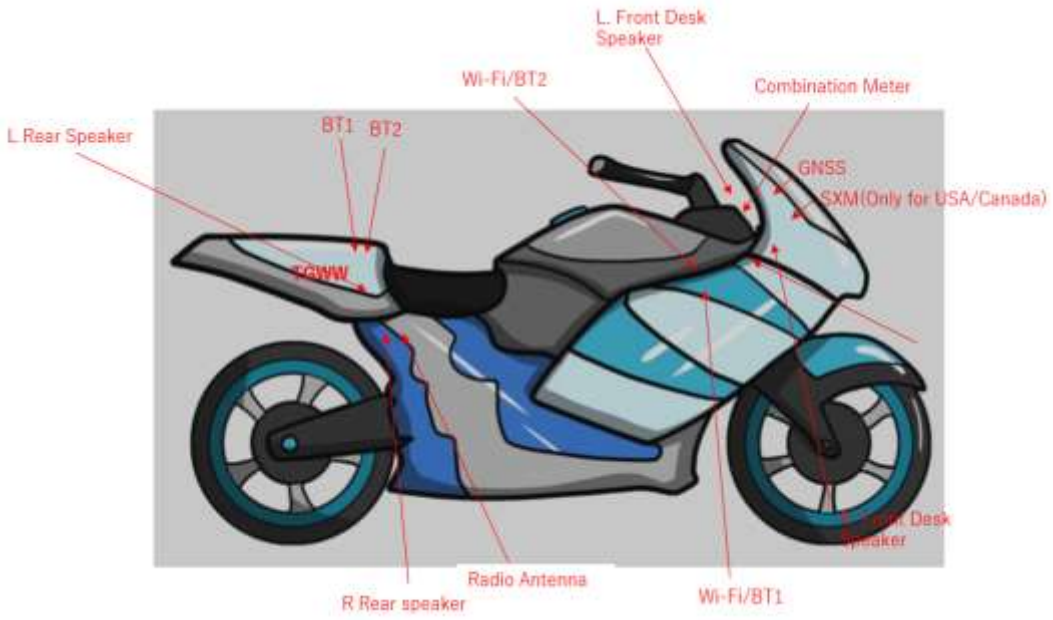
Garmin TGWW
In-Vehicle Infotainment Unit
Manual

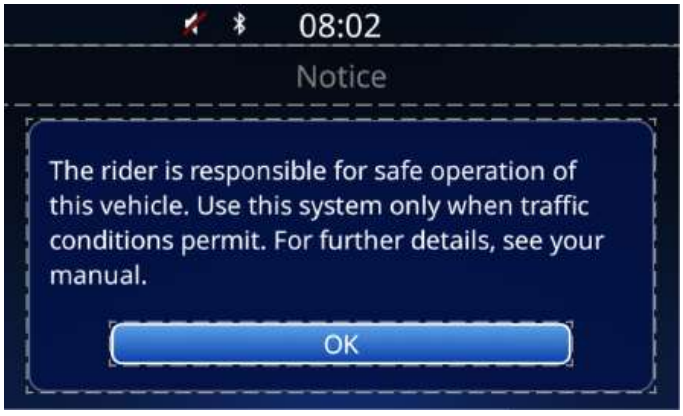
Content



1. Introduction

TGWW IVI Unit is an entertainment system designed for two-wheel motorcycle. The IVI unit does not include a display but provides bluetooth functions for connecting with smartphone, as well as headphones. It also supports multimedia features such as AM/FM radio, Bluetooth music, USB music, and CarPlay/Android Auto. The target market of IVI unit is worldwide sold globally (in North America, Europe, Japan, Korea, Taiwan, etc.) and configure with different countries' variations by supporting corresponding AM/FM frequency bands or Wi-Fi bands.

Caution

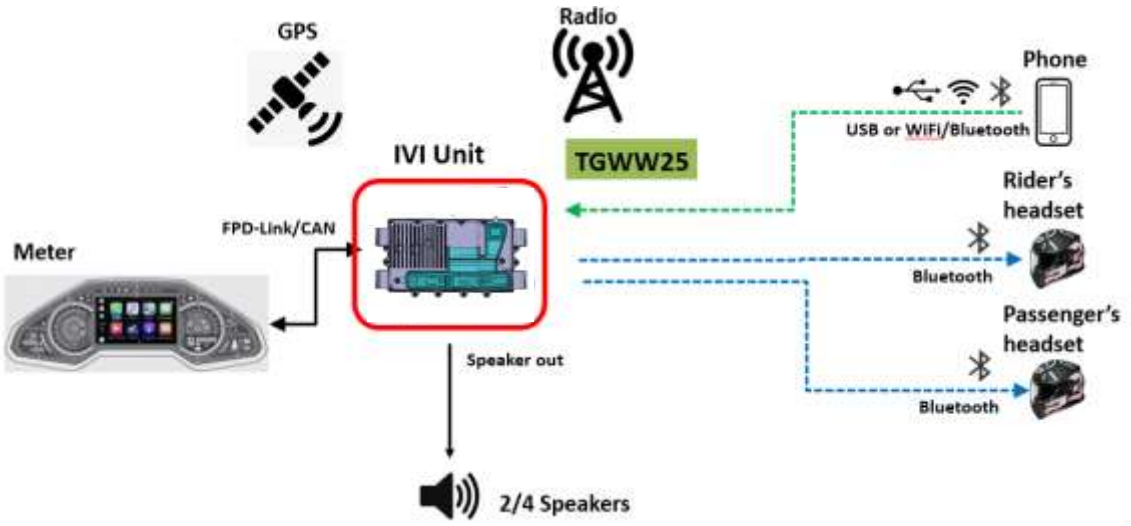


Environment temperature

Operating temperature: -20°C ~ +70°C

Storage temperature : -20°C ~ +70°C

System Architecture



2. Specification

2.1. Hardware specifications

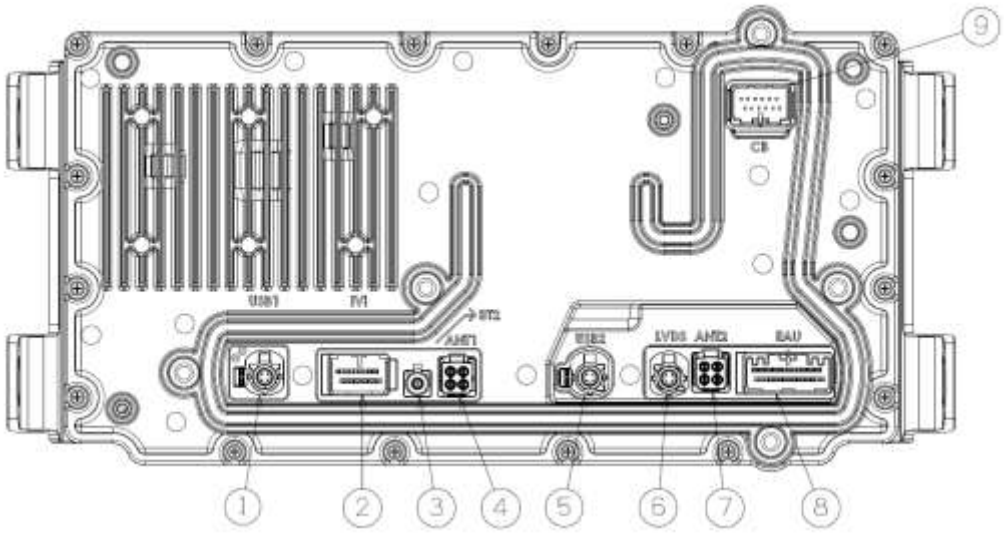
Input Voltage: 12V

Maximum Current Consumption : Less than 14A

Hardware Features :

Function		Description	Remarks
Bluetooth		One smartphone and two headsets	Ver2.1 +EDR
Wi-Fi		Yes	2.4GHz / 5.0GHz
GNSS		Yes	
USB		One port for data transmission and charging One port for charging only	3A , 5V
CAN		Yes	500Kpbs
Video output		One LVDS Resolution 800x480	For 3rd party display
Audio output		To external 2/4 channels speakers	Max 25W
Radio	AM/FM	Yes	
	SiriusXM	Yes, optional for USA/Canada SKU	
CB Radio Interface		Yes	

Appearance



Connection definition

No.	Type	Function	Supplier	MPN
1	HSD 4+2P	USB	SMK	CSC5006-5GA2F
2	12P	IVI Main	JAE	MX34Q12ATF8
3	Fakra	BT2	SMK	CRC5001-6403F
4	Mini-Fakra	Wi-Fi/GNSS/BT1	SMK	CRC5004-9602F
5	HSD 4+2P	USB	SMK	CSC5006-5GF2F
6	HSD	LVDS	SMK	CSC5004-6C03FSZ
7	Mini-Fakra	DAB/SXM/AM&FM	SMK	CRC5004-9603F
8	20P	EAU Main	JAE	MX34Q20ATF8T40
9	12P	CB Radio	JAE	MX34Q12ATF8

2.2. Bluetooth Specifications

Support bluetooth V2.1+ EDR and Class2

Frequency range	Bluetooth 2400 to 2485 MHz
Maximum RF output power	Class2: up to +4dBm
Modulation	GFSK, π/4 DQPSK, 8DPSK
Channel spacing	1MHz
Number of channels	79 channels
Channel bandwidth	1MHz

2.3. Wi-Fi Specifications

Frequency range	Wi-Fi 2400 to 2500 MHz
Maximum RF output power	<16 dBm
Modulation	802.11 b/g/n
Number of channels	CH6
Channel bandwidth	20MHz

Frequency range	Wi-Fi 5150 to 5250 MHz
Maximum RF output power	<16 dBm
Modulation	802.11 a/n/ac
Number of channels	CH44
Channel bandwidth	20MHz

Frequency range	Wi-Fi 5725 to 5850 MHz
Maximum RF output power	<16 dBm
Modulation	802.11 a/n/ac
Number of channels	CH 157
Channel bandwidth	20MHz

2.4. AM/FM

Support frequency range:
FM : 76 ~ 108 MHz, step 100/200KHz
AM : 522 ~ 1710 KHz, step 9/10KHz

3. Applications

3.1. Media source

- Radio AM/FM
- USB music
- Bluetooth music
- Radio SiriusXM
- Wired/wireless Apple CarPlay
- Wired/wireless Android Auto

3.2. Intercom Mode

The intercom mode is the build-in feature and there is a switch to turn on or off. When intercom mode is on, both the rider and the passenger can talk to each other directly through their respective Bluetooth headsets. Upon detecting someone being talking, the system will perform mixing and lower the volume of the audio which is playing simultaneously (e.g. music); if no voices are detected, the system will cancel the mixing and resume the volume of the audio.

3.3. 3-way call

When Intercom mode is active during a Bluetooth phone call, rider and passenger can communicate with far-end caller through their respective Bluetooth headsets。

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

IMPORTANT NOTE:

Radiation Exposure Statement:

The product comply with the US portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

The antennas of the transmitters must be installed according to the installation guidance, and must ensure the minimum separation distance between the enclosure as below:
WIFI Antenna: 4cm
BT Antenna: 0.5cm

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

Industry Canada statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference
(2) This device must accept any interference, including interference that may cause undesired operation of the device

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This radio transmitter [IC: 1792A-04780] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Le présent émetteur radio [IC: 1792A-04780] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain

maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Type	Manufacture	Gain	Connector
RHCP	HARADA	3.6	R-SMA
RHCP	HARADA	3.8	R-SMA
RHCP	HARADA	0.3 / -0.3	R-SMA
RHCP	HARADA	1.2 / 0.8	R-SMA

Radiation Exposure Statement:

The product comply with the Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

The antennas of the transmitters must be installed according to the installation guidance, and must ensure the minimum separation distance between the enclosure as below:
WIFI Antenna: 4cm
BT Antenna: 0.5cm

Déclaration d'exposition aux radiations:
Le produit est conforme aux limites d'exposition pour les appareils portables RF pour les Etats-Unis et le Canada établies pour un environnement non contrôlé. Le produit est sûr pour un fonctionnement tel que décrit dans ce manuel. La réduction aux expositions RF peut être augmentée si l'appareil peut être conservé aussi loin que possible du corps de l'utilisateur ou que le dispositif est réglé sur la puissance de sortie la plus faible si une telle fonction est disponible.

Les antennes des émetteurs doivent être installées conformément aux instructions d'installation et doivent garantir la distance de séparation minimale entre l'enceinte comme ci-dessous :

Antenne WIFI : 4 cm Antenne BT : 0,5 cm