

# M600-M12-FA 5G

Industrial/In-Vehicle Multi-Carrier  
5G Router



## M600-M12-FA 5G - Industrial/In-Vehicle Multi-Carrier 5G Router

### Overview

The M600-M12-FA 5G Industrial/In-Vehicle Multi-Carrier 5G Router is a high performance all-in-one fixed/mobile wireless communications platform with advanced software enabling high availability, reliable and secure connectivity for mission critical applications. The compact rugged design integrates dual SIMs, four-port Gigabit Switch, 802.11ac and 802.11n Wi-Fi Access Point, embedded multi-GNSS receiver for GPS or GLONASS, and ignition sensing for in-vehicle applications.

### High Availability and Network Resilience

M600-M12-FA 5G is a feature-rich industrial-grade router coupled with robust network processing and Multi-WAN connectivity, purpose built for network reliability and business continuity. In the event of a connectivity failure of the primary WAN interface, traffic is automatically redirected to the secondary WAN interface, it will perform fallback when the primary interface connection is restored. The M600-M12-FA 5G also supports dual SIMs for a redundancy between carriers networks.

### Carrier-Grade Wireless LAN and Enterprise Class Secure Connections

M600-M12-FA 5G supports concurrent dual-band 802.11a/n/ac(5GHz) and 802.11b/g/n(2.4GHz) Wireless LAN with 2400 Mbps wireless speed, allowing for Wi-Fi Hotspot functionality anywhere there is cellular signal. The captive portal enables highly secure connectivity with multiple authentication options and extensive controls for access and bandwidth management. Customization options allow for operator logos, branding or advertisement placement. The M600-M12-FA supports multiple VPN(Virtual Private Network) protocols for business users to establish private encrypted tunnels over the public Internet to secure data transmission between offices.

### Designed for Industrial Environments

M600-M12-FA 5G supports an extended operating temperature range from -40 to 60°C and a flexible power input voltage range of 10-56V DC making it suitable for diverse environments and applications. To enable simple, reliable and efficient integration, the ultra-compact and lightweight design incorporates highly flexible mounting options to ensure that the device and can be easily mounted anywhere.

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

- Offer 5G NR broadband connectivity (4G LTE Fallback)
- Multi-WAN interfaces: Dual SIMs(DSSS) and GbE WAN for network resilience and reliable connectivity
- M12 X-coded connectors for Gigabit Ethernet ports
- Network expandability - load balancing and reliable connectivity - auto-failover/fallback
- Embedded GNSS option for real-time asset tracking and location data-based applications<sup>\*3</sup>
- Local and Remote management via Web GUI, SNMP, CWMP(TR-069) or BECCentral®

### Carrier-Grade Wireless-LAN

- Compliant with IEEE 802.11a/b/g/n/ac standards
- Simultaneous Dual-Band Wireless up to 2400Mbps
- 4x4 802.11a/n/ac (5GHz) and 3x3 802.11b/g/n (2.4GHz)
- High Transmit Power Design
- Wi-Fi Hotspot with Captive Portal
- Multiple SSID with Client Isolation

### Enterprise Class Secure VPN Connections

- Embedded IPSec, PPTP, L2TP, GRE and OpenVPN secure VPN connection with powerful encryption

### Compact and unobtrusive design

- Small form factor with optional mounting kits, easily installed by a single person
- Ignition power control option when mounted within vehicles

### Designed for challenging / rugged deployments

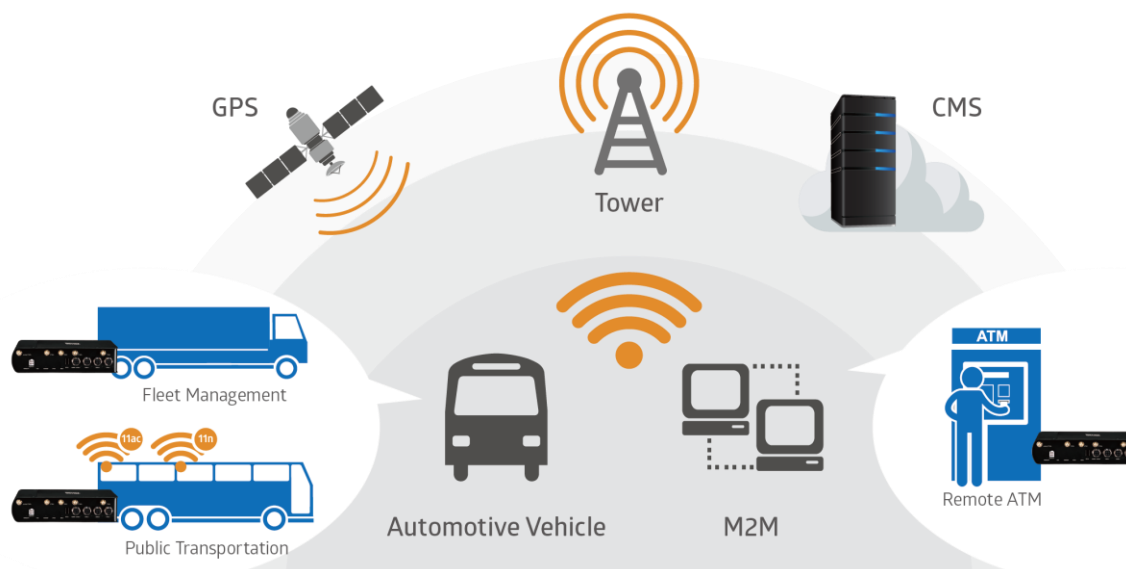
- Hardened enclosure with Industrial-graded components
- Designed to withstand heat, humidity and protect from shock, vibration, etc.

### Ideal Solution for

- Smart Bus and Public Safety applications.



## Application Diagram



## Features & Specifications

### ■Availability and Resilience

- Dual SIMs (Dual SIM Single Standby)
- Dual-WAN Interfaces (5G NR, GbE WAN)

### ■Embedded 5G NR<sup>\*1</sup>

- 5G NR sub-6 GHz (3GPP Rel-16)
  - Band(NA/NSA): n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n70, n71, n75, n76, n77, n78, n79
  - Carrier Aggregation: sub-6 GHz (FDD+FDD, TDD+TDD, FDD+TDD 2CA)
  - Maximum Transmission Data Rate:
    - NSA: 3.4Gbps DL / 550Mbps UL
    - SA: 2.4Gbps DL / 900Mbps UL
- 4G LTE (CAT 19 DL / CAT 18 UL)
  - Band(FDD/TDD): 1, 2, 3, 4(66), 5(18,19,26), 7, 8, 12(17), 13, 14,20, 25, 26, 28, 29, 30, 32, 34, 38, 39, 40, 41, 42, 43, 46(LAA), 48, 71
  - Carrier Aggregation: 5CA DL / 2CA UL
  - Maximum Transmission Data Rate:
    - 1.6Gbps DL / 200Mbps UL

### ■Network Protocols and Features

- Dual WAN Failover/ Failback
- Dual WAN Load Balancing
- IPv4, IPv6, IPv4/IPv6 dual stack<sup>\*2</sup>
- Dual APN<sup>\*2</sup>
- Keep Alive
- IP Pass-Through
- NAT, Virtual Server and DMZ
- Static Routing, Dynamic Routing (RIP v1/v2, OSPF, BGP)
- SNTP, DNS relay and DDNS
- Universal Plug and Play (UPnP) compliant
- Supports DHCP server/client/relay

### ■Virtual Private Network (VPN)

- IPSec
- PPTP
- L2TP
- GRE
- OpenVPN

### ■Wireless LAN

- Compliant with IEEE 802.11a/b/g/n/ac standard
- DBDC - concurrent dual-band 802.11a/n/ac (5GHz) and 802.11b/g/n (2.4GHz)
- Up to 1700Mbps wireless phy rate at 5GHz
- Up to 600Mbps wireless phy rate at 2.4GHz
- Wireless security with WEP 64/128, WPA-PSK, WPA2-PSK, Mixed WPA/WAP2-PSK
- WPS (Wi-Fi Protected Setup) for easy setup
- Multiple SSID (4 SSIDs), BSSID
- Wireless MAC Filtering
- Wireless Client Isolation
- Wi-Fi Hotspot with Captive Portal
- Support RADIUS authentication
- Wireless Client rate-limiting

### ■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
- VPN Pass-through

### ■Global Navigation Satellite System (GNSS)<sup>\*3</sup>

- Embedded multi-GNSS engine for GPS or GLONASS system

### ■USB Application Server

- Storage: FTP server and Samba server

### ■Management

- Password protection for system management
- Web-based GUI for remote and local management
- Firmware upgrade and configuration data upload and download via web-based GUI
- CWMP(TR-069)<sup>\*2</sup>, SNMP
- Cellular data usage Allowance
- Remote System Log monitoring
- Scheduling Auto-Reboot
- Physical layer/protocol diagnostic test tool
- BECentral® Cloud-Based Remote Management

### ■Hardware Specifications

#### Physical Interface

- WAN: 5G NR (and/or GbE WAN)
- Ethernet LAN: four (4) port 10/100/1000Mbps auto-crossover (MDI/ MDI-X) switch
- USB 2.0 Host: one (1) port
- SIM Card: two (2) 2FF mini-SIM slot
- Reset Button
- Power Connector: 4-pin connector with ignition sensing
- LED Indicators
- Antenna:
  - 5G NR: four (4) detachable wideband antennas
  - Wi-Fi: four (4) detachable dual-band antennas
  - GNSS: one (1) detachable active antenna

#### External Connector

- 5G NR: FAKRA code D x four (4)
- Ethernet: M12 X-coded x four (4)
- Wi-Fi: FAKRA code I x four (4)
- GNSS: FAKRA code C x one (1)
- USB: Type A x one (1)
- SIM: mini-SIM(2FF) slot with cover x two (2)

#### Power Specifications

- Input: DC 10V~56V

#### Physical Specifications

- Dimensions: 199.2 x 132.7 x 46.6 mm
- Antenna connector protrusion included: 199.2 x 149.1 x 46.6 mm

#### Operating Requirements

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

#### Notes:

1. The 5G NR is dependent on your local service provider.
2. Only upon request for Telco/ ISP tender projects.
3. The support for GPS and/or GLONASS functions depends on the equipped module's capabilities.
4. Specifications in this datasheet are subject to change without prior notice.

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