



Mounting procedure

Ref : C3120590010
Version : A0



Diffusion : Internal External
Status : Confidential Limited Extended

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Mounting procedure HUB - COG - WLS

Reference : C3120590010

Version A0

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MODIFCATION LIST:

Version	Modification date	Chapter / pages	Comments	Author
A0	22/09/2017	All	Creation	D.LUCE

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1. PURPOSE

This document is the Mounting procedure of the HUB product family .

HUB is a part of a Tire Pressure Monitoring System.

The HUB collects information on the vehicle and transmits it by wireless to a reception unit (TCU or Smart Diag). It can capture data from TPMS or other wireless sensors.

2. HUB PRODUCT DESCRIPTION.

2.1. PART NUMBERS

Part Number	Designation	RF (MHz)	Model
120590000	HUB	434	Internal RF Antenna
121430000	HUB	315	Internal RF Antenna
130320000	COG	434	Internal RF Antenna
150850000	HUB	434	External RF antenna
160560000	HUB	315	Internal RF Antenna
170010000	WLS	434	Internal RF Antenna
161330000	Harness COG	Not Relevant	4W(Rx,Tx,Vbat,GND) L 0,4m
170490000	External RF antenna	Not Relevant	Fakra, L 8m

2.2. EXTERNAL DESCRIPTION

Part	Material	Characteristics
1 x Housing	PBT GF20	UL 94 V0 Black
1 x Cover	PBT GF20	UL94 V0 Black
1 x On tail connector	Sumitomo type	ref
7 x Screw	Stainless Steel C 1018	-
2 x Silent-block	EPDM	Black
2 x Spacer	Stainless steel A2	For M6 screw
1 x Vent	PTFE and Rubber	Black & White

3. MAIN FEATURES

3.1. ELECTRONIC FEATURES

Power supply (5A fuse protected)	8 to 32 VDC
Operating current	1 A
Temperature operating range	-40°C to 85°C
Storage temperature range	0 to 30°C
Legal Regulations	RED FCC/IC
Antennas (GSM, GPS and RF)	Internal

3.2. MECHANICAL FEATURES

Total Mass	130 g
Dimensions (L x W x H)	115 x 65 x 25 mm
1 Connector (10 Ways)	Sumitomo 6189-1134
Tightness	IP 68 (for internal antenna)
Mounting	LDL Brackets (see §4)
Wiring	LDL harnesses (see §6)

3.3. CONNECTOR PIN OUT

Black Connector:

Pin number	Mnemonic	Function
1	CAN_L	CAN Low
2	KL15	Ignition switch on
3	I/O1	High side output for buzzer
4	-	Not connected
5	RS_RX	RS232 RX
6	CAN_H	CAN High
7	KL31	Vehicle battery negative
8	IN	Generic logic input
9	I/O2	High side output for LED
10	RS_TX	RS232 TX

4. HUB MOUNTING INTERFACE

The HUB is mounted on a plane surface fixed on the vehicle frame. The HUB has 2 mounting points equipped with silent blocks. The HUB must be fixed on a support (available on demand). This support ("HUB interface", also called "Bracket base") is defined in the appendix.

5. HUB MOUNTING RECOMMENDATIONS

Screws (not provided by LDL) must be tightened @ 4,5 Nm +/-0,5 Nm. It's recommended to use an elastic washer (Belleville type) between screw head and silent block with spacer. Stainless steel is recommended.

M6 bolts are recommended, the screw for a fixation on a base plate fixation in thickness 1,5mm must have a length equal or higher than 20mm.

NOTA BENE : The usage of a different bracket; without LDL written approval; would void the warranty of the HUB.

Universal fixation kit can be provided by LDL. It consists of a bracket base and a bracket extension. A combination of these parts is able to fit all vehicle types.

LDL HUB bracket combinations

To link a bracket base to a bracket extension, 2 bolts are needed, type M6, length 16mm, with 2 M6 washers (1 standard type and 1 Belleville type).

6. HUB CONNECTION

After its connection onto HUB, cable must be fastened as close as possible of its HUB starting point (end of connector base).

This cable fastening must be done to minimize the effect of vibration onto the connector assembly.

From the HUB connector base to the fixation point on the bracket base, the cable curvature diameter must be higher than 100 mm.

Verify that no tension stress is applied onto the harness between HUB and the fixation point onto the vehicle chassis, this check must be done **after** connection of the harness connector

onto the HUB connector and **after** the fastening of the cable onto the bracket base. Always avoid contact between cable and shape edge of the bracket.

The connector must be secured , means 2 harpoon shapes, each side of connector, must be locked.

Nota Bene : Incorrect wiring should prevent the system to operate properly.

HUB has to be connected to +12V or +24V through 5A fuse protection.

To power supply the HUB, it has to be connected on KL31 (battery negative) and KL15 (ignition).

HUB Without external RF antenna and connected to LDL harness is IP 67.

HUB With External RF antenna and connected to harness is IP 31 oriented (droplet coming on the side opposed to the Fakra connector).

THREADLOCK

7. HUB LOCATING RECOMMENDATIONS

7.1. EXTERNAL MOUNTING (*HUB OR COG OR WLS WITHOUT EXTERNAL RF ANTENNA*)

The HUB must be fixed horizontally and upside down (Vent side facing the ground):

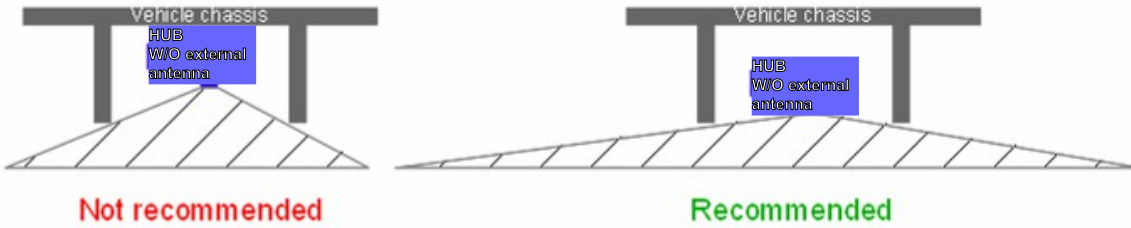
The HUB must be free from any metallic shield in all directions, except its fixation plate. The antenna should be cleared as possible to optimize RF communication and reduce areas of non-receipt.

There must be a **free area of minimum 5cm wide around the HUB in all directions, except the fixation surface.**

HUB must not be exposed to direct gritting.

Each HUB must be at a central point between the wheels that it has to receive, and aligned on the vehicle axis. ***Distance between HUB and WUS would not exceed 3 meters.***

When trailer is equipped with an EBS, HUB bracket should be fixed to EBS bracket.



Possible Location of HUB without External RF Antenna



External on Truck Cabine shell

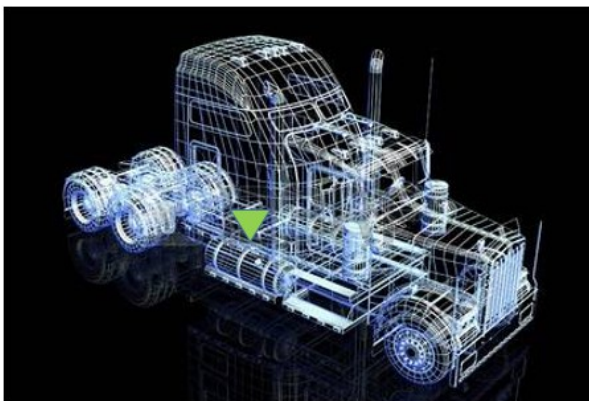


External on Truck Chassis

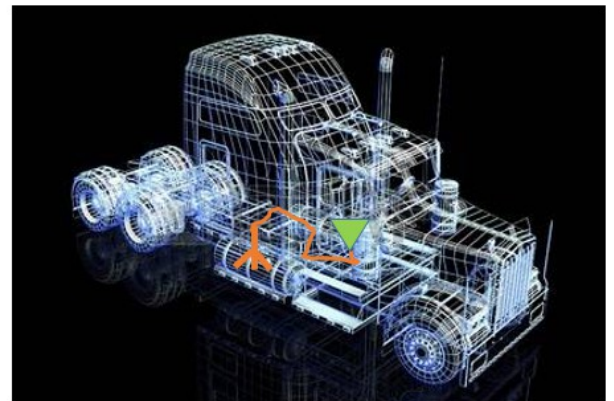


External on Trailer (COG TYPE)

7.2. INTERNAL MOUNTING (MANDATORY WITH THE EXTERNAL RF ANTENNA)



HUB internally located without External antenna : The HUB should be set as much as possible close to the geometrical center of all wheels



HUB internally located with External antenna, external antenna should be set as much as possible close to the geometrical center of wheels

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8. FCC/IC REGULATORY NOTICES

8.1. MODIFICATION STATEMENT

LDL Technology do not approve any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

LDL Technology n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peut annuler le droit d'utilisation de l'appareil par l'utilisateur.

8.2. INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules and Industry Canada licence-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.

Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

8.3. RADIATION EXPOSURE STATEMENT

This device complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Le présent appareil est conforme à l'exposition aux radiations FCC / IC définies pour un environnement non contrôlé et répond aux directives d'exposition de la fréquence de la FCC radiofréquence (RF) et RSS-102 de la fréquence radio (RF) IC règles d'exposition. L'antenne doit être installée de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec une autre antenne ou un autre émetteur.

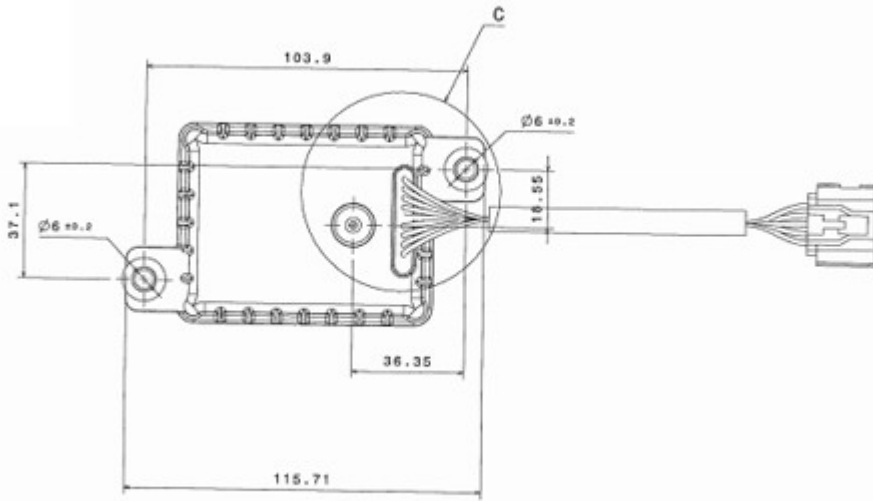
8.4. FCC CLASS B DIGITAL DEVICE NOTICE

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 or more 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.

9. APPENDIX

HUB interface dimension, see drawing below:



For external applications, vent side must be protected versus direct Water jet cleaning, this vent side must facing a wall. In order to avoid water ingress by delta pressure on captive droplet, the HUB support must be drilled on the vent zone according to the following drawing

