
  - 3G/4G LTE: four(4) detachable antennas
  - GPS: one (1) detachable antenna
- WAN: 3G/4G LTE
- USB 2.0 : two (2) ports
- Mini USB Console: two (2) ports
- Ethernet LAN: 4-port 10/100/1000Mbps auto-crossover (MDI/ MDI-X) switch
- SIM Card: two (2) slots
- Reset Button
- Wireless On/Off and WPS Push Button
- Power jack
- LED Indicators

#### Physical Specifications

- Dimensions: 7.25"(W) x 1.91"(H) x 5.31"(D)  
(184.25 mm x 48.5 mm x 135 mm)
- Weight: 1.07kg (2.36lbs)

#### Operating Environment

- Operating temperature: -40 to 140° F  
(-40 to 60° C)
- Humidity: 20 ~ 95% non-condensing

#### Standards and Compliance

- CE, PTCRB, MIL-STD-810G, ICES-003, RCM, Wi-Fi Certified - AT&T Carrier Network Certified