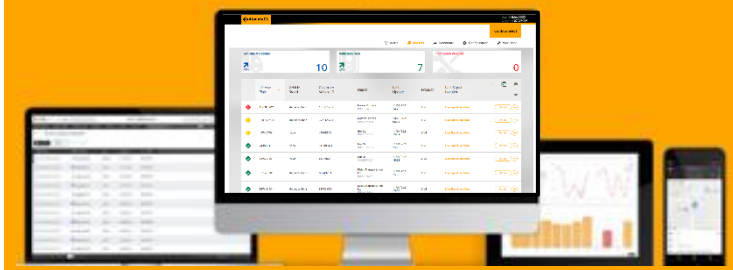
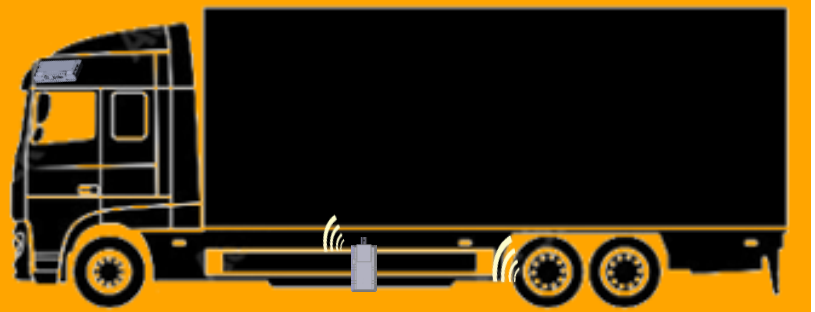

Continental
The Future in Motion
ContiConnect Live via QUESTAR
Driving Knowledge
Installation training
Technical Customer Services

Agenda





Continental

QUESTAR
Driving Knowledge

Installation sequence

Installation preparation

- Check, which and how many units are required for the respective vehicle
- In case of a truck, choose the best connection type/harness for the In-Cabin Unit

Sensor installation

- Glue the Tire Sensors into the tires
- Mount the tires to the vehicle

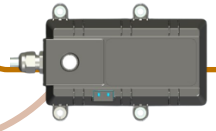
ContiConnect

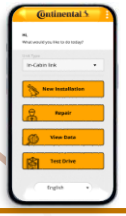
Vehicle creation in ContiConnect

- Create *Check all tires file or a ContiConnect upload* with the Hand-Held Tool
- Create vehicle in ContiConnect following *ContiConnect 2.0 –Vehicle creation.pdf*

Preliminary installation of the units

- Install the units in a temporary manner to allow easy correction, if required
- Establish power and, if required, CAN connection





System activation and verification

- Install and run the Installer App to set up the system and check reception quality
- Follow the instructions in the app
- Perform test drive (for min. 17 minutes & >25km/h) and check in either the App or CoCo if all data is received

Conclusion of the installation

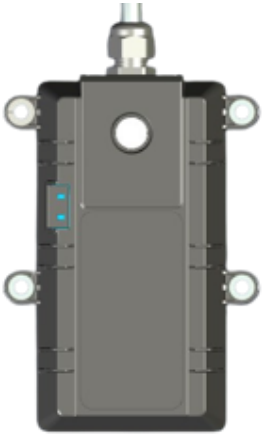
- If recommended by the Installer App, correct location or number of receiving devices
- Fix units and harnesses in a permanent manner

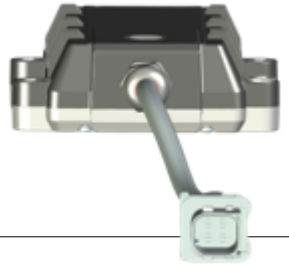
Hardware

Hardware

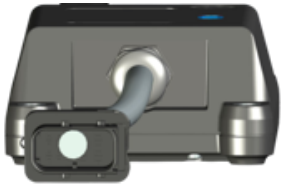
In-Cabin Unit

Enabler Unit





Trailer Unit

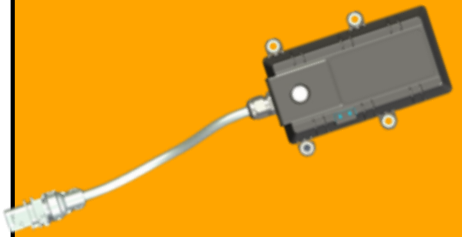


Hardware

In-Cabin Unit

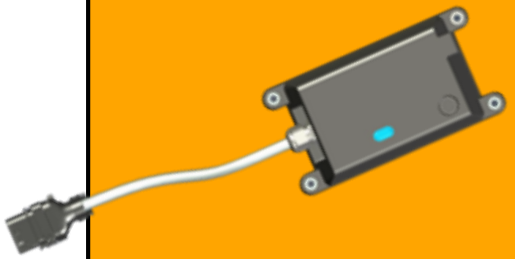
- IP 42
- 6 pin
- 2G/4G CATM / 4G CAT1, cellular
- Gyro
- Internal GPS and cellular
- RF 433 MHz
- CANBUS x2
- CANBUS FD (Third CANBUS)
- J1708 Support
- Internal battery

Enabler Unit



- IP 69K
- Small size & weight
- 6 pin
- RF 433 MHz
- Works as a repeater

Trailer Unit



- IP 69K
- 2G/4GM/4G1 cellular modem
- Gyro
- Internal GPS and cellular
- RF 433 MHz
- Internal battery (For daily wake-up in standstill)

All units need only power supply. The communication between the units is wireless. Simply chose the nearest constant power source (side lamp, battery, fuse/trailer box or others).

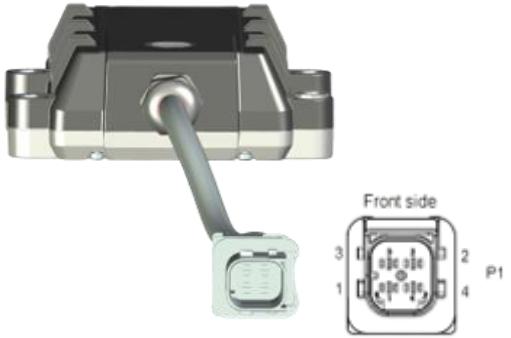
In-Cabin Unit

Pin	Signal Name	Description	Wire Colors
1	**(+)**	Battery Positive – Unit Main Power +9VDC to +32VDC	Red
2	**Ignition**	Ignition sense Input	Green
3	**Analog In3**	Analog Input 3 with Pullup option (Max 52V)	Orange
4	**CAN 0 High**	CAN Bus 0 (Read-write by default) High	Orange / White
5	**CAN 0 Low**	CAN Bus 0 (Read-write by default) Low	Yellow / White
6	**(-)**	Battery Negative (GND)	Black

The In-Cabin Unit is receiving signals directly from the sensors and from the Enabler Unit.
It is sending the information each 5 min to the backend (special events, like e.g. a fast pressure loss, will be send immediately).
The connection to the vehicle CAN is not a must to use the device as CoCo live enabler!
It will deliver the vehicle mileage to CoCo (enabled with CoCo 2.0)

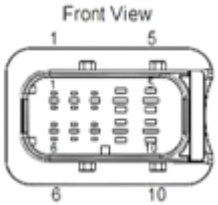
Internal battery for a controlled shutdown of the unit
and covering short power disruptions.

Enabler Unit



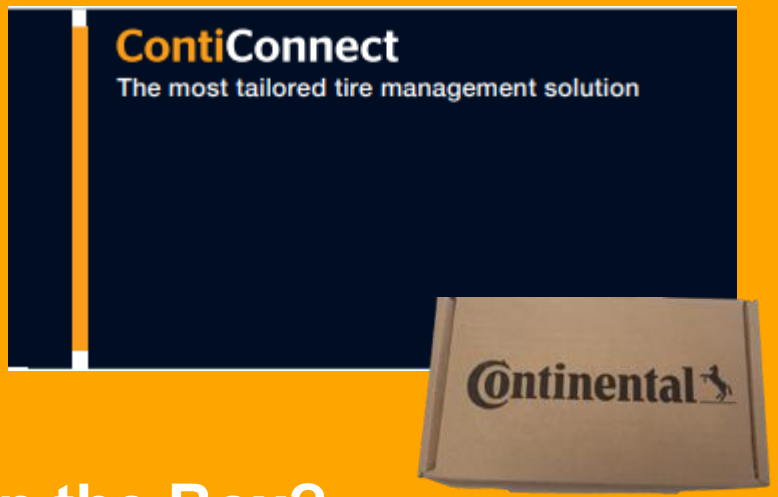
Pin	Signal Name	Description	Wire Colors
1	(+)	Battery Positive – Unit Main Power +9VDC to +32VDC	Red
2	RS232 RX	RS232 receive	Light blue
3	(-)	Battery Negative (GND)	Black
4	RS232 TX	RS232 transmit	Pink

Trailer Unit



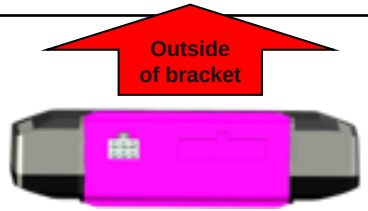
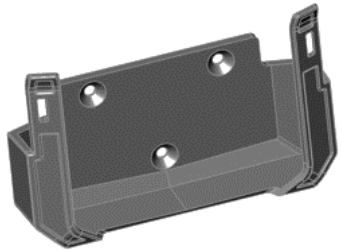
Pin	Signal Name	colors
1	CAN-H	Orange/White
2	Output 1	White/Black
3	RS232-TX	Pink
4	IGN	Green
5	POWER-IN	Red
6	CAN-L	Yellow/White
7	NC	NC
8	RS232-RX	Light Blue
9	GND	Black
10	GND	Black

The Trailer Unit is equipped with a battery which enables the unit to send data to CoCo daily (up to 4 weeks) when not connected to external power source.
The units are delivered with a partly charged battery, which enables usage of 8-10 days and should be connected to power for recharging latest after that period.



The Kit – what's in the Box?

In-Cabin Unit (EU package)

Component Description	Picture
In-Cabin Unit	
Bracket	

Harnesses

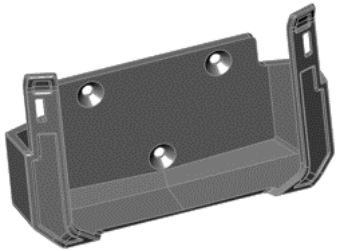
DTCO

FMS

CAN

DTCO or FMS shall be used as preferred option!

In-Cabin Unit (US package)

Component Description	Picture
In-Cabin Unit	
Bracket	

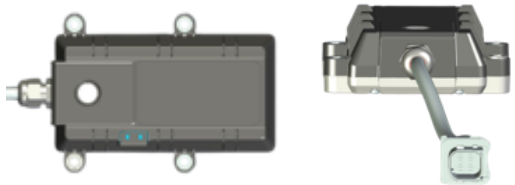
Harnesses

OBD

9PIN

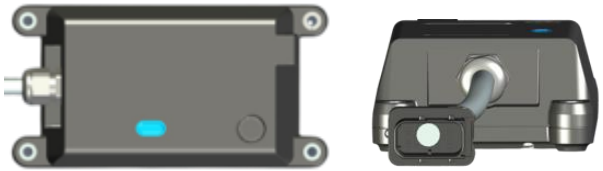
CAN

Enabler Unit

Component Description	Picture
Enabler Unit	
Bracket	
Screw bolts	

Harness (6m) + fuse

Trailer Unit

Component Description	Picture
Trailer Unit	
Bracket	
Screws	

Trailer Harness (8m)
+ fuse

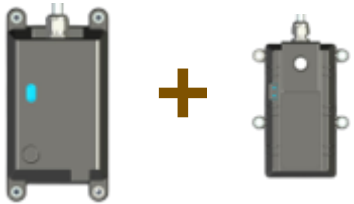
Vehicle types- trucks & buses

Trailer

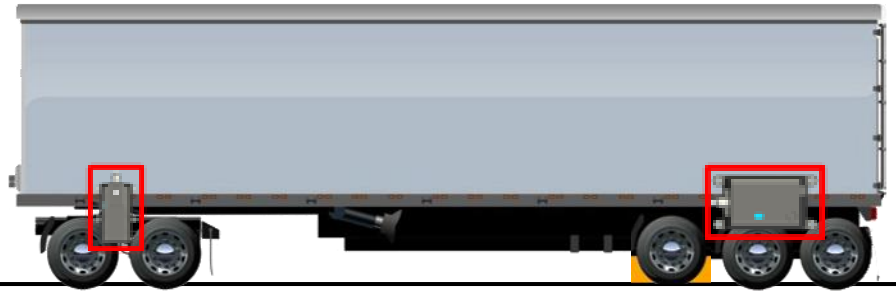
For the installation of an “ATL trailer” without solo function a truck with an In-Cabin Unit is required (GSM connectivity).
Only an Enabler Unit on the trailer is needed. (s. CoCo set up on page 28)
(to completely monitor the truck an additional Enabler Unit on the truck is needed as well, s. following pages)

Trailer Unit

Trailer Unit + Enabler Unit



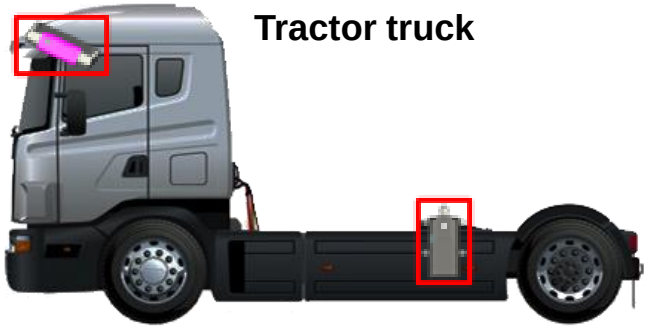
Trailer



Truck/Bus

In-Cabin Unit + Enabler Unit

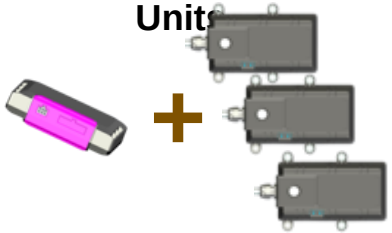
Tractor truck



In-Cabin Unit + Enabler Unit

Full vehicle 1

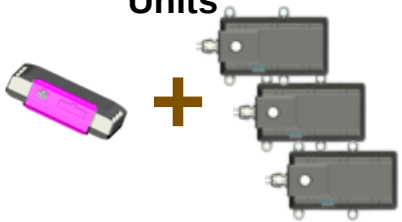
In-Cabin Unit + 3 Enabler Units



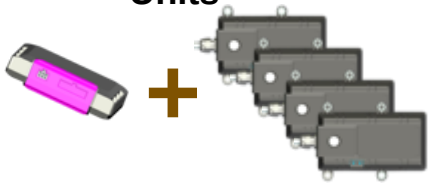
In-Cabin Unit + 2 Enabler Units

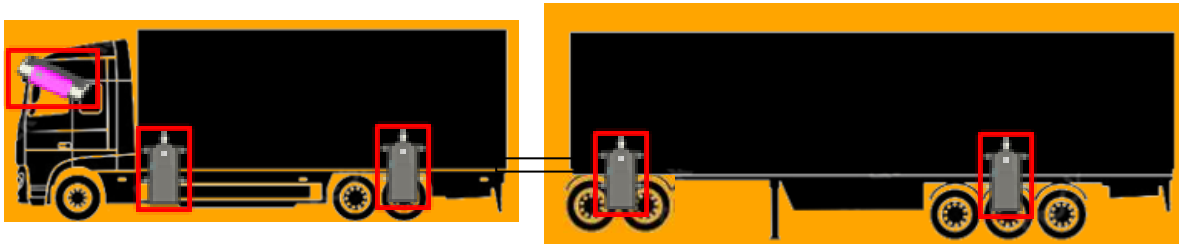
Full vehicle 2

In-Cabin Unit + 3 Enabler Units



In-Cabin Unit + 4 Enabler Units





What to order?

Truck:

- In-Cabin
  - Unit (17342160000 In-Cabin Unit incl. Bracket)
  - Harness (e.g. 17342290000 DTCO Connector)

- Enabler Unit
  - Unit (17342210000 Enabler Unit)
  - Bracket (17342500000 Bracket Enabler Unit - long)
  - Harness (17342200000 Power Supply Harness Enabler Unit)

- For long vehicles or vehicles with ≥3 axles an additional Enabler Unit is recommended. E.g:

Trailer:

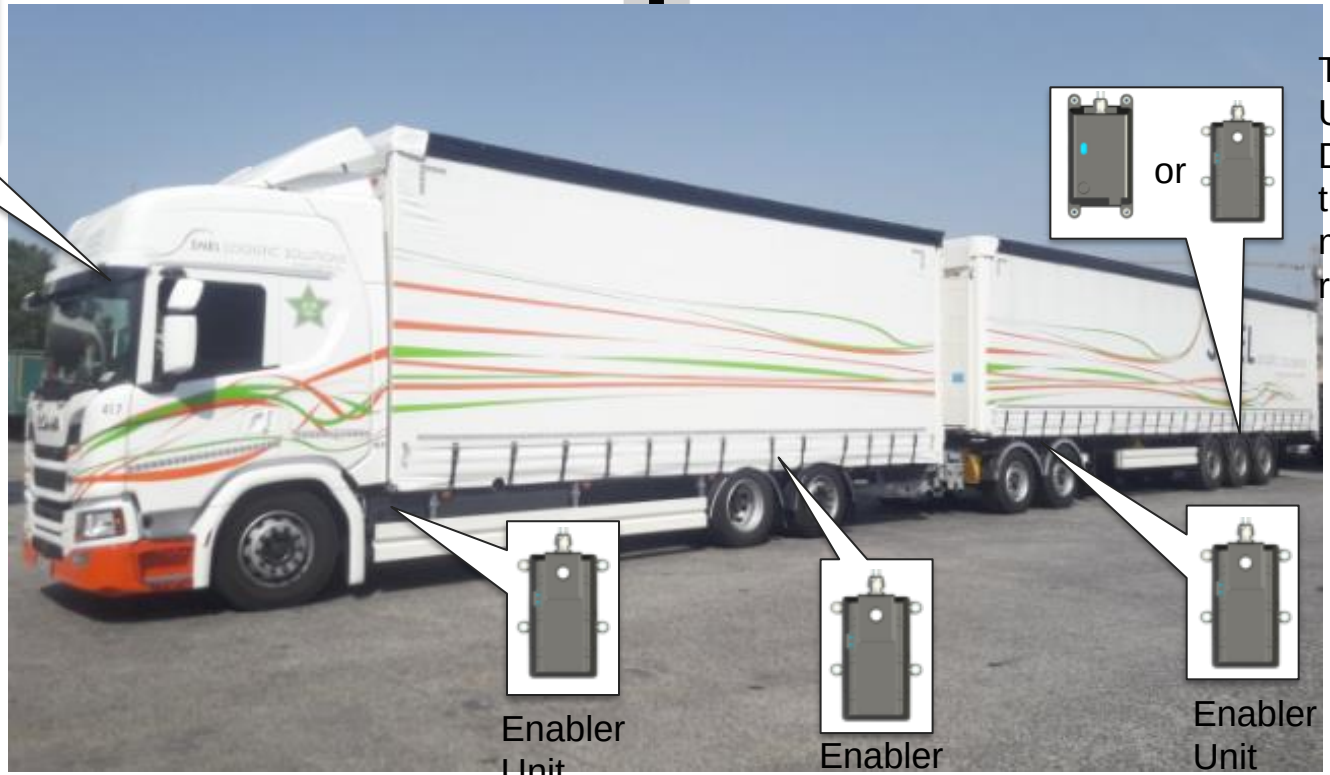
- Trailer Unit
  - Unit (17342170000 Trailer Unit)
  - Bracket (17342490000 Bracket Trailer Unit)
  - Harness (17342330000 Power Supply Harness Trailer)

- For special trailer constructions an additional Enabler Unit is recommended. E.g.:

Unit installation location

Where & what should be installed?

In-Cabin Unit



Trailer or Enabler Unit - Depending if trailer standalone monitoring is required

Installation process

Installation process

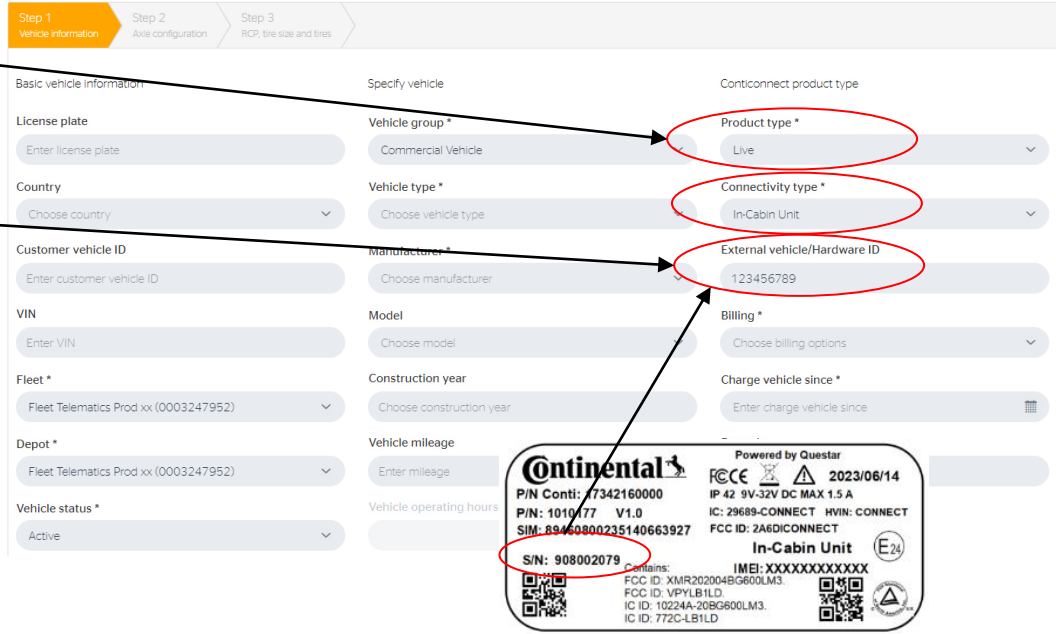
General Overview

↓ Always conduct in this sequence ↓

(1) Make sure there are sensors in all tires!
(2) Set up the vehicle in CoCo (customer needs the *LIVE* option activated)
    (1) check all tires with HHT (in case of married use vehicle type truck in HHT)
    (2) upload to CoCo and configure as CoCo live
    (3) enter unit SN as *External vehicle ID*:
        (1) Truck / Married: SN of In-Cabin Unit;
        (2) ATL-Trailer: s. next slide
        (3) Standalone Trailer: SN of Trailer Unit

(3) Hardware Installation
    (1) In-Cabin Unit to be connected to power, ignition and CAN (either Tachograph, FMS or anywhere else – CAN connection is not a must to use the unit and transfer CPC data to CoCo)*
    (2) Enabler Unit and Trailer Unit only to be connected to power

(4) Installer App
    (1) The units are activated with the Installer App (page 62)
    (2) Guide through Installer App and finish process as described there



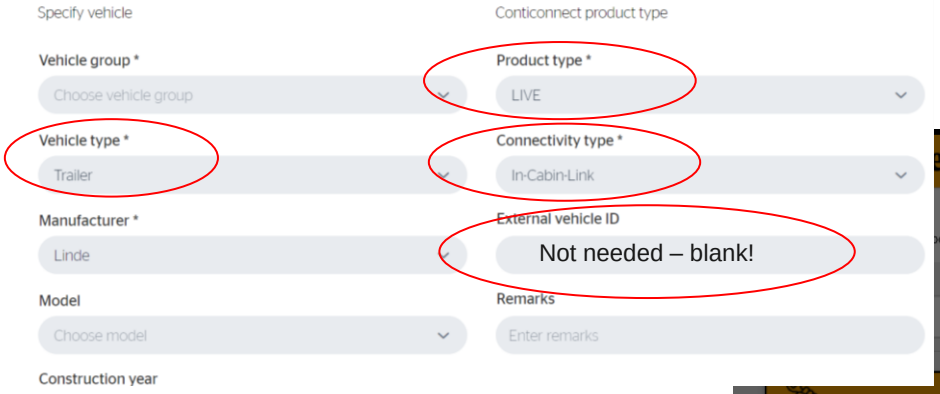
*The In-Cabin Harness must be at least connected to power and ignition.
In case constant power is not used, no data will be transferred, if ignition is off (Power consumption of the In-Cabin Unit is very low).

Installation process

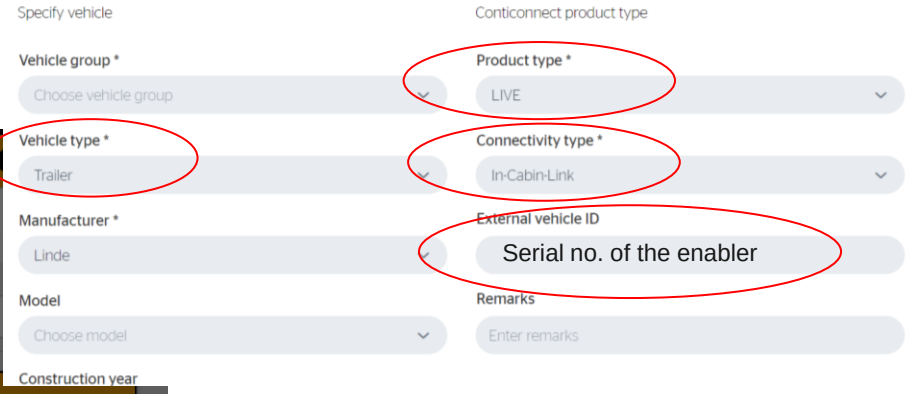
ATL-Trailer

For the installation of an “ATL trailer” without solo function a truck with an In-Cabin Unit is required (GSM connectivity).
An Enabler Unit can be installed either on the rear of the truck or if reception is not sufficient on the trailer itself.
The trailer needs to be created as separate vehicle in CoCo:

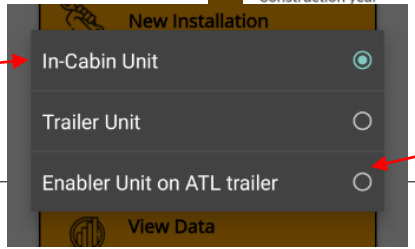
If the E**nabler Unit is on the truck**:



If the E**nabler Unit is on the trailer**:



Installer App -> Enabler Unit to be assigned to the In-cabin Unit of the truck



Installer App -> Enabler Unit to be assigned to a ATL trailer

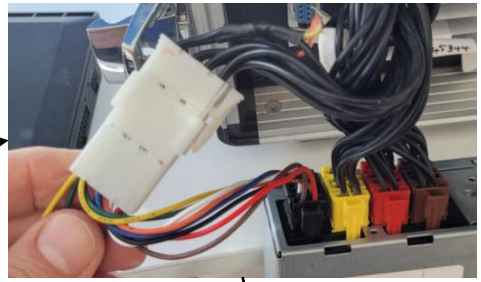
1. DTCO

Area to place unit and DTCO harness

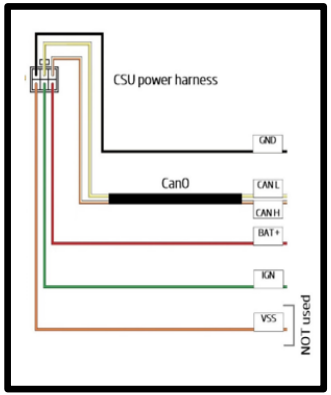
Caution: Insert Workshop card before altering any tachograph connections.
This cable is a splitter – occupied plugs can be used for existing and our connection (bridge).

Unplug left (white) connector and bridge with DTCO harness connector

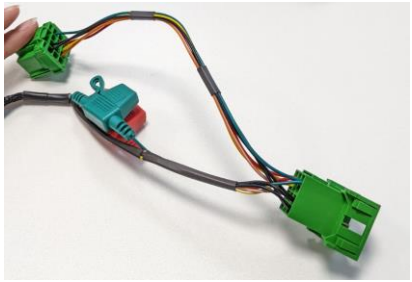
(check LED status, red and green should flash slowly after few minutes)



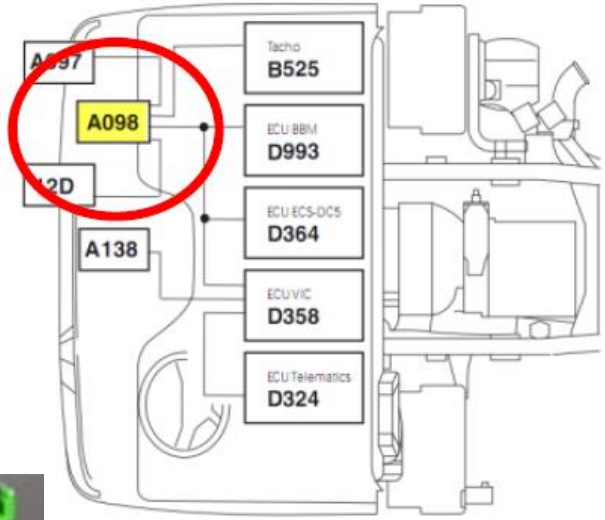
SOCKET & PIN NUMBER	FUNCTION	ADDITIONAL INFO
A1	**Power from battery**	[30]
A3	**Ignition**	[15]
A4	CAN H	
A5	**Ground from battery**	[31a]
A7	CAN GND	
A8	CAN L	



2. FMS



Optionally an **FMS splitter harness** is available if the port is already taken



signal	pin
GND	1 + 4
CAN H	6
CAN L	9
IGN (15)	10
POWER (30)	12

2. FMS location

3. CAN harness

Only use if:

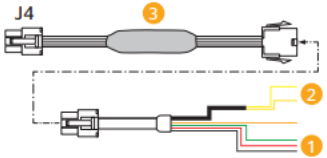
- Unable / forbidden to connect to DTCO
- Unable / forbidden to connect to FMS

- Open end harness

- Find according to the vehicle electric diagram the connections to:
  - Power (red – plus; green – ignition; black – ground)
  - Can Bus (yellow/white – low; orange/white – high)
    (If direct connection not wanted, use an inductive CAN reader instead)
  - Analog cable (orange – not used)

Check with vehicle electrician where best to source power and where to connect to the vehicle CAN; Ignition (green) and Plus (red) must be both connected; if only one connection is available on the vehicle, connect both cables to it.

Minimal wiring



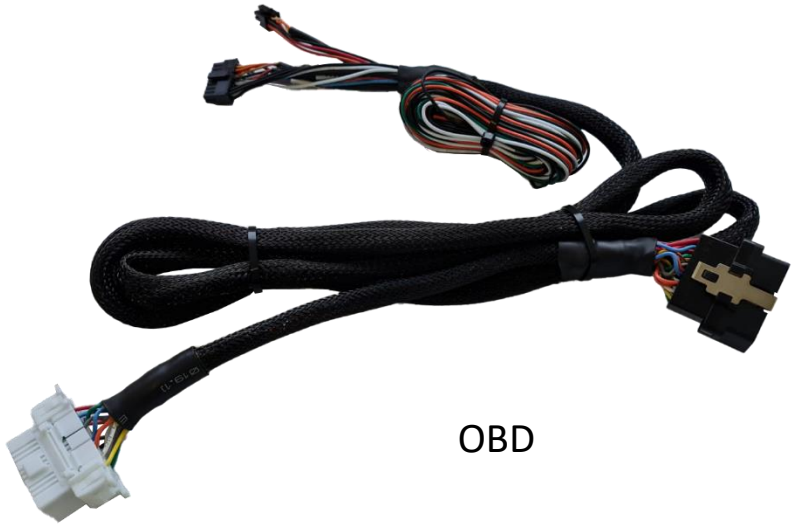
1. Power and Ignition
2. CAN-bus
3. Filter harness

The following table shows how the wires must be connected to the vehicle:

Pin	Signal name	Connect to	Wire color
1	+ VDC	Battery over separate fuse	red
2	Ignition	Ignition signal over separate fuse	green
3	Analog In3	Not used. Isolate open end.	orange
4	CAN 0 (H)	CAN-bus H (optional)	orange/ white
5	CAN 0 (L)	CAN-bus L (optional)	yellow/ white
6	GND	Vehicle ground socket or chassis	black

4. 9PIN / OBD

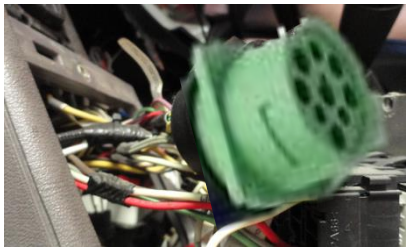
9PIN



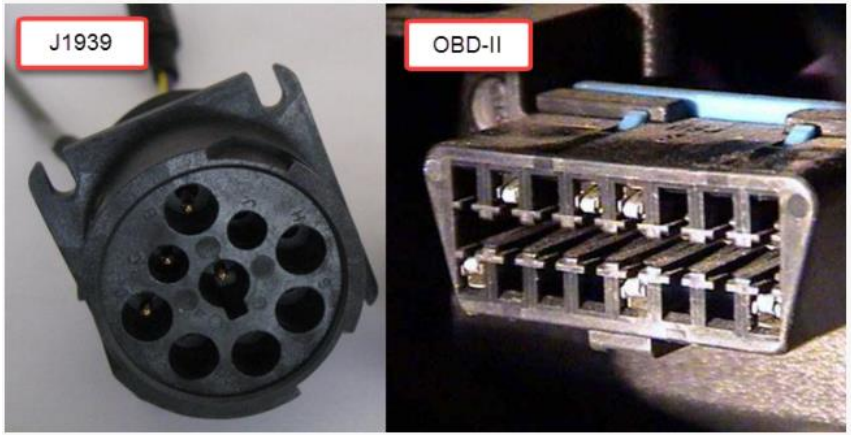
OBD

US option only

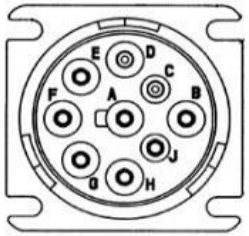
4. OBD



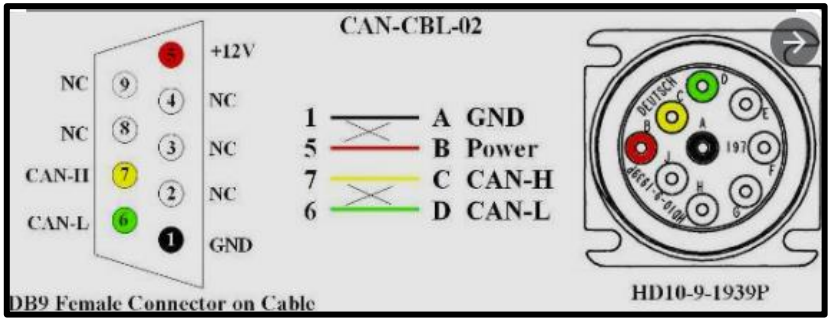
4. OBD/9PIN



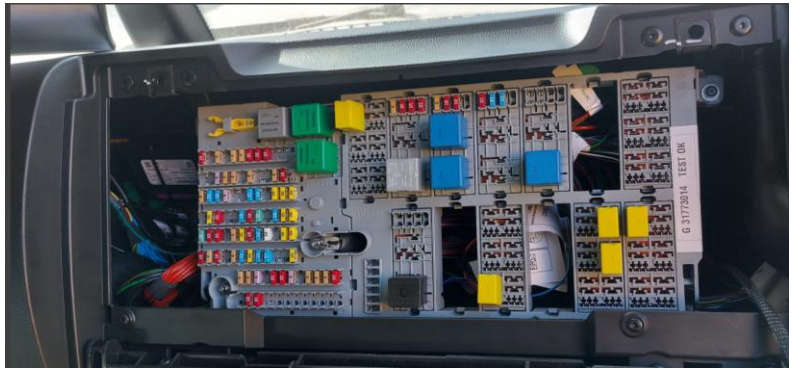
Pin	Value
A	Ground
B	+12V
C	CAN1/J1939 Hi
D	CAN1/J1939 Lo
E	CAN1/J1939 Shield
F	J1708/J1587 Hi
G	J1708/J1587 Lo
H	OEM Specific
J	ISO9141 K-Line



9-Pin Deutsch – PACCAR (J Used for ISO9141 K-Line)

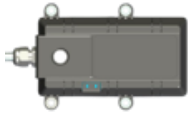


In-Cabin Unit installation



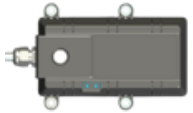
- Keep the additional sticker with Serial number (SN) and IMEA in a place easy to access for future maintenance

- Install the unit in a way that:
  - it becomes an integral part of the vehicle but is still easily accessible for maintenance work.
  - its mounting does not generate vibrations, or the device can come loose due to vibrations and shocks
- The harnesses must be well tide to the vehicle body in order to avoid vibration and damage for the device connector.
- The harness between the plug and filter must also be well fixed with zip ties in order to avoid vibration and damage for the device connector.

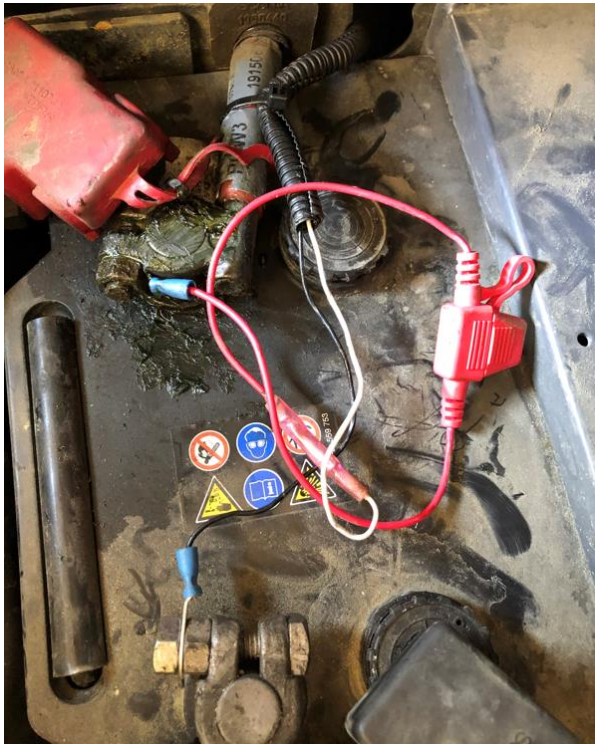


Enabler Unit

- Needs to be connected to power source only (e.g., directly to the battery, sidelamp, …).
- Harness can be trimmed.
- Do not forget to install the fuse.
- Position the unit in a way that there is as less objects as possible between it and the tires. Also avoid installation at/near moving parts.
- Mount the bracket with the two given screws and nuts on the vehicles' frame.
- Avoid drilling in frame.
- Place the Enabler Unit vertically on the bracket as shown in the picture.
- The harness must look up.
- The antenna area (where the sticker is and no harness nor screws) must face the street.

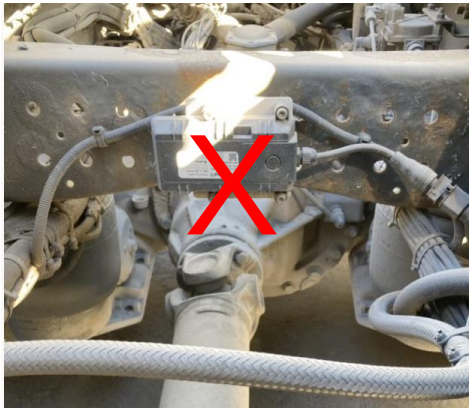


Enabler Unit



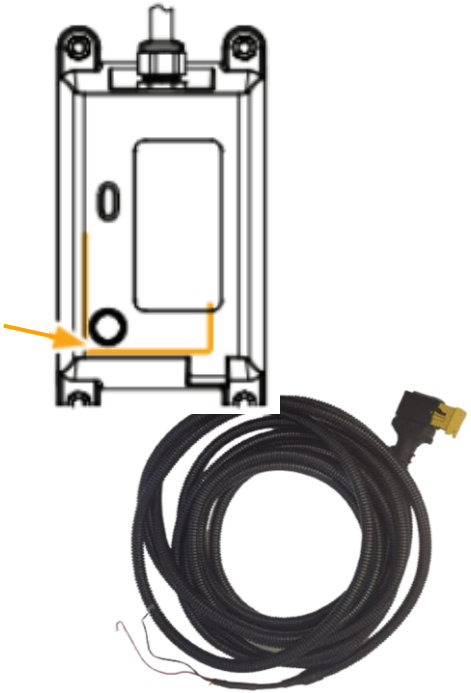
Enabler Unit installation

- DOs:
  - As low as possible to ensure best reception to tires
  - Bracket and Enabler Unit as well as harness must be properly fixed to avoid damage



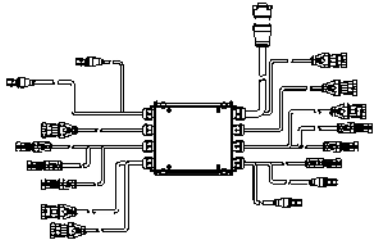
- DON`Ts:
  - Upside down orientation on the bracket
  - Close to moving parts (possible damage)
  - Surrounded by many parts (bad reception)
  - Horizontal positioning

Trailer Unit

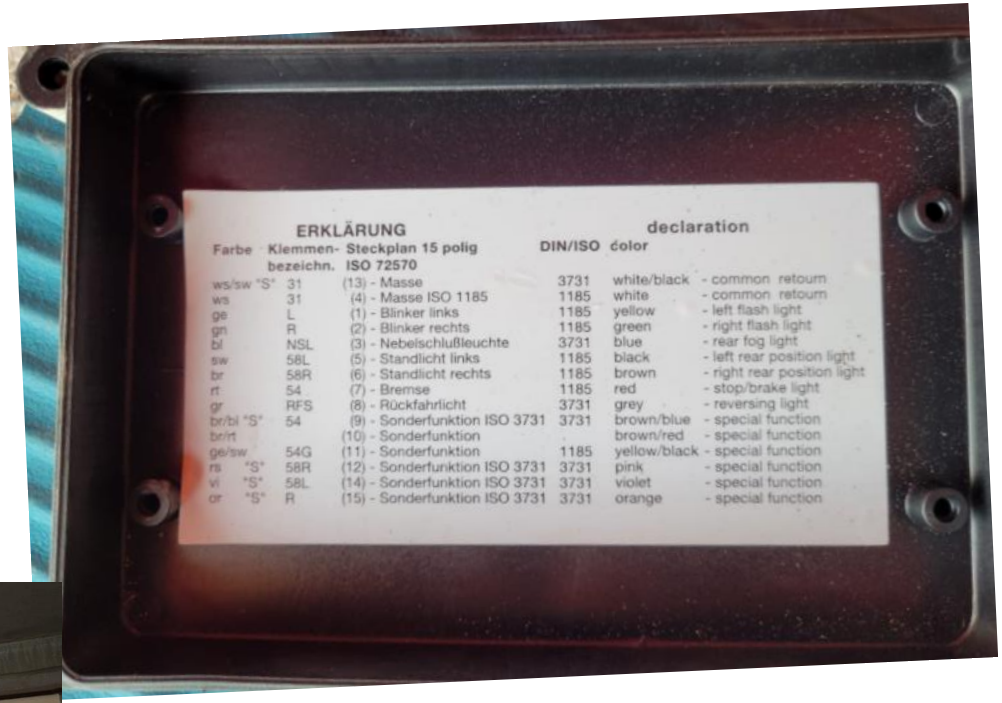


- Needs to be connected to power source only (e.g., directly to the battery, sidelamp, …).
- Harness can be trimmed.
- Do not forget to install the fuse.
- Position the unit in a way that there is as less objects as possible between it and the tires. Also avoid installation at/near moving parts.
- Mount the bracket with the two given screws and nuts on the vehicles' frame.
- Avoid drilling in frame.
- Place the Enabler Unit vertically on the bracket as shown in the picture.
- The harness must look up.
- The antenna area (where the round breather is) must face the street.
- During installation, the unit will need to be powered for configuration. Make sure to have a power source available (12-24V) if the trailer can not be powered externally (by a truck, etc…)

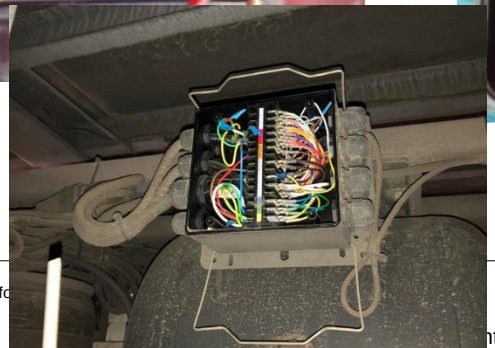
Trailer
Power box



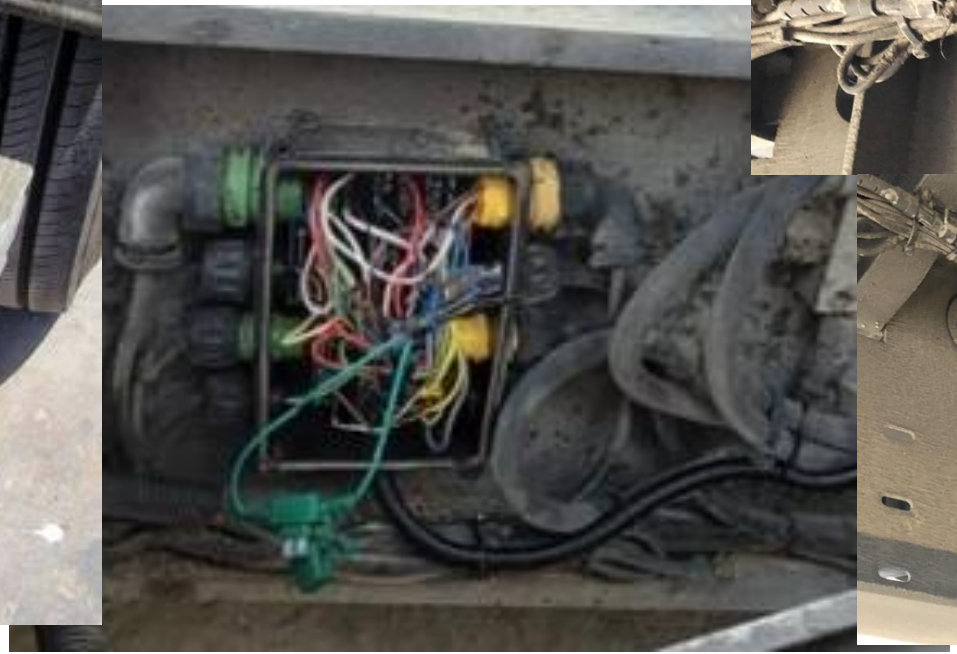
Trailer Unit



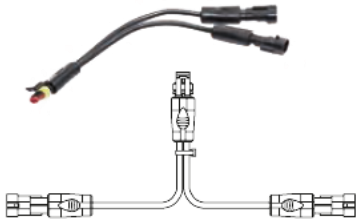
ERKLÄRUNG			declaration	
Farbe	Klemmen-bezeichn.	Steckplan 15 polig ISO 72570	DIN/ISO	color
ws/sw "S"	31	(13) - Masse	3731	white/black - common retourn
ws	31	(4) - Masse ISO 1185	1185	white - common retourn
ge	L	(1) - Blinker links	1185	yellow - left flash light
gn	R	(2) - Blinker rechts	1185	green - right flash light
bl	NSL	(3) - Nebelschlußleuchte	3731	blue - rear fog light
sw	58L	(5) - Standlicht links	1185	black - left rear position light
br	58R	(6) - Standlicht rechts	1185	brown - right rear position light
rt	54	(7) - Bremse	1185	red - stop/brake light
gr	RFS	(8) - Rückfahrlicht	3731	grey - reversing light
br/bl "S"	54	(9) - Sonderfunktion ISO 3731	3731	brown/blue - special function
br/rt		(10) - Sonderfunktion		brown/red - special function
ge/sw	54G	(11) - Sonderfunktion	1185	yellow/black - special function
rs "S"	58R	(12) - Sonderfunktion ISO 3731	3731	pink - special function
vi "S"	58L	(14) - Sonderfunktion ISO 3731	3731	violet - special function
or "S"	R	(15) - Sonderfunktion ISO 3731	3731	orange - special function

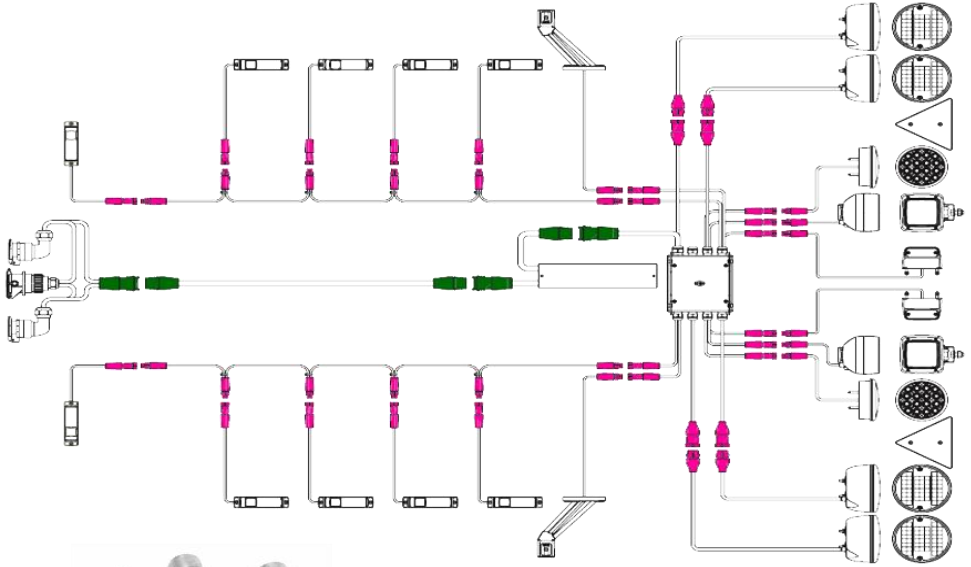


Trailer Unit



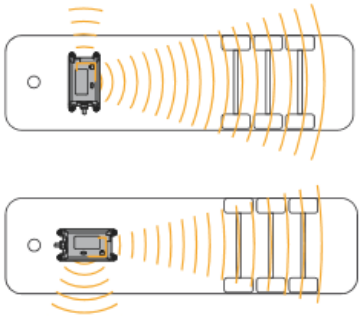
Trailer
Electric diagram

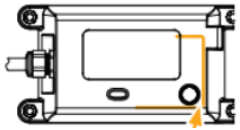


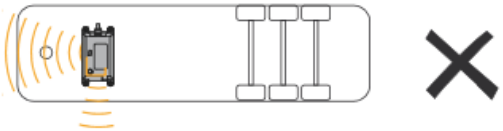


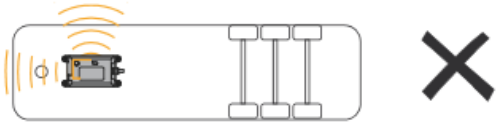
How to prepare -> check the trailer electric diagram (s. example above) and check where power can be taken from and which connector can be used

Trailer Unit installation

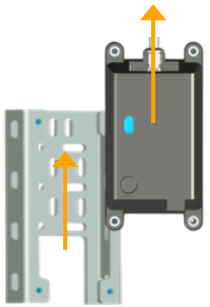








- DOs:
  - Placed where the radio signals (RF, GSM, GPS) are not weakened by metal parts
  - The antenna should face the tires for best possible reception
  - Bracket and Trailer Unit as well as harness must be properly fixed to avoid damage



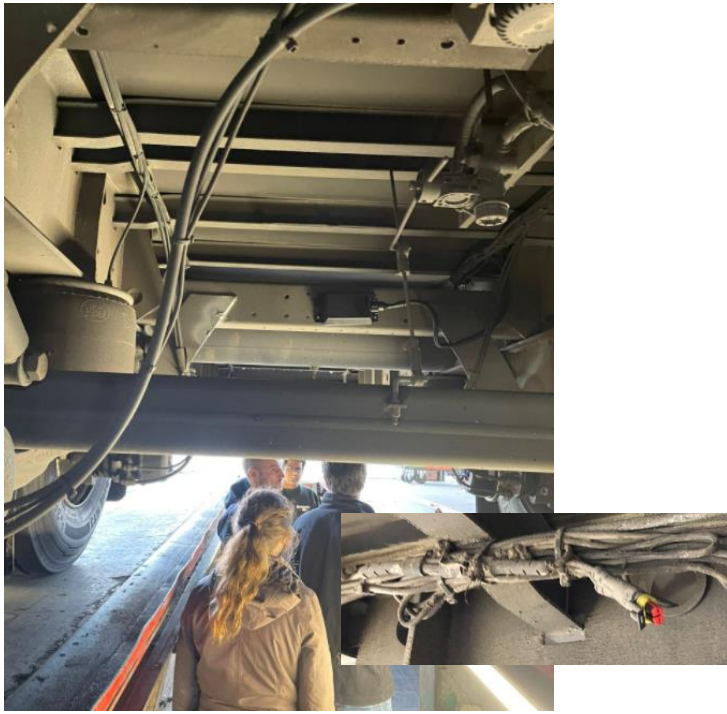
- DON`Ts:
  - Upside down orientation on the bracket
  - Close to moving parts (possible damage)
  - Surrounded by many parts (bad reception)

Installation Photos

In-Cabin Unit

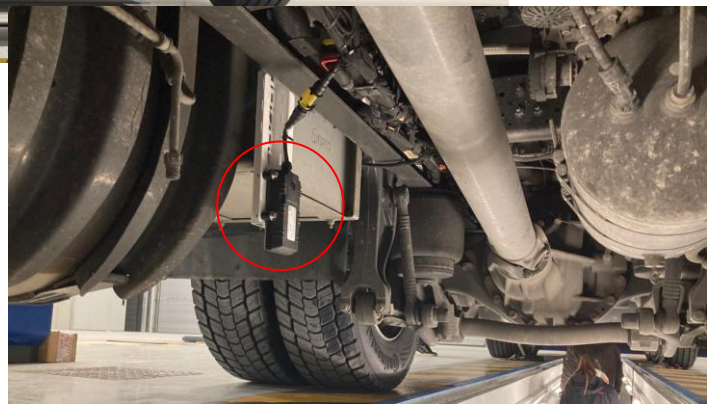
- Using the DTCO harness connecting “plug & play” to the Tachograph.
- Checking led signals for indication.

Trailer Unit



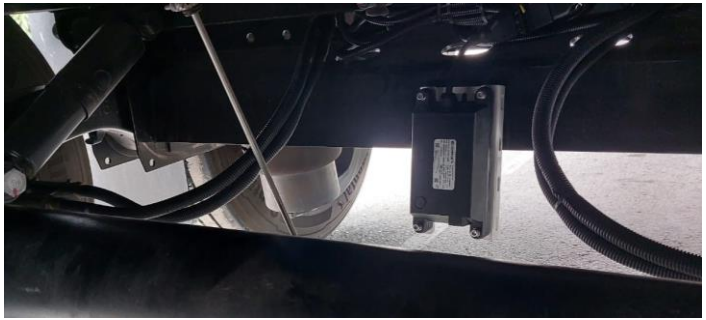
- Connecting the Trailer Unit to a power source, e.g. lights connector (make sure light is on permanently)

Enabler Unit



Checking LED signals for indication

Other Photos

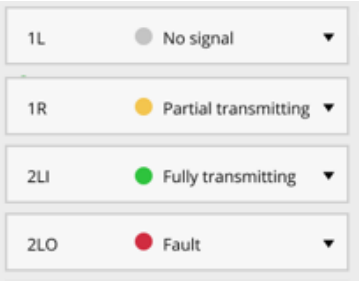


RSSI – Received Signal Strength Indicator

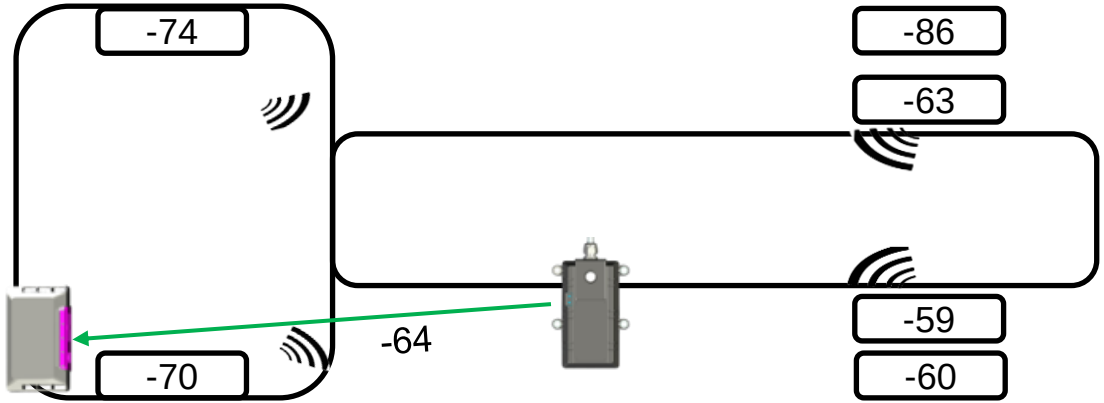
RSSI is the **R**eceived **S**ignal **S**trength **I**ndication) between components
It should not be less than -85 dB

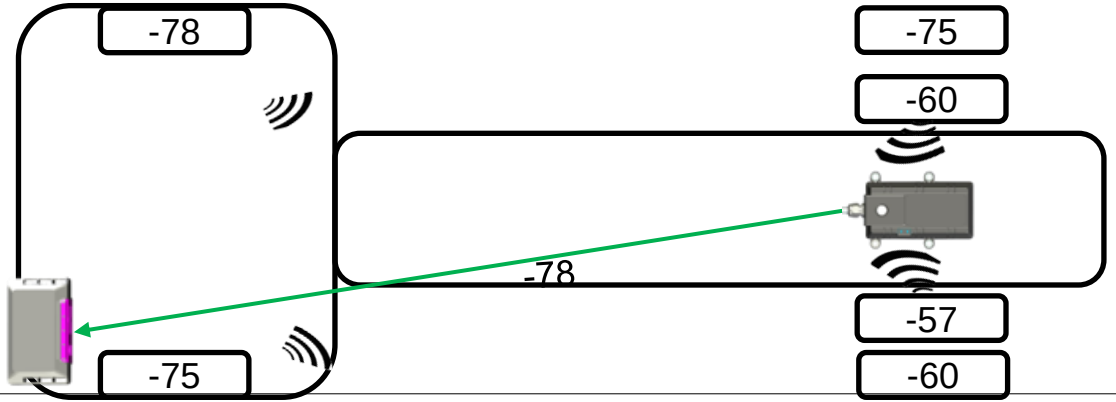
- Sensor → Enabler Unit
- Sensor → In-Cabin Unit
- Sensor → Trailer Unit
- Enabler Unit → Enabler Unit
- Enabler Unit → In-Cabin Unit
- Enabler Unit → Trailer Unit

(depending on your configuration via the Installer App)

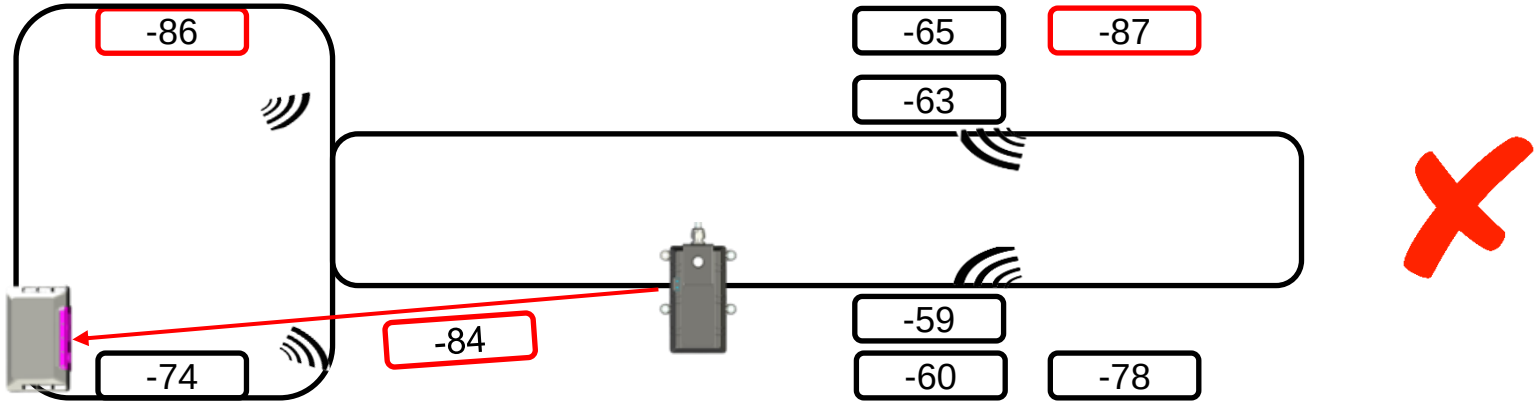


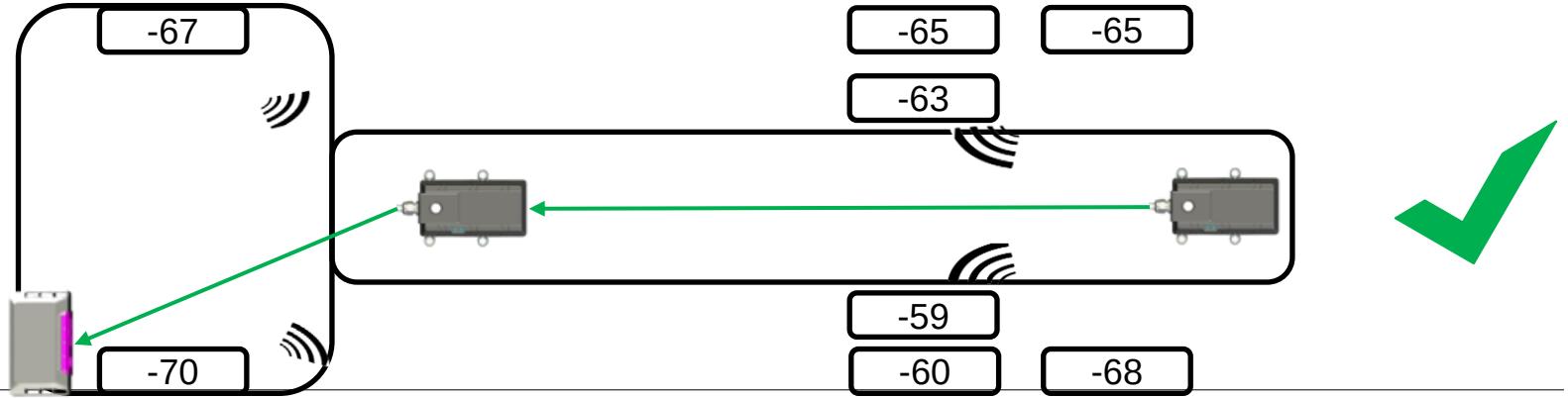
Enabler Unit – positioning

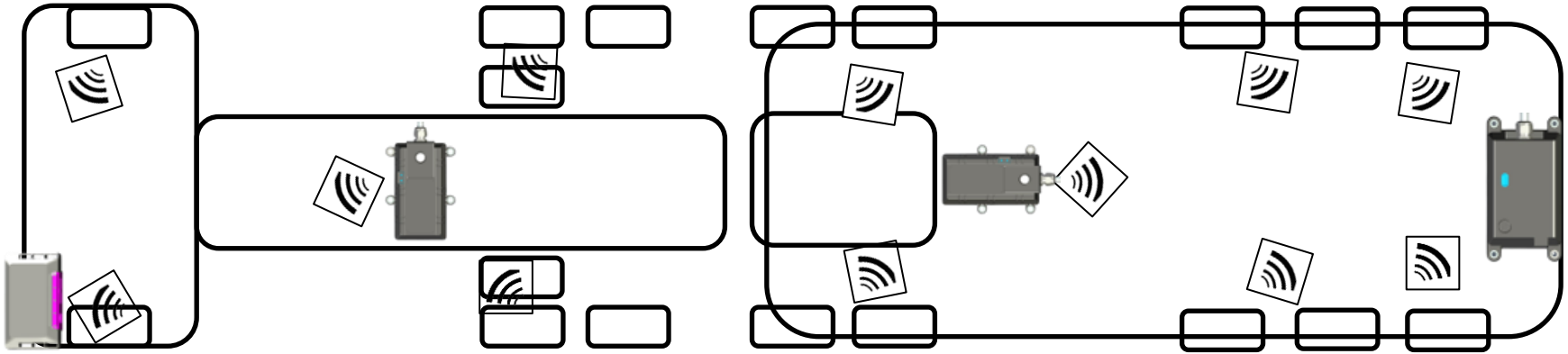




Adding an additional Enabler Unit (limited RSSI)







Installer App

The purpose of this app is to activate the units (start sending data to CoCo)
App name: **ContiConnect Installer**

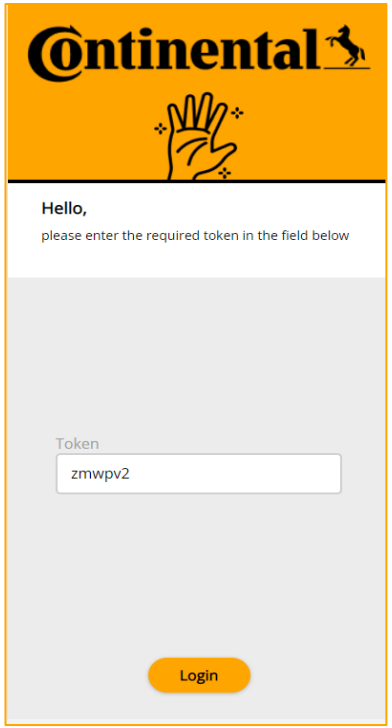
Get the App: https://apps.apple.com/de/app/conticonnect-installer/id1637378742
https://play.google.com/store/apps/details?id=com.traffilog.contiTechnician

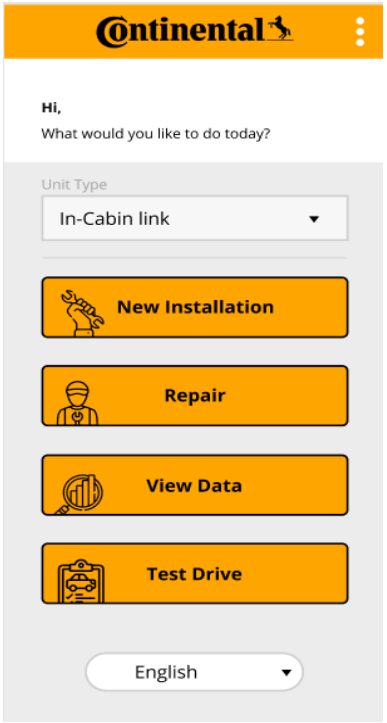
It can be used (optionally to checking CoCo) to verify your installation success and check if data is really been send to CoCo.
In addition, the reception strength (RSSI) can be checked per sensor/tire position.

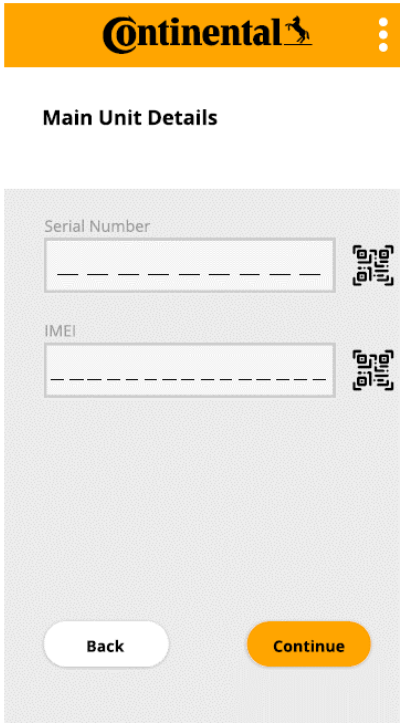
For Iphones the App needs to be set to trusted under settings (settings – general – device management)

For security reason the App requires an OTP (one-time password) autentification.

Installer App



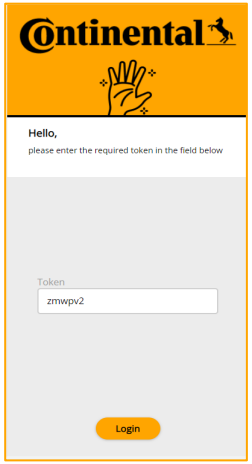


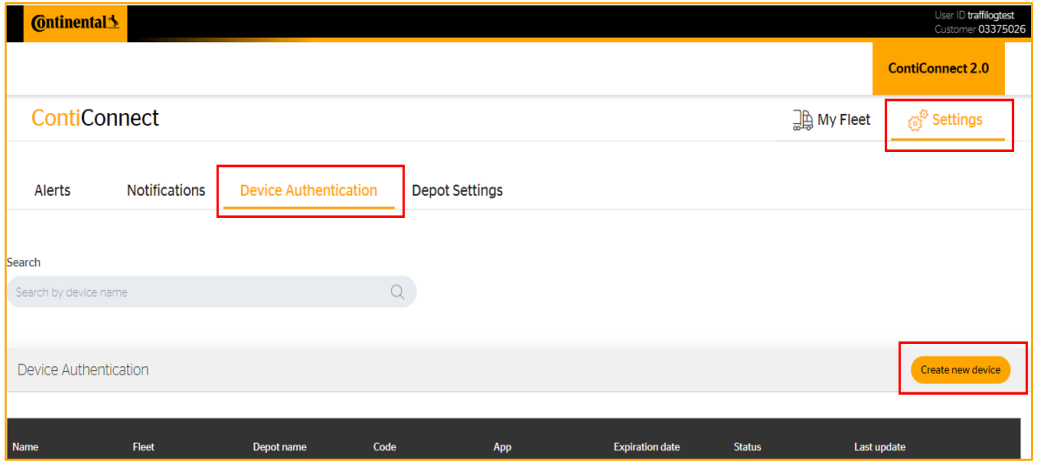


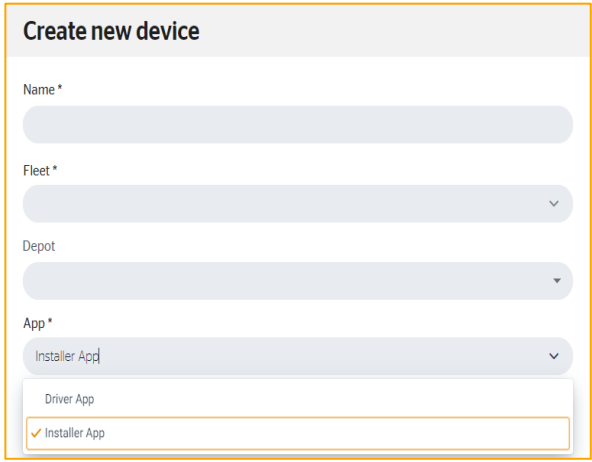
All vehicles and sensors must be uploaded into ContiConnect before installation!

(Data is been transferred each 5min. Please consider for the configuration or changes made in CoCo)

Installer App – Autentification



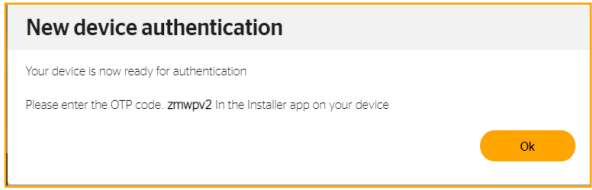




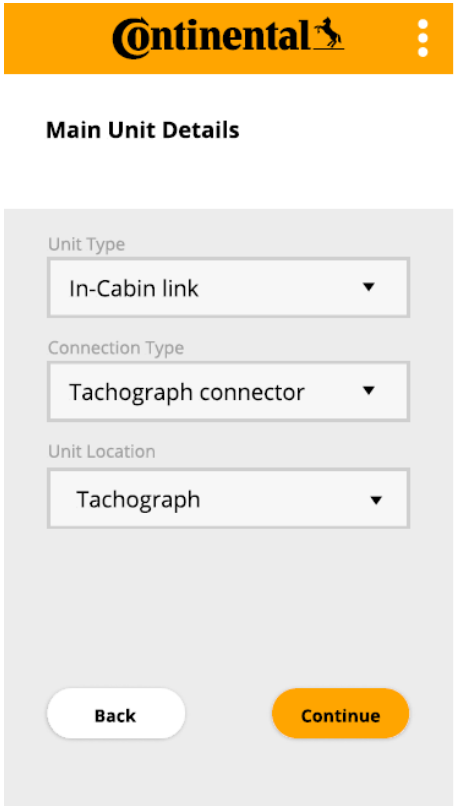
- A Token must be generated through the ContiConnect website
- Once the Token is obtained it's valid for 2 weeks of use and for one user only (or until the user logs out)
- The Token will not work for 2 different users or for the same user using 2 different devices.

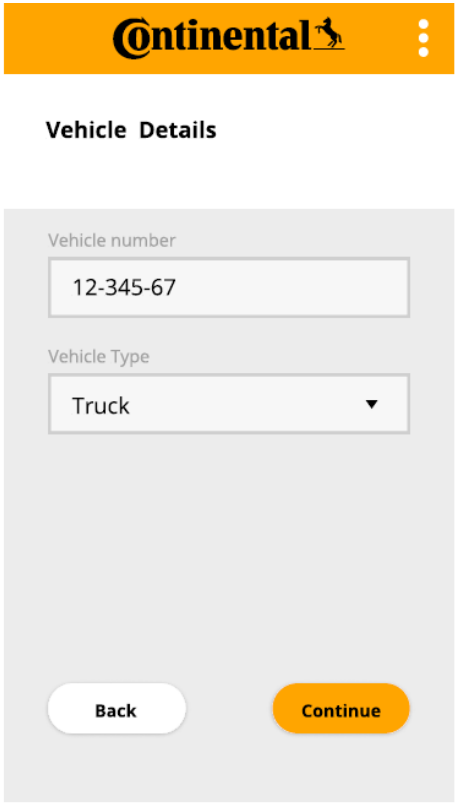
In CoCo:

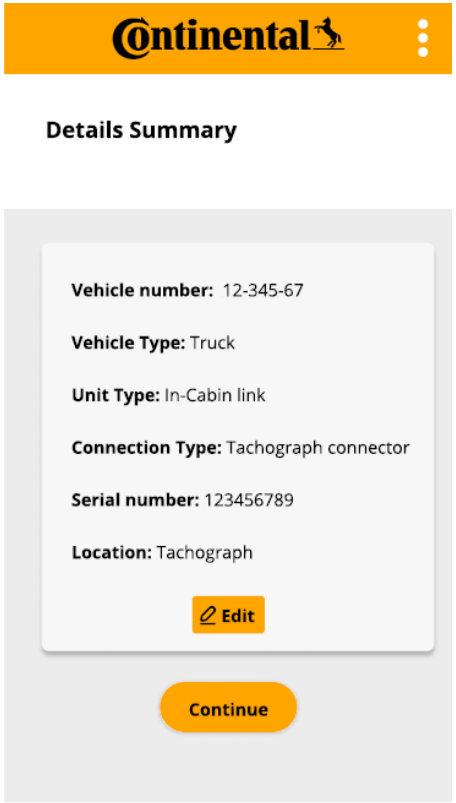
- Go to Setting
- Device authentication
- Create new device
- Enter your name
- Choose the Fleet name
- Choose the Depot name
- Choose the Installer App
- Once Saved you will have the Token at your use



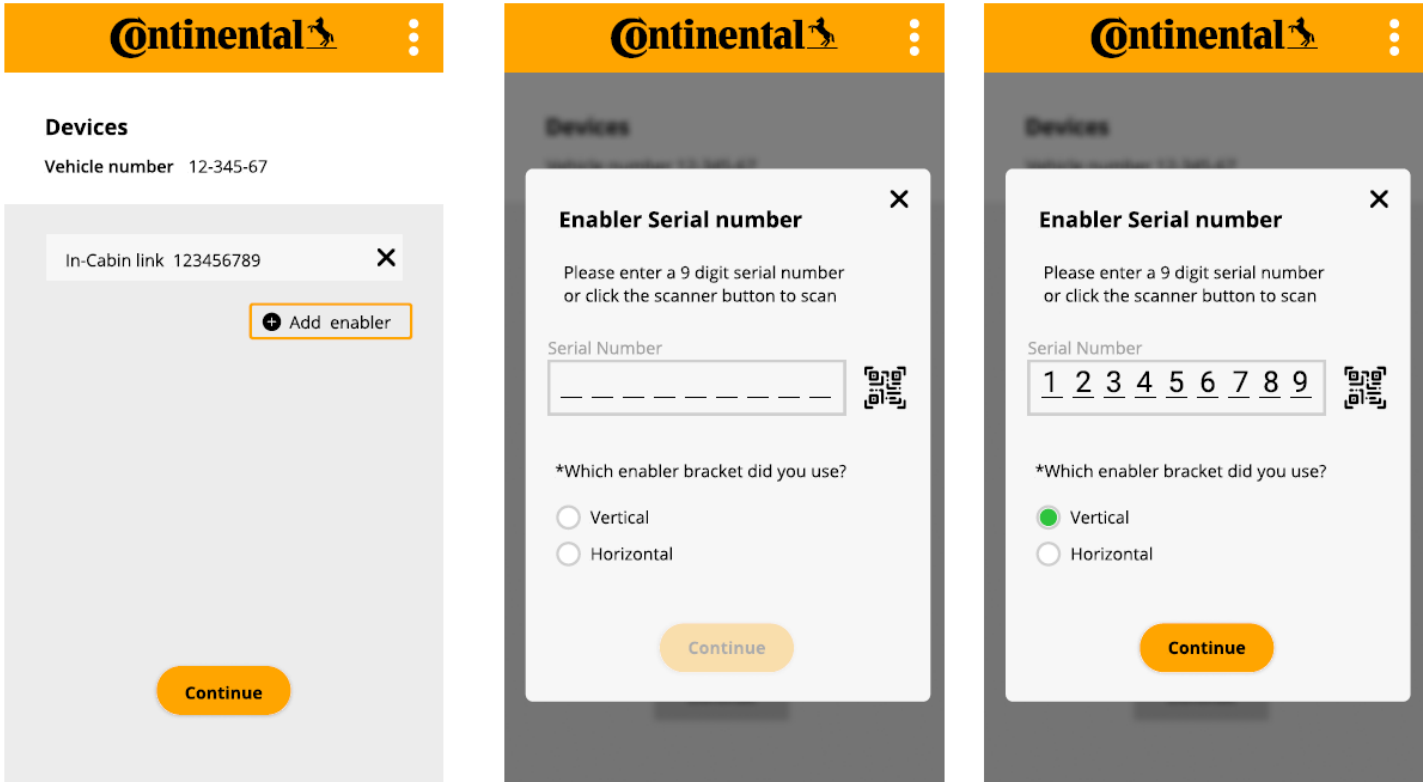
Installer App





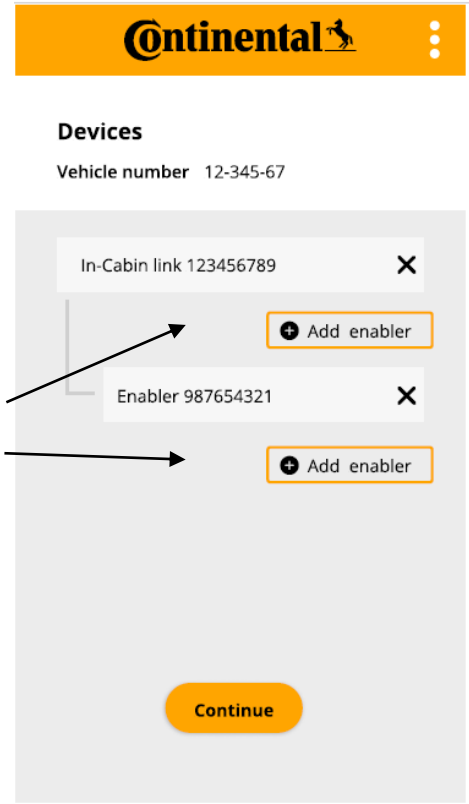


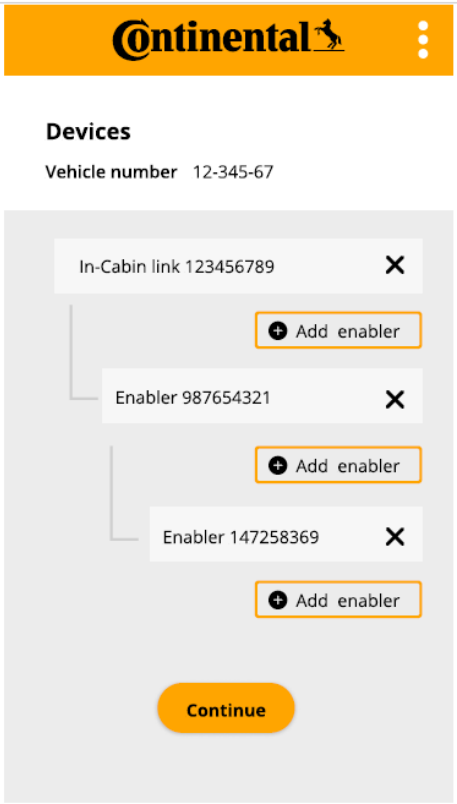
Installer App



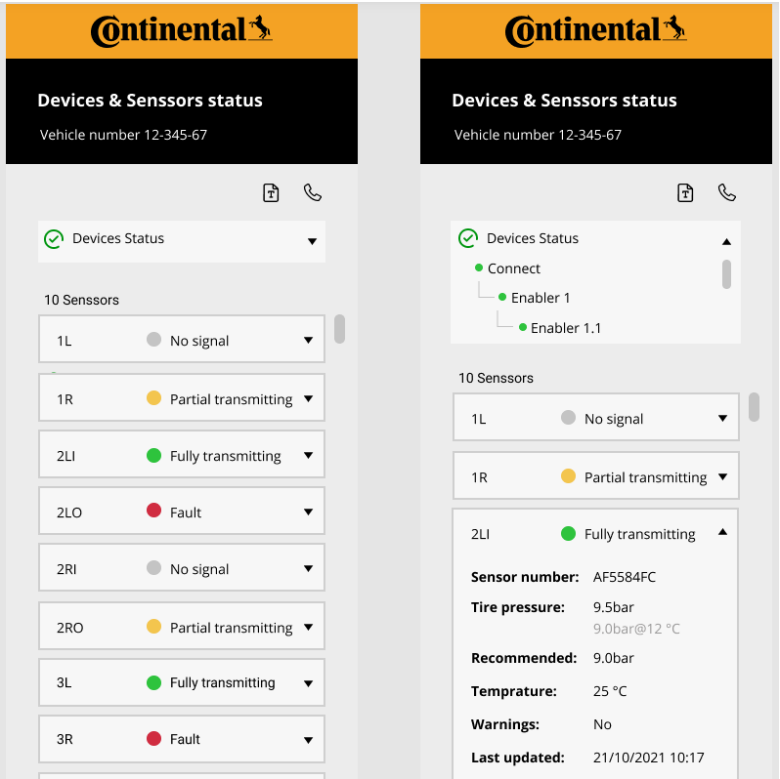
Installer App

Decide here if the 2nd Enabler shall communicate to the 1st Enabler or to the In-Cabin Unit (based on their positioning on the vehicle)

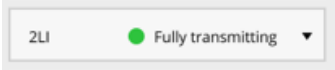




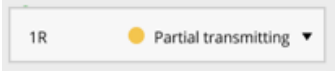
Installer App



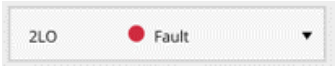
-> no set up done yet (default setting)



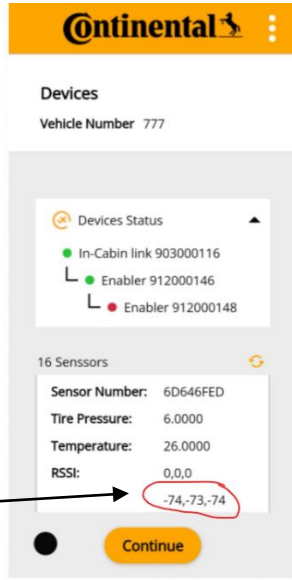
-> good reception, RSSI > -80db



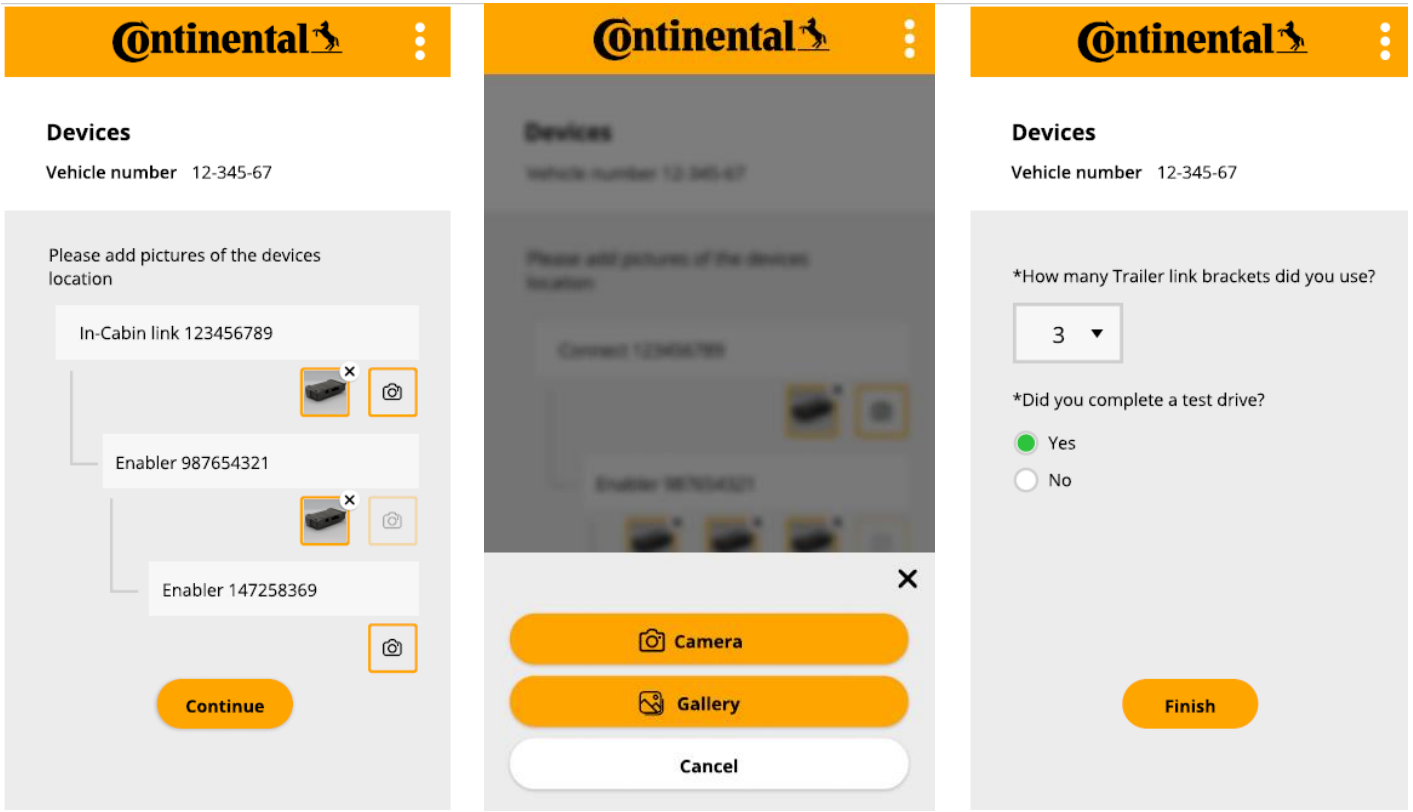
-> not optimal reception, RSSI < -80 db
-> Check the number of frames received from the sensor
-> Check RSSI during driving - If not all 3 frames were received –> consider relocating the unit



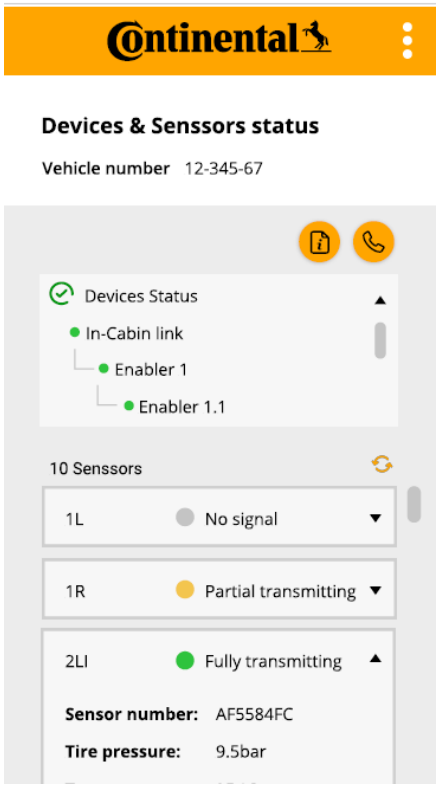
-> no signals received from the sensor in the last 5 minutes,
-> re-check configuration (vehicle installation and CoCo)

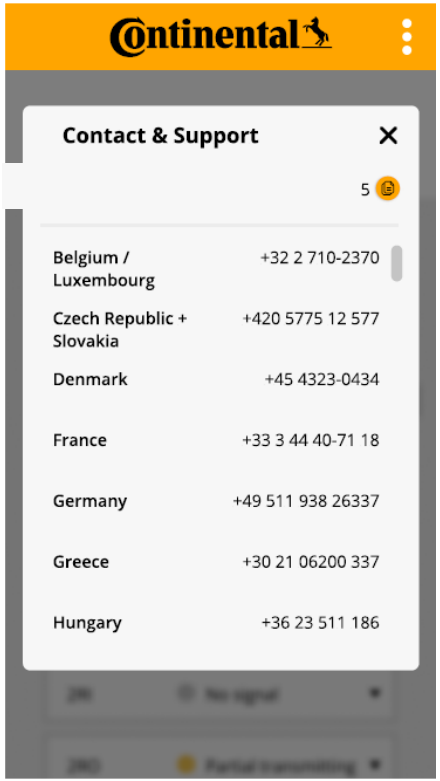


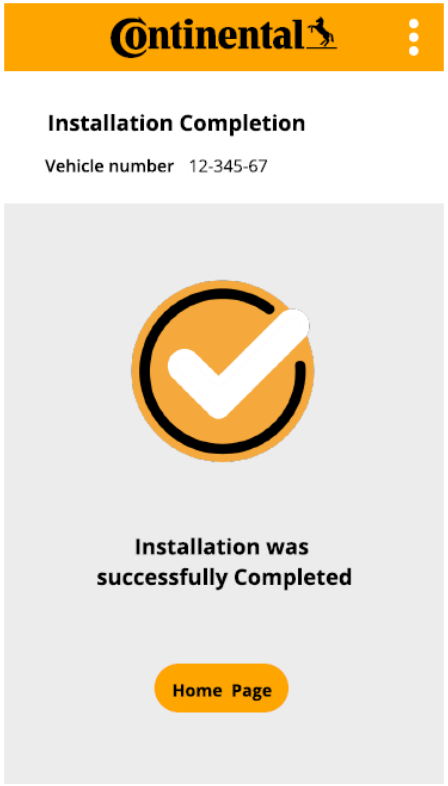
Installer App



Installer App





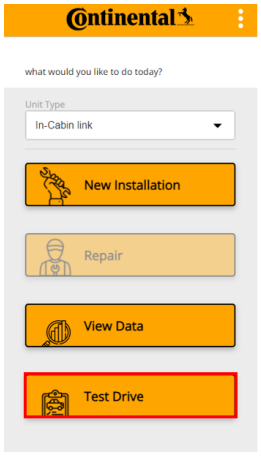


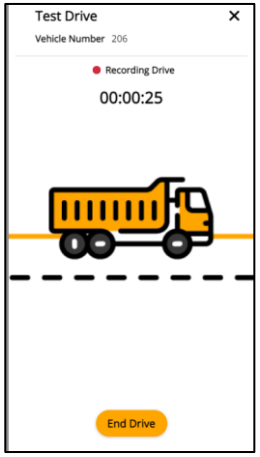
Installer App

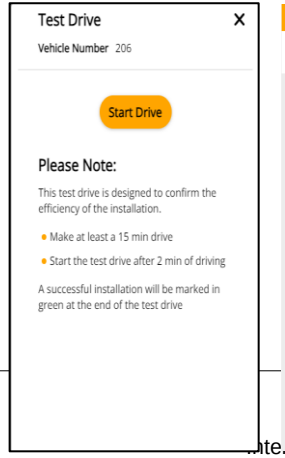
The test drive option is designed to give us the full picture of the installation:

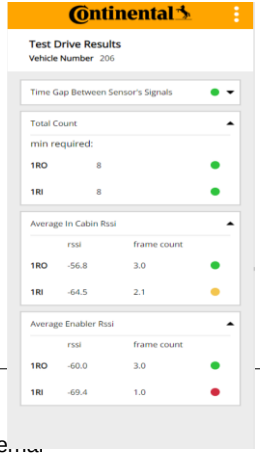
- The gap interval time between each sensor's signal (no more than 5 min.)
- The total sensor's signals count
- The RSSI (reception strength) of each sensor

The minimum drive time required is 17 min.
The data will be calculated after the first 2 minutes of driving (to prevent the high frequency signal at beginning of driving).
You can end the test by pressing the "End Drive" button.
A successful installation at the end of the test drive will be colored in green.









Time Gap between sensors: (KPI - Max 5 min interval)

Green - The time gap interval between each sensor were less than 5 minutes during the test drive.

Red – The time gap interval of at least one of the sensors was over 5 minutes during the test drive.

Total Count

The minimum required is the trip time -2min(beginning driving), divided to 5min (KPI)

(Example: Trip time =18 min, -2 min = 16 , divided to 5 = **3**)

Green – Above the minimum required.

Orange - Less than the minimum required but above 1.

Red – Less than 1

Average RSSI (and frame count) – In-Cabin/Enabler

Will calculate the average RSSI per sensor and the average Frame count per sensor.

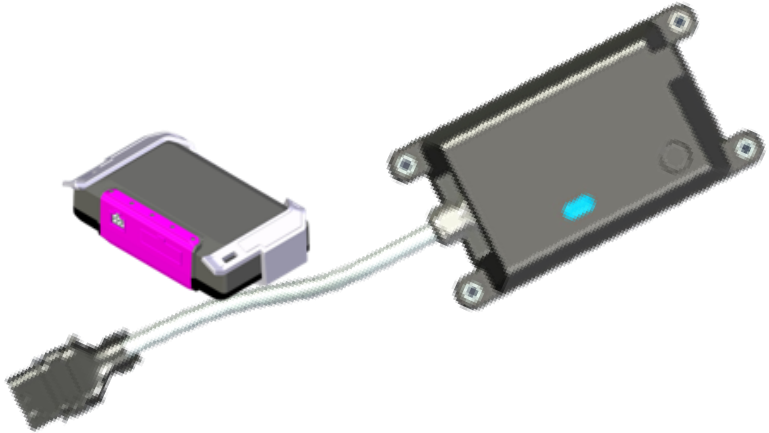
Green – Average RSSI >-80dB (will be change to -85dB) **and** no frame was missing (the average frame count =3)

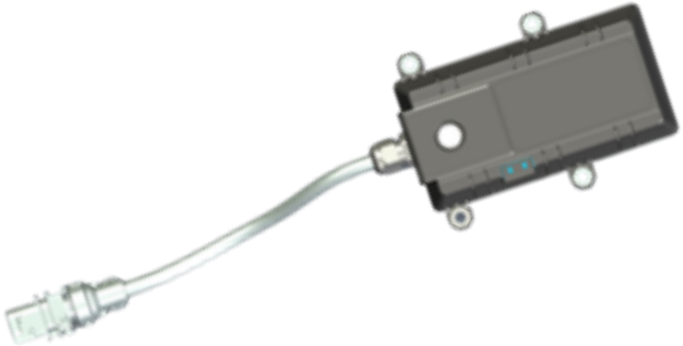
Orange -Average RSSI <-80dB (will be change to -85dB) **or** the average frame count was <3 and >=1

Red – Average RSSI not seen **Or** Average frame count < 1

Troubleshooting

Trouble shooting
LEDs



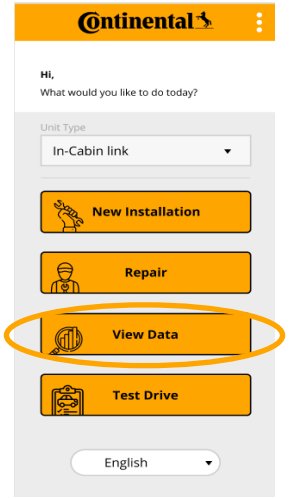


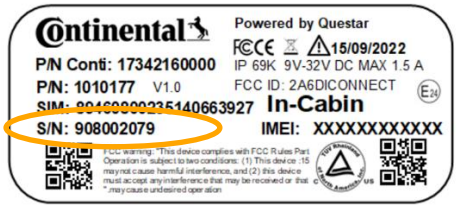
✳✳✳✳✳✳✳✳✳✳✳✳	Searching GPS signal
✳ 1 Sec ✳ 1 Sec ✳ 1 Sec ✳ 1 Sec ✳	GPS position established
✳✳✳✳✳✳✳✳✳✳✳✳	Searching GSM signal
✳ 1 Sec ✳ 1 Sec ✳ 1 Sec ✳ 1 Sec ✳	GSM connection established

**********	Searching for main unit
------------------*--1sec---*---------*	Connection established
-----------------------------*---------*	TPMS sensors indication

Trouble shooting
General

- The installation sequence should be followed and finalized before starting the actual trouble shooting.
- Please verify that all steps (page 4) have been followed.
- When a main unit is powered the red LED starts to blink fast. Once the internet connection is established it starts to blink slowly.
- With the installer App the devices can be checked (Enabler Unit via the main device serial no.) if configurated and powered.





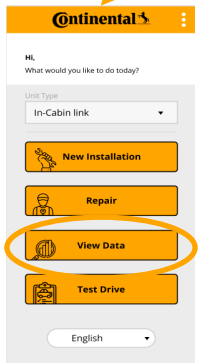
7 September 2023

Trouble shooting
Main units (In-cabin and Trailer Unit)

Ground/ Minus | **Power (+)**

START

Check unit with Installer App (View Data)



no → **Check if the unit is powered – Red LED blinking?**

yes → Wait up to 10 minutes after power on → Red LED flashes slowly (1/second)?

yes → Unit OK, open SW incident ticket (LKU)

no → SIM connection not OK, move vehicle to a better coverage area and retry → Red LED flashes slowly (1/second)?

yes → Red LED flashes slowly (1/second)?

no → Exchange unit

no → Check power supply at fuse/harness to unit: 12-24V?

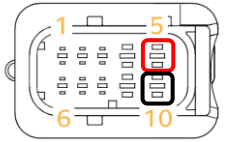
yes → Check fuse and remeasure. If still not OK: exchange unit

no → Check power supply at vehicle source side of harness: 12-24V?

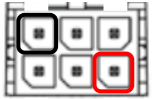
yes → Change harness

no → Change power source

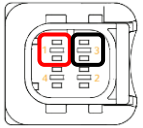
Trailer harness



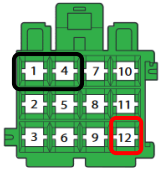
In-cabin port



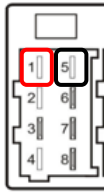
Enabler harness



FMS



DTCO

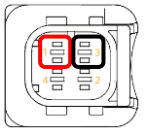


Trouble shooting Enabler Unit

Ground/ Minus

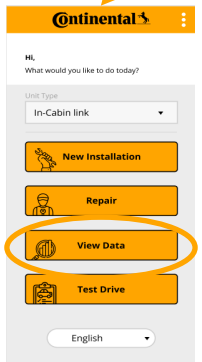
Power (+)

Enabler harness



START

Check unit with Installer App (View Data via main unit)



no

Check if the unit is powered – Red LED blinking?

yes

Wait up to 5 minutes after power on

Red LED flashes slowly (1/second)?

yes

Green LED flashing (= sensors received)?

yes

Unit OK, open SW incident ticket (LKU)

no

Check power supply at fuse/harness to unit: 12-24V?

yes

Check fuse and remeasure. If still not OK: exchange unit

no

Check power supply at vehicle source side of harness: 12-24V?

yes

Change harness

no

Change power source

no

Is the main unit working?

yes

Check configuration of units with Installer App

no

Troubleshoot main unit or install main unit and configurate system – working now?

no

Exchange unit

no

Sensors installed and configurated in CoCo to this vehicle?

yes

Exchange unit

no

Set up vehicle in CoCo and perform vehicle configuration