



LDL Technology Telematic Control Unit User Manual

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Mounting procedure
TCU 1.2
Ref : C3140690010
Version: A4

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|---|---|--|

| Internal Approval | | | |
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| Date | 11/3/2019 | 26/04/2019 | 21/05/2019 |
| Signature |  |  |  |

| COMPANY | NAME | DATE |
|---------|------|------|
| | | |

MODIFICATION LIST:

| Version | Modification date | Chapter / pages | Comments | Author |
|---------|-------------------|------------------------|--|--------|
| AO | 22/12/2016 | All | Creation | D.LUCE |
| AI | 3/5/2017 | §4 §5 §6 §7 & §9 | New Bracket and warranty conditions | D.LUCE |
| A2 | 20/10/2017 | §2;§3;§4;§6;§8;§9; §10 | Warning on installation consequences; maximum operational temp. change | D.LUCE |
| A3 | 22/05/2018 | §8 | | D.LUCE |
| A4 | 11/3/2019 | Page 17 | Add warning on coatings usage | D.LUCE |
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PURPOSE

This document is the Mounting procedure of TCU 1.2.

TCU 1.2 is a part of a Tire Pressure Monitoring System.

The Telematics Control Unit (TCU) collects information on the vehicle and transmits it over the GSM network to a back-end server. It can capture data from CAN, GPS, TPMS, or other wireless sensors.

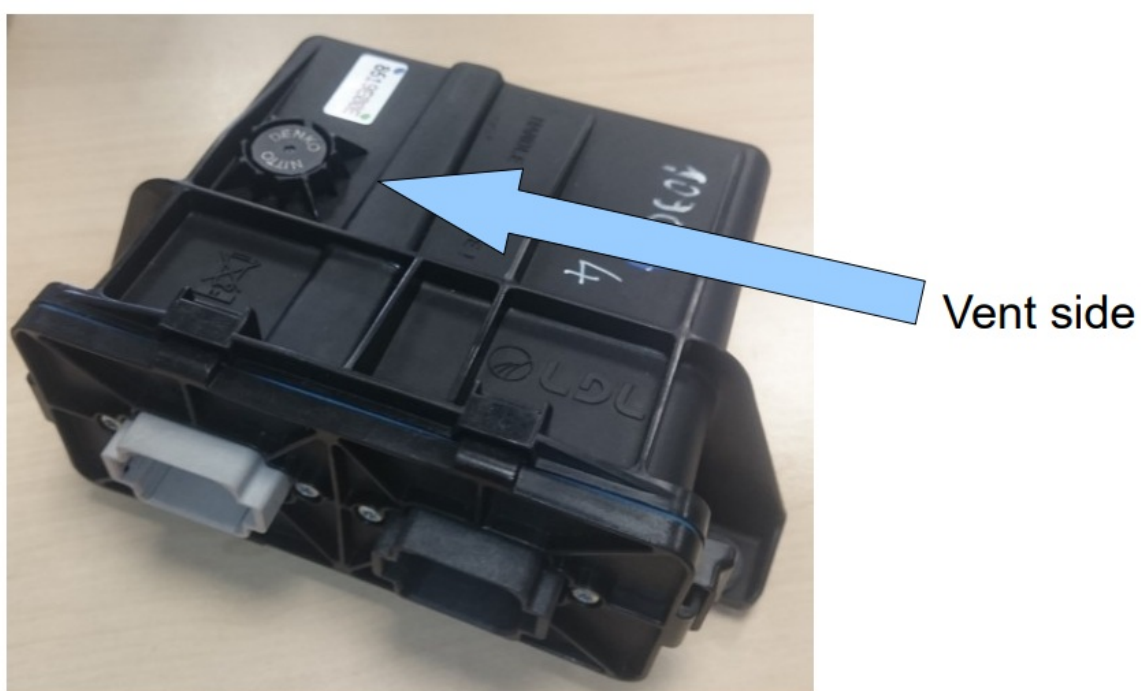
TCU 1.2 PRODUCT DESCRIPTION.

2.1. PART NUMBERS

| TCU 1.2 Part Number | Region | Model |
|---------------------|----------------------------------|-------|
| TBD | Europe Middle East Africa (EMEA) | TBD |
| TBD | Europe Middle East Africa (EMEA) | TBD |
| TBD | Europe Middle East Africa (EMEA) | TBD |
| TBD | North America (NA) | TBD |
| TBD | North America (NA) | TBD |

2.2. EXTERNAL DESCRIPTION

| Part | Material | Characteristics |
|------------------------|----------------------|-------------------|
| TCU | all electronic parts | – |
| 1 Housing | Thermoplastic | Black |
| 1 Cover | Thermoplastic | Black |
| 1 or 2 DT 06 connector | Thermoplastic | Black and/or Grey |
| 8 Screws | Stainless Steel | Autoforming type |
| 3 Silent-blocks | EPDM | Black |
| 3 Spacers | Stainless steel | Up to M6 screw |
| 1 Nitto Vent | NA (assembly) | Black – IP69K |



MAIN FEATURES

3.1. ELECTRONIC FEATURES

| | |
|--|-----------------------------------|
| Power supply (5A fuse protected) | 7 to 32 VDC |
| Operating current | 1 A |
| Integrated Battery Power Supply (park model) | 3,65 VDC |
| Temperature operating range | -40°C to 80°C |
| Storage temperature range | 0 to 30°C |
| Legal Regulations | FCC/IC PTC E marking RED |
| Antennas (GSM, GPS, and RF) | Internal |

3.2. MECHANICAL FEATURES

| | |
|------------------------------|------------------------|
| Total Mass | 490 g |
| Dimensions (L x W x H) | 160 x 180 x 75 mm |
| 1 or 2 Connector(s) (8 Ways) | Deutsch DT06 series |
| Tightness | IP 68 & IP69K |
| Mounting | LDL Brackets (see §4) |
| Wiring | LDL harnesses (see §6) |

3.3. CONNECTOR PINOUT

WARNING / See Product/System Specification

TCU1.2 MOUNTING INTERFACE

The TCU 1.2 is mounted on a plane surface fixed on the vehicle frame. The TCU 1.2 has 3 mounting points equipped with silent blocks. The TCU 1.2 must be fixed on support (available on demand). This support (“TCU 1.2 interface”, also called “Bracket base”) is defined in the appendix.



C0 type



D0 type

TCU 1.2 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 the screw head and silent block with a spacer.

Stainless steel is recommended.

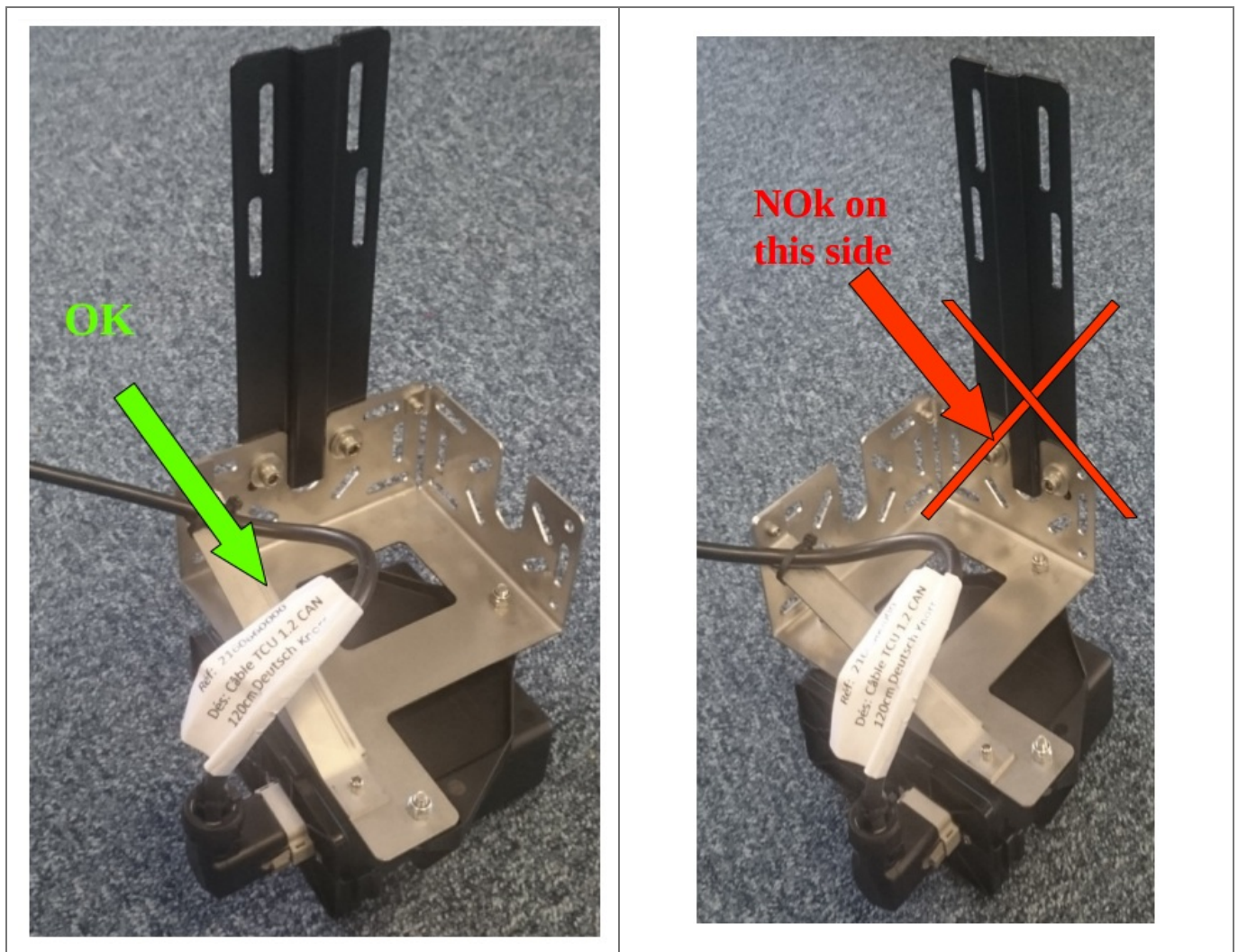
M6 bolts are recommended, the screw for a fixation on a base plate fixation in thickness of 1,5mm must have a length equal to or higher than 20mm.

NOTA BENE: The usage of a different bracket; without LDL written approval; would void the warranty of the TCU 1.2.

A 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.



TCU 1.2 onto support



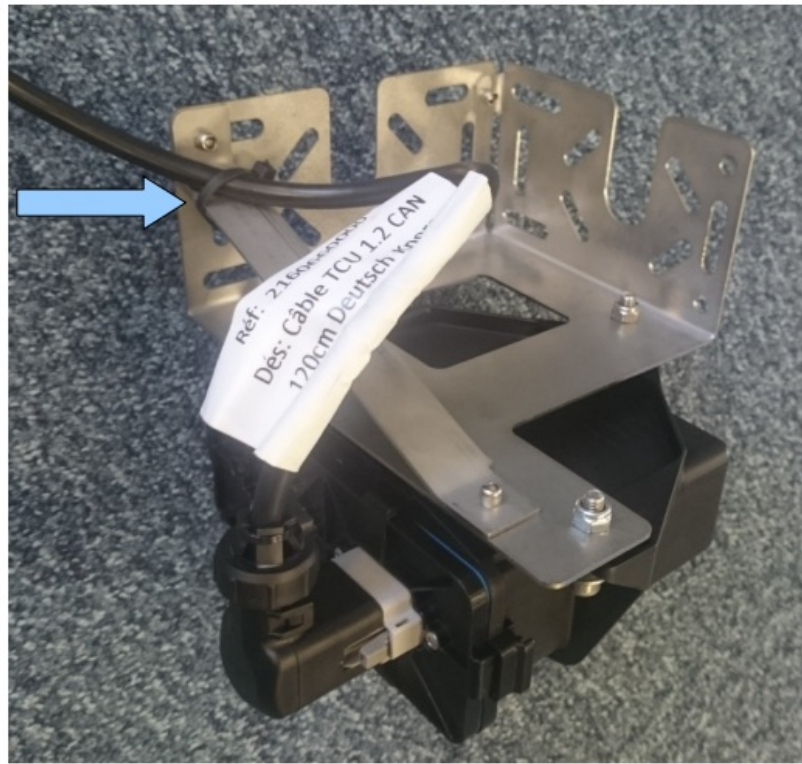
LDL TCU 1.2 bracket combinations

Note: on some harnesses, the back shell can be mounted in an opposite direction (rotation @ 180° versus pictures are shown on this page)

TCU 1.2 CONNECTION

This cable fastening must be done on a hole in the bracket base to minimize the effect of vibration on the connector assembly, see the picture below:

Fastening
point



From the TCU 1.2 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 TCU 1.2 and the fixation point onto the vehicle chassis, this check must be done after connection of the harness connector onto the TCU 1.2 connector and after the fastening of the cable onto the bracket base. Always avoid contact between the cable and the shape edge of the bracket.

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



NOK



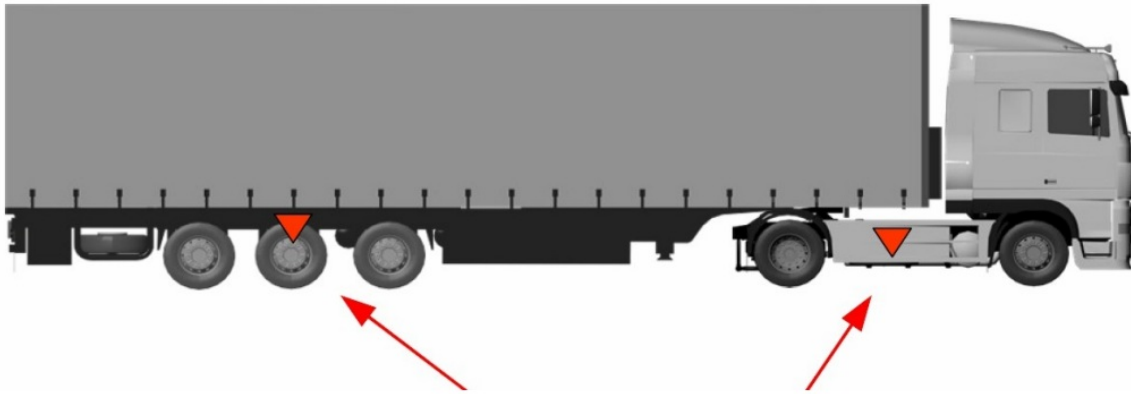
OK

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

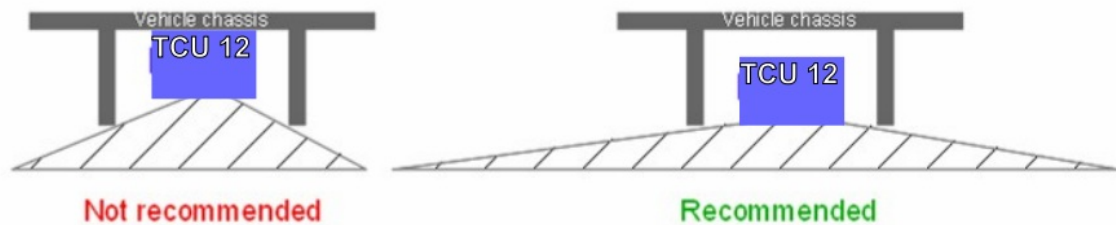
- ✓ TCU 1.2 has to be connected to +12V or +24V through 5A fuse protection.
 - ✓ To power supply the TCU 1.2, it has to be connected on KL31 (battery negative) and KL15 (ignition).
 - ✓ When TCU 1.2 and ECU or EBS are connected to the same CAN network, they must share the same ground.
- LDL Technology can provide the wiring harness; ask LDL for details TCU 1.2 connected to LDL harness are IP69K & IP 68.

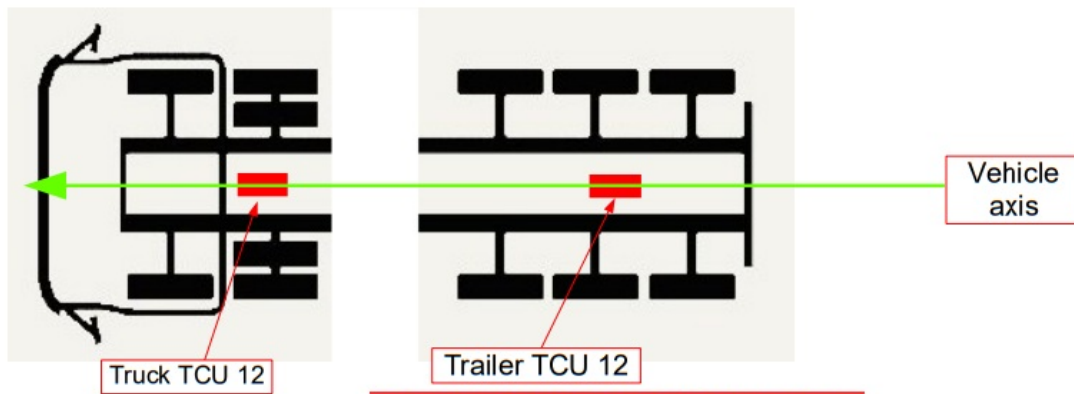
TCU 1.2 LOCATING RECOMMENDATIONS

The TCU 1.2 must be fixed horizontally and upside down (Vent side facing the ground):

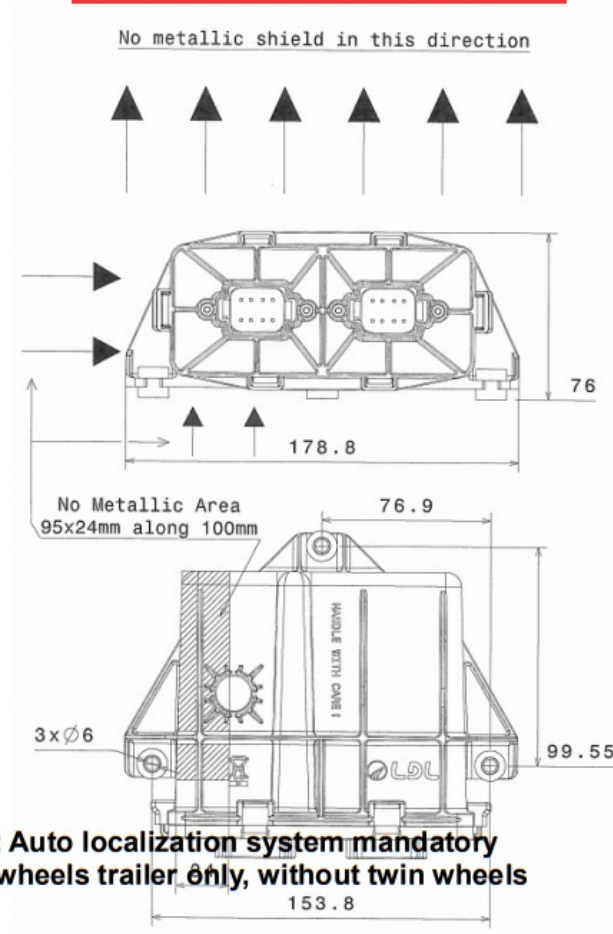


- ✓ The TCU 1.2 must be free from any metallic shield in the Z direction.
The antenna should be cleared as possible to optimize RF communication and reduce areas of non-receipt.
- ✓ There must be a free area of a minimum of 5cm wide around the TCU in all directions.
- ✓ TCU 1.2 must not be exposed to direct gritting.
- ✓ Each TCU 1.2 must be at a central point between the wheels that it has to receive, and aligned on the vehicle axis. The distance between TCU 1.2 and WUS would not exceed 3 meters.





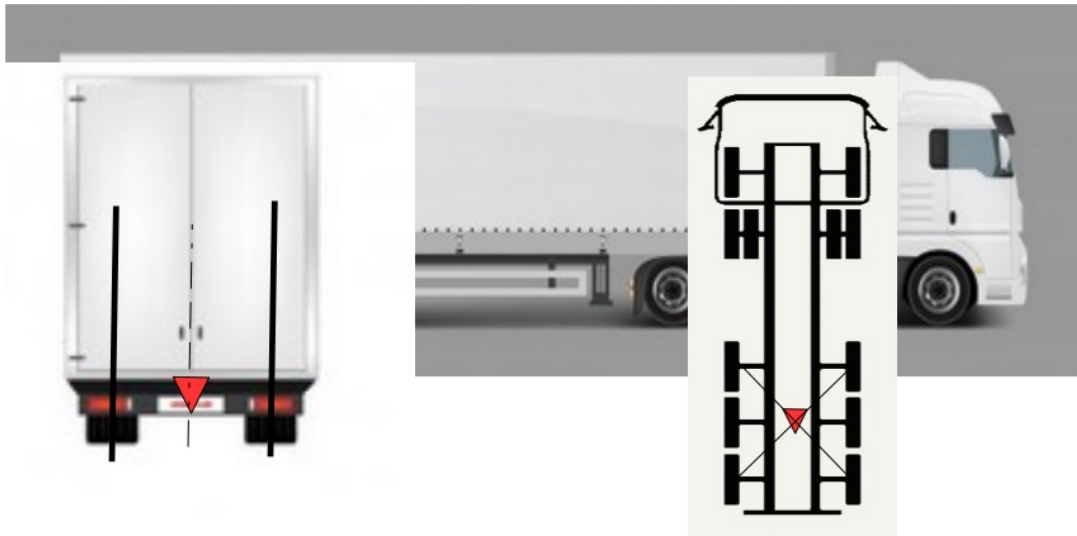
MANDATORY TCU 1.2 location:



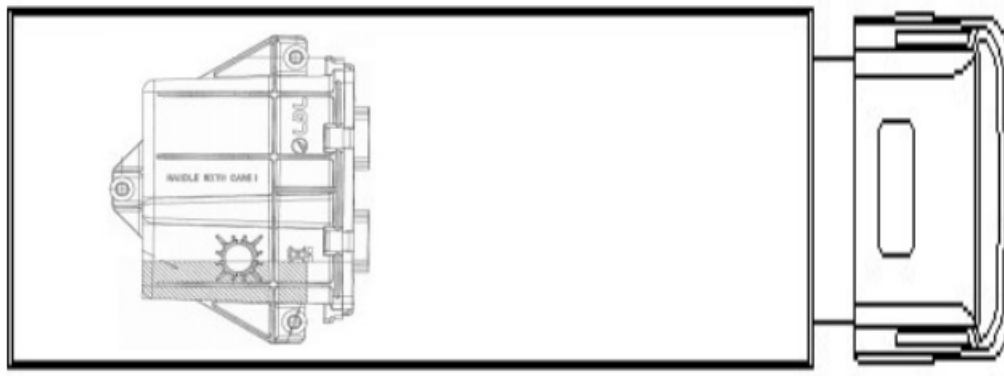
NOTA BENE : Auto localization system mandatory requests a 6 wheels trailer only, without twin wheels

RECOMMENDATIONS FOR AUTO-LOCALIZATION

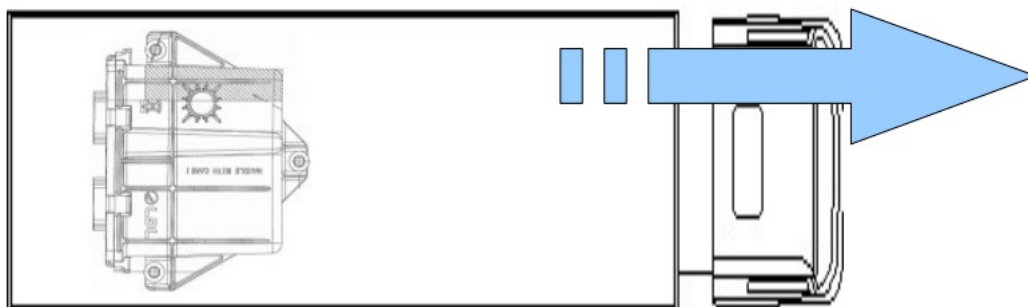
The TCU 1.2 must be fixed horizontally and upside down (Vent side facing the ground):



Also, the TCU 1,2 must be fixed on the geometrical center of the rear axles, as close as possible to the central wheel axis. Locating tolerance is about +/- 20 cm



Orientation of the TCU 1.2 versus driving direction must be in one of the two followings settings:



FCC/IC REGULATORY NOTICES

9.1. MODIFICATION STATEMENT

LDL Technology does 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.

9.2. 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.

9.3. 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 a minimum distance of 25 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

9.4. 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.

GENERAL ADVERTISING / CONSIGNES GENERALES

System installation must be done by qualified technicians for Electrical and Mechanical operations. These operators must be trained specifically to operate on LDL products before processing.

In general, technicians have to respect :

- Safety instructions from the vehicle manufacturer
- Safety instructions from the vehicle owner
- Dedicated clothes and protections are recommended as gloves, glasses, reinforced shoes, helmet,...

Before processing, the vehicle must be secured in a parking position, the working zone must be clean and sufficiently enlightened. The work area must be secure and ensure a restricted access layout.

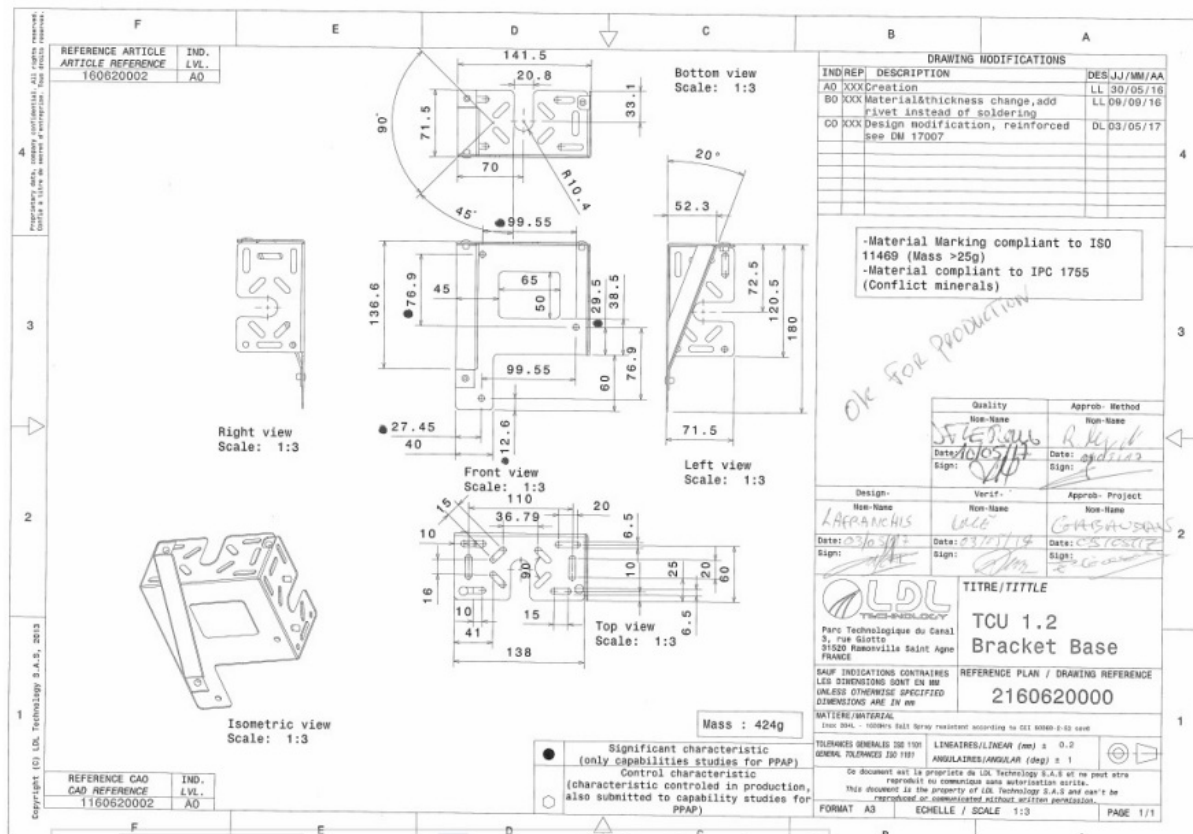
If a part of the system is damaged in operation, replace it only with original equipment from the original supplier, this is the way to insure optimal system safety.

A periodic check is recommended on system integrity (fixation, connection,...) according to the vehicle owner's maintenance plan.

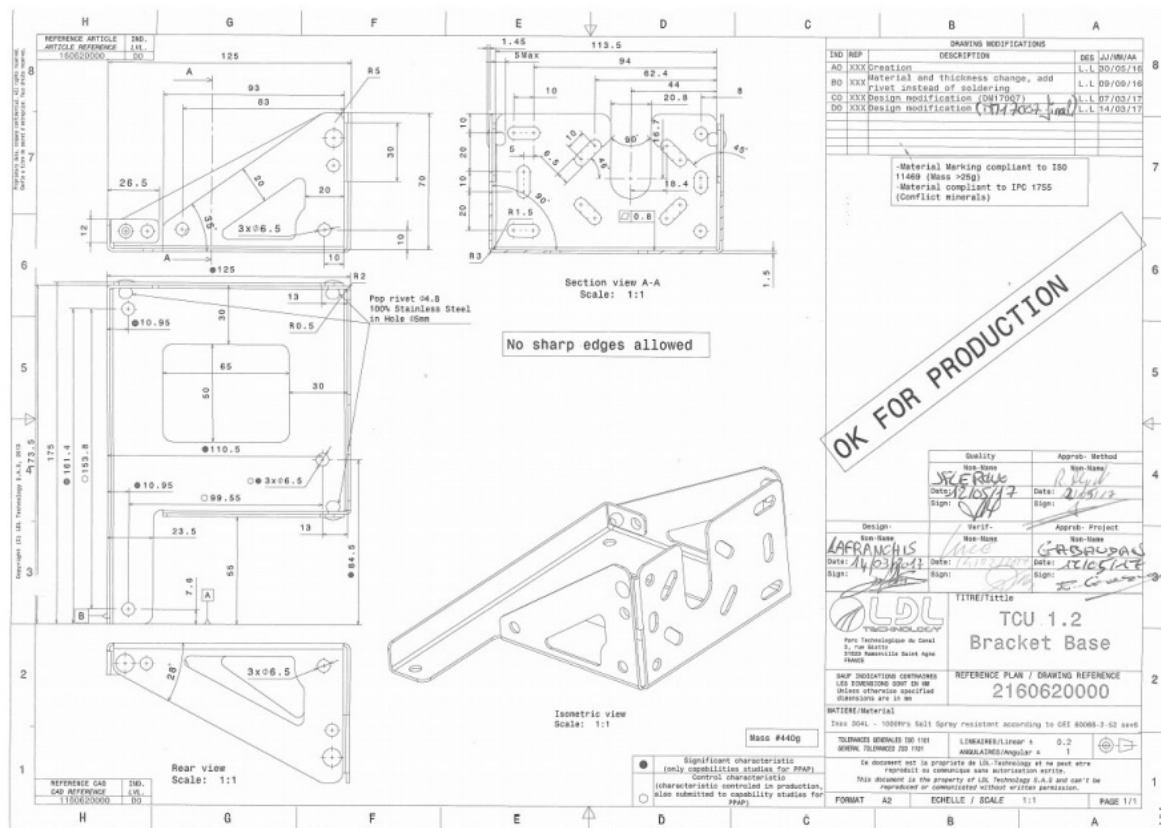
Respect instructions on electrical skills as :

- Put power off before processing
- Do not bend cables more than the minimum curvature radius: of 15 cm
- Do not install cables close to the warm area (engine,...) or parts in rotation or displacement
- Connectors must be clean and dry before assembly, verify the correct lock of the final assembly
- Flying harness must be fastened 10 cm around the connection zone, and not on a sharp edge frame.

APPENDIX



TCU 1.2 interface dimension, see drawing below ref. 2160620000 C0 or D0



WARNING

It is recommended to use holes already available for fixing the bracket. Vehicle chassis must not be drilled, only restricted areas are authorized to drill as :

- EBS support frame
- Suspension Stroke sensor frame

– Other frames are dedicated to supporting accessories

WARNING

THIS CONTROL UNIT MUST NOT BE RECOVERED BY PAINTING, VARNISH; OR OTHER COATING AS BLACKSON TYPE. THIS COVERING WILL DECREASE THE MECHANICAL STRENGTH OF THE HOUSING AND ALSO GENERATE PERTURBATIONS IN THE DATA TRANSMISSION.

C3140690010-A4-TCU12_Mounting_Specification_MOD.odt
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Documents / Resources

| | |
|---|--|
|  | LDL Technology Telematic Control Unit [pdf] User Manual 19239, T4519239, Telematic Control Unit, Control Unit |
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