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Omnitracs Active Mobile Gateway (AMG-C)

User Reference Manual

80-JE177-1 Rev. B

June 2019

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1. Product Overview

Product name: ACTIVE MOBILE GATEWAY WITH COMM (AMG-C)

Model No.: CV90-JE103

Brand: OMNITRACS

The AMG-C system components include:

- Power I/O cable
- AMG-C hardware and fasteners



2. Product Feature Introduction

Network:

- EVDO / CDMA / UMTS / LTE / GPS / GLONASS

| Technology | RF band | Transmit band (Tx) (MHz) | Receive band (Rx) (MHz) |
|---------------------------|---------|--------------------------|-------------------------|
| LTE | B2 | 1850–1910 | 1930–1990 |
| | B4 | 1710–1755 | 2110–2155 |
| | B5 | 824–849 | 869–894 |
| | B12 | 699–716 | 729–746 |
| | B17 | 704–716 | 734–746 |
| | B25 | 1850–1915 | 1930–1995 |
| | B26 | 814–849 | 859–894 |
| UMTS | B2 | 1850–1910 | 1930–1990 |
| | B4 | 1710–1755 | 2110–2155 |
| | B5 | 824–849 | 869–894 |
| CDMA EVDO Release A | BC0 | 824–849 | 869–894 |
| | BC1 | 1850–1910 | 1930–1990 |
| | BC10 | 816–824 | 861–869 |
| GNSS ² | GPS | - | 1575.42 ± 1.023 |
| | GLONASS | - | 1597.52–1605.92 |
| | Galileo | - | 1575.42 ± 2.046 |

Body:

- Dimensions: 165 x 95 x 32.5 mm
- Weight: 375g
- SIM Card: Non-Removable Dual SIM card slot (AT&T, Sprint)

Platform:

- Android 7.1 Nougat

Comms:

- WLAN: 2.4 GHz / 5GHz dual band IEEE802.11 a/b/g/n/ac Wave2 WLAN
(Build in APP will be used for Wi-Fi feature set up and link up)

| Items | Specifications | | | | Units |
|-----------------------|------------------------------|------------------------------------|------|------|-------|
| Chipset | QCA9377-3 (Qualcomm Atheros) | | | | - |
| Country/Region code | 0x0000 | | | | - |
| Operating frequencies | 2.4GHz | 11bg | 2412 | 2462 | MHz |
| | | 11n 20MHz | 2412 | 2462 | MHz |
| | | 11n 40MHz | 2422 | 2452 | MHz |
| | 5GHz | 11a/n/ac 20MHz | 5180 | 5825 | MHz |
| | | 11n/ac 40MHz | 5190 | 5795 | MHz |
| | | 11ac 80MHz | 5210 | 5775 | MHz |
| Frequency steps | 2.4GHz | 11b/g/n | 5 | | MHz |
| | 5GHz | 11a/n/ac 20MHz | 20 | | MHz |
| | | 11n/ac 40MHz | 40 | | MHz |
| | | 11ac 80MHz | 80 | | MHz |
| Data rates | 11b | 1,2,5.5L,5.5S,11L,11S | | | Mbps |
| | 11a/g | 6,9,12,18,24,36,48,54 | | | Mbps |
| | 11n | MCS 0,1,2,3,4,5,6,7 | | | - |
| | 11ac | MCS 0,1,2,3,4,5,6,7,8,9 | | | - |
| Modulation types | 11b | DSSS(DBPSK,DQPSK,CCK) | | | - |
| | 11a/g/n | OFDM(BPSK,QPSK,16QAM,64QAM) | | | - |
| | 11ac | OFDM(BPSK,QPSK,16QAM,64QAM,256QAM) | | | - |
| Encryptions | RC4 | 128 | | | bits |
| | AES | 128 | | | bits |

- Bluetooth: 4.2 BR/EDR/LE

| Items | Specifications | | | Units |
|---------------------------|--|------|------|--------|
| Chipset | QCA9377-3 (Qualcomm Atheros) | | | – |
| Core specification | Bluetooth 4.2 | | | – |
| Operating Frequency range | Mode | Min | Max | |
| | BR/EDR/LE | 2402 | 2480 | MHz |
| Frequency step | BR/EDR | 1 | | MHz |
| | LE | 2 | | MHz |
| Modulation type | GFSK(1Mbps).π/4 DQPSK(2Mbps).8DQPSK(3Mbps) | | | – |
| LE maximum PDU size | 123 | | | Octets |
| Encryption | E0 | 128 | | bits |
| | AES | 128 | | bits |

Battery:

- 710 mAh polymer Li-ion backup battery (Not used as main power supply source)

3. Interface Description

Front View

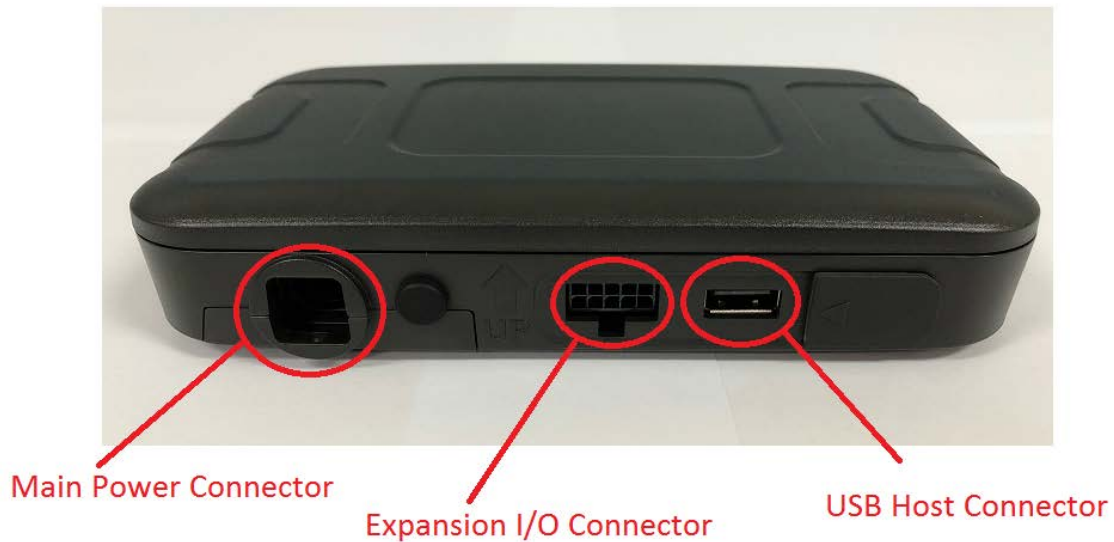


USB OTG
Connector

Driver Notification &
ELD LEDs

- USB OTG Connector: This connector can be used for charging USB powered device and is able to transfer logging data.
- Driver Notification LED: This RGB LED is used to provide notifications to drivers if there are any activity happens to the unit.
- ELD LED: This RGB LED is used to provide notifications to drivers if there are any activity happens to the data logging.

Rear View



- Main Power Connector: This connector is used to connect the power cable from vehicle battery power supply.
- Expansion I/O Connector: This connector is used to connect the optional I/O expansion cable. The I/O expansion cable consist of a protected external 5V power supply, protected external vehicle battery power supply, Driver Notification & ELD LED expansion control ports and a general purpose RS232 serial connection (Tx/Rx).
- USB Host Connector: This connector can be used for charging USB powered device and is able to transfer logging data.

4. Installation Instructions

Before starting the installation, inspect the vehicle to determine an installation location.

DO locate the display where it:

- Has a flat mounting surface that is strong enough to support the mounting hardware
- Is clear of dash controls and gauges
- Is not mounted in constant, direct sunlight

DO NOT locate the display where it:

- Obstructs the driver's field of vision
- Distracts the driver from the driving task
- Interferes with the driver's operation of controls or shifting
- Obstructs the area swept by the windshield wipers
- Blocks the deployment of an airbag
- Limits a passenger's leg room or blocks access to any other compartments
- Interferes with anyone entering or exiting the vehicle cab
- Could likely impact the driver or passenger in case of an accident or collision

Additional information for selecting an installation location:

Installations should not obstruct the driver's field of vision while operating the vehicle and should comply with all applicable federal and state laws and regulations regarding appropriate installation locations (including restrictions against the mounting of objects on a vehicle's windshield) and driver distraction.



Warning statement:

Class A Device

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

15.21 statement

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

15.19 statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.1091 statement

RF Exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

SLAVE EQUIPMENT

This device is slave equipment, the device is not radar detection and not ad-hoc operation in the DFS band.

IC Statement:

ICES-003 statement

CAN ICES-3 (A)/NMB-3 (A)

RSS-Gen statement

Canada, Industry Canada (IC) Notices

This device complies with Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Canada, avis d'Industry Canada (IC)

Cet appareil est conforme avec Industrie Canada exemptes de licence RSS standard(s).

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

RSS-102 statement

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under mobile exposure conditions. (antennas are greater than 20cm from a person's body).

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Industry Canada (IC). Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils mobiles (antennes sont supérieures à 20 cm à partir du corps d'une personne).

RSS-247 statement

Caution:

User should also be advised that:

(i) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz shall comply with the e.i.r.p. limit.

High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz, 5470-5600 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

(ii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

Les utilisateurs devraient aussi être avisés que

(i) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725MHz doit se conformer à la limite de p.i.r.e..

De plus, les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz, 5470-5600 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

(ii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

IFETEL/NOM/NYCE statement

La operación de este equipo está sujeta a las siguientes dos condiciones:

- 1) es posible que este equipo o dispositivo no cause interferencia perjudicial
- 2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada

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