

HCM 500

Installation and User Manual

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Component Overview

HCM 500 Characteristics

Requirements	Conditions
Operating Temperature	-20° C to +60° C (-4° F to +140° F)
Operating Voltage	12VDC, 24 VDC, 48 VDC
Operating Current	0.5A max @ 12V
	0.25A max @ 24V
	0.125A max @ 48V
Sleep current	4mA max @ 48V

Connector Pinouts

M8 8-pin for communication & interface (M8H4308BMWBG1)

Pin #	Function
1	RS422_TX-
2	RS422_TX+
3	LIN BUS
4	CAN L
5	CAN H
6	RS422_RX+
7	RS422_RX-
8	GND

M8 5-pin for power supply and start up control (M8H4305BMWBG1)

Pin #	Function
1	RESET
2	VIN
3	DIGITAL IN 1
4	DIGITAL IN 2
5	GND

The HCM 500 system has no user-serviceable parts. The HCM 500 contains a Li-ion rechargeable battery (model: 703343. 3.7V 1000mAh) for back-up power; proper recycling or disposal per local law is required for all components of the HCM 500.

FCC Compliance 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.

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

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator & your body.

Note: The country code selection is for non-US model only and is not available to all US model. Per FCC regulation, all product marketed in US must fixed to US operation channels only.

IC Compliance Statement

This device complies with ISED's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Caution :

(i) where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the E.I.R.P. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated.

Advertisement:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(i) lorsqu'il y a lieu, les types d'antennes (s'il y en a plusieurs), les numéros de modèle de l'antenne et les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la P.I.R.E. applicable au masque d'élévation, énoncée à la section 6.2.2.3, doivent être clairement indiqués

Radiation Exposure Statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated with greater than 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20 cm entre le radiateur et votre corps.

CE Compliance Statement

This device complies with **Directive 2014/53/EU** issued by the Commission of the European Community.

A minimum separation distance of **20 cm** must be maintained between the user's body and the device, including the antenna during body-worn operation to comply with the RF exposure requirements in Europe.

- Frequency bands and Powers

- a. Frequency band(s) in which the radio equipment operates:

Cellular:

The bands variants of Telit ME910C1-WW module operate in 2G and LTE CATM1/NB1

ME910C1-WW	B1,B2,B3,B4,B5,B8,B12,B13,B18,B19,B20,B26,B28,GSM850, GSM900, DCS1800, PCS1900
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- b. Maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates

Cellular:

Band	Mode	Class	RF power (dBm)
all bands	(LTE) CAT-M1	3	23 (+-2dB)
all bands	(LTE) CAT-NB1	3	23 (+-2 dB)
GSM850, GSM900	GPRS (GMSK)	4	33 (+-2 dB)
GSM850, GSM900	EDGE (8PSK)	E2	27 (+-2 dB)
DCS1800, PCS1900	GPRS (GMSK)	4	30 (+-2 dB)
DCS1800, PCS1900	EDGE (8PSK)	E2	26 (+-2 dB)

- For single module:

In all cases assessment of the final product must be mass against the Essential requirements of the **Directive 2014/53/EU** Articles 3.1(a) and (b), safety and EMC respectively, as well as any relevant Article 3.2 requirements.

- **Antenna:**

- a. An external 3-in-1 puck antenna manufactured by TE Connectivity (part no. 2363696) will be used in the device for wireless connectivity. The maximum antenna gain of frequency range 698 MHz to 960 MHz and 1710 MHz to 3800 MHz is 0 dBi and 2.0 dBi, respectively.
- b. A surface-mounted antenna (part no. GA123408BL02) is integrated in device for bluetooth connectivity. The maximum antenna gain of frequency range 2400 MHz to 2500 MHz is 2.28 dBi.

Installation Planning

Safety, Reliability, and Accessibility

- Use eye protection when using a drill/performing work that may be hazardous to the eyes.
- Use ear protection in noisy work areas.
- Wear appropriate clothing/uniforms and safety shoes.
- Maintain three points of contact when climbing in and out of cab.
- Make sure you know what is behind the area before you drill.
- Install equipment so it will not cause damage to the vehicle or work loose over time.
- Make sure there are no loose components/cables and no unsecured components.
- Use solid mounting surfaces.
- Route all cables away from hot or abrasive areas.
- Choose installation locations where components can be easily serviced.
- Choose installation locations where components are safe from tampering and damage

IMPORTANT SAFETY INFORMATION

WARNING

Do not locate the product 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 displays, or creates a safety hazard. Follow all laws and regulations governing the placement of equipment and mounts.

DO locate the product where:

- it can be safely installed on a secured bracket that is robust enough to minimize any vibration and sustain the weight of the product.
- the mounting surface is strong enough to support the mounting hardware.
- the mounting surface is flat.
- it does not block the view of the road or mirrors.
- the surrounding area is clear of dash controls and gauges.
- it is not mounted in constant, direct sunlight.

- it does not limit a passenger's leg room or block access to any other compartments.
- it does not interfere with anyone entering or exiting the vehicle cab.
- it is not likely to impact the driver or passenger in case of an accident or collision.

MAY CONTAIN U.S. AND INTERNATIONAL EXPORT CONTROLLED INFORMATION

DO NOT locate the Product 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 moving parts of the vehicle, if any.
- blocks the deployment of an airbag.

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.
- Consider the owner's preference in selecting the installation location and whether there is a team or a single driver.
- Once a suitable location is selected, verify that there is nothing behind the mounting surface that might be damaged by drilling holes.

WARNING

Excess cable can be a tripping hazard. Ensure cable is not draped where it will interfere with either the driver or passenger as they move within the cab.

Mounting Condition

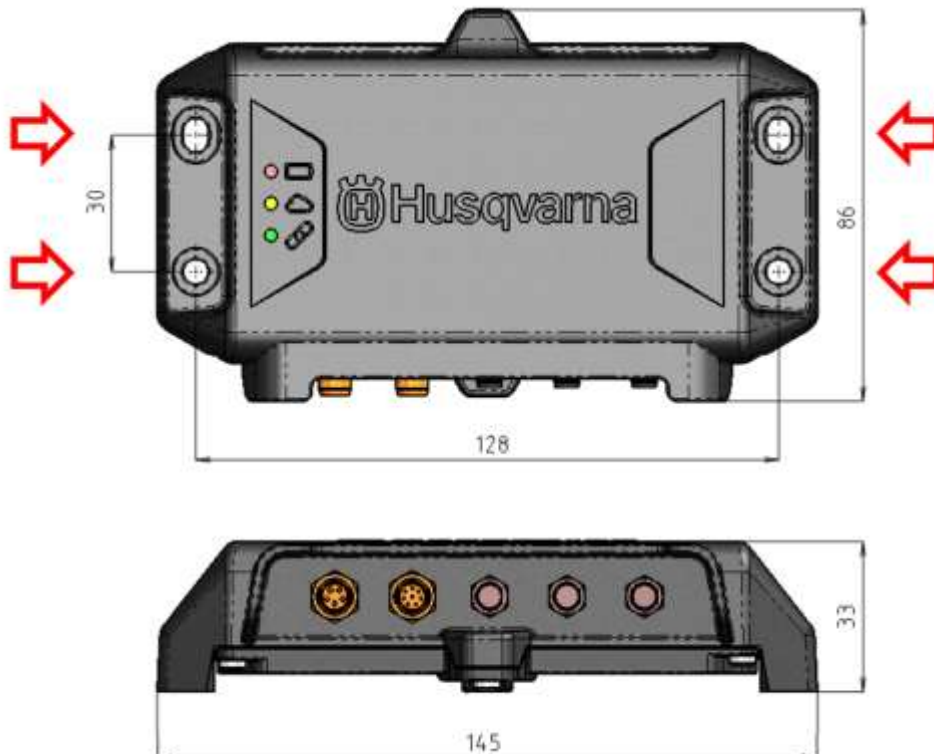
Mounting Orientation

Device is mounted in **horizontal orientation** as below picture



Mounting Screw Locations

There are a total of 4 mounting screw holes, one at each corner, as pointed to by the red arrows below. Two of the holes are slightly elongated for tolerance purpose.



Fastening using **4 pcs, M5 bolts and washer**

Units are in millimeters.